

Some pages of this thesis may have been removed for copyright restrictions.

If you have discovered material in AURA which is unlawful e.g. breaches copyright, (either yours or that of a third party) or any other law, including but not limited to those relating to patent, trademark, confidentiality, data protection, obscenity, defamation, libel, then please read our [Takedown Policy](#) and [contact the service](#) immediately

Studies in the Marketing Strategy of a

U.K. Producer of Conveyor Belts

Robert William Sabin

A thesis presented for the degree of
Doctor of Philosophy at the
University of Aston in Birmingham.

July 1980

Studies in the Marketing Strategy of a
U.K. Producer of Conveyor Belts

Robert William Sabin

Doctor of Philosophy, 1980

Research was undertaken in the field of marketing strategy, its formulation and implementation in Dunlop Belting Division. Emphasis was placed on marketing channel strategy, but other strategies including product strategy were studied. The research has resulted in changes in management practice in the client organisation. The relevance of theories of company organisation, planning and strategy, and marketing channels was examined in the light of the research evidence. The technique of action-research was used to gain admittance to and effect change within the client organisation. Case study material was collected for subsequent analysis. The factors affecting marketing strategy formulation in the client organisation were studied. Both the external and the internal business environments were considered. The operation of the observed marketing channels was compared with channel theory. Market segmentation and penetration, and the selling and technical resources of the channels were analysed. Recommendations were made to (a) enlarge and resite the client's distribution unit to locate it centrally in England (b) use the resited unit to secure local advantage (c) obtain greater integration of field sales activities with and from the centre. A new ex-stock distribution unit was established. Improvements to the client's ex-stock marketing in Scotland were also recommended, including improvements to the Scottish distributor's stock control procedure, as well as to Dunlop-Distributor relationships at all levels. The influence of company organisation structure and formalised procedures and systems on the formulation of strategy were considered with respect to channel and product strategy, and other aspects of marketing. Conclusions were drawn that the action research resulted in successful implementation of agreed changes in the client organisation; that theories of strategy formulation and planning, of the operation of decentralised companies, and of industrial market segmentation required modification; that the theory of marketing channels was found relevant and useful.

ACTION RESEARCH: CONVEYOR BELTS: DECENTRALISATION:

MARKETING CHANNELS: MARKETING STRATEGY

Acknowledgements

Thanks are due to my colleagues in Dunlop, particularly in the Sales Department of Belting Division, who supported me in this research. I am also indebted to Mr. W.A. Winkfield of the Acre Rubber Company Limited for his assistance in that part of the work covered in Chapter 5.

The encouragement of my university supervisors, Nick Woodward, Dr. David van Rest and Robert Harrison, was invaluable not only during the research but also in the writing of the thesis.

I am especially grateful to Mrs T. Reid of Belting Division, who throughout the project managed to fit my demands for typing into her busy workload.

Contents

	<u>Page</u>
Chapter 1	
<u>The Research Project</u>	
1.1. Introduction	1
1.2. The IHD Scheme	1
1.3. Action Research	2
1.4. Start of the Project	10
1.5. Defining the Project Work	13
1.6. A Framework of the Research	16
1.7. Stage by Stage Progress	19
1.8. Changes in the Business Environment	23
1.9. Summary	25
Chapter 2	
<u>Marketing, Marketing Strategy and the Conveyor Belt Market</u>	
2.1. Marketing	27
2.2. Marketing Strategy	31
2.3. Conveyor Belts: The Product	33
2.4. Conveyor Belts: Market Segments and Supplier Differentiation in the U.K.	37
2.5. The Rubber Conveyor Belt Market in the U.K. : Analysis of Demand	44
2.6. Segmentation by User Industry	51
2.7. The Competitive Dimension in the U.K. Market for Rubber Belts	55
2.8. Summary	61

	<u>Page</u>
Chapter 3	
<u>Marketing Strategy: Its Formulation and Implementation in Dunlop Belting Division</u>	
3.1. Introduction	63
3.2. Strategy-Making	64
3.3. The Dunlop Company: Growth and Structure	67
3.4. Dunlop Belting Division: Structure and Strategy	79
3.5. Marketing Resources in Dunlop Belting Division	88
3.6. Summary	98
Chapter 4	
<u>The Marketing Channel</u>	
4.1. Introduction	99
4.2. Definition of the Marketing Channel	100
4.3. Channel Functions	102
4.4. Channel Organisation	104
4.5. The Marketing Channel - Summary	107
4.6. Service Outputs and Functions in the Conveyor Belt Marketing Channel	109
4.7. Channel Organisation for Conveyor Belt Marketing	114
4.8. Dunlop Belting Division's Marketing Channels	121
4.9. Summary	124

	<u>Page</u>
Chapter 5	<u>The Independent Distributor</u>
5.1.	Introduction 126
5.2.	The Place for Independent Distributors 126
5.3.	The Acre Rubber Co. Limited 130
5.4.	The Manufacturer/Distributor
	Working Relationship 132
5.5.	The Acre Rubber Co. Limited - Summary 143
5.6.	T.E.K. Rubber & Asbestos Services Ltd. 144
5.7.	Summary 147
Chapter 6	<u>Ex-Stock Distribution from Company Facilities</u>
6.1.	Introduction 149
6.2.	Development of In-Company Ex-Stock Sales 151
6.3.	The Potential Market in the North 157
6.4.	Definition of Sales and Distribution
	Requirements 159
6.5.	General Proposal Outlined and Discussed 166
6.6.	Appraisal of Costs and Benefits 168
6.7.	A Sanction is Raised and Progressed 172
6.8.	Implementation and Completion 175
6.9.	The Project Time-Scale 176
6.10	Summary 188
Chapter 7	<u>Aspects of Product Strategy</u>
7.1.	Introduction 190
7.2.	Product Strategy in Dunlop Belting 192
7.3.	The Orientation and Organisation of
	Innovation 197

	<u>Page</u>
7.4. Marketing a New Type of Conveyor Belt	199
7.5. The Role of Marketing	203
7.6. Summary	207
Chapter 8 <u>Conclusions</u>	
8.1. Introduction	212
8.2. Summary of Conclusions	213
8.3. Divisionalisation	215
8.4. Strategy and Decision Making	219
8.5. Marketing Channels	224
8.6. Market Segmentation	235
8.7. Suggestions for Future Research	237
<u>Appendixes</u>	
Appendix A <u>The Scottish Market</u>	239
A.1. Introduction	241
A.2. Recommendations	241
A.3. The Dunlop-Acre Working Relationship	242
A.4. Evaluation of Direct vs Distributor Sales	250
A.5. Analysis of Acre's demand for belting	252
Appendix B <u>The Acre Rubber Co. Ltd, Recommendations for Slab Ordering</u>	253
B.1a Summary of Proposals	255
B.1b Demand for Key Specifications	257
B.2a Sample Stock Card	258
B.2b Implementation	261

	<u>Page</u>
Appendix C <u>The Conveyor Belt Market in N.E. Scotland</u>	263
C.1. Introduction, and description of, the study	264
C.2. Summary of Results	267
Appendix D <u>Location of a Northern Depot</u>	272
D.1. Objectives	275
D.2. Method	275
D.3. Summary of Conclusions and Recommendations	275
D.4. The Pattern of Dunlop Business, Customer Industries in the North, and Estimates of the Belting Market	276
D.5. Possible Strategies	283
Bibliography	286
Appendix E Depot-Seeking Tour 24th and 25th Sept. 1974	288
Appendix F Sanction Application, Final Version	291
Appendix G New Product Strategy - extracts from a discussion paper	298
<u>Figures</u>	
1.1. Flow Chart of Managerial Behaviour	9
1.2. Stage by Stage Progress of the Project	20
2.1. Bulk Handling by Belt Conveyor: Major U.K. Applications	38
2.2. The U.K. Conveyor Belt Market: Supplier/ Applications Segments	40
2.3. Estimated Market for Rubber Conveyor Belts 1974	45
2.4. U.K. Consumption of Rubber for Conveyors	46
2.5. U.K. Production of Various Customer Industries for Conveyor Belts	47

	<u>Page</u>
<u>Figures</u> (cont'd)	
2.6. Indices of Production for Three Major Segments of the Rubber Conveyor Belt Market	48
2.7. Segmentation of the U.K. Rubber Conveyor Belt Market 1973/74	53
2.8. Segmentation of Dunlop Belting Division's Business	53
2.9. Suppliers Responses to Market Trends	58
3.1. Dunlop Organisation Structure	69
3.2. Features of a British Related Product Company	72
3.3. The Structure of Dunlop Belting Group	80
3.4. Product-Market Scope for Plied Rubber Belts within Dunlop Belting Group	81
3.5. Quarterly Indices, 1970-77 for Rubber Covered Conveyor Belt Orders, Production and Quoted Deliveries in Dunlop Belting Division	85
3.6. Segmentation by Purchaser of D.B.D.'s Business in Rubber Conveyor Belts	88
3.7. The Marketing Mix: Functional Content in Dunlop Belting Division	90
3.8. Pricing/Market Segment Mix	93
3.9. The Sales Budget - Dunlop Belting Division	97
4.1. Factors for Marketing Channel Analysis	108
4.2. The Determination of Service Output Levels	110
4.3. Service Output Requirements for Four Market Segments	111
4.4. Functional Cost Elements in the Conveyor Belt Marketing Channel	112
4.5. Conveyor Belt Distributors in U.K.	118

	<u>Page</u>
<u>Figures (Cont'd)</u>	
5.1. Strengths and Weaknesses of the Industrial Distributor	129
5.2. Dunlop Belting Sales in Scotland 1965-1974	139
5.3. Frequency Distribution, By Length, for Ex-Stock Orders	140
6.1. Strategic Choices for Dunlop Belting Division	161
6.2. Distribution Depot: Outline Specification	165
6.3. First Cost and Revenue Estimates: Depot Proposal	167
6.4. Hierarchy of Decision Making	178
6.5. The New Distribution Centre. Summary of Activity Leading to Decision to Implement Proposal	180
7.1. Extracts from Statements of Strategy Relevant to the Project Period	191
7.2. Hypothetical Life-Cycles for Rubber Conveyor Belts of Different Carcase Materials	194
7.3. C.E.M.A. Table of Material Characteristics	205
7.4. 10 New Products Decision Areas for the Marketing Function	208
7.5. Classification of Products by Nine Characteristics	209
8.1. Distribution of Business by Industry Segment	228
8.2. Changes in Volume Ordered by Industry Segments mainly supplied Ex-Stock	229
8.3. Throughput of Orders via Ex-Stock Depots	230

	<u>Page</u>
<u>Figures (cont'd)</u>	
A.3.1 Dunlop turnover to various market segments	242
A.3.2 Total market turnover to various industry groups	243
A.3.3 Estimated market shares in Scotland	248
D.4.1 Distribution of Sales by Industry in the North 1972 and 1973	277
D.4.2 Turnover to Sand and Gravel and Quarrying - the North and the rest of England compared	278
D.4.3 Turnover to General Manufacturing Industry - the North and the rest of England compared	278
D.4.4 Proportion of Quarries, Pits, etc., in the North	280
D.4.5 Cement and R.M.C. production	282
D.4.6 Comparison of estimated Dunlop market share in the North with Dunlop market share in U.K.	283
 <u>Illustrations</u>	
Dunlop Belting Services, Wolverhampton: interior	232
Dunlop Belting Services, Wolverhampton: exterior	233
Dunlop Belting Services, promotional items.	234
 List of References	 311

CHAPTER 1

THE RESEARCH PROJECT

1.1. Introduction

In the following chapters the U.K. market for conveyor belts is examined, with particular reference to the Dunlop Company. This perspective is then narrowed to an examination of Dunlop Belting Division's operations and organisation. In this chapter I cover the initiation, method and style of the research and the research environment. I conclude with an opinion on how these combined to influence the final outcome.

1.2. The I.H.D. Scheme

The Interdisciplinary Higher Degree Scheme at the University of Aston was created to provide an industry-based postgraduate qualification, by setting students to work in organisations in which the research would be of practical value, and to make use of studies from any relevant discipline which would contribute to the practical solution of the research problems. Students are sponsored by organisations outside the University to work on problems of concern to those organisations, often within their actual operations. As a consequence, the scheme serves also as a recruiting and training ground for both private and public organisations.

Any postgraduate student on the IHD Scheme has to work in two

constituencies, and in many cases the sponsoring organisation is the student's direct employer. Where the priorities and values of the two parties differ, and/or change, this can have an important influence on the scope and progress of the work. Furthermore, the student may have an ambiguous role in his sponsoring organisation, expected both to subscribe to the process of decision making and also treated as an outside consultant. While providing scope for freedom and initiative, it can also create difficulty in establishing the relationships of co-operation and trust necessary to be practically effective.

1.3. Action Research

This research may be loosely termed 'action research', although certain features make it distinctly different from the conventional usage of this term - as will be commented on later. The term 'action research' is generally found within the social sciences. Susman and Evered (1) report it to have been introduced by Kurt Lewin in 1946 "to denote a pioneering approach toward social research which combined generation of theory with changing the social system through the researcher acting on or in the social system". In the late 1940s this application of the social sciences to social reform began to be promoted by members of the Tavistock Institute, including A. Curle who wrote (2) that action research "aims not only to discover facts, but to help in altering certain conditions experienced by the community as unsatisfactory". Action research combines the development of solutions to problems in 'real' situations with research that takes place in the same situations; the research is oriented not just to

the solution of the specific problems but also to general theory. Rapoport's definition (3) states the combination of activity as follows: "Action research aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework".

Most of the literature available is concerned with the application of the social sciences in community work. Where action research in industry is reported (e.g. by the Tavistock Institute) it is in fields such as organisational behaviour or employee relations in which there are direct links with the social sciences and behavioural sciences. The use of action research in the functional areas of marketing, production, etc., where the problems may be stated in the appropriate technical disciplines seems not to have been so well developed or reported. The IHD Scheme has adopted much of the methodology of action research for use within these more technical fields and along with it the dilemmas which writers from the social sciences have described.

In the literature, action research has several parallels with consultancy. The researcher is often referred to as the consultant and other terminology common to both includes practitioner, client, client system, problem diagnosis, remedial action and so on. In other words, the expert (doctor) is characterised as interacting with the client (patient) to diagnose a problem (illness) which has occurred. A course of treatment is recommended to restore health.

Lippitt (4) examined the role of the consultant whom he saw as helping to clarify "images of potentiality" rather than alleviating present pain. A successful process of consultation, according to Lippitt, ends with three features:

- (a) the organisation has learned to cope more adequately with the problem or problems which initiated the consulting process,
- (b) the organisation has learned how to function more adequately in clarifying future problems as they emerge and to make appropriate decisions about seeking outside help when needed,
- (c) the organisation has learned new procedures and new types of organisation to help it maintain a healthy state of changeability in adapting to changing conditions and in utilising potentialities for creative improvement in group functioning and productivity.

Action research differs from the consultancy process in its action or implementation phase which may or may not be part of the consultant's brief. Clark (5) wrote that action research differs from applied research because the latter does not contribute to the solution of theoretical problems. According to Clark action research "must possess an aspect of direct involvement in organisational change, and simultaneously it must provide an increase in knowledge"; action research is "an activity that links the separate interests of scientists, practitioners and sponsors; it tackles the theoretical questions arising in the basic discipline and multidisciplinary areas

simultaneously with the practical problems of sponsors".

Jenks (6) states that "social scientists must ask themselves whether the purpose of their research is (a) to find out something, (b) to change something, or (c) to do both". Action researchers, said Jenks, do research for several purposes:

- "(1) to demonstrate the validity of their theoretical hypotheses about organisations,
- (2) to obtain a diagnosis of the state of affairs in the organisation on particular dimensions,
- (3) to test the impact of change(s) on the organisation,
- (4) to clarify and show directions toward solution of practical problems,
- (5) to help the organisation see directions for adaptive change and growth and to provide data on the organisation's movement in those directions".

Several writers have drawn attention to the conflicts which occur when the researcher is required to serve the separate needs of the various participants in the client group. Lees and Smith's collection of essays (7) about action research in community development projects highlights examples of researchers caught between the conflicting demands of local residents, local authorities and university based researchers. Lees (8) warned that the action researcher "is likely to expose to criticism the activities of established administrators and other decision makers, at the same time as trying to improve the effectiveness of their decision making

by personal contact."

Lippitt (9) also warned that the subgroups in the client system are not necessarily in agreement. "Beware of becoming trapped", wrote Lippitt, "into a special relationship with one of the subgroups which makes it difficult to move into a relationship with other subgroups and with the total client system."

In the action research referred to so far, the assumption of the writers has been that an expert practitioner is introduced to a situation in which he deploys a number of his skills including the adaptation of previously developed models to generate a suitable outcome. In the action research undertaken within the IHD scheme, the development of such a model is typically only possible in retrospect. The IHD student is learning some of the skills during his research which action researchers in more conventional projects are assumed to possess at the inception of the research. The IHD student must propose a model as a way of making sense out of what has happened to and around him: and such ex-post perceptions are susceptible to even more methodological criticism than conventional action research.

Action research is typified according to Perrow (10) by a 'fluid' relationship between the practitioner and client. "In instances where the problem definition is general and subject to redefinition, and the 'raw material' (i.e. the problem) of the action research is full of exceptions and judgemental search processes, then the relationships would be typified by loose and changing definitions

of roles."

Research methods of observation and data collection (keeping diaries; gaining access to historical records, etc.) have been developed to provide a consistent basis for the work in such conditions. Procedures for acceptance and integration into organisations have also been developed and these enable the researcher to overcome organisational blocks of various kinds. In this project, formal project team meetings, interim project reports, reports produced internally for the client (Dunlop), acted in various ways to bring about acceptance of the researcher. There can be a considerable element of experimentation with the researcher's own role; one aim of this experimenting is to establish practical operating conditions.

The process of action research can be seen as a sequence of phases as in W.F. Pounds' article 'The process of problem finding'(11). Problem finding, according to Pounds is "the process of defining differences. Problem solving is the process of selecting operators (elements of managerial activity) which will reduce differences A basic function of an organisation structure is to channel problems which are identified by its various members to individuals especially qualified to solve them." Pounds proposes a flow chart (Fig. 1.1.) to amplify these statements.

*Medical
Only!*

Susman and Evered (12) view action research as "a cyclical process with five phases: action planning, action taking, evaluating, and specifying learning."

Clark (13) also favours a cyclical model because such elements as

problem definition, investigations, feedback, and design, may all be occurring at approximately the same time.

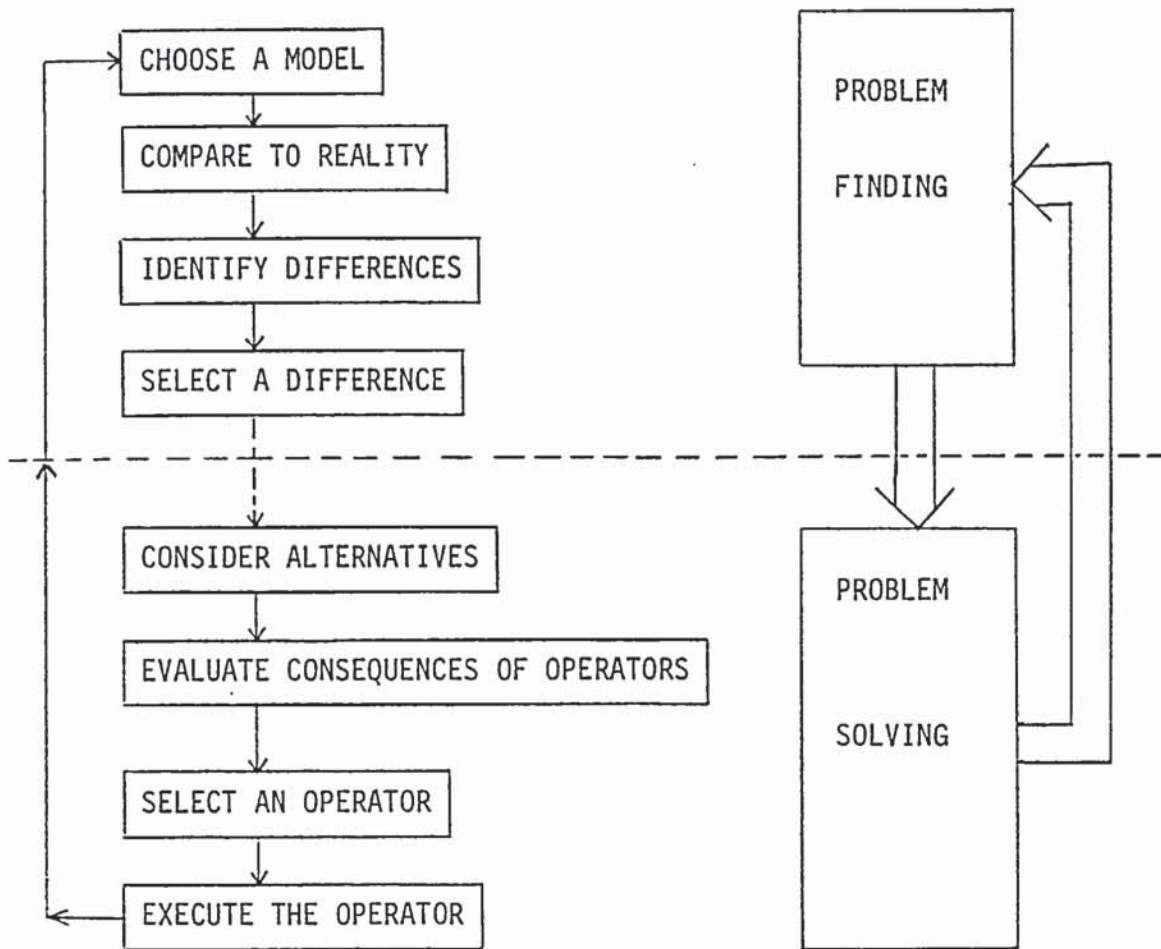
Because action research is collaborative, the precise scope of each phase of the cycle is dependent on the researcher-client relationship. (Susman and Evered call this the "development of a client-system infrastructure"). The art of action research resides, according to Rapoport (14), "in choosing the correct context, timing confrontations and interventions so as to produce insight and working through implications of the research for action". The obligation to make the work useful to the client has both advantages and disadvantages. Rapoport considers one "sacrifices a degree of detachment and independence" but one gains "a sense of sympathy and identification which may produce more valid information than what might have been gathered from a more detached vantage point". Action research prevents the researcher, as Susman and Evered state (15) "from taking the role of disinterested observer and obliges him to clarify and represent his own ethics and values so that they, along with those of the client system, can serve as guidelines against which to assess jointly planned actions."

The research undertaken here is a more complex and subjective mode of 'action research' than much of that referred to in the foregoing. Nevertheless, it is worth outlining this subjective element, for it is an essential part of this research project, particularly one whose concern is with human behaviour in terms of decision making, information provision and marketing analysis (as opposed to a project concerned with technical development).

Fig. 1.1.

FLOW CHART OF MANAGERIAL BEHAVIOUR

(after W.F. Pounds)



With these factors in mind, I have looked back on my experience and devised a framework which outlines the stages of my acceptance and understanding, and their effect on the scope of my research activities. This may be helpful to other students who must play a role in two organisations at once: their university and the firm or institution which has sponsored the research.

1.4. Start of the Project

In September 1973 I went to work for Dunlop Belting Division at its factory by Liverpool Airport. I was one of the first Dunlop/IHD students to work in Belting Division and on the Speke site. So I was an unknown phenomenon there, and my employment by Belting Division and my induction were inevitably experimental. Fortunately, I had spent two years after my first degree working for a large electrical engineering company on Merseyside, so the style and pace of office life were not the shock to me that they had been two years previously. Such features as attention to status, the need to fight for co-operation (and information), the fatalistic attitude of many workers and staff accompanied by a cynical attitude to management, and the internal politics of the business, were not completely novel, though at variance with a new graduate's expectations of industry.

My introduction to the company was not well managed. At the outset, nobody knew quite what to make of me. Few people had been told about me - and for some weeks, myself unaware of it, a number of Belting Division staff neither knew who I was, nor that I was an employee of the Company. The first couple of days I spent wandering in and out of managers' offices, embarrassing their occupants into finding some way of occupying me. Later, I found that doing small jobs for managers was a useful way of gaining support. Not realising this at first delayed my acceptance by managers who might have been able to help but who had their own concerns and business. Absurdly, I found myself occupying a sales office desk on which an adding machine stood. Every few minutes some person would come along and

punch its keys, suspiciously eyeing the stranger in their midst. Occasionally I would get hold of a report or an analysis which I was told it would be useful to read. At the same time, returning to Aston for my coursework, I began to find my way around the University, starting to acquaint myself with coursework and tutors in management studies. So the first couple of weeks passed, and it became apparent that the only person who could lend direction and shape to what I did was myself. Once I began to act positively then others could react and lend a hand in the project.

This experience might be interpreted in the light of what Handy (16) calls organisation cultures. The type of training required in the IHD scheme may, initially at least, require the kind of support to be found in the 'role culture'; Dunlop Belting Division's organisation, however, may be seen to have features of task and person cultures, and therefore to place less emphasis on formal training, job descriptions, etc..

An IHD project is managed by a team consisting of the student, his academic supervisors and his industrial supervisors. This team meets at the student's initiative and of course it cannot operate effectively without the student. The definition and the execution of the work depend on the student, so detailed preparation is not possible until the student is on the scene and sorting out a problem himself. Improved communication in Belting Division as to who I was would have saved some time and effort at the start, but the firm would still have had to come to terms with an employee who held a unique position.

Over the first 6-9 months, I gradually built an identity within Belting Division. On the practical side, I learnt the rudiments of the product and its manufacturing processes and began to accumulate short analytical tasks - evaluation of production output from particular equipment, analysis of sales figures. Managers began to realise that here was a person who might help in vital tasks they had not got around to doing themselves (and perhaps hadn't trusted anyone else to do); who might turn up facts or produce statements which could, being written by someone unacquainted with the firm's internal politics, cause some embarrassment. Far better then to use this resource profitably.

The range of work I did throughout the project life is not represented in the thesis. Whilst pursuing the project's objectives, it was often necessary and useful to do other tasks in the firm. I found myself evaluating salesmen's commission schemes (now that I earn commission, I think I would do that job a lot better!), writing periodic sales reports, contributing to the sales plan - in one year actually writing the sales plan, carrying out a cost/price analysis of the firm's mobile vulcanising service, and doing many day to day tasks first for the then Home Sales Manager and subsequently for the General Sales Manager. All of this gave me an insight into the working of the Division. It enabled me to pick up many of those unwritten rules and messages which permeate any organisation. Following Handy's description (17) this 'socialisation' was a mixture of both apprenticeship (being assigned to an expert to learn his skills) and co-option (becoming a member of progressively inner groups in the organisation).

1.5. Defining the Project Work

Initially, the project had been defined loosely as an investigation of the marketing arrangements for cut-edge slab conveyor belts. For five years, Dunlop Belting, along with its major competitors, had been producing conveyor belts whose carcass was made of synthetic fibres rather than the traditional cotton ducks. This made it possible to make the belts in wide slabs, thus making better use of plant, and to slit the belts to width later. The raw or 'cut' edges produced would not soak up moisture or tear as easily as the edges of a cotton carcass belt which therefore had to be made to the finished width, with sealed edges, from the start of the production process.

Dunlop had been operating a distribution depot at Uxbridge, Greater London, for almost three years and at this depot belts were slit to customer order. Cut-edge all-synthetic belts had already become the major production item, so the Uxbridge depot was growing in importance compared with the sales operation at Speke in the handling of customer enquiries, orders and deliveries.

Within the Division the problems and opportunities of this arrangement created pressures. Different managers had different preferences and requirements.

Firstly, the Division's General Manager saw that his stockholding was growing. Also that there may be further opportunities to increase production efficiencies by increasing the number of batch runs for stock. At the depot, he saw an

increasing amount of product waste as stock rolls were used up leaving short ends and strips of edgecut. The rules for the Division's ex-stock operation had been improvised as it had grown and these now needed examining as a total system.

Secondly, the Division's Works Manager was concerned at the product variety and consequent reliance on a wide range of carcass fabrics from the weavers. If this range could be reduced, improvements in materials supply and production scheduling could be effected.

Thirdly, the Division's General Sales Manager was concerned to maintain product availability throughout the range and also to extend and improve the ex-stock sales operation throughout the U.K. This would enhance Dunlop's competitiveness against its U.K. rivals and against Continental manufacturers who were expected to attempt penetration as E.E.C. tariff barriers were lowered. In addition the Division had tie-ups with two important industrial distributors, and their relationship to the Division's own ex-stock marketing had to be resolved.

From this brief summary it can be seen that many of the issues raised would, if investigated thoroughly, necessitate crossing departmental boundaries (between sales and production for instance), and that some of them (such as the product range issues) required detailed technical knowledge about the product.

These points were not immediately apparent to me. It took time to recognise the complexity of the requirements, and this was

achieved by working on smaller projects in various parts of the Division.

After the first year my work was concentrated within the Sales Department. The reasons are as follows:

(a) To have tackled inter-departmental projects would have been too great a task. The information required was not readily available, and creating a data base alone - for say a production planning/stock control model, would be a lengthy job. The relevant information is only just beginning to be handled by computer in the Division.

(b) It took a long time to gain the confidence of managers in one department. The gaining of their confidence tended to limit access to other departments. Furthermore, co-ordination of managers' time across departmental boundaries is time consuming and troublesome and needs to be backed up by a senior manager, who, within the hierarchy, would be the General Manager, who had limited time available. Whilst satisfactory relationships with managers were established, this also limited the area available for the project.

(c) My technical knowledge was entirely derived from what others told me. Embarking on work requiring detailed technical understanding of the product would have been futile.

(d) The General Sales Manager and the Sales Department's managers as a whole expressed most urgency, and willingness to

co-operate, in finding solutions to their problems. Such 'demand-pull' was a very important factor in a project one of whose main aims was to achieve an implemented problem solution within the project time-span.

1.6. A Framework of the Research

In this and the following section, a framework is proposed which synthesises the researcher's experience of working in the sponsor organisation. This work was conditioned in various ways:-

1. The firm's need in terms of research and problem solving, and the extent to which this is, or can be, described prior to the research starting.
2. The ability of the researcher to discern the research needs and to present these so that the firm will accept part or all of them as areas for research.
3. The university's needs to sponsor worthwhile research in academic areas relevant to the university's own skills and resources.
4. The ability of the researcher to work effectively in the firm within the context of the interest groups with which the project will have contact.
5. The changing environment of the firm through the project life does not allow research to be conducted

in constant conditions, and so makes the measurement (and even identification) of variables difficult.

The three parties - the firm, the research student and the university - enter the project with different sets of objectives which must be co-ordinated in a workable and working framework.

The firm is represented at this level by senior managers who commit the organisation in principle to co-operation in the project.

Once the project is live it is influenced by two dynamic factors. One is the business environment which is subject to change, sometimes within the control of the firm, most often the result of external economic and competitive factors. The other is the rate of acceptance of the research student into the confidence of the firm's personnel with whom he will work.

A research student in this type of project cannot take a detached stance. The sponsor is not just the firm, but a particular part of the firm, and the success of the project may depend upon the backing given to it by a particular manager. Thus, he necessarily has a role within the organisation which is not neutral. However, it is part of the academic reference point of his thesis that he should stand back and assess his part in practical affairs.

Similarly, the research student will not discover or be involved in policy discussion unless the managers concerned can trust and make use of the researcher on a number of counts. These include his discretion (although the research student has a responsibility

outside the firm), and his ability to contribute to the firm's management process.

The necessity of being involved in the operational work of the firm to gain the required level of acceptance has further consequences for the firm. For it is using the project as a training scheme, and its training staff will be consulting both student and those managers with whom he works.

The gradual involvement of the research student in the day to day working of the firm tends to modify his perception of the research needs of the firm. If the research project is one during which the project itself is defined in the course of research, then over the first stages of the project several project briefs will be considered and discarded. This process involves both rejection of material initially thought to be useful to the project work, the refinement of materials which still appears to be useful, and the taking up of new material.

As the researcher gains greater acceptance, his status may change. Previously working at a relatively low level, explicit identification with a senior manager will both enable the student to gain access to higher level, possibly more meaningful data, and also to participate as one of the agents of change in the firm.

The research student now finds he is both observing and influencing the internal business environment. If changes in working methods or processes are actually instituted as a result of the project, the research student builds up a personal interest

in aspects of the firm's activity similar to that of the managers with whom he is working.

Once this point has been reached, the difficulty is to retain the advantages of working at management level within the firm, and also attain the overall objectives of the project. This requires 'detachment' in treatment of the material being analysed and in commitment of time to the project's rather than the firm's needs.

Two factors - the status of the research student and the direction of his activity - influence at each stage the availability of information and through this the refinement and development of the project work itself. These factors are themselves influenced by the acceptability of the research student. Acceptability is, however, linked with status, so that this factor itself grows by stages.

1.7. Stage by Stage Progress

Fig. 1.2. illustrates the four stage development of this project within Dunlop Belting Division. It is an ex-post synthesis of one student's role in an organisation, but can be expected to bear strong similarities to that of other students in similar projects. The data for the assertion are the author's personal experience - but no less valid for that.

In Stage I the research started at a low key, with managers in most departments unaware of the project and therefore suspicious of any approach. A general brief had already been discussed, which

STAGE	INFORMATION SOURCES	DIRECTION OF ACTIVITY	RELATIONSHIP WITH THE 'CLIENT'	FURTHER COMMENTS
I 1-6 months	Few sources, and not always evident. Much information inadequate for research needs.	Project still undirected	Suspicious outsider	Status acceptance by central Company and by high level management in Divison. At departmental level, managers question researcher's status. Induction programme and short term tasks carried out on request.
II 7-12 months	Information now made available and volunteered to researcher	Dependent on firm's managers giving leads, and explanation	Minor role in the business. Half-insider.	Explicit role created by close identification with Home Sales Manager - for some time sharing his office. Familiarity and trust established. Communicator role starts - becoming an intermediary.
III 13-15 months	Now possible to search for and create information outside normal systems	Greater involvement of whole team as more information available	Major role begins. Accepted as 'quasi' manager	Involvement with senior managers - particularly General Sales Manager - now day to day. This enables acceptance of researcher by staff on a wide basis
IV from 16 months	Some systems now being altered as a result of project work	Project mainly directed by researcher	Outsider role becomes more important as researcher's independence grows	Researcher can now choose activity. As familiarity with business grows, more demands on researcher's time to do non-project work are made. In Stages I & II, work had to be searched for, now it arrives unasked for.

FIGURE 1.2. STAGE BY STAGE PROGRESS OF THE PROJECT

envisaged a study of the firm's ex-stock distribution operations. Activity at this stage consisted of a briefing on the firm's products and almost random speculation on potential studies which could be conducted.

Stage II began when the firm was asked (via the IHD project team) to change the status of the author. By sharing an office with the Home Sales Manager and becoming involved in his day to day work, there was an immediate expansion of information available and wider acceptance among the firm's personnel. The opportunity this afforded to produce work more relevant to the immediate needs of managers led in its turn to the project being integrated with the overall strategy of the Sales Department. A significant development during this stage was the acceptance by the firm's personnel of the dual status of the author. This meant that while acceptance had been gained by demonstrating attachment to the hierarchy of the firm, at the same time independence from this hierarchy and a lack of legitimate authority were assumed. The result of this was that the author was used both as a confidant and as a go-between, where ideas or criticisms could not be expressed openly and directly (between say salesman and manager) but could be transmitted through a third party. This process would not usually be a direct request to the author to transmit an idea, but would typically consist of a discussion in which a person would seek to influence the author with the idea, hoping to guide the research in a particular way. The person concerned would also know that the author must discuss the research material with the relevant managers and that therefore some part of the idea or criticism would be transmitted.

Stage III occurred when the head of the Sales Department, the General Sales Manager, took a direct interest in control of the project. This produced another change in perceived status, and admitted the author to a wider range of information sources (in this case particularly customers and distributors of Dunlop Belting Division).

Greater knowledge of the data available, and clearer specification of the project, now enabled the author to participate more in the direction of the project activity, seeking acceptance and agreement from university and Dunlop personnel. This process in itself generated information new to the firm and enabled the research student to become an agent of change, either by contributing new knowledge (and opinions) to policy discussion or by managing a particular change in the firm's operations (modifications to the stock control routines at Belting Division's Scottish distributor come within this category).

The depth of knowledge acquired by this stage enabled the research to feed back to academic material and use theory to understand the operating conditions of the firm (e.g. the development of an understanding of marketing channels in the U.K. belting market).

Stage IV occurred when the firm had entrusted the author with direction of activity which was instituted as a result of the project. Greater discretion over choice of subject matter was now permitted. At the same time greater demands were made by managers on the author to carry out operational tasks, sometimes lasting for weeks or months, not directly connected with the research project.

1.8. Changes in the Business Environment

The project started in late 1973, continuing to mid 1977. During this period the business environment changed considerably, and as a result the operating priorities of the firm also changed.

1973/74 saw a boom in conveyor belt sales. 1973 was the peak production year for all customer industries for belting outside the N.C.B. Acting on the combined trend of rising sales and conversion to an all-synthetic product range, Dunlop Belting Division planned both to alter its distribution and sales system and also to expand its sales in line with market growth.

At the end of 1973, the oil crisis and a four week strike followed by the three day week in Jan/Feb 1974, lengthened the firm's order backlog and restricted material supplies. Subsequent rises in the price of nylon and synthetic rubbers led to massive price increases in the whole conveyor belt industry.

Neither overall growth in the U.K. economy nor demand for belting has lived up to the expectations incorporated in the firm's plans. Growth in sales of 5 to 7% p.a. was forecast in the 1972 three year management plan. Forecasts for sales growth are now at the level of 1 to 3% p.a., with a base level well below the 1973/74 actual performance.

Delivery promises given by Dunlop have fluctuated from 4 weeks in 1971, 1972, and 1977, to over 20 weeks in 1970, 1973 and 1974 (when quoted deliveries went to 30 weeks).

These events stimulated a variety of measures in DBD. Perhaps the most important in the long term is a permanent shift of resources to export sales, on which the firm now relies to replace the downturn of demand in the U.K. Since January 1978, export sales outside the E.E.C. have been handled by Group Export Department, which markets the belting products of each of Dunlop Belting Group's divisions.

A second outcome has been a slowdown in conversion to all-synthetic products, the result both of cost increases and variability of supply.

The general downturn in demand, whilst making the U.K. economy less attractive to importers, also increased pressure on the service capabilities of manufacturers, as users ran down stocks and delayed purchasing decisions. The provision of ex-stock distribution was therefore still a high priority on the home market.

During this period, the Dunlop Company experienced financial and other difficulties in connection with its link up with Pirelli. The Dunlop-Pirelli Union has since been modified, but during 1974/75 particularly, there was a shortage of capital in the Company. This was the main influence behind the decision to rent a crane for the distribution warehouse (chapter 6), although the crane was actually bought when the project went ahead at the end of 1976.

In its pricing strategy, Dunlop Belting Division attempted to increase profitability, both by concentrating effort on the least price sensitive market segments and by increasing margins overall. The attempt to increase profit on sales has been a primary objective,

although market conditions have not always permitted prices which the Division's management would regard as satisfactory.

1.9. Summary

The dependence of this project on the interaction of the researcher with Company managers, and on the changing business environment, has influenced the final work a great deal.

There have been a number of objectives during the project. These were:

1. To examine marketing policy in Dunlop Belting Division, and to carry out work in areas which would respond to work by a research student, and in which change could be successfully implemented in the firm.
2. To provide a successful training programme in methods of research by deriving both proposals useful to the Company and material appropriate to a thesis.
3. To fulfil Dunlop's training objectives.

These objectives have been met. Dunlop Belting has a brand new U.K. distribution centre at Wolverhampton - the project's main achievement. A number of other changes have also been made: in relationships with distributors, in sales department organisation, and in a variety of sales administration matters. The thesis has

been written. The researcher is still employed by Dunlop Belting Division - a fact which leads him to assume that the third objective has also been met.

CHAPTER 2

MARKETING, MARKETING STRATEGY, AND THE CONVEYOR BELT MARKET

2.1. Marketing

The notion of marketing is wide ranging; the word marketing is capable of many meanings: among these are the everyday, specific activity of going to market to buy produce, a philosophy of business, a general description of economic activity, and advertising and promotion activities.

In this thesis marketing is seen firstly as a business function which influences a firm's policies by interpretation of market needs and opportunities; secondly as the activity of some department of a firm (not always called the Marketing Department) which controls the response to these needs and opportunities; thirdly as applied theory which enables marketing problems to be defined and solutions proposed (i.e. enables marketing decisions to be made).

H.B. Arthur (1) drew attention to the diversity of meanings for "markets" and "marketing". Arthur wrote that whilst there is a narrow meaning for "market" - that describing the buyers and buying habits of a product - in "the true economic sense, markets embrace both buyers and sellers and the factors which both take into account."

McInnes (2) wrote (in the same book) that the market "is the gap which separates producer and consumer. As the separation of producer and consumer grows greater under an expanding division of labor and

increasingly differentiated consumer wants, the relationship becomes no less real but only more complex." At this abstract level therefore marketing is the means by which the relationship of producer and consumer is realised - in McInnes' words "any activity which actualizes the potential market relationship between the makers and users of economic goods and services". Producers and consumers are separated not only by space, but also by time, perception, valuation and ownership. Marketing is required to bridge these gaps: it "generates - from a pre-existing situation - an exchange"(3).

The exchange is made possible by matching materials against needs. The marketing process in Alderson's words is one that "matches materials found in nature or goods fabricated from these materials against the needs of households or individuals." (4) Dodge uses the different emphasis of the American Marketing Association's definition, adapting it to industrial marketing as "the performance of business activities that direct the flow from producer to user of goods and services which produce or become part of other goods and services, or facilitate the operation of an enterprise, either business, public, or non-profit (5). This emphasis on the nature of the transformation of materials to meet demand for manufactured items, or for services, and on the organisation of the flow of goods or services - rather than on specific selling, or post-manufacture activity - is synthesised by Drucker: "Actually marketing is so basic that it is not enough to have a strong sales department and to entrust marketing to it... It encompasses the entire business. It is the whole business seen from the point of view of its final result, that is, from the customer's point of view. Concern and responsibility for marketing must therefore permeate all areas of the enterprise."(6)

These definitions of general economic behaviour are useful to the extent that they allow a view of specific business activities from standpoints (the consumer's, the economist's, etc.) not located within that business.

Drucker's view is an attractive one, but not one which finds a correlative in the management practice of Dunlop Belting Division. Nevertheless, it is one which finds echoes in managers' statements such as the following from 'Dunlop News'.(7) "No man is an island and nowhere is this more true than in the creative capability of Belting Division's work force in the working together on the concept, manufacture and product development of the final product and its marketing."

Marketing in this research work is therefore seen as an applied subject. It is concerned with the resources within a firm - Dunlop Belting Division - allocated to those activities which can respond to the needs of its actual or potential customers. Selling is just one of these activities, and according to Levitt (8), the difference between marketing and selling ...

... is more than semantic. Selling focuses on the needs of the seller, marketing on the needs of the buyer. Selling is preoccupied with the seller's need to convert his product into cash; marketing with the idea of satisfying the needs of the customer by means of the product and the whole cluster of things associated with creating, delivering, and finally consuming it."

Kotler (8) finds that "the firm's marketing problem is to develop a sound mix of these activities in the face of great uncertainty as to the separate and joint effects of different activities." Marketing effort

is not a homogenous input, Kotler comments, but "is a composite of many different types of activities" and includes "(1) pricing, (2) promotional activities such as advertising, personal selling, sales promotion and public relations, (3) distribution activities related to the availability of goods and servicing of orders, and (4) product development and improvement activities."

It has been the author's experience which he will attempt to demonstrate, that the marketing mix (whose elements in practice may vary from Kotler's general framework) has not been developed within Dunlop Belting Division as a coherent and balanced set of activities. The elements of the mix have been dealt with separately at various times and by managers pursuing different objectives.

In the case of this work, it was attempted to develop particular marketing activities which would be complementary to the whole mix in Dunlop Belting Division. However, the absence of an articulated marketing strategy made the author's task of choosing which activities to reinforce and which to regard as counterproductive all the more difficult.

In order to provide an analysis of marketing strategy in Dunlop Belting Division, it has therefore been necessary to observe practical marketing activity and from this to infer a marketing strategy. Comparison with normative theory is then used to assess both the consistency and effectiveness of the strategy and the relevance of the prescriptive models to the observed practice in Dunlop Belting Division. Wherever possible the work has been aimed at improving working practice in the Division.

2.2. Marketing Strategy

Corporate strategy according to Uytterhoeven (10) and his fellow editors provides "both direction and cohesion to the enterprise" and according to them cohesion is more essential than direction. Absence "of a corporate strategy does not necessarily entail a lack of direction. Rather, ... other goals and objectives will fill the vacuum." Behaviour of different units within the enterprise may tend to emphasise unit rather than corporate goals, creating conflict and preventing the enterprise "responding consistently as an entity". Strategy is seen by Uytterhoeven et al as a process which starts with the strategic profile, the other steps being: the strategic forecast; the resource audit; the development of strategy alternatives; the test for consistency (with both external and internal dimensions); finally, the strategic choice. Cohen and Cyert (11) see strategic planning as a nine stage process and although they start with the formulation of goals their perspective is similar to Uytterhoeven's. "The whole procedure" they say "is a dynamic feedback process".

Strategy is a level of goal setting appropriate to the long term and to the general management of the enterprise. Ziemer and Maycock wrote (12) "plans become strategic when they are the basis for decisions to commit resources over a long period of time." The time dimension is one which separates strategy from tactics. Ziemer and Maycock relate the length of time to the life cycle of the products/services involved and conclude that "any lower level planning is tactical in that it involves a set of milestones to accomplish goals for which resources were allocated." Rather than accept the proposition of the life cycle in this context, the author finds it more useful to see strategy as

being concerned with changes or potential changes in the enterprise's market or products or financial returns. Thus, adapting Ziemer and Maycock, strategy should be designed to last for any period during which the strategic forecast has indicated key elements (e.g. technology, market growth, etc.) will remain in a stable state. Change, predicted or otherwise, should result in new strategy.

When retrospectively analysing marketing strategy in the market for conveyor belts, the author has attempted to show how strategic change has taken place and how it has been interrelated with particular changes in market structure and materials technology. Analysis of the strategic profiles of competing firms in the same market has also been used as an indication of changes taking place or about to take place and to assess the preparedness of Dunlop and its competitors in this context.

In the 'action' stages of this work, the author worked at the tactical level: the relocation of distribution facilities, the improvement of relations between channel members, and so on. Analysis of strategy preceded this tactical content, and retrospectively it has also contributed to the wider view the author has attempted to take.

The strategic profile of Dunlop Belting Division takes account of the internal Dunlop dimensions. This aspect is relevant to the process of strategy formulation and that of strategic and tactical decision making. It is argued that organisational factors have contributed to the lack of an explicitly stated strategy and to a lack of cohesion at various levels of the Dunlop company as specifically observed in this project.

2.3. Conveyor Belts: The Product

Conveyor belts are the load carrying components of conveyor systems. Rubber and PVC conveyor belts - as distinct from chain and other types of conveyor - consist of a number of load carrying members bonded together to make a carcass and protected from mechanical and chemical damage by elastomeric covers. The carcass may be formed of several plies of woven fabric, a single solid woven fabric, or a single layer of parallel equidistant steel cables.(13)

Rubber and PVC belts are used throughout the world in mines, quarries, cement works, post offices, food processing factories and many other locations.

Conveyor and conveyor belts may be considered as part of the materials handling industry.

Dunlop Belting Group manufactures and markets both rubber and PVC conveyor belts. This research is specifically related to rubber conveyor belts made by one part of Dunlop Belting Group - Dunlop Belting Division - although reference will be made to the other products made and sold by the Group.

H. Streets gives a description of the conveyor itself (14): "The main elements of the conveyor are of course the belt, which is not only required to contain the load but in addition must act as the haulage medium; the driving unit, which transmits power to the belt; the tail-end and tension gear, which are required to maintain sufficient initial tension in the belt to enable the driving unit to perform its

duty; and the troughing and return rollers which support the belt and its load."

The first belts were probably leather ones, but the first installation of the textile plus rubber type is said by Streets to have been for the Mersey Docks & Harbour Board in 1868. The invention, he says, is ascribed to Mr. P.B. Graham Westmacott and to "an engineer named Lyster." This latter must have been George Fosbery Lyster, the Dock Engineer, who presided over the vast expansion of the Liverpool at Birkenhead docks from the eighteen fifties to almost the end of the nineteenth century. In his reports to the Mersey Docks and Harbour Board (15), Lyster records the start of work in 1864 on new corn warehouses Birkenhead; later he notes that the warehouses were brought into use on 22nd January 1869, and that the "whole of the Band Machinery ... is ... frequently employed in transmitting Grain to and from the Silo House." These warehouses at the East Float Dock, Birkenhead, were the biggest ever built at the time (16) are still in use, and conveyor belts are still used to transport the grain.

Whilst this first belt was of 2 plies of canvas with a facing of rubber, the high price of rubber precluded its general use until after the First World War. Instead, solid-woven cotton belts were used; though cheaper, these were stiff, suffered damage easily and rotted as they absorbed dirt and moisture. Consequently, the more flexible plied belt was used when rubber became more available, especially after the introduction of troughing idlers which needed the belt to conform to the trough.(17)

The conveyor belt developed from the cotton carcass, and the

design specifications, the tensile strength and load support of the belt, have been well defined for many years. The formulae now used by the various manufacturers for belt specification can be traced back through technical literature at least to 1935. (18)

In recent years there have been two main ways in which the product has developed to meet special operating requirements. Firstly, in providing high tensile strength belts for long-haul, high capacity conveyors in a variety of applications; secondly, in providing fire resistant and flame-proof belting for underground mining and similarly hazardous applications. In addition conveyor belting has changed and developed in terms of the component materials of the belt: all-synthetic textiles have succeeded cotton textiles, steel cord reinforcement has also been introduced in some designs, and experiments with various new materials continue.

The move to more demanding applications (greater trip rates, longer conveyors), led at first to a greater use of material: belts with cotton carcasses of seven, eight or more plies were quite usual. However, the introduction of synthetic fabrics (initially as cotton/synthetic mixtures), halted the trend to ever thicker belts and at the same time enabled designers to make greater demands on conveyor systems. Nowadays all-synthetic carcass belts of two, three or four plies, run in place of the old seven or more ply belts.

Synthetic fabrics also enable a manufacturer to make conveyor belting in maximum production widths, rather than in the width the belt will finally be supplied to the customer. Finished widths are cut out of the 'slab' at a later stage. This is not possible with

cotton and cotton/mixture belting whose edges must be sealed with rubber to prevent rotting of the carcass fabric; these belts must therefore be made individually. Synthetic fabrics helped manufacturers both simplify the production process and at the same time increase output through existing equipment. Moreover, it was now possible to make stock slabs, 'slitting' to customer requirements at a later stage in the distribution process and doing so without detriment to product quality.

Goodyear pioneered the concept of an all-nylon ex-stock range in the U.K.. The lessons from the American pattern of distribution in which direct representation is largely supportive of an extensive wholesaler - retailer distribution network were transferred. Whilst other manufacturers still concentrated on cotton and cotton/mixture belts, Goodyear's Pylon brand became for many customers the identifying generic name for all-nylon belting. At the same time Goodyear's already established mode of dealing through distributors was particularly applicable for this product and the company soon had a countrywide ex-stock network. Taking the logic of these developments further, Goodyear now produce exclusively all-synthetic belting on new production facilities which give the company one of the largest production capabilities in the U.K..

In summary, modern belts look lighter and thinner, but are stronger and longer-lasting. They are easier to stock and sell off-the-shelf, so that this product development has been instrumental in the expansion of distributor networks.

2.4. Conveyor Belts: Market Segments and Supplier Differentiation in the U.K.

The market for conveyor belts in the U.K. can conveniently be segmented according to product applications. In a general form the segments are:

- A. Bulk handling of run-of-mine coal and associated material underground.
- B. The bulk handling of raw or processed materials (e.g. within steelworks) from the point of manufacture or extraction to stockpiles; from stockpiles to further large-scale processing; and moving these materials within a larger materials handling system - e.g. on docks etc. (see Fig. 2.1.)
- C. Materials handling in factory production systems using elevator systems, contoured conveyors, etc. Also, package handling in a variety of locations and agricultural produce handling.
- D. Materials handling in the food processing industry. The belts not only act as transporters, but may also perform production functions (e.g. separating layers of dough).

Manufacturers have tended to specialise in either the A and B segments or the C and D segments. The larger manufacturers may have the ability to supply in all four segments, whereas the smaller firms are concentrated in the C and D segments. Proliferation of special

MINING

QUARRYING

INDUSTRIAL
PROCESSORS

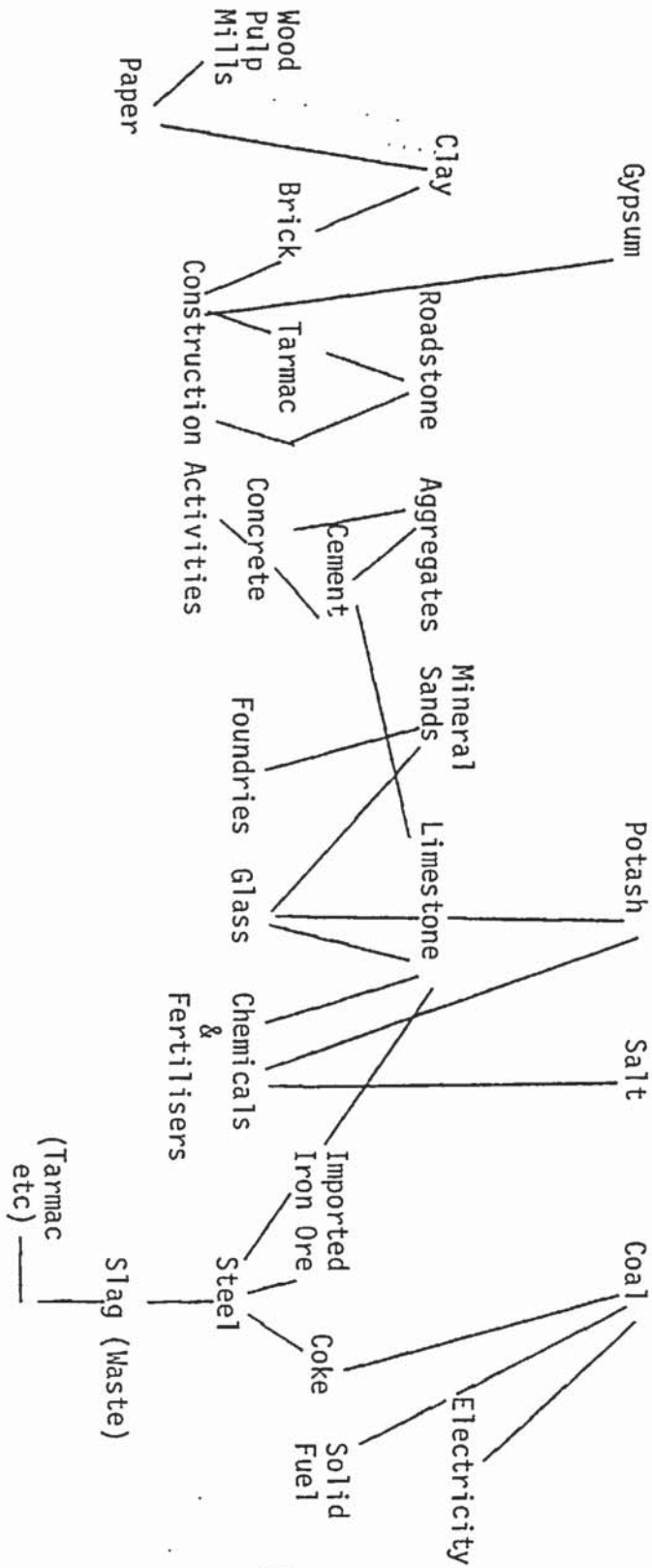


FIGURE 2.1. BULK HANDLING BY BELT CONVEYOR: MAJOR U.K. APPLICATIONS

requirements in the latter has enabled relatively small scale manufacturing operations to exist. Figure 2.2. illustrates the relationships of manufacturers with application segments of the U.K. conveyor belt market. The list for the C and D segments is not comprehensive.

Manufacturers for segments A and B are required to produce belts up to 3M wide (but usually 1.8M wide or less) in overall belt thicknesses up to 1.5cm. Typical high capacity conveyors installed in the U.K. range from 700M-1500M centre distances. Demand for long-haul conveyors has been met by installing several flights in the same system. At the N.C.B. Selby Drift complex, twin conveyors with 9 miles centre distances are to be installed. The belts will both use steel to provide the tensile strength - the one in the belt carcass (steel cord), and the other as supporting cables on each side of the belt (cable belt). Alternatively, textile belts and proven conventional technology could have been used in a 10 flight system, each flight having independent drive, transfer points and take-ups.

The technology required to produce this volume of high strength/ high capacity belts - whether of textile or steel cord reinforcement - is large scale and costly. A production line vulcanising press 12M x 2M would require an investment in excess of £1million at today's prices.

Segments A and B, although requiring belts of the same load carrying capacities, are differentiated by the need to supply fire resistant belts to the N.C.B.. Segment A therefore is comprised

Figure 2.2. The U.K. Conveyor Belt Market. Supplier/Applications Segments.

	A	B	C	D
APPLICATIONS SEGMENT	FIRE RESISTANT BELTS FOR UNDERGROUND USE	OTHER BULK MATLS HANDLING	SPECIALIST HANDLING SYSTEMS	FOOD QUALITY BELTS
TYPICAL MATERIALS CONVEYED	COAL	IRON ORE, LIMESTONE, COKE, ROADSTONE AGGREGATES GRAIN, SUGAR	UNIT HANDLING, PACKAGES, AGRIC. MACHINERY, ETC.	BISCUITS, CONFECTIONERY ETC.
COVER MATERIAL	PVC	RUBBER	RUBBER/PVC	PVC/POLY-URETHANE
EST OF UK MARKET (1974)	40%	50%	7%	3%
<u>Belt Supplier:</u>				
BTR	*Plied	*inc. steel cord	*	
<u>Subsidiaries -</u>				
G & I (bought 1978)		*		*
Gandy (" 1974)				
<u>DUNLOP</u>				
Dunlop Belting Div.	*Plied and solid woven (not yet in production)	*		
Angus Belting Products		*	*	*
Lewis & Tylor			*	
NUMEC			*	
TURNER BROS	*solid woven			
GOODYEAR		*		
UNIROYAL		*	*	
CABLE BELT		*		
<u>J H FENNER</u>				
J H Fenner	*solid woven			
James Dawson (bought 1978)			*	
BBA (SCANDURA)	*solid woven			
FOULDS			*	*
MULCOTT			*	*

Figure 2.2. (Cont'd) The U.K. Conveyor Belt Market.
Supplier/Applications Segments

	A	B	C	D
APPLICATIONS SEGMENT	FIRE RESISTANT BELTS FOR UNDERGROUND USE	OTHER BULK MATLS HANDLING	SPECIALIST HANDLING SYSTEMS	FOOD QUALITY BELTS
TYPICAL MATERIALS CONVEYED	COAL	IRON ORE, LIMESTONE, COKE, ROADSTONE, AGGREGATES, GRAIN, SUGAR	UNIT HANDLING, PACKAGES, AGRIC. MACHINERY, ETC.	BISCUITS, CONFECTIONERY ETC.
COVER MATERIAL	PVC	RUBBER	RUBBER/PVC	PVC/POLY-URETHANE
EST OF UK MARKET (1974)	40%	50%	7%	3%
<u>Belt Supplier:</u>				
<u>IMPORTERS</u>				
TRELLEBORG		*		
ATLAS		*		
C. SCHOLTZ			*	
AMERAAL			*	*

entirely of PVC belts - solid woven and plied - for underground use. The development of PVC belting was promoted by the N.C.B. following the Creswell Colliery fire in 1950. Solid woven belt manufacturers have successfully exploited this market segment to the extent that they hold an estimated 85% or more share. The suitability of the PVC solid woven belt for other applications is suspect (PVC although fire resistant has poor abrasion resistance; also being thermoplastic, extremes of temperature in outdoor applications result in poor belt performance) so that the solid woven belt has not been sold in other market segments.

Differentiation of the suppliers within segment B has also been brought about by the development of steel cord as the tension member in belts. A Dunlop study (19) of the world market for conveyor belts estimated that steel cord belts represented 19% of world conveyor belt production (measured in tons output) in 1974. Steel cord belts are designed for long-haul applications, their major benefit being low stretch (0.3% as compared with 1% for polyester carcass belts and 2% for nylon carcass belts). 85% of steel cord belts, the study reported, had belt strengths of 1000 Kgf/cm belt width or more. Only 35% of textile belts were produced in the same period (1974) in these strengths. The low incidence of applications requiring this belt strength together with the cost of developing appropriate production technology initially restricted the number of suppliers world-wide, although more manufacturers are developing steel cord production (Dunlop estimates 26 producers with steel cord carcass capacity and 59 with textile carcass capacity, excluding the communist bloc). In the U.K., only one producer - BTR - has steel cord production capability, and the number of U.K. installations

has been very small. Cable Belt Limited use steel ropes to provide the tension for the belt external to the carcass at each side of the conveyor. A report of a 6.4 miles installation in the U.S.A. at Twin Buttes, Arizona, provides background to the decision to use cable belt as the haulage medium (20).

"Truck haulage was rejected because of the high cost of constructing an acceptance haulage route and continuing high operating costs. Rail haulage was also rejected, because of the high capital cost and relatively inflexible ore delivery schedule. An aerial tramway ... offered no apparent advantages ... Belt conveying was ... selected ... because of its moderate capital cost, high availability and low operating cost."

The system was designed to carry 1800 tonnes of copper ore per hour. The belt is 1.07M wide and travels at 251M per minute. Cable Belt's prime advantage over other high tension belts is that the belt itself carries no tension; it is therefore more easily joined and requires less power to drive through reduction in the number of pulleys and troughing idlers.

Segments C and D comprise shorter (up to 50M centred distances), narrower (85% of demand is for belts up to 900mm width), lighter strength belts (100 to 500 Kgf/cm width). Belts supplied for unit handling or handling of light powders, fertilizers, etc., are frequently constructed with specially designed surface patterns and mouldings. The ability to produce low volumes in a large number of design variants characterises manufacturers in these segments.

Segment D is further differentiated by the demand for 'food quality'

belts. PVC and Polyurethane surfaced belts fulfil over 90% of this demand. The requirement for a large number of specifications produced in low volumes and in short production runs has made entry into the C and D segments unattractive for manufacturers supplying the A and B segments. Where this overlap exists, it does so through the use of separate manufacturing facilities within the same company (as in Dunlop Belting Group).

2.5. The Rubber Conveyor Belt Market in the U.K.: Analysis of Demand.

In 2.4. a market segmentation by application was considered and differentiation between suppliers within the various segments was also discussed. Rubber conveyor belts, although used in more than one segment are primarily used in segment B. In this section demand trends for rubber conveyor belts are discussed with reference to historical data.

The U.K. market size for rubber conveyor belts in any time period will be determined by a number of factors including (a) the number of conveyors in use (b) the length of these conveyors (c) the rate of use of these conveyors and (d) the number of new conveyors installed.

The size of the U.K. market for conveyor belting in the most recent peak demand year (1974) was approximately 2.8 million linear metres. Of this total 1.2 million linear metres (43%) were PVC belting and the rest were of rubber. U.K. manufacturers accounted for 81% of the U.K. market for rubber conveyor and in addition exported a further 0.6 million metres, or 32% of the total U.K. net output (all manufacturers) of rubber belting. (Fig. 2.3.)

Figure 2.3 Estimated Market for Rubber Conveyor Belts 1974 (24)

U.K. net output	3.1 million metres		
PVC belting	1.2	"	"
Rubber belting	1.9	"	"
Export of rubber belts	0.6	"	"
Imports " "	0.3	"	"
U.K. market for rubber belt (est.)	1.6	"	"
Approx. sales value	£15 million		

Published statistics before 1975 may contain errors, so it is difficult to use these to derive a long term trend in the belting market. The data published in the Business Monitor series changed its base for measurement of sales volume from metres to metric tonnes in 1975. However, consumption of rubber in the manufacture of conveyor belting was detailed until 1974 in the Business Monitor series, and this data provides supporting evidence for certain assumptions about the market for rubber belting.

Figure 2.4. displays the data. For 1975-1977 estimates were made by comparing the rubber consumed in manufacturing with the sales volume for the same years and extrapolating for the recent years for which data is unavailable. The Strategic Planning Department of Dunlop Belting Group had attempted to fit a linear trend line (A-A') to this data but this procedure is just as suspect as drawing a similar trend for later years (B-B'). Use of this type of analysis may contribute to assumptions made by Dunlop managers about likely market growth rates

Fig. 2.4.: U.K. CONSUMPTION OF RUBBER FOR CONVEYORS (25)

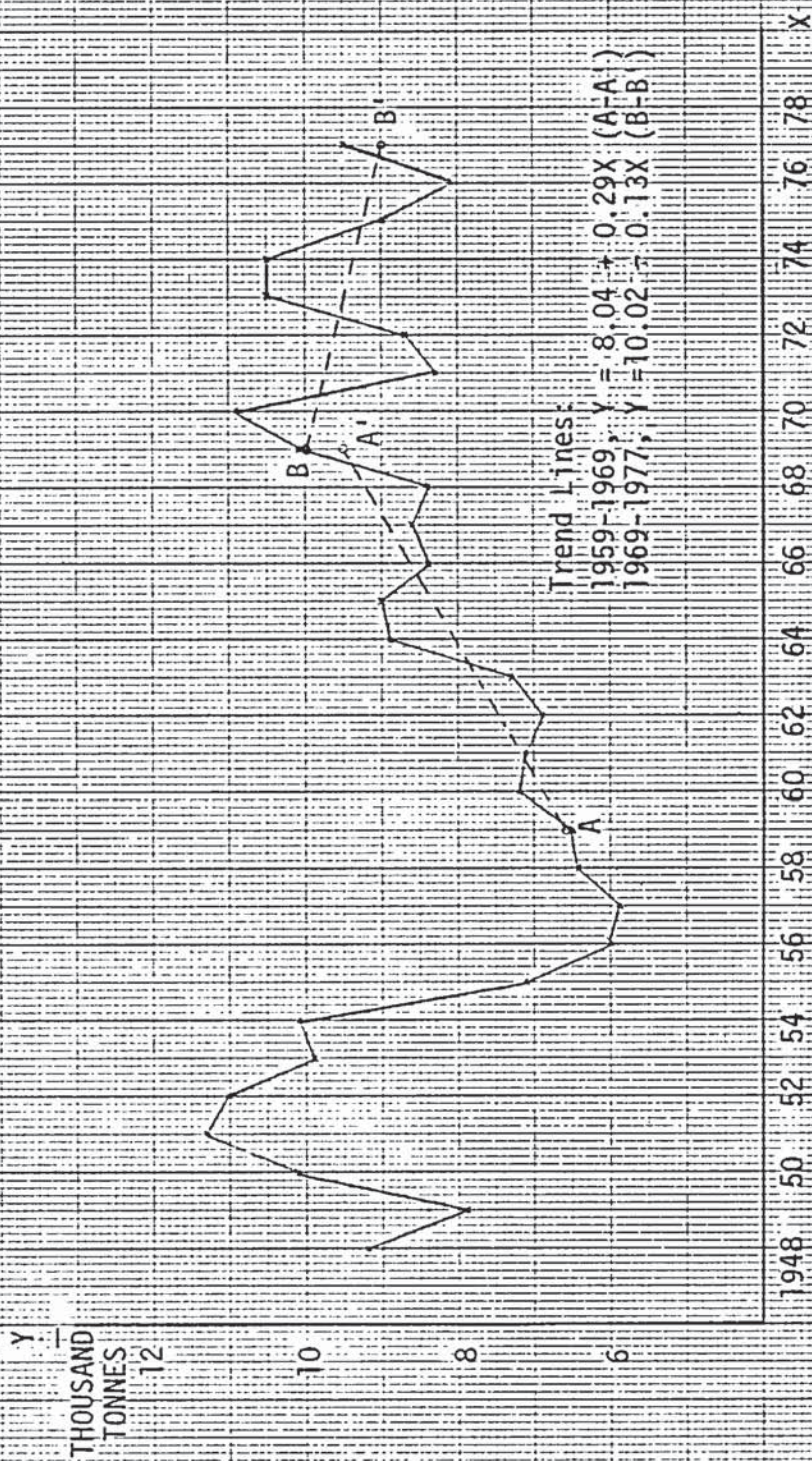


Fig. 2.5 U.K. PRODUCTION OF VARIOUS CUSTOMER INDUSTRIES FOR CONVEYOR BELTS (26)

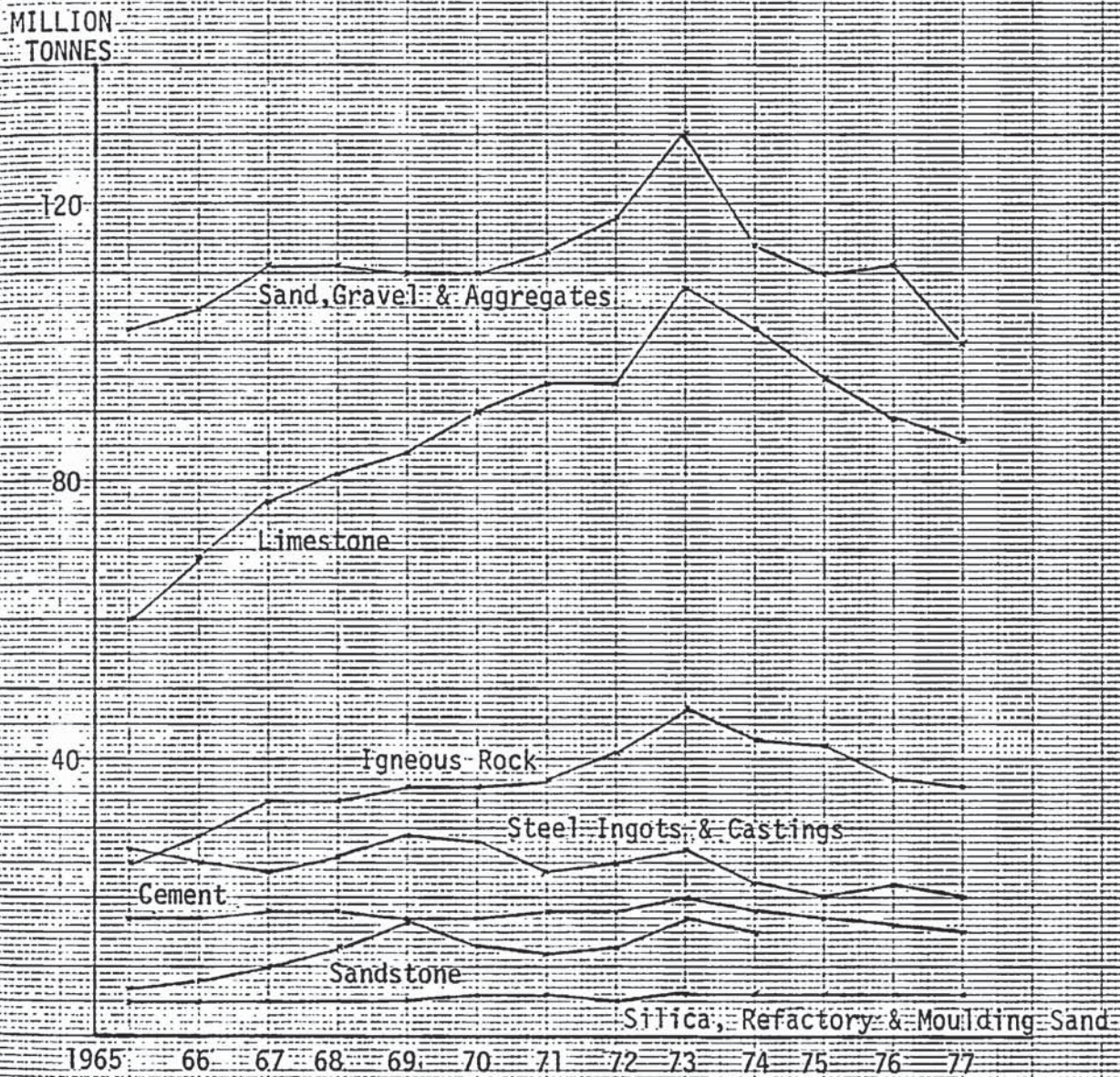
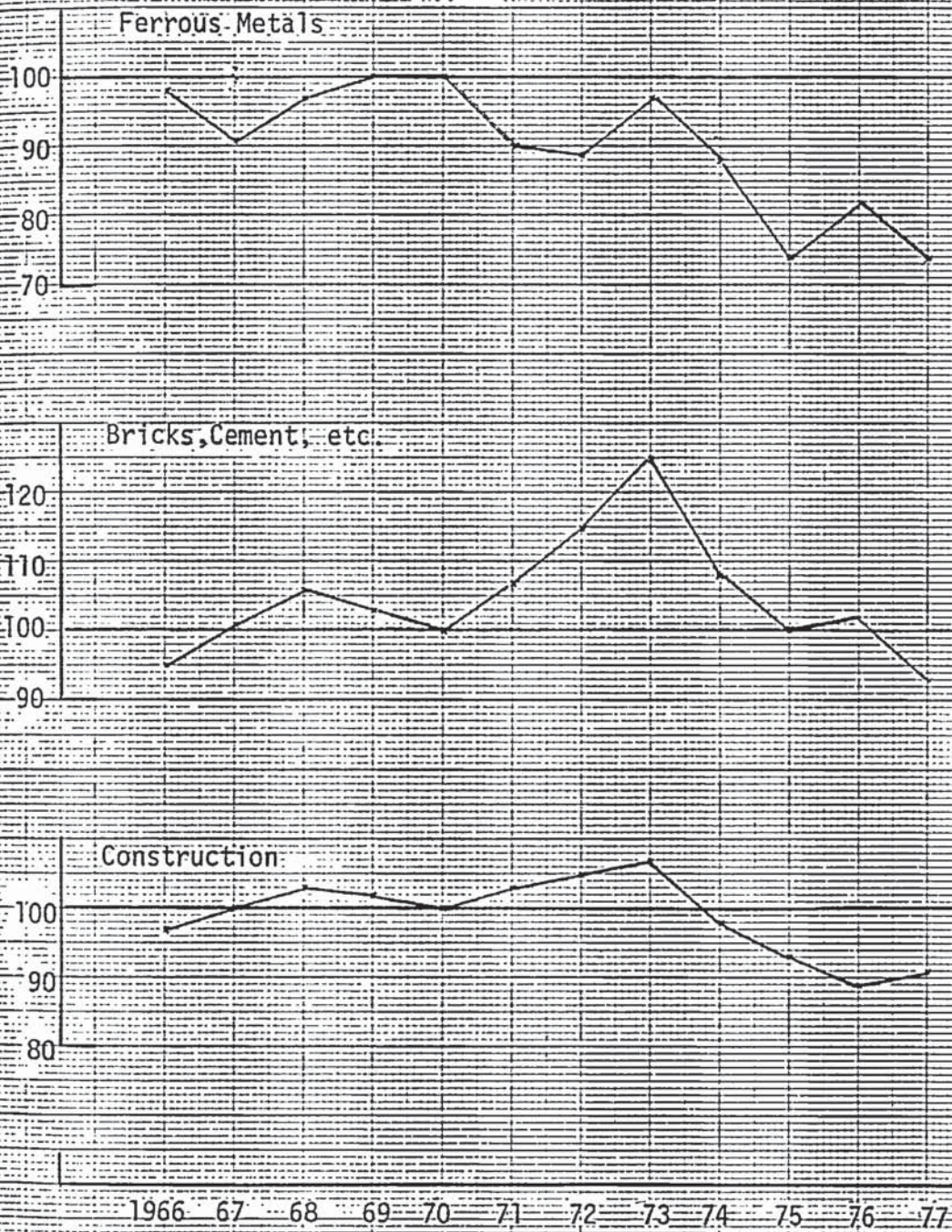


Fig. 2.6. : INDICES OF PRODUCTION FOR THREE MAJOR SEGMENTS OF THE RUBBER CONVEYOR BELT MARKET (27)
1970 = 100



when forming operating plans.

A deep trough in demand in the mid-fifties was probably due to the conversion of underground mining applications to PVC fire resistant belting. The demand for rubber belting increased through the nineteen-sixties after which there appears to be flattening-off of demand. This feature may represent the growth of the lighter all-synthetic carcass belts in the market, thus reducing the amount of rubber (and textile) used in manufacture. Demand in linear metres of belt would not necessarily show the same trend therefore, and for the years 1971 to 1974 for which this data is available, sales in metres increased at approximately 4% p.a.. In the nineteen-seventies, U.K. belt manufacturers have experienced two periods of low demand, one during 1971/1972 and the other starting during 1975, and which is still continuing.

A major customer for new conveyors (referred to as 'Original Equipment' or O.E. elsewhere in the text) using rubber belts was the British Steel Corporation, during the expansion of its five integrated steel producing sites (Llanwern, Port Talbot, Scunthorpe, Redcar and Ravenscraig). O.E. sales of belts therefore enjoyed a period (1970-1977) of high demand for U.K. installations, unlikely to be repeated in the foreseeable future. The Financial Times reported in May 1979 (21) that the U.K. conveyor market had remained static between 1975 and 1978 after rapid growth in the early 1970s. The conveyor industry had now to look for export markets as a result of very little rise in demand from the home market. Dunlop Belting Division estimated that at least £8,000,000 worth of conveyor belts were installed with new equipment in B.S.C. during the expansion period

1970-77, representing approximately 10% of all U.K. rubber conveyor belt sales.

Investment intentions for new conveyors for other applications will be related to (a) the need to expand capacity, (b) possible requirements to replace other haulage media (e.g. road transport) by conveyors, (c) the need to shift production location (e.g. of roadstone materials), (d) the need to replace worn out equipment, (e) the concentration of production into fewer companies operating a diminishing number of large production locations (e.g. quarrying).

Since a wide variety of industries is involved it is not possible to make a general statement about new equipment sales. Incremental replacement of conveyor systems takes place all the time. Larger scale purchase of new equipment over this base level - which has not been identified from available data - must be seen within the context of the total investment in the relevant industries (quarrying, cement, brickmaking, glass, etc.). The lack of impetus from the steel industry suggests that O.E. sales of rubber belts are likely to remain limited to an estimated 5% or less of the total market at least to the middle 1980s. Further expansion of the U.K. market for rubber conveyor belts through new equipment purchase is unlikely (in fact recent evidence points the other way: that investment in new equipment for quarries and other customer industries has been cut back following falls in road building, construction activity, and other features of economic recession).

Replacement sales constitute the larger portion of total sales in the market and, because O.E. sales are discontinuous in character, replacement sales are the basis for volume stability for manufacturers.

Sustained increases in market share are also most likely to come from this source.

2.6. Segmentation by User Industry

An estimate of the relative size of the various industry segments in the rubber conveyor market is made in Fig. 2.7. Since there is no published data, nor does Dunlop provide regular market research to ascertain the segmentation of the total market, the estimates rely on Dunlop sales manager's judgements. An estimating method was devised by using a simplified version of the routines described for the Delphi method by G. Wills and others (22).

Published data for the total market, together with the detail of Dunlop's own performance in each market segment were given to six sales managers. They were asked to build up a matrix of market segment against supplier so as to form a picture of the sales profile of each competitor by segment, and of the profile of each segment by competitor. Where opinions converged (estimates within a range of 15%) a simple average was used to complete these portions of the matrix. Where there was divergence, the conflicting data was shown to the managers once again to enable opinions to be revised. Where divergence remained, the estimate given by the specialist manager for any particular segment was accepted. Finally the revised completed matrix was shown to the managers collectively.

The estimate is for the period 1973-74; since then the total market size has declined and relative size of the various segments altered. A volume estimate for subsequent years would have to discount price inflation.

KEY






Figures 2.7. and 2.8.  British Steel Corporation  Original Equipment (denotes major O.E. Co.s in Fig.2.8.)  Quarrying, etc.  Industrial Distributors  Other Industries

Figure 2.7.  Central Electricity Generating Board  Chemicals

Figure 2.8.  Other O.E. Companies  Dunlop Companies

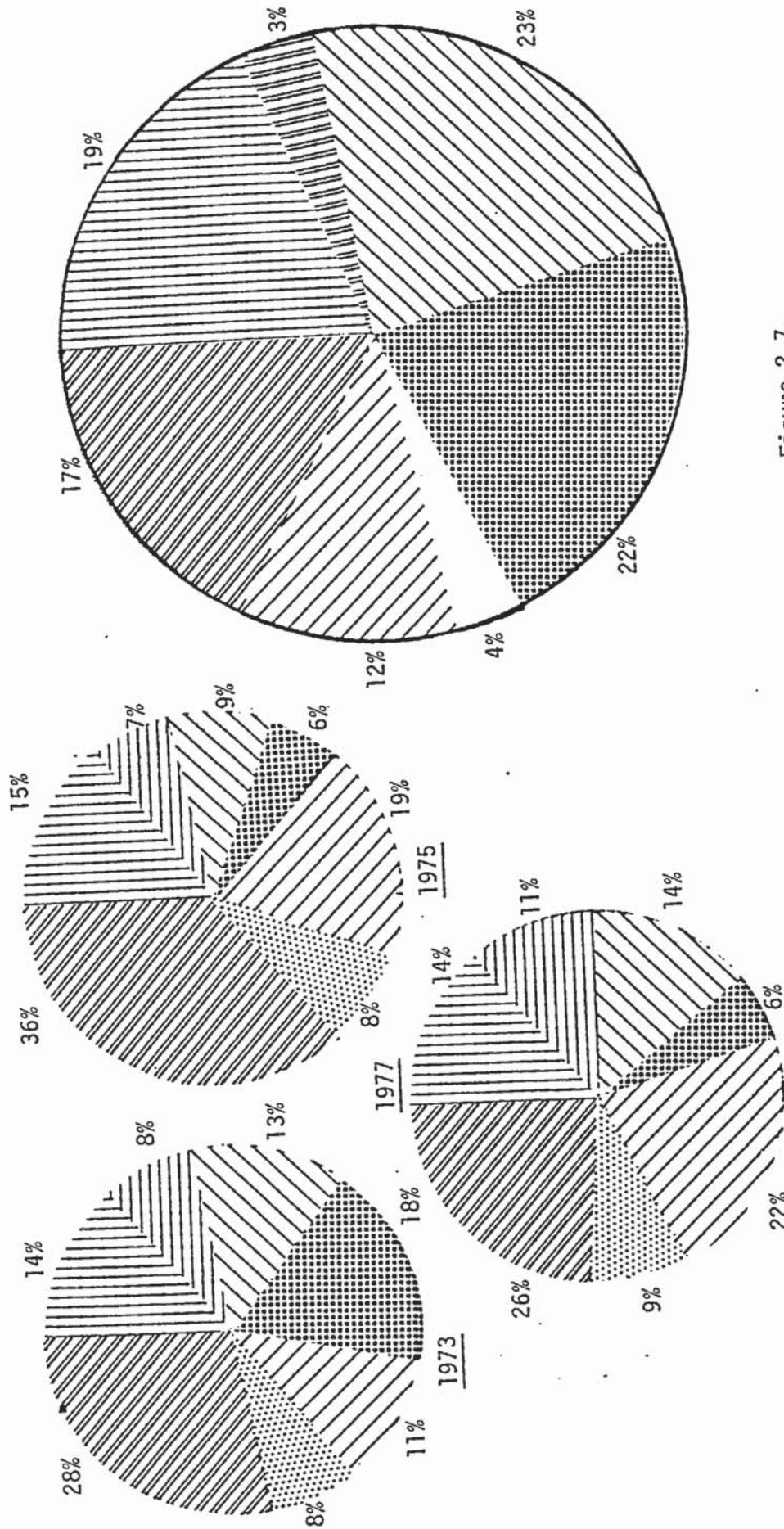


Figure 2.7.
Segmentation of the U.K. Rubber
Conveyor Belt Market, 1973/74.
(Total £15m)

Figure 2.8.
Segmentation of Dunlop Belting Division's
Business.

From mid 1974 to mid 1977 the B.R.M.A. cost index for synthetic belts rose by approximately 65%. If the total market in 1974 was worth £15 million, then in 1977 the same volume should have sold for approximately £25 million. In fact the total sales value for U.K. manufacturers in 1977 was approximately £30 million, with a U.K. market of around £21 million, indicating a volume around 15% less than in 1974.

Fig. 2.8. displays the segmentation of business carried out by Dunlop Belting Division over the period 1973-1977.

The U.K. replacement market for rubber belting can conveniently be divided into the nationalised industries comprising steel, coal and electricity (the private steel industry is an insignificant purchaser) the the private sector (commonly referred to by Dunlop management as the 'general market') comprising quarrying, cement manufacture, foundries, glass, etc.

Demand for conveyor belting is derived from the demand for materials transportation in these industries. Replacement sales are usually for insert pieces for existing belts and infrequently for whole belt replacement. No recent published analysis has been found correlating belt life with rate of use, material conveyed and other relevant factors.

A survey carried out by the Field Investigation Group of the N.C.B. and reported in 1955 found that 90% of all conveyor belts or sections of belt replaced failed because of random accidental damage (23). In this restricted field test, it was possible to approximate an average life curve - but this is only valid for the set of conditions

tested.

However, it is assumed that demand can be correlated with the output activity of the customer industries. Figs. 2.5 and 2.6 display the relevant data and a comparison with Fig. 2.4 and Fig. 3.4 gives support to this assumption.

As with O.E. sales, the industry activity of the user segments has been in decline since 1973/74.

A further trend in both the nationalised and private industry sectors has been towards concentration of production and centralised buying. The restructuring of the B.S.C. has already been commented on; this was followed in 1974 by the establishment of a Corporate Engineering Standard for conveyor belts. The result of this was a purchasing system which relied on standard specifications bought on contract through a single buying office (the first B.S.C. conveyor belt contract was placed in 1975).

In the quarrying industry an aggressive takeover policy pursued by construction companies such as Tarmac, Tilcon, Consolidated Goldfields (ARC) Ready Mixed Concrete and others, has left this industry in the hands of a small number of operators. Whilst site purchasing has in many cases been retained, the opportunity for centrally-organised buying and interchange of information has been increased.

2.7. The Competitive Dimension in the U.K. Market for Rubber Belts

In Fig. 2.2. Dunlop Belting Division's direct competitors in the

U.K. for textile reinforced belts are shown to be: BTR, Greengate and Irwell (G&I), Angus Belting Products, Goodyear and Uniroyal. Importers, notably Trelleborg of Sweden and Atlas of Norway, are also active in the U.K.

Using the same set of data from which Fig. 2.7 is derived, the market shares for the 1973/74 period were calculated as follows:

BTR	35%
Dunlop	17%
Goodyear	19%
G&I	9%
Uniroyal	7%
Angus Belting Products	1%
All Imports	12%

By 1979 the share these companies were taking from the market altered to the following position (in Dunlop's estimate):

BTR	25%
Dunlop	22%
Goodyear	20%
G&I	5%
Uniroyal	6%
All Imports	22%

In the preceding sections the various trends operating in the market were identified as:

1. All synthetic textile carcasses resulting in higher

- strength belts, and
2. Ex-stock distribution
 3. Peak demand in the mid 1970s followed by falling demand trends in the replacement market
 4. Similar conditions in the O.E. market resulting in greater emphasis on export sales
 5. Growth of contract buying - in the B.S.C. and elsewhere.

Companies reacted to these trends in different ways, in part reflecting the organisation of their respective technical and marketing resources. Information on market development is gathered for Dunlop by its field sales force and fed back to managers through call reports, etc.

The general response to the above trends can be summarised as:

1. Reduction of the number of specifications in the lower strength belt range to facilitate distribution.
2. Reduction in the quality of belts (e.g. through lower use of rubber) to enable price reductions in particular strength categories - especially from 1978 onwards.
3. The development of two-tier sales organisations to differentiate sales approaches to contract buyers and others.
4. The growth of sales through extended distribution channels, some wholly owned by manufacturers.
5. The growth of augmented service comprising belt vulcanising and repair services and belt installations.
6. Concentration of resources by some companies on contract sales, distributor sales, and individual enquiries

SUPPLIER	EXTENT OF FIELD SALES FORCE AND RESPONSE TO CONTRACT BUYERS	% SYNTHETIC MATERIALS USED IN CARCASE	DISTRIBUTION	SPECIFICATION/ PRICING
BTR	Direct coverage of all U.K. buyers changed to coverage of major buyers only when service companies formed. Sales force reduced from estimated 12 to 5	70% all synthetic by 1974	4 wholly-owned service companies formed to sell belting and other BTR products (e.g. hose) ex-stock. Also vulcanising services.	Wider product range
DUNLOP	Direct coverage of all U.K. buyers with specialist sales managers to co-ordinate contract sales. Sales force of 8 reps. plus 4 specialist managers	70% all synthetic by 1974	Mix of in-company distribution and independent distributors	higher prices
GOODYEAR	Limited coverage for key accounts and to support distributors. Sales force organised within industrial products group	90% all synthetic by 1974	Distributor network for total U.K. coverage	Narrower range. Pricing generally thought to undercut BTR/ Dunlop
GREENGATE & IRWELL	Key account representation. Sales force 4-6	50% all synthetic by 1974	Distributors in some territories. Incomplete coverage.	Restricted range. Tendency to cut specifications and prices to compete
UNIROYAL	Key account representation. Sales force up to 4	40% all synthetic by 1974	Distributors in some territories. Incomplete coverage	

Figure 2.9. Suppliers Responses to Market Trends

SUPPLIER	EXTENT OF FIELD SALES FORCE AND RESPONSE TO CONTRACT BUYERS	% SYNTHETIC MATERIALS USED IN CARCASE	DISTRIBUTION	SPECIFICATION/ PRICING
IMPORTERS	Varies. Trellleborg with own U.K. sales company has small sales force. Other importers reliant on distributors. Entry barrier to nationalised industries, although limited success in B.S.C.	100% all synthetic	Usually one distribution point either manufacturer owned or independent.	Specifications vary. Pricing consistently cheaper than U.K. brands.

Figure 2.9. (Cont'd) Suppliers Responses to Market Trends

meeting minimum volume criteria (production run quantities).

The marketing profiles of Dunlop and its major competitors within this general framework are summarised in Fig. 2.9.

As commented on in 2.3. Goodyear was the market leader in the introduction of all-synthetic belting. Its introduction by BTR and Dunlop on a large scale did not occur until 1968/69, about 4 years after the first introduction of Pylon.

The lag may be a measure of the conservatism of some sections of the market and its suppliers. The evidence for this lies in the fact that Dunlop salesmen report that customers still specify cotton constructions, and that many customers rely on a subjective evaluation of product quality in terms of total belt thickness, number of plies, etc., regardless of the properties of the materials constituting the latest types of belt which are available.

The changes in sales tactics outlined have partly derived from changes in materials technology. All-synthetic belts have evolved via cotton/synthetic mixtures from all-cotton constructions. The demand for these developments has been pushed by attempts to improve the production efficiencies of the belting companies, and has been pulled by piecemeal but important development changes originating in the interaction of technical sales teams and the market. Neither market research on customer attitudes nor large scale evaluation of the technical needs of the market has been originated by suppliers. In product development, the pace of innovation and modification remains slow; this has enabled Dunlop to catch up with and parallel

any developments which appear on the market. To Dunlop it has not been technical know-how but financial constraint on capital investment which has acted as a barrier to market entry with a product. This is particularly so with the exploitation of steel cord belting which requires heavy capital investment in setting up production facilities. Similarly, Dunlop bought into solid woven technology by buying out a Belgian manufacturer in 1977.

2.8. Summary

Whilst some significant changes in the manufacture, distribution and selling of conveyor belts have taken place, particularly in the last ten to fifteen years, the rate of change has been slow.

The effect of this slow rate of change has been to minimise the differences between the various brands of conveyor belts available. Customers do remark that one manufacturer's belt is the same as another's; manufacturers do not highlight differentiated features for their products. Where differentiation does exist, it has been created by the use of new component materials and manufacturing technology. Both solid woven and steel cord belts are examples of this, but their markets have so far been restricted. Entry into these technologies is still possible, the barriers being not so much know-how as finance. Where late entry has been affected - by Dunlop into solid woven technology for instance - it has been by acquisition.

Estimations of the total market for conveyor belts indicate a market with at best a slow rate of growth. (Approximately 2% per annum according to Dunlop Strategic Planning Dept.). Demand for conveyor

belt derives from demand for coal, steel, electricity, road building and maintenance, and construction activity. These industries have had an erratic progress through the nineteen-seventies with demand peaking in 1974 and being followed by a period of falling demand. Re-equipment of the steel industry provided a large market for O.E. belt sales in the U.K., but expenditure on new steel plants has now shifted to developing countries.

The effect of these various factors on the ex-stock market for rubber-covered ply belting in the U.K. has been to shift the marketing emphasis onto differentiation by service and price. Customer service through distribution, personal selling and technical support, has provided the marketing mix on which the manufacturers have relied, and it is the provision and organisation of these elements - particularly distribution - within Dunlop Belting Division, that have been the concerns of this project.

CHAPTER 3

MARKETING STRATEGY: ITS FORMULATION AND IMPLEMENTATION IN DUNLOP BELTING DIVISION

3.1. Introduction

In Chapter 2 the marketing profiles of major suppliers in the U.K. rubber conveyor belt market were identified. Particular emphasis was placed on the product/market and distribution strategies employed by the suppliers.

This chapter will continue the discussion of marketing and strategy as they are implemented in Dunlop Belting Division. The Division's sales and marketing resources will be identified, and their organisation related to the Division's plans. Strategies, explicit or inferred, will be discussed in relation to the various market forces outlined in Chapter 2 and which are illustrated in more detail in the present chapter.

Prior to these specific aspects, the author will attempt to demonstrate how the place of Dunlop Belting Division in the structure of a large industrial company has its impact on strategy making: a knowledge of the company environment precedes analysis at divisional level, just as divisional operating plans reflect in practice the constraints of company policy and organisation.

It will be argued that marketing strategy was inexplicit in Dunlop Belting Division during the period of study, and that this

was a consequence of poor co-ordination of aspects of the divisional organisation.

The research undertaken aimed to make explicit to managers the strategic behaviour of the Division, in particular in the strategic choice of the marketing channel. The hypothesis of the action-research, as discussed in Chapter 1, is that the Division's behaviour - as defined and controlled by its managers - can be changed in order to improve performance against specific objectives. The chapters following this present the author's work on marketing channels and the implementation of an agreed change in distribution strategy.

3.2. Strategy-Making

"Business policy may be defined as a set of working rules governing the use of the resources of the firm in gaining the firm's objectives" (W. Alderson - (1)). The objectives - or aims - of the enterprise are its purpose. An objective is "the answer to the question 'What is it for?' "(2) Strategy is the means by which the objective(s) is (are) realised. To adapt for business use the Concise Oxford Dictionary's military definition, strategy is the art of so moving or disposing the firm's resources as to impose upon the market the place, time and conditions for competition preferred by the firm.

However, "a strategy is not normally a deliberate plan" (according to Mintzberg). "It is best thought of as 'a pattern in a stream of decisions' " (3). Mintzberg's observations were based on the study of strategy in various business and governmental organisations, and reflect in part the school of thought identified with Lindblom's view of policy

formulation. This is the method of 'successive limited comparisons', of the incrementalist approach, in which "evaluation and empirical analysis are intertwined; that is, one chooses among values and among policies at one and the same time"(4). Because a 'rationalist-comprehensive' method is impractical, "the administrator focuses his attention on marginal or incremental values".

The strategic balance will be maintained, in Lindblom's view, by the mutual adjustment of the different agencies (within government) formulating and implementing policy.

Those who argue with Lindblom's analysis do not defend the rationalistic models - they are ideal situations requiring "greater resources than decision-makers command"(5). The lack of a longer-range view and the apparent neglect of organised long range planning is criticised by Etzioni who draws the distinction between 'large' or 'fundamental' decisions and incremental ones: "It is often the fundamental decisions which set the context for the numerous incremental ones"(6). Etzioni proposes the compromise of 'mixed-scanning' which would allow wider analyses to be made selectively. Archibald (7) sidesteps the rationalism versus incrementalism debate, and treats the issue as one of organisational efficiency. "It is not a matter of one versus the other, since the two are more complementary than mutually exclusive," she says, and goes on to propose the 'clinical' approach. This would treat the organisation as a closed system, concentrating on such aspects as organisational change, communication, etc. The "effect of decision processes and organization structure on policy making and policy implementation" becomes the subject of study.

It seems likely that the study of a large organisation (or a study such as this of a small part of a large organisation) would reveal both 'disjointed incrementalism' and the attempt to apply 'rationalist' planning. Archibald's organisational development approach is therefore attractive in that it offers the prospect of reconciliation of the extremes. Wildavsky (8) in a waspish essay sweeps aside the notion that systems can elucidate objectives for organisations. Writing of management by objectives he says: "The trouble is that to formulate procedures for choosing objectives without considering organizational realities (such as history, capability, and will) leads to the opposite of what was intended - bad management, irrational choice, and ineffective decision-making". To adapt this to the strategy process, one should look for a matching of the formalised planning procedure (such as exists in Dunlop) with a realistic analysis of the resources available for implementing the plans.

The basis on which strategic decisions are actually made in Dunlop Belting Division seems closer to Lindblom's incrementalism than to the other approaches. Nevertheless, fundamental decisions at the corporate level are made (e.g. the Dunlop corporate decision to buy the George Angus Company in 1968) and Etzioni's observation that incremental decisions are made within this framework is valid: divisional manager's decisions are constrained by their knowledge and perception of the corporate strategy. The expectation that rationalist-comprehensive planning can take place at the divisional level appears to be unrealistic, although the formal planning system may require a division to try to plan in a rational-comprehensive way. The divisional objectives and strategy as formally stated might in

these circumstances be ignored by managers because they may not "make sense in the context of the resources available to achieve them" (Wildavsky - (9). It is the author's own direct experience that managers devote much time to writing plans, but subsequently do not use the resulting document as a working manual. The author concludes that an inexplicit marketing strategy is preferable to a confused or an unrealistic one - but that organisational change would improve co-ordination, and enable managers to use the planning process more effectively.

3.3. The Dunlop Company: Growth and Structure

The Dunlop Company expanded its operations as a result of the enormous expansion in trade of vehicle tyres since the late nineteenth century. Early penetration of overseas markets was followed by the establishment of overseas manufacturing operations and plantations (Dunlop became the single largest owner of real estate in the British Empire). Expansion was continuous from 1890 to the end of the first World War.

From the mid nineteen-twenties, acquisition was important in the Company's growth. This policy, starting with the takeover of Manchester based Charles Macintosh Group in 1925 still continues, and has seen the diversification of Dunlop into both consumer goods (sports equipment and footwear) and industrial products (the Newcastle based George Angus Company was bought in 1968). In the 1920's diversification was needed to counteract the effects of the slump and too close a reliance on the uncertain motor industry (10). This wider base has itself generated further diversification through



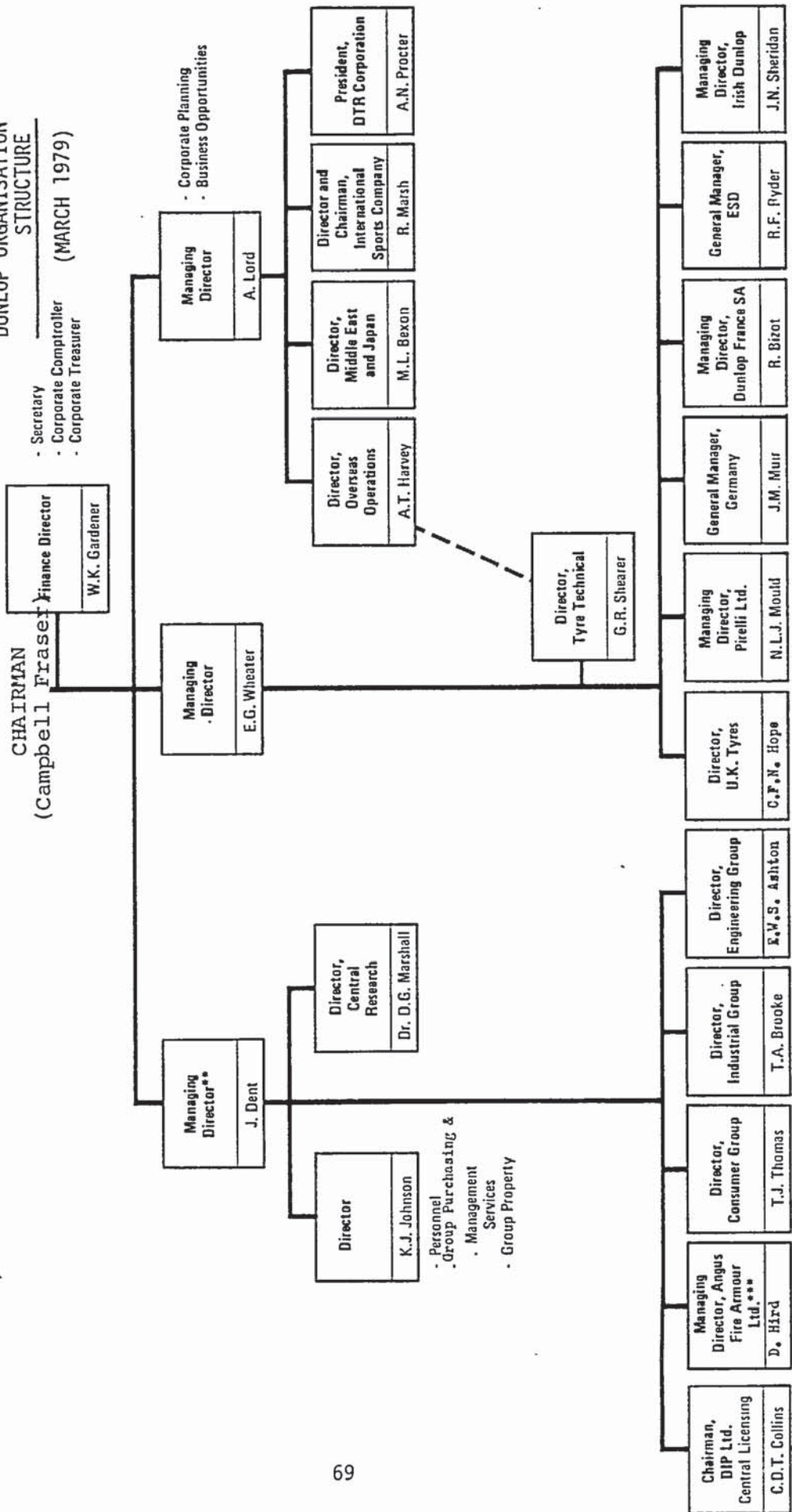
product development, an early example of this being the development of Dunlopillo (patented in 1929). Edwards and Townsend (11) refer to this process as 'complementarity' and quote the company's progress (through a combination of acquisition and development) from tyres to wheels to engineering to aviation brakes and control systems.

Now, Dunlop is organised as a Holding Company (Fig.3.1.), to accommodate (according to the Company's own History-(12)) the complexities of both overseas manufacturing companies, and participation in the Dunlop-Pirelli Union. The U.K. and European operations are either divisions of, or subsidiaries of, Dunlop Limited, itself a subsidiary of Dunlop Holdings Limited. The Dunlop operating divisions are by product type: tyres, consumer and industrial. In addition, Overseas Group co-ordinates international activity outside Europe.

In 1964, the Dunlop Rubber Company (as it was then called) was restructured. The organisation was decentralised, and the reasons included, according to the Managing Director (13), "the rapid growth in size, complexity and in geographical spread; the increasing intensity of competition; the need to ensure a higher return on capital; the problems of giving the best men adequate opportunities to show their worth."

The organisation structure at March 1979 is shown in Fig. 3.1. The constituents of the product groups have been formed by acquisition and growth in Dunlop. Engineering Group is almost all concentrated on one site at Coventry; Industrial Group largely

FIGURE 3.1:
DUNLOP ORGANISATION
STRUCTURE
(MARCH 1979)



* - Acts as point of contact with Australia and remains as Chairman of DTR Corporation
 ** - Also acts as Chairman of the London Committee
 *** - Including Dunlop Irrigation Services

comprises the old George Angus Company; Consumer Group and Overseas Group are both collections of independent subsidiaries; Tyres is still a single product enterprise, and internally has a functional organisation structure.

In his book 'The Strategy and Structure of British Enterprise' (14) Derek F. Channon relates the growth of companies having multidivisional structures to the growth of product diversification in those companies.

During the fifties and early sixties large companies moved from more traditional organisational forms, usually comprising some type of functional structure, to the multidivisional organisation enabling managements to delegate much of the decision making in the business to product-centred divisions.

Channon used two broad dimensions in his analysis of British enterprises.

The first dimension categorised enterprises by the product strategy they could be observed to be following. There are four basic strategic categories:

1. SINGLE PRODUCT ENTERPRISES 95% of sales in one product line.
2. DOMINANT PRODUCT ENTERPRISES Secondary products comprise 35% or less of company activity.
3. RELATED PRODUCT ENTERPRISES Expansion has taken place into related markets, technology or vertical activity. No one product line comprises 70% of total sales.

4. UNRELATED PRODUCT ENTERPRISES Expansion has taken place into new markets or technologies unrelated to original product-market scope. No one product line comprises 70% of total sales.

The second dimension provided an organisation model for enterprises. Four basic organisation structures were applicable:

- (1) FUNCTIONAL The enterprise is broken down into a series of specialized hierarchical functions. Associated with SINGLE or DOMINANT product strategies.
- (2) MULTIDIVISIONAL With increasing diversification of product - market scope, the enterprise creates either a PRODUCT-DIVISIONAL or a GEOGRAPHICAL-DIVISIONAL structure.
- Additionally, such companies may have international operations where complexities also increase. Thus the INTERNATIONAL DIVISION is created. When there is a combination of high product diversity and significant size, a GRID structure may be necessary, allowing for the formation of a MULTIPRODUCT/MULTIGEOGRAPHIC-DIVISIONAL structure.
- (3) HOLDING COMPANY The enterprise grows by acquisition. The holding company may be formed and controlled mainly from an original parent; alternatively it may be deliberately set up and treat the original parent like its other subsidiaries.

(4) FAMILY Channon used various tests to identify those U.K. companies in which the family still retained significant managerial and shareholding control.

Channon found that some form of multidivisional structure was the predominant form (71%) in the top 100 companies by sales volume taken from the Times' 500 list for 1969-70. Within this trend the product divisionalised structure was the most common of the possible variants. The primary routes along which this diversification took place, were firstly from single product enterprises to dominant product enterprises; secondly from dominant product enterprises to related product enterprises.

Channon describes Dunlop as an early "technological diversifier", but comments that despite the "widespread product and geographic spread", it "persisted with a functional form of organisation until the internal and external pressures of rapid post war growth brought change". A McKinsey team recommended divisionalisation on product lines. This restructuring was carried out, with the retention of a large London-based headquarters which provides a series of group services including personnel, finance and corporate planning. Channon finds Dunlop to be a related product company, the features of which are summarised in Fig. 3.2.

Figure 3.2. Features of a British Related Product Company

(adapted from Table 7-1 in 'The Strategy & Structure of British Enterprise' by D.F. Channon)

<u>Diversification Stage Characteristic</u>	<u>Related Product Co. features</u>
Organisation Structure	Multidivisional

Figure 3.2. (Cont'd) Features of a British Related Product Company

<u>Diversification Stage</u>	<u>Characteristic</u>	<u>Related Product Co. features</u>
	R and D - location	Centralised
	- type	Institutionalised search for new products
	Internal Product Flow - Level of	Low
	- Pricing	Bargaining or Market
	Performance Measures	R.O.I.; Market Share
	Rewards	Straight salary; continuous employment; few bonus or stock option schemes
	Control System	Annual Budget Central cash accounting Central appointment of top executive Capital expenditure Strategic and Financial long term plans
	Corporate Objectives	R.O.I. Diversification Market share growth Few earnings per share growth
	Central Office-Size	Large
	-Functions	Finance;Accounting;Corporate Planning Legal; Personnel; Staff Marketing; R&D Management Development: Production Services.
	Division Responsibility	Operations Product Strategy

The advantages of a divisionalised structure according to Uytterhoeven (15) can be grouped under four headings:

(A) Small company/Large Corporation

Small company control and flexibility give quick response to markets; at the same time resources (cash, R and D, etc.) can be made available and critical management talent can be transferred.

(B) Career Structure

Management development is possible through the creation of more general managementships. Young managers are attracted to and motivated by this organisation.

(C) Measurement of Performance

Profit measurement is possible at various organisational levels. Because performance against goals and plans can be measured to unit or divisional level, an action-oriented, future-centred management style is encouraged.

(D) Responsibility

Authority and responsibility can be assigned to one person. In a functional organisation, responsibilities are shared.

The disadvantages of the divisional structure are cited as: higher overhead costs since many facilities can no longer be shared; the surrendering of functional expertise; management talent may be scarce; an excessive focus on the short-run because stress is placed on the current year's profit objective.

The particular structure Dunlop adopted combined decentralised product divisions with strong central departments. The company already had a diversified product base, but perhaps more importantly, it had a strong centralised financial planning system built up from the 1920s. Reay Geddes described the organisation as "decentralization with co-ordinated control" (16) and the vehicle for co-ordination was the Management Plan - McKinsey's enhancement of the pre-existing budget and capital planning procedure (17).

The first (1964) Plan led to three main Group objectives (18):
"To quicken the rate of bringing new products and methods into full economic use.

To strengthen the Group's financial resources so that full advantage of opportunities can be taken.

To ensure that management is, by then, ready for such a challenge".

By 1965, the style had become positively Churchillian, the central emphasis to the second Plan being:

"Access to capital to give scope for the momentum that is gathering from within".

Four years later, and after the take-over of George Angus & Company (1968), R. Heller wrote (19), "Despite its diversification, and despite the systems developed to control so diversified an operation, Dunlop is fundamentally a tyre company and must remain one."

The relations of the divisions and subsidiaries to the total Company must be set in the context of the size of the tyre operation.

Whilst declining in importance, tyres still represented over 60% of Dunlop sales during this project's time scale. In the U.K. rubber industry, they represented approximately 75% of sales.

The commitment of the Company to tyres was demonstrated on 1.1.71 by the formation of the Dunlop-Pirelli Union.

The need to be both big enough on a world-wide scale to compete with other major tyre manufacturers, the need to stay the pace technologically, and the need for both companies to introduce counter-cyclical measures through wider geographic and product spread, were reported in 'Management Today' (20) to have led to the Union. The changing economic environment in the early seventies, however, imposed such financial and organisational strain on the merger that its terms had to be renegotiated.

James Ensor, Motor Industry Correspondent of the 'Financial Times', highlighted one of the problems the Union faced in the tyre industry (21). The multiplicity of European manufacturers generates harsh competition, particularly in the development of new products. Resulting R & D expenditures are high, and this combined with the twin pressures of competitive pricing in the original equipment market and the erosion of prices in the replacement market, has kept profitability low. Nevertheless, in the Dunlop view (22), the R & D and manufacturing programmes necessary for survival created the need for the Dunlop-Pirelli Union. (The economies of scale - particularly related to multiplant firms operating in regional markets - have been questioned by Bain and others (23).

Higher quality tyres have lengthened the replacement cycle, a development which has contributed to a reduced market potential. Thus, the financial constraints imposed by the related problems of the Dunlop-Pirelli Union and the European tyre market, meant that development programmes of other product divisions must suffer.

It was not until the 1976 Annual Report that the Dunlop Chairman could comment: "We are now moving into a period when greater emphasis will be given to the faster development of certain of our businesses. In a phrase, we have changed from selective containment to selective expansion. The "replacement of obsolescent or unprofitable products by new ones" was to be given priority.

By early 1979, events had overtaken Dunlop and other tyre manufacturers once more. A depressed new car market together with longer replacement cycles for tyres, high volumes of cheap imports from Eastern Europe, plus imported cars with OE tyres, enforced cutbacks and closures in Dunlop's tyre business (including the closure of the tyre factory at Speke) and further financial restrictions on other product divisions.

In this climate of financial restraint, if the tyre business is to be maintained, projects for the improvement and expansion of other Dunlop divisions are necessarily cut back. This seems to have been the case in establishing the distribution unit at Wolverhampton. Belting Division managers both delayed implementation and considered leasing rather than buying associated capital equipment. Generally, the ability of the Division to invest in all its activities, from its own and other Dunlop resources, has been restricted by the need to

finance the tyre business. In April 1980, the author attended a presentation by a Dunlop main board director at which the policy of channelling finance to the tyre business was reiterated.

One key feature associated with the tyre business which has affected Belting Division strategy has been the quality of industrial relations in the tyre factory at Speke. This has made the Company unwilling to invest in new production equipment for Belting Division, preferring to refurbish existing plant; it has also provided an additional motive for maintaining an off-site stocking and distribution point. Now that the tyre factory has been closed, a change in policy could result.

The delegation of responsibility to General Manager level following decentralisation was said by the Managing Director to be "in all ... affairs, other than (the Company's) 'frontiers' (geographical and product range), corporate structure and supply of capital"(24).

Co-ordination therefore exists providing that investment proposals (for instance) relate to existing divisional activity or resources and the product/market divisions remain distinct. By encouraging separate development, the Company has foreclosed the possibility of co-operation at the operating level (e.g. in export markets, or common distribution channels). Even in Dunlop Belting Group (see Figs. 3.3. and 3.4.) competition rather than co-operation has been encouraged between the constituent profit centres.

Dunlop was described by Doina Thomas (25) as "big, earnest,

unexcitable, thorough, rather unimaginative ... very like a stock caricature of the well-to-do ... Scots businessman." One could add to this by saying that Dunlop is also paternalist (Directors of the Company are inclined to talk of the Dunlop 'family'), part of the 'Establishment' (with large central London headquarters and extensive overseas trading organisation), and that Dunlop still feels strongly centralised - it has "a sense of corporate life and continuity"(26). This is reinforced by the corporate image as projected by advertising. The 'Flying D' trademark is claimed by Dunlop to be one of the best known in the U.K.

3.4. Dunlop Belting Division: Structure and Strategy

In the U.K., conveyor belts are made at two Dunlop factories (Cardiff and Speke). These factories together with one in Holland and one in Belgium, plus various marketing companies, constitute Dunlop Belting Group (see Fig.3.3.) The title of Group is misleading since within the context of the whole Company, Belting Group is really a product division.

Each of the units within Belting Group has retained profit-centred independence with the consequence that there is some product/market overlap between Divisions (Fig. 3.4.) Angus Belting Products and Dunlop Belting Division have competed in the same markets with the same products, with the result that customers have played one off against the other (the author found direct evidence of this during survey work in Scotland). In export markets, co-ordination of effort has been more difficult to achieve, although the formation of a Group Exports Department has gone some way to resolving this problem.

FIGURE 3.3. : THE STRUCTURE OF DUNLOP BELTING GROUP

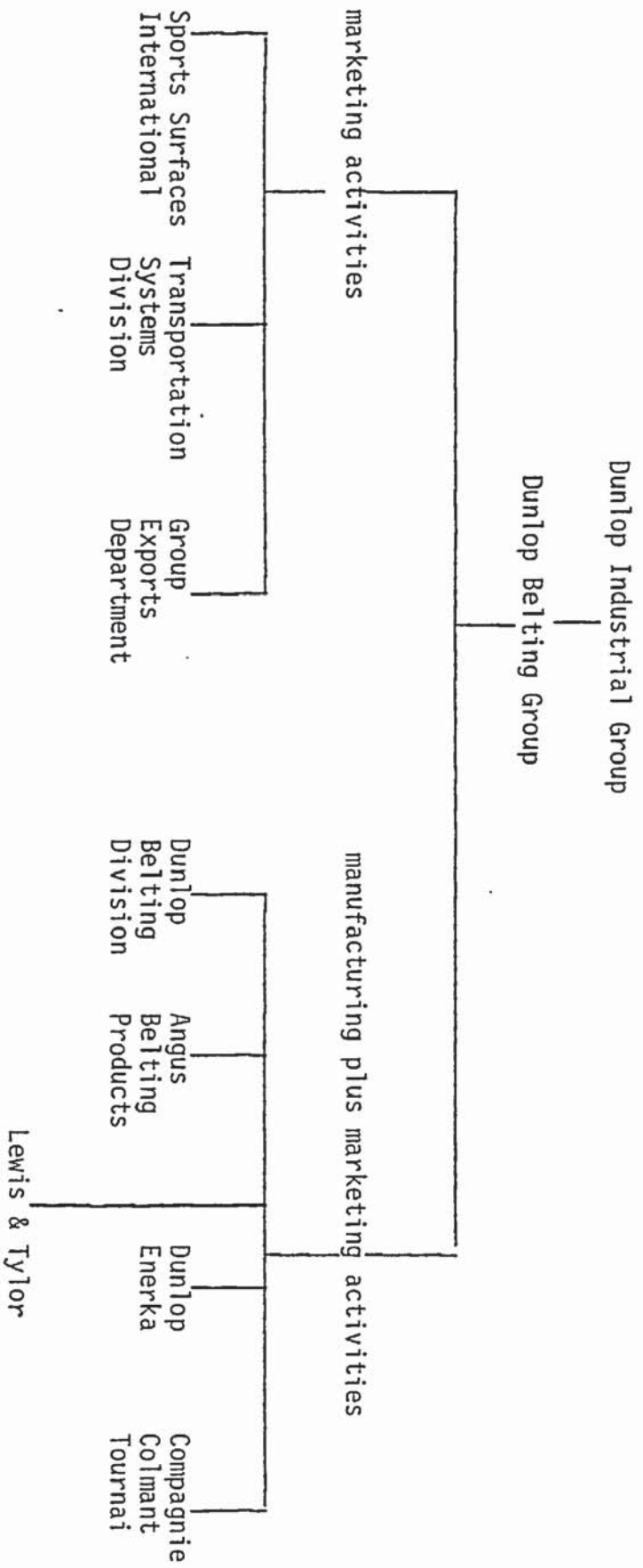


FIGURE 3.4.

PRODUCT-MARKET SCOPE FOR PLIED RUBBER BELTS

WITHIN DUNLOP BELTING GROUP

	<u>ANGUS BELTING PRODUCTS</u>	<u>DUNLOP BELTING DIVISION</u>	<u>DUNLOP ENERKA</u>
Food	*		
Package Handling	*	* 1	*
Steep Incline Chevron		*	*
Light Industrial	*	*	*
Heavy Industrial	* 2	*	*
PVC Fire Resistant		*	

Notes: 1. Not in current manufacturing range

2. Width and strength capacity restricts output of heavier belt types but still allows competition in some industrial market segments - e.g. quarrying.

The problem in divisionalising a company is where to stop the process, and the organisation of Belting Group seems to have created unnecessary confusion. Group Technical effort was centralised, so that allocation of products to factories has been a central decision. However, because sales managers were in competition, marketing's influence on product decisions at this Group level has been inadequate (see Chapter 7). This attempt to manage the Group as a divisionalised structure in its own right has therefore created problems and appears inconsistent with the objectives of product-divisionalisation of the total Dunlop Company. Add to this the further product overlapping within the Dunlop-Pirelli Union in Europe, and the potential for further co-ordination and co-operation becomes evident.

The retention of such small operating units is also at variance with Dunlop Belting Group's own assessment of the trend within the industry. In the 1972-74 Management Plan, it was anticipated that "the trend towards concentration in the conveyor belting industry will continue and the market will eventually be dominated by nine or ten major groups. Further stimulation to this trend will be given by technological developments, e.g. minimum ply and a broad range of cut-edge belting, leading to lower production costs, but with belting made on a greater scale. Smaller units will have neither sufficient market share to provide volume for the new equipment nor finance to support the investment." In view of the acknowledged need for heavy capital investment to reduce unit production cost, the implication is surely that smaller production units within Dunlop Belting Group are not viable on their own.

On the other hand an argument for the current Belting Group structure is the need to promote product diversification within the

Group. If Dunlop management assumes that there is little long-term growth in the rubber conveyor belt market and that product differentiation is not a workable strategy, then alternative product lines are a means by which Belting Group can grow. So far, this strategy has been tried with some success with passenger carrying conveyors and with artificial sports surfaces, but the contribution of these products to the Group finances has been small. The passenger conveyor business was separated from Belting Group in 1979, although Belting Division continues to manufacture the belt.

Another aspect of the effect of divisionalisation on Belting Division's marketing - the nature of management in a divisionalised Company - will be discussed below (Chapter 5) in relation to independent distributors. In this case, managers with different sets of goals are attempting to co-operate in the exploitation of markets. The distributors are 'single' or 'dominant' product enterprises sometimes in family ownership. Their attitude to business expansion has been a primary source of conflict between the distributors and Belting Division and this conflict traces back to personal identification with the business and an unwillingness to risk finance on a business venture which may only show marginal return. Belting Division managers on the other hand look for the opportunity to sell more product and expand market share, even though the margins on additional business may be low.

Company structure and control has had an influence on marketing organisation throughout the U.K. belting industry. Goodyear's industrial products business is smaller than Dunlop's in the U.K.

and is managed as one operation, resulting in a distributor network handling the full industrial product range. Dunlop, with its divisionalised structure, runs each industrial product business separately, thus dealing with different distributors and through different marketing channels. BTR has made its own company distribution network into a profit centred business separate from the manufacturing company. This has produced a different response to the market - particularly in the timing of price increases or of price reductions - from that of Dunlop whose manufacturing and distribution are part of the same business unit.

The most important external influence on Dunlop Belting Division in the period of the project was the oil crisis. Not only did the oil shortage and price rise have a dramatic effect on Dunlop's customers, it also created shortages of nylon for manufacture of belt carcasses and prices of nylon and oil-based chemicals pushed up the basic manufacturing cost of conveyor belt. These developments in materials supply had various results. Firstly, belts using cotton yarns were in greater demand, but manufacture of belts made with these textiles restricted production capacity. Secondly, the market for secondhand belting was enlarged and this has retained a larger market share in the longer term. The permanent increase in conveyor belt prices made users more reluctant to hold their own stocks and more keen to delay purchasing decisions. Manufacturers of conveyor belts had therefore to rely on more ex-stock sales for immediate use wherever possible, at the same time absorbing their own growing stockholding costs. In two years from January 1974 (when the conveyor belt manufacturers initiated a price escalation formula through the British Rubber Manufacturers' Association), the average



FIGURE 3.5. QUARTERLY INDICES, 1970-77, for Rubber Covered Conveyor Belt Orders, Production, and Quoted Deliveries--in Dunlop Belting Division. 1st Quarter 1974 = 100

cost of all-synthetic carcass conveyor belts rose by approximately 50% (27). Figure 3.5. displays Dunlop Belting Division's performance in plied rubber conveyor belt from 1970, and illustrates the wide range of conditions which occurred during the period.

A second influence was a general trend towards larger buying units in Belting Division's markets. Not only was this occurring in the steel industry, but also in construction materials producers such as Tarmac, Tilcon and others; sometimes this affected a particular company's purchasing policy, at other times not. In either case Dunlop was forced to consider its relevant commercial relationships with the whole of a group when dealing with any one part of that group.

Mention has already been made in Chapter 2 of the various segments which comprise the U.K. market for rubber conveyor belts. In linear metres, the total U.K. output of rubber conveyor belts increased in 1972 by 3%, in 1973 by 6% and in 1974 by 8%. Demand slowed down from this point, however, with the contract buyers concentrating more on purchasing economies. The British Steel Corporation which accounts for up to 20% of the market, accounted for as much as 36% of Dunlop's own business in 1975 (Fig.3.6). Similarly, in the original equipment segment, Dunlop appears to have taken a major share of the available business. Since Dunlop is estimated to have had a total U.K. market share varying between 18% and 25% through the period of the seventies, this means that in some segments Dunlop's penetration was weak. There were two main areas of weakness: firstly, in supply to the Central Electricity Generating Board, for which Dunlop needed to develop a flameproof

belt; secondly, in supply to smaller customers where distributors (accounting for 20% of the total market), were taking much of the business.

Concentration on large accounts, therefore, made Dunlop vulnerable to downturns in demand, and necessitated frequent management action to preserve the volume of this business. At the same time the emphasis of sales activity changed from the larger U.K. customers to the smaller, and to export markets.

The combination of these trends in demand for belting, supply of raw materials and developments in the tyre market therefore influenced Belting Division's general business strategy. Whilst the concentration of the belting industry into larger manufacturing units was recognised, expansion of Belting Division was to be limited to the anticipated growth of the total market. In other words, limited or no expansion of total market share in the U.K. was envisaged. Activity in the U.K. was to follow a defensive, consolidating strategy with an increase in distribution facilities seen as a deterrent to Continental manufacturers' penetration of the U.K. Productivity increases made possible by product rationalisation and synthetic fabrics would enable Belting Division's output to expand without further significant investment in production facilities.

This principle of restricting expansion was influenced by the Company's view of industrial relations at the manufacturing site at Speke. Depot stocks external to the Speke site and conservation of cash resources were both seen as a means of withstanding potential

strikes in the future. Expansion of U.K. production facilities did take place in Dunlop Belting Group in the project period, at the Cardiff factories where production lines for two new products were installed.

FIGURE 3.6. SEGMENTATION BY PURCHASER OF DUNLOP BELTING DIVISION'S BUSINESS IN RUBBER CONVEYOR BELTS

(see also Figure 2.8.)

	%	%	%
	1973	1975	1977
British Steel Corporation	28	36	24
Major Original Equipment Co's	14	15	14
Other " " "	8	7	11
Quarrying, Cement, etc.*	13	9	14
Other Industries*	11	19	22
Dunlop Company Transfers	8	8	9
Industrial Distributors (mainly redistributed to the asterisked segments)	18	6	6

3.5. Marketing Resources in Dunlop Belting Division

Dunlop Belting Division's U.K. marketing resources can be summarised as follows (see Fig.3.7.):

- (1) A small field sales force, consisting of between 6 and 8 sales representatives plus field sales manager.
- (2) A centrally based team for technical selling, co-ordination of effort in key accounts, and commercial administration.

- (3) A distribution depot
- (4) Advertising and promotion handled by a Belting Group department which produces product literature and a limited amount of trade press advertising. Some market research is also undertaken by this department.
- (5) Product development controlled by a Belting Group department with some responsibilities shared with a parallel divisional department.

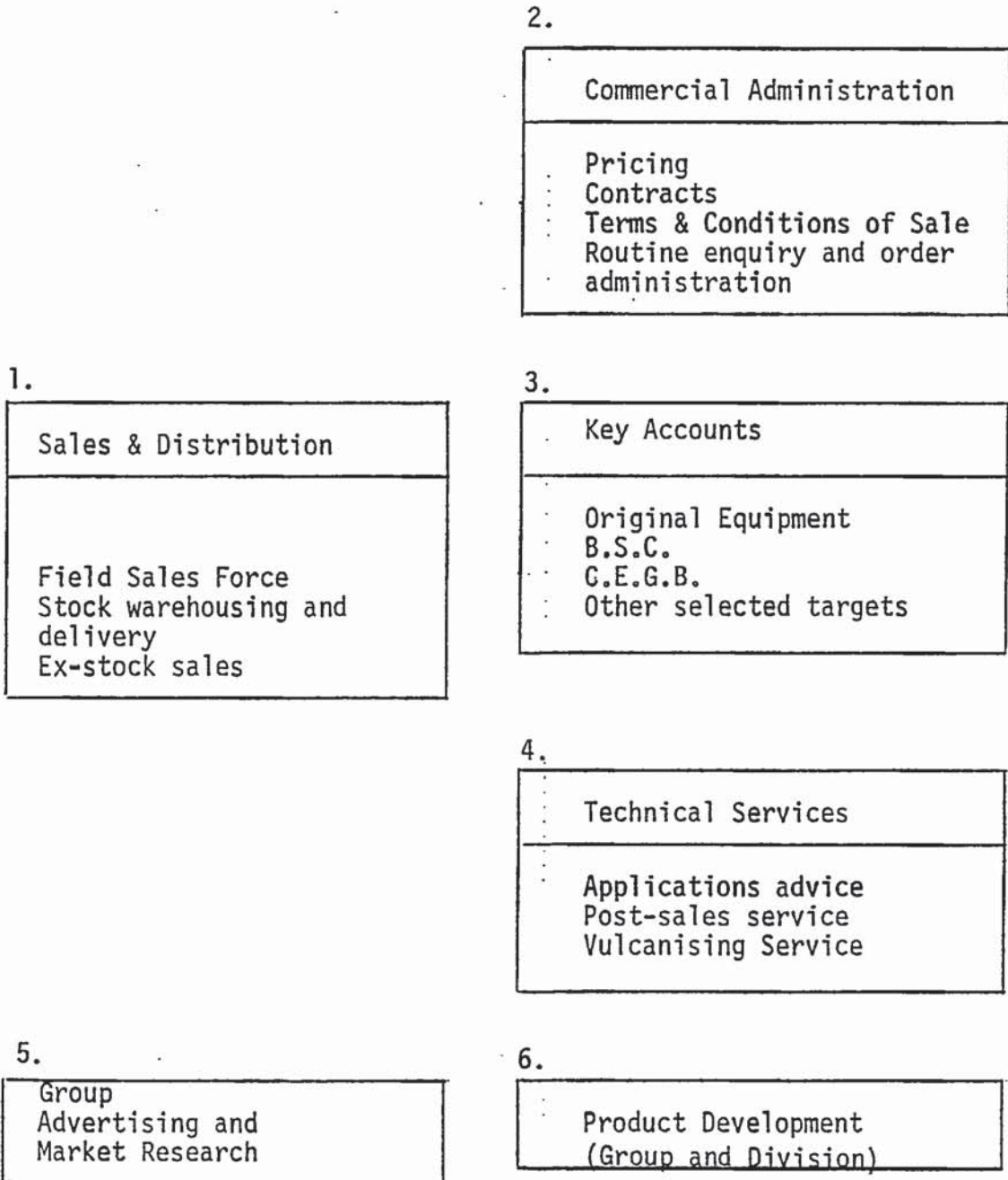
As will be argued in later Chapters, some of these activities have been poorly co-ordinated: product development has taken place without the aid of market research; distribution strategy has been as much a response to industrial relations policy as to marketing. The Dunlop Belting Group structure itself has inhibited co-ordination of activity. This is not only reflected in product development, but also in other group services; advertising and promotion effort has to be divided by one department amongst several divisions competing not just for the same Company resources, but sometimes for the same customers in the same market.

Marketing Strategy

In Dunlop Belting Division then, marketing activity has not been co-ordinated and based on an articulated marketing strategy. The sales department has found itself responsible for the organisation of selling resources, but not for the wider role of influencing product strategy. There have been two main objectives in the deployment of

FIGURE 3.7.

THE MARKETING MIX: FUNCTIONAL RESPONSIBILITIES IN DUNLOP BELTING DIVISION



Notes

- a) All personnel except those within the Sales & Distribution function are located at Speke.
- b) Functions 1 to 4 all interact and customer contact may occur via any of the groups.
- c) Product development has no direct established links with field sales but operates primarily through the sales technical function.

sales personnel: (1) to diversify sales away from dependence on large accounts, particularly the steel industry, following analysis of the distribution of business by individual accounts and the inauguration of contract buying by the B.S.C. referred to in Chapter 2; (2) to select the most profitable business in order to meet the Division's financial objectives. These two objectives have been adopted in the context of a buoyant market in the first half of the seventies, fixed production capacity, and an overall objective to maximise return on capital.

A process of market segmentation has been used to concentrate effort in new or under-developed industries or accounts. Over the period specialist managers were appointed to look after major accounts, penetrate additional key customers, and analyse the commercial profitability of each customer and even each order during the peak of the sales boom in 1973/74. Directives were issued to sales representatives to limit time spent with certain customers, and commission on orders was made applicable only to the general trade segment of the market. However, the efficacy of some of these measures may be questioned in practice. Subsequent experience has shown problems in co-ordinating manager/representative activity in the major accounts, and selective taking of business to the detriment of small U.K. customers has meant that sales continuity and market share have suffered - making the sales task in a depressed trading period one of regaining the confidence of these small customers.

These adverse developments can be attributed to a conflict between two approaches - trying to cream profit on the market, combined with a segmentation policy. The segmentation approach recognises that different segments of the market can be catered for by a "range of

quality or price or other idiosyncracies" (28), and is based "on the desire and need to maintain markets large enough to achieve the lowest unit cost of output" (29). But this maintenance of a consistent price and product promotion mix is undermined by these two conflicting approaches. Since willingness to give priority to highest short-term profit levels itself involves adjusting delivery times to other customers, this delivery capability is one important aspect of the promotion mix which has lacked consistency. Again, because of the pressure towards product rationalisation, the nature of the demand in different market segments has neither been quantified nor used as an input in developing product characteristics to exploit this demand. Differentiation for Dunlop Belting Division has relied on the development of personal selling relationships, rather than on product development. Such a strategy is easily undercut if strong central control over price and availability operates on the principle of short term selectivity. This view is supported by the author's recent experience in direct selling. Customers in the quarrying industry and other segments requiring standard products ex-stock said that they had changed from Dunlop to other suppliers when deliveries had been delayed in 1974/75. During this period sales management shifted resources to more profitable export business. The result was medium term loss of U.K. business.

The Marketing Mix

The elements of the marketing mix - pricing, promotion, distribution and product range - have been developed within this framework.

FIGURE 3.8.

PRICING/MARKET SEGMENT MIX

	TARGET GROSS MARGIN %	RELATIVE VOLUME B.S.C. = 100
Steel	35	100
Original Equipment	33	78
Other Key Accounts	35	29
Quarries/General Users	40	86
Industrial Distributors	33	64

(i) Pricing

Pricing policy has two strands. Firstly, contract prices adjudged by reference to the Division's experience of the relevant customer, past negotiations and prevailing criteria for minimum margins. Secondly, standard lists whose prices are set to recoup planned margins. Fig. 3.8. displays the pricing mix by market segments and the expected gross margins from each segment. These margins were those obtainable when production capacity was full. Subsequent experience has been that the range of margins obtainable has both narrowed and the general level of margins has reduced as demand reduced.

Although it was the policy to generate business in the highest margin segments, those serviced by ex-stock sales still received lower sales and production priority during the period of full capacity, because unless stock slabs had been allocated to specific orders prior to production, the payback on speculative stock-holding was slower than for other business.

(ii) Promotion

There have been three elements in the Division's promotion policy - personal selling, trade exhibitions and trade press advertising. Of these, most emphasis has been placed on personal selling, relying on the sales force to communicate direct to customers changes and developments in the Company's products. Levitt (30) refers to the role the salesman has in making presentations about industrial products. This includes communicating technically complex

messages, and maintaining the supplier's reputation. Sheth (31) places emphasis on the psychology of the buyer, and the locus of the buyer in his organisation. Webster and Wind (32) point to similar factors and develop the implications for marketing strategy. The salesman must be aware of the interpersonal interactions within the buying center in order to be effective. Understanding the organizational buyer's "psychological characteristics ... his predispositions, preference structure, and decision model", as Webster and Wind recommend underlines the need for personal representation in industrial products markets. Exhibitions and advertising are employed on a very limited scale which reflects the small number of potential users and purchasers in the market. It is possible for Belting Division to contact the majority of its customers and potential customers in person through its small sales force. In all the replacement markets, Belting Division has sought to maintain customer contact through its area representatives backed by specialist account managers where necessary. This, together with the low turnover of staff in the sales force, has reinforced Belting Division's stability and continuity in the market, even though groups of customers have been given differing priorities within the overall sales policy.

(iii) Distribution

The trend in the Division's product distribution to customers has been away from ex-factory sales to ex-stock sales. A major initial reason for this was the need to create an industrial relations trouble-free base. The need to create an ex-stock sales and distributive system, however, was already evident as a result of

competitive market forces at the time the Uxbridge Depot was set up. Total distribution cost does not account for a large proportion of the Division's budget (see Fig.3.9.), and the ex-stock sales activities did not attract significant management attention until the pressure of rising demand and the desire to rationalise the product range still further began to work together.

Sales managers were aware that the depot at Uxbridge had been successfully established, but were sceptical whether the rising volume of business through the depot was directly attributable to an increase in efficiency in dealing with customers as a result of the depot's activities. But, the ease with which the depot could fulfil small order quantities together with the higher margins which small orders realised lent further motivation to a review of ex-stock distribution.

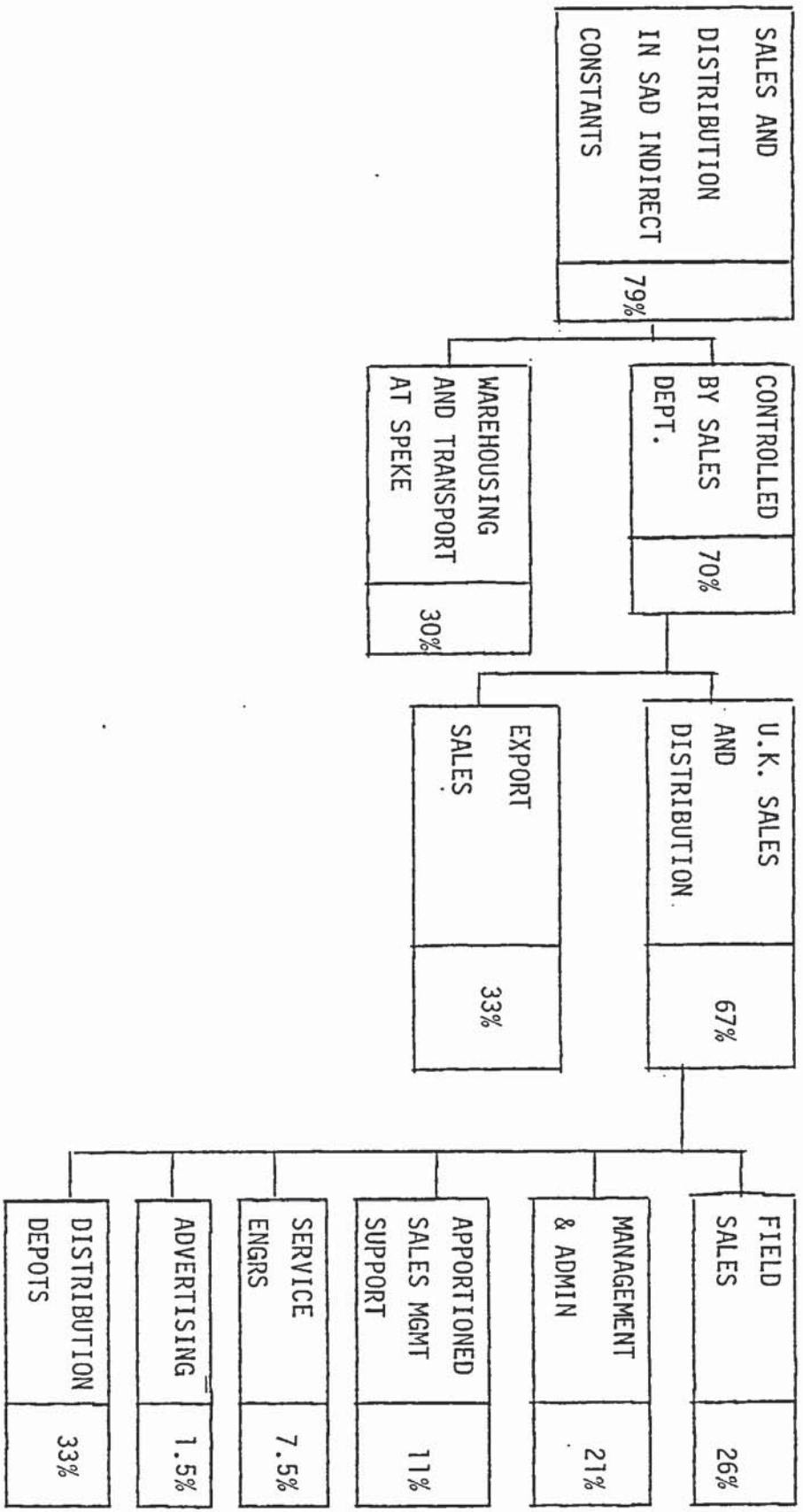
(iv) Product Range

Belting Division's product range policy in line with that of other manufacturers, narrowed the choice of belts to a small number of standard specifications. Since all the U.K. manufacturers' products are made to British Standard specifications, the product choice for customers largely became, from the early nineteen-seventies, a choice between belt types rather than belt brands. Whilst all manufacturers sought to improve quality and exploit marginal differences, the demand from major customers (primarily British Steel Corporation) to produce to their own engineering standards, forced the manufacturers into a position in which no product differentiation could exist.

FIGURE 3.9.

THE SALES BUDGET - DUNLOP BELLING DIVISION

Selling, Administration and Distribution Indirect Constants represented approximately 4.5% of sales revenue during the project period.



3.6. Summary

Dunlop Belting Division operates within the framework of a major international Company. In Dunlop's case, because of its involvement in the tyre market, membership of the larger group has not always been beneficial.

Marketing strategy in Dunlop Belting Division in the period 1973-77 had to address itself to Company constraints, to worldwide economic events, to a changing pattern in product distribution and to wide fluctuations in demand in the U.K. The organisation of resources in Dunlop Belting Group may have inhibited Belting Division's ability to act successfully in certain areas. Equally, the product divisionalisation of the whole Dunlop Company prevented co-operation in markets common to industrial products divisions which were becoming difficult to manage for Belting Division alone.

Dunlop Belting Division's strategy, as inferred by the author, was to maintain but not expand production capacity, to exploit the most profitable parts of the market - including export markets - when demand permitted this, and to develop ex-stock sales and distribution. During periods of high demand, the Division favoured pre-sold rather than sales stock production, even though the latter had the highest final selling price. As a result long delivery times were more to the detriment of smaller customers in the ex-stock market, a fact which made trading conditions difficult from about 1976 when demand slackened and the Division had less ability to choose preferred segments.

CHAPTER 4

THE MARKETING CHANNEL

4.1. Introduction

In Chapters 2 and 3, the competitive environment in which conveyor belting is sold was described. Other pressures operating on Dunlop Belting Division were also discussed and the conclusion drawn that the main marketing instrument available to the Division to influence sales volume was distribution strategy.

Rather than concentrating on distribution in its narrow sense of organising the physical stocking and flow of products between locations, the wider concept of the marketing channel is more appropriate in examining Dunlop Belting Division's options. This Chapter first considers marketing channel theory and then relates this specifically to marketing channels for conveyor belts. The concerns of Dunlop Belting Division's management in the selling and distribution of its products are outlined, providing the framework for an analysis, in Chapter 5, of the contribution of independent distributors. Some of the lessons learned - particularly in respect of channel management and control - from the study of independent distributors influenced the decision to increase the role of the vertically-integrated institution in Dunlop Belting Division's channels. The basis of this study was research undertaken in one of Belting Division's sales territories - (Scotland) - where an independent distributor had been selling Dunlop belts for several years. Subsequently, project work was oriented to establishing one of Belting Division's options - a national distribution centre at

Wolverhampton (Chapter 6).

4.2. Definition of the Marketing Channel

The marketing channel is the trade route along which a product is transferred in both location and ownership from manufacturer to user; the channel also enables the various functions of the marketing mix to be extended outwards from the manufacturer to the users or potential users of the product. Channels may offer different routes and different characteristics for achieving the desired transfers between manufacturer and user. These transfers may take place at the instigation of end user or middleman as well as of manufacturer. The trade route allows two way traffic, physical and non-physical, though not necessarily in the same proportions. It also allows changes in the marketing characteristics of the product: in its assortment among other products, the product range context in which it appears, in its availability, in its use. Modifications to the product are also made possible: breaking bulk, mixing with other products, packaging, processing (as with steel or even conveyor belt). So at its most complex the marketing channel can be seen as a complex economic system in which various types of institution (producer, wholesaler, retailer, agent, consumer, banker, etc.) participate and through which they exploit particular marketing characteristics to the advantage of their own businesses.

It is the need to include this complexity of functions and institutions which makes definition of the marketing channel so difficult. Bruce Mallen discusses this point (1) and eventually proposes the following definition adapted from Vaile, Grether and Cox (2):

"A channel of distribution may be thought of as the combination and sequence of (institutions) through which one or more of the marketing flows potentially or actually moves. In its simplest form, a channel is limited to the (actual) movement of one unit of (product) in one (ownership) flow (ending when it undergoes any form change or when it reaches the last business institution in the system).

In its more complicated forms, the channel includes all combinations and sequences of all the (institutions and consumers) in all the (actual or potential) flows (right from the raw materials and back to the business sector from the consumer sector). It may apply to a whole class or type of (product) and to a company, a trade, or an industry. In its most complex form, it describes typical, (potential) or actual flows of broad classes of (products) or charts the marketing structure as a whole."

Given such a definition, the number of combinations is huge. Mallen goes on to calculate, given a particular set of assumptions, that the number of possible different channels for a single product is over two million. It is more convenient here to describe and analyse the functioning of channels which do exist and to consider modifications to these, rather than to speculate on the set of all possible channels.

To the manufacturer of a product, it is important to understand the available marketing channels in terms of the capacity and the skills contained in the channel and their ability to carry

out the various marketing and physical distribution tasks necessary for the product to reach its user or consumer. Evaluating channels in terms of their functions allows the total sequence of activities to be viewed as a system and "provides a framework for evaluation of alternate channel structures with respect to total channel capability" (3).

4.3. Channel Functions

Channel functions are determined by the interpretation of user/consumer demand for service characteristics of the product. These according to Bucklin (4) and adapted by Stern and El-Ansary (5) take four primary forms - (a) spatial convenience, (b) lot size, (c) waiting or delivery time, (d) product variety. For the channel for a particular product, we can modify or add to the list of service characteristics: for example, design service, installation service, post-sales service.

Stern and El-Ansary continue: "Consumers are usually faced with the choice of dealing with channel structures in which few service outputs are provided but where prices are relatively low or with those structures where both service outputs and prices are high In cases where channel outputs and prices are low, consumers are supposedly compensated for their additional efforts through the lower relative prices which are provided by such channel structures.

On the other hand, commercial channel members face some difficult choices as well. It is possible to argue that the lower the level of service outputs provided, the greater are the economies of scale that can be achieved by channel members, and vice versa. The final

structure that emerges is, therefore, a function of the desire of channel members to achieve scale economies relative to each of the marketing flows and the demand of consumers for service outputs of varying kinds." Whilst Stern and El-Ansary argue that an "optimal structure is one that minimises the total costs of the system (both commercial and consumer) by the appropriate adjustment of the level of the service outputs", it is more likely that costs too will be adjusted to achieve the desired levels of service.

Bucklin identifies five functions in the channel (6):

(i) transit, (ii) inventory, (iii) search, (iv) persuasion, (v) production. These fulfil the following criteria:

"(1) The activities ... in each function must be so related as to make it necessary for some firm to organize and direct the performance of either all of them or none of them.

(2) The activities must have sufficient scope as to make it possible for the firm to specialize in them to the exclusion of all others.

(3) The activities should incur substantial costs.

(4) Each marketing activity must be placed in one function and in one function only."

Some functions will be performed more than once by a channel member: for example, a distributor may search for both user and manufacturer.

Bucklin does not include the consumer in the channel and therefore omits the consumption function. Whilst consumption is not a function

of the channel, however, the consumer or user may in the conveyor belt market perform, or control the performance of, channel functions. For example, the National Coal Board holds large stocks of conveyor belt and also imposes design standards on the manufacturer. User companies with large engineering sections may also undertake design work, or specify products in conjunction with the manufacturer's own technical staff.

Kotler (7) identifies three groups of activity: (i) making goods available, (ii) searching for buyers and communicating information about product features and availability, (iii) closing sales, and (8) restates the activities in four functions: transport, advertising, storage and contact.

The possession of the characteristics and skills which enable these functions to be performed is also a key area for analysis. Both the organisation structure of each institution, and that of the whole channel, bear scrutiny, as do the resources of each institution and of the whole channel.

4.4. Channel Organisation

Revzan (9) sees channel organisation as the outcome of five factors:

- (i) the number of links in the channel,
- (ii) the level of importance of the various links,
- (iii) the type of control which is exerted upon the channel,
- (iv) the breadth of business penetration achieved by the channel.
- (v) the types of flow facilitated by the channel.

To take each factor in turn; firstly, a channel exists when a sequence of activities, relating to the production and sale of a product, can take place. Indeed, a channel comes into existence itself through a sequence of activities according to Breyer (10): channels can be formed by the placement of an order back through the links in the system. The links may be purely temporary - dependent on the act of ordering a specific item. As soon as the order is placed a channel exists even though no physical flow has taken place, and might not take place for months. "A channel is formed", in other words, "wherever a single product or group of products moves through a new combination of trading concerns". The institutions which form the links between manufacturer and retailer (or industrial user) are wholesalers and transport companies who actually handle the products themselves, but may also be shipping houses, manufacturers' agents and the like, who facilitate contact between manufacturer and retailer or user, and who may own the products at some stage in the sequence of transactions, but who do not handle the products physically.

The level of importance of the various institutions may vary according to the product being handled. Thus transport capability may have primary importance in fresh foods distribution, but in the conveyor belting channel transport is a less critical function than that of making products available at designated warehouse or distributor locations: thus enabling transport to take place at short notice.

Control of the channel could rest with any of the types of institution involved. User control of marketing conveyor belt to

the coal industry has already been noted; some channels are retailer dominated, others producer or wholesaler dominated. The aggregation of power either vertically or horizontally in the channel through common ownership or joint venture (for example, a co-operative buying organisation), enables control to be taken by particular firms. Control may also be exercised through legal title over the product, branding and pre-packaging, credit or franchising.

Breadth of business penetration relates to two factors. Firstly, a channel may be product specialised or customer/industry specialised. A particular channel may market a product or product group to as many customers or industries as demand it; another may market a selection of products appropriate to a particular customer group or industry. Market segmentation may have differing significance for the various institutions in the channel: the producer is likely to be product specific, the distributor may be either product or industry specific. Secondly, penetration may be a function of the number of outlets utilised. Dodge (11) cites three types of coverage from product outlets: (i) limited coverage where a producer has one or a limited number of outlets per trading area. These outlets may have an exclusive contract with the producer; (ii) selective coverage where the number of outlets is restricted to those who can serve the producer profitably; (iii) mass coverage where many outlets are utilised to obtain blanket coverage of the market. In practice, Dodge says, producers are tending to move from mass to selective or limited coverage.

Flows in the channel comprise the movement of both goods and

services. Comment has already been made on the service outputs of the channel, but service inputs in the form of marketing intelligence also flow in the channel back towards the producer. Other reverse flows in the conveyor belt channel comprise return of goods, payment for goods and services and product specification. The arrangement of the institutions in the channel and the flows in the channel are interdependent. If the channel is vertically integrated for instance, the producer has greater opportunities to move products down the channel toward the user. The necessity to create greater availability close to the user may prompt vertical integration to facilitate product flow.

4.5. The Marketing Channel - Summary

In order to understand a marketing channel therefore, three sets of factors should be described: the service outputs demanded of the channel; the functions necessary to create these outputs; the structure and organisation which enable the functions to be carried out (see Figure 4.1.).

As McVey (12) has commented, much of the channel concept is purely academic. Elements of the channel often do not have the freedom to choose, structure or control the marketing channel in which they participate. This is because, as Bucklin says (13), "extant channels are the product of a complex stream of past and present economic, social, and political forces which are not always relevant to the future". Extant and ideal channels can be compared though in order to improve the extant ones. It is also a fact that neither marketing channels nor the institutions of which they are comprised are fossilised. Both channels and institutions are continually

developing, and particular firms - producers, distributors or users - may themselves be undergoing organisational change.

"The major reason for channel change", writes Kotler (14), "is timely discoveries by entrepreneurs of more effective or efficient ways to accomplish the same work." The success of self-service supermarkets is quoted to illustrate this point. Vertical marketing structures - in which co-ordination of the channel takes place toward achieving channel goals - are now replacing individualistic structures in which competition occurred between individual wholesalers or retailers. This development is analogous to that in the conveyor belt market in which, since the late nineteen-sixties, agreements between producers and distributors have recognised the importance of distributors in reaching the user, and the importance of co-operation to achieve sales penetration and growth. The logical extension into planned channel management has not always occurred however.

FIGURE 4.1.: FACTORS FOR MARKETING CHANNEL ANALYSIS

SERVICE OUTPUTS	FUNCTIONS	ORGANISATION
SPATIAL	TRANSIT	NO. OF LINKS
LOT SIZE	INVENTORY	IMPORTANCE OF LINKS
WAITING TIME	SEARCH	CONTROL
PRODUCT VARIETY	PERSUASION	BREADTH OF PENETRATION
TECHNICAL	PRODUCTION	TYPES OF FLOW
INSTALLATION		

4.6. Service Outputs and Functions in the Conveyor Belt Marketing Channel

To be of use on a specific conveyor at a particular operating plant, a conveyor belt must be (a) of the correct product type for the application, (b) of the correct width, (c) of the correct length. The plant operator also requires the belt to be (a) available at the correct time, (b) joined by either mechanical fasteners or vulcanisation.

The service outputs required by any given customer for conveyor belts are therefore:

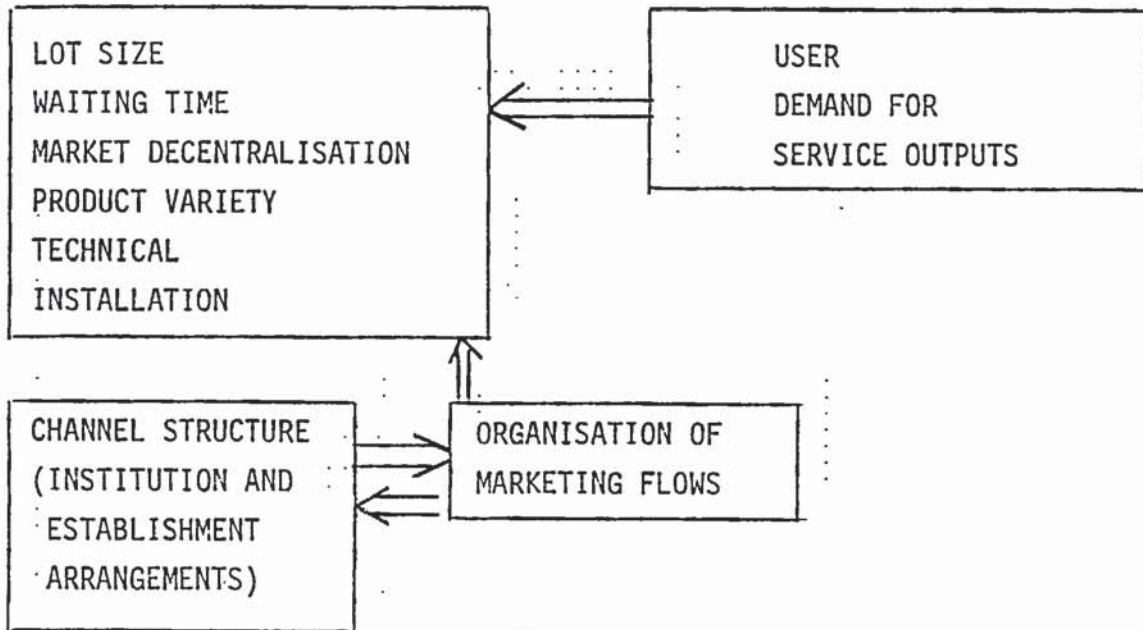
- (i) Technical : the ability to recommend the right product for the application,
- (ii) Product Variety : the ability to supply this product,
- (iii) Lot size : the ability and willingness to supply the product in the size required,
- (iv) Delivery : waiting time for belt to arrive on site once it is ordered,
- (v) Spatial Convenience : utility to customer of ordering belts locally; also utility to customer for own collection,
- (vi) Installation : ability to vulcanise belt on site. where this is preferred to the use of mechanical fasteners.

As we have considered elsewhere, the utility of these outputs varies between market segments. The provision of these service outputs and the scale of that provision therefore depends on the potential in the market segment(s) for which the provision is made, and also on the bargaining power of particular users (see Figure 4.2.).

FIGURE 4.2.

THE DETERMINATION OF SERVICE OUTPUT LEVELS

(after Stern and El-Ansary)



A range of ideal marketing channels can be envisaged from the foregoing which at different levels of cost would provide various levels of service output.

Segmentation of service outputs is by a combination of industry and (geographical) area segments, and the quantitative assessment of the outputs is by reference to competitor activity and to users' perceptions of their own needs. Figure 4.3. for instance displays four industry segments which can be identified as having different service output requirements.

Within geographic areas, the service outputs which can be exploited are spatial convenience, linked with delivery and, in the special case of the foundry industry, installation. In Figure 4.4., the functional cost elements which have to be accounted for in

FIGURE 4.3. : SERVICE OUTPUT REQUIREMENTS FOR FOUR MARKET SEGMENTS

INDUSTRY SEGMENT	MAJOR ORIGINAL EQUIPMENT	BRITISH STEEL CORPORATION	QUARRYING ACTIVITIES	FOUNDRIES
TECHNICAL	SALES ENGINEERS TO ASSESS EACH ENQUIRY FOR PRODUCT RECOMMENDATIONS	FREQUENT ADVICE REQUIRED WITH-RESPECT TO INDIVIDUAL ORDERS, ANNUAL CONTRACTS, AND ENGINEERING STANDARDS.	INFREQUENT ADVICE ENABLING STANDARD SPECIFICATIONS TO BE USED.	
PRODUCT VARIETY	WIDE PRODUCT RANGE, ESPECIALLY HEAVY DUTY BELTS AND BELTS WITH SPECIAL COVER REQUIREMENTS.	STANDARDISED RANGE OF HEAVY DUTY BELTS.	STANDARD RANGE WITH SMALL NO. OF WIDTHS IN REGULAR DEMAND, BUT LARGE NO. OF WIDTHS IN TOTAL DEMAND	
LOT SIZE	LARGE VOLUMES PURCHASED	PRODUCTION QUANTITY RUNS FREQUENTLY REQUIRED	DEMAND OFTEN BELOW PRODUCTION RUN (200m) QUANTITY	
DELIVERY	REQUIRING MAJOR MANUFACTURING CAPABILITY. USUALLY POSSIBLE TO PROGRAMME MANUFACTURE IN ADVANCE OF DELIVERY REQUIREMENT	USUALLY, PRODUCTION LEAD TIME IS ADEQUATE BUT SOME BELTS IN SENSITIVE APPLICATIONS REQUIRE QUICK DELIVERY. TREND TOWARDS EX STOCK DEMAND TO REDUCE STOCKHOLDING ON SITE	USUALLY 1-2 WEEKS. SOMETIMES IMMEDIATE	OFTEN IMMEDIATE
SPATIAL	NOT RELEVANT	SOME PRESSURE TO STOCK LOCALLY TO 5 MAJOR SITES	CAN BE INFLUENCED BY LOCAL SUPPLIER	PREFER LOCAL SUPPLIER
INSTALLATION	USUALLY REQUIRED	SOMETIMES REQUIRED, BUT SOME STEEL PLANTS OPERATE OWN VULCANISING TEAMS	INFREQUENTLY REQUIRED	ALWAYS REQUIRED

the conveyor belt marketing channel are listed.

The functions which must be carried out to achieve the delivery of the conveyor belt to site are these:

- (1) Make a production-run quantity ('slab') of belt.
- (2) Slit the belt lengthways to create final width.
- (3) Cut the belt crossways to create final length.
- (4) Transport to site.

In addition to these essential functions, the first three of which are concerned with the modification of the product form to a 'lot size' convenient to the user, functions to provide service outputs necessary to varying degrees of geographic and waiting time utility are:

- (1) Bulk storage of a designated product range.
- (2) Regional storage of a designated product range (likely to be limited in practice).
- (3) Intermediate transport between manufacturing and storage sites.

Non-physical activities enabling the transfer of the product from producer to user must also take place. These are:

- (1) Activities associated with the sales operation - i.e. customer contact, persuasion, enquiry generation, order taking, technical advice.
- (2) Provision of financial facilities, particularly credit to enable transactions to take place.

- (3) Administration of order processing, invoicing and other post-sales activity.

Finally, the installation of the belt may require the provision of a vulcanising service, although many users need only to use mechanical clips which can be employed by the operators' own personnel.

4.7. Channel Organisation for Conveyor Belt Marketing

The institutions and the organisation of the institutions, the marketing channels, which sequence these functions to the satisfaction of the users' service needs and the profit of the firms involved can now be described.

The User's Options

From the point of view of the user, there are three main outlets which might supply him with conveyor belt:

(i) The industrial distributor who provides conveyor belt in the context of a range of industrial supplies: v belts, transmission belts, idler sets, protective clothing, oil seals, industrial hose.

(ii) - The conveyor belt producer who may supply direct from the production line or from stock.

(iii) The original equipment company which supplies belts with new equipment purchases.

A special type of industrial distributor, dealing in second-hand equipment, can be seen as a fourth type of outlet, although some industrial distributors deal in both new and second-hand belting.

The attractions (i.e. the service outputs, which vary between channel types and between competing channels) to the user which lead him to prefer one of these outlets are: (i) price - as in the second-hand option, (it is assumed the user will choose on price once other service outputs are satisfied); (ii) frequency of contact - depending on the size of the user, the industrial distributor is likely to make more frequent sales contacts than the one-product salesman; (iii) quantity of business - if the user believes the quantity of business he has to place is significant, he may actively search for alternative quotations; (iv) technical advice - users frequently need to solve conveying problems and to do so will choose to contact an agency with the appropriate skills (which are most often available within a manufacturer's technical team); (v) availability ex-stock - postponing purchase to the last possible moment, and emergency breakdowns; (vi) location of the outlet; (vii) reliability of the supplier in providing these service outputs.

Differences between the Marketing Channels for different Brands

On the replacement belt market, channels for the different brands available vary from the largely indirect to the largely direct. All the belt producers intervene directly in the selling of their products at some point, the main cause for a producer in an indirect channel being overriding technical or quantity/price

features. The main differences between the brand-channels in operation, however, can be seen as being related to the product variety and the technical services provided by the various producers. The ownership and control of the channels is also related to this breadth of operation in the market.

Belt manufacturers can be placed into a combination of two of four general categories. These are:

- (1) manufacturers with a limited product range,
- (2) manufacturers with a wide product range,
- (3) manufacturers with a limited manufacturing and technical flexibility,
- (4) manufacturers with a wide manufacturing and technical flexibility.

The combinations possible are, since (1)+(2) and (3)+(4) are mutually exclusive, (1)-(3), (1)-(4), (2)-(3), (2)-(4).

The Dunlop sales team's view of the manufacturers producing for the U.K. market is that on this basis the various firms would fit these combinations as follows:

- (1)-(3) : Greengate & Irwell; Uniroyal
- (1)-(4) : Goodyear
- (2)-(3) : Importers such as Trelleborg of Sweden
- (2)-(4) : BTR; Dunlop.

In the formation of marketing channels for specific brands, manufacturers have tended to participate most in indirect channels

when the manufacturer's own operations either in production or marketing were limited. The two manufacturers of the (2)-(4) variety (BTR and Dunlop), have invested most in vertically integrated marketing channels. Participation in independent indirect channels has been to supplement specific areas of marketing weakness or to take advantage of a distributor's particular strengths - and Dunlop has tended to mix wholly-owned and independent channels more than BTR. The limitations of the independent indirect channel are such, however, that manufacturers aiming to sell conveyor belting to major users and/or for technically complex applications, such as those found in steelworks, must provide a direct technical sales team alongside the distributor's own sales effort. Thus, Goodyear, the manufacturer with the most extensive industrial distributor marketing channel, also maintains direct contact with key customers, and is obliged to aid its distributors with contract prices where necessary in the distributor's own markets.

Distributors themselves may be either active participants in the conveyor belt channel or may be participants in more generalised channels for industrial goods. Conveyor belt is bought and re-sold by a wide variety of distributors in the U.K., many of these dealing in only small annual quantities of conveyor belt, often supplied to captive customers. Those distributors continuously involved with the marketing of conveyor belts, and having negotiated contracts with the belt manufacturers are of most concern.

Analysis of Dunlop Belting Division's sales force's own knowledge of the distributors operating in the U.K. revealed a

FIGURE 4.5. CONVEYOR BELT DISTRIBUTORS IN U.K. (at Dec '78)

AREA	MAJOR DISTRIBUTORS	MAIN BRAND CARRIED	MANUFACTURER OWNED DISTRIBUTORS	NO. OF OTHER DISTBR'S KNOWN TO DEAL IN CONVEYOR BELT
SOUTH WEST	CMT	GOODYEAR	OUTRA (Goodyear)	9
	DICK BEARINGS	UNIROYAL		
SOUTH EAST	BARROW HEPBURN GALE	G&I/ UNIROYAL	OUTRA (Goodyear)	6
	RUBBER HOUSE	G&I	SID(BTR)	
MIDLANDS	CMT	GOODYEAR	BERT(BTR)	7
	TEK	UNIROYAL	TRELLEBORG	
	BARROW HEPBURN GALE	G&I/ UNIROYAL	DUNLOP BELTING SERVICES	
	NORSALTA	ATLAS (import)		
	RAP	?(import)		
NORTH WEST	CMT	GOODYEAR	TED(BTR)	5
	DICK BEARINGS	UNIROYAL		
	LEYLAND VULCANISING SERVICES	UNIROYAL		
	RUBBER HOUSE	G&I		
	RAP	?(import)		
YORKS	CMT	GOODYEAR		6
	GLOVER & WOOD	GOODYEAR		
	ACE VULCANISING	ROULUNDS (import)		
	G.E. SIMM	KLEBER (")		
NORTH EAST	FRAZERS	GOODYEAR	VULCANISERS OF ASHINGTON (BTR)	
SCOTLAND	CMT	GOODYEAR		7
	POTTER COWAN	GOODYEAR		
	D STROTHERS	BTR		
	DICK BEARINGS	UNIROYAL		
	RUBBER HOUSE	G&I		
	ACRE	DUNLOP		

breakdown by area as shown in Figure 4.5.

Indirect Channels

If Revzan's five organisational factors are used to describe the conveyor belt marketing channels, we find that for the distributor channels;

(a) even in indirect distribution the channel is short, having only one, possibly two, intermediate links between manufacturer and user; there is no wholesaling institution present.

(b) the relative importance of the manufacturer or the distributor seems to be dependent on the organisational and technical complexity of the customer; where conveyor applications are standardised and the buying decision-maker is accessible on site, then personal representation and convenience of location can give the distributor a competitive edge.

(c) control of the channel is largely dependent on the amount of direct access the manufacturer has to the market; whilst a distributor's own throughput can be controlled by credit restrictions imposed by the manufacturer, channel sales will continue at the required volume only if the manufacturer has a knowledge of the customers and the resources to service them. Manufacturers with a greater reliance on independent industrial distributors can therefore be assumed to have less overall channel control.

(d) conveyor belt channels have various dimensions of penetration in the market. C.M.T., the major Goodyear distributor, is a large general industrial goods distributor and steel stockholder, and wide penetration of industrial customers results from this. Other distributors such as Acre Rubber Company carry a restricted range of industrial goods; often this type of distributor terms his business

as being confined to industrial rubber goods, and may also have a selective coverage of accounts in the quarrying or foundry industries. Manufacturer-owned distributors are product-specific, and account and industry penetration is totally selective.

(e) three main flows are present: physical, financial and legal, and informational; product moves either direct to user, or indirectly through one or two distribution points; ownership and payment are transferred between the various independent links in the channel; product promotion is carried out through the channel links and finally by the distributor's or manufacturer's salesmen in the market. The frequency and level of contact, and quality of information passed between manufacturer and distributor, are important determinants in channel effectiveness (see Chapter 5 on the relationship between Dunlop and Acre Rubber Company), and formal channel agreements enhance this effectiveness.

The Original Equipment Channel

This channel is mainly concerned with information flow, negotiation and ownership transfer, whilst physical distribution is normally direct from manufacturer to final user site in the case of large scale materials handling schemes. Because the time scales for negotiation of each contract are extended, because the input of technical effort is relatively high, and because the belt manufacturer may be dealing with several original equipment companies for each contract - and therefore the number of potential linkages between final user and belt manufacturer increases -, this business is dealt with by specialists. Within the overall original equipment market, the channels for individual brands of belt are continually being formed, broken and re-formed according to the requirements of the

market and success in each contract.

The original equipment channel can be likened to a wholesaler-retailer channel in which sets of firms at each institutional level compete with each other for business and in which particular firms may gain specialist advantage. In order to maximise sales, the belt manufacturer must aim for blanket coverage, although particular long-term relationships between contractors and suppliers do develop, due to their inter-dependence for technical effort and specialisation in marketing to particular industries or overseas.

On the replacement market, service outputs are related to a combination of selling contacts and physical distribution, with pre-sales technical service having a low priority; for original equipment sales, pre-sales technical service and commercial negotiations take a high priority, (lack of) product variety possibly acts as an entry barrier to channels, and physical distribution has a low priority.

4.8. Dunlop Belting Division's Marketing Channels

For replacement sales, the channels which operate in the U.K. can be generalised as of two types:

TYPE (A)	High spatial convenience
	Limited product range
	Lower price
	Low technical services

TYPE (B) Wide product range
 High technical services
 Low spatial convenience
 Higher price

Dunlop Belting Division has chosen to pursue a direct sales strategy, maintaining wherever possible sales contact with the end user. Indirect distribution within Dunlop has therefore developed as a vertically integrated structure, starting first with the establishment of depot stocks at Uxbridge, and latterly (during the period of this project), with the enlargement of the depot role and its transfer to Wolverhampton. In order to maintain ex-stock availability in as wide a range of product specifications as possible and also to gain maximum use of the warehousing and associated equipment required, Dunlop has concentrated its resources on the development of one centre for distribution throughout the U.K. Simultaneous with the development of its own distribution facilities, Dunlop Belting Division encouraged sales through independent industrial distributors in two areas. In the West Midlands, TEK Rubber & Asbestos Services Limited, provided a marketing channel to the foundry industry in which immediate delivery plus installation capability is crucial; in Scotland, Acre Rubber Company provided sales coverage and local stocks particularly to the quarrying industry. Additionally, sales were made to another important distributor, Barrow Hepburn Gale Limited, operating in the East Midlands and South East and selling belt under an own brand name. Other, more temporary, agreements with distributors have operated from time to time, where the distributors appeared to have either a captive customer group or other marketing advantage not shared by Dunlop. The general trend has been towards concentrating

sales effort and resources within the Company, with the contract with Barrow Hepburn Gale ending after eight years in 1974, and the distributor agreement with TEK ending after ten years in 1976. In Ireland and Scotland where the direct sales plus in-company distribution strategy was not so effective, industrial distributors have been encouraged, and continue to play an important role. However, crucial differences in the channel management of Acre Rubber Company, and subsequently channels in Eire and Northern Ireland as compared with the other distributors have also contributed to the development of the former and the decline of the latter.

Reflected in all these developments is Dunlop's effort to maintain channel control, and this may be regarded as having two objectives: growth and stability.

Channel growth, or the growth of throughput of the product through the channel, is dependent on the capacity of the channel to cope with physical distribution, on the breadth of penetration a particular channel achieves for a particular product, on the financial ability of the channel to sustain growth - to build stocks or employ extra salesmen -, and on the compatibility of the growth objectives of manufacturer and distributor.

Channel stability relates both to the ability of the various firms in a channel to stay in business, or stay in the business of marketing a particular product, and also to the willingness of the firms to continue their agreements with each other over the long-term. Factors such as finance, ownership, organisation, and, related to the latter, the objectives of a firm's management, all influence the stability of the channel.

Chapter 5 discusses Dunlop Belting Division's experience in exercising various forms of channel control, from credit restrictions to parallel support representation. In general, Dunlop has found greater control of the channel, and greater flexibility in growth and pricing objectives, by maximising direct representation and supporting distributors with Company salesmen. When distributor agreements have ended, they have done so in conditions in which Dunlop had low market information on the area, poor management contact with the distributor, no or unco-ordinated direct representation in the distributor's area, and the distributor felt able to bargain with rival belting manufacturers for better commercial terms. The effects of these manufacturer weaknesses are further emphasised by the interchangeability in specification and quality of the conveyor belting of at least the three largest belt manufacturers - Dunlop, BTR and Goodyear: brand image, and its potential controlling influence on the distributor, is therefore weak, consequently raising the level of importance of service features in channel control.

4.9. Summary

From the mid nineteen sixties, ex-stock marketing of conveyor belt grew in importance. This move was encouraged and facilitated by changes in materials technology in the conveyor belt industry. Whilst some local manufacturers and importers opted to rely on independent industrial distributors, both Dunlop and BTR concentrated on vertically integrated channels. BTR developed three so-called service companies, whilst Dunlop extended the functions of its national stock-holding depot to include more customer contact and direction of the Dunlop sales force. Because of the low level of product differentiation in

the market, competition devolved on the commercial and service characteristics of the rival conveyor belt companies. Marketing channels played a crucial part in this competition, with Dunlop opting to retain maximum flexibility and control through the development of Dunlop Belting Services, described in Chapter 6.

In doing so, Dunlop chose to meet competition of two kinds: on the one hand, between two and six active distributors operated in each sales territory with several other small firms buying and selling conveyor belts periodically; on the other hand, Dunlop's rival, BTR, had also opted for vertical integration in distribution, but with more locations.

CHAPTER 5

THE INDEPENDENT DISTRIBUTOR

5.1. Introduction

This Chapter will examine one of the main outlets which Dunlop Belting Division has chosen for supplying the U.K. market: the independently owned distributor. At the outset of the project there were two such companies distributing Dunlop belting by agreement, but with the establishment of the Wolverhampton Depot one of them ended its agreement. The two companies are TEK Rubber and Asbestos Services Limited, trading in the West Midlands, and Acre Rubber Co. Limited of Glasgow, but the latter provided most of the material for this Chapter. Its performance in the belting business will be discussed in relation to Dunlop's objectives, and the market in Scotland.

5.2. The Place for Independent Distributors

This study has highlighted the role which the distributor can play, and the concerns of the manufacturer in managing his relationship with the distributor. The issues raised by the small scale operations of Dunlop Belting Division's distributor arrangements are, however, remarkably similar to those reported by F.E. Webster (1) in a field study of American industrial distributors. In the selling role, distributors, the report comments, "generally lack ability to aggressively develop markets for new products or to serve narrow market segments with specialised product needs." In Webster's study

manufacturers maintained parallel sales forces whose major functions were to solicit orders from the distributor and to support the distributor. The manufacturer's sales people made joint sales calls with distributors, as well as providing technical service. "Not uncommonly, the manufacturer's sales people are responsible both for working with the distributor on most account and for giving direct service to large accounts."

In style, "the typical industrial distributor remains a small, independent business, owner-managed, with limited management competence and little or no long range planning."

Channel management also posed problems for the suppliers, the most common being, "how to handle large accounts, required inventory stocking levels for the distributor ... overlapping distributor territories, size of distributor margins and the philosophical question of whether the distributor's primary obligations and loyalty are to the customer or to the supplier."

Marketing strategy in channels relying heavily on industrial distributors had no single characteristic; however, "the nature of the distributor organisation and the relationship between distributor and supplier will reflect the manufacturer's marketing strategy."

To the belt manufacturer, independent distributors offer several potentially beneficial qualities. First, they provide selling resources in an area beyond the capability of the supplier; second, in Dunlop Belting's case, they are small businesses whose

owner-managers have a direct interest in the success of the enterprise; third, they can provide differentiated service in geographic or industry market segments (although they require product support as found in Webster's study).

In the belting industry, such firms tend to be either local industrial distributors trading in a range of rubber industrial products, or vulcanising firms originally set up to carry out on-site belt splicing and belt repairs, which have expanded into the sale of belting itself; or firms largely dealing in secondhand equipment (particularly for the quarrying industry).

With local availability and frequent contact these firms can exploit two customer groups more successfully than the manufacturer. These groups are: first, customers who respond to a local service because a splicing or repair capability is required, or because purchase is delayed until a plant break-down; second, customers whose order size is too small to justify a manufacturer's representative calling, but whose overall purchases make calling worthwhile for the distributor. But distributors need not confine themselves to these customer groups, and both expansion, and failure to expand, into other customer groups, can cause problems for the manufacturer.

Figure 5.1. summarises the strengths and weaknesses of distributors in the conveyor belt market. Weaknesses, as far as service outputs to users are concerned, fall within two general categories: first, the distributor does not have the full range of

FIGURE 5.1.
STRENGTHS AND WEAKNESSES OF THE INDUSTRIAL DISTRIBUTOR

	STRENGTHS	WEAKNESSES
SERVICE OUTPUTS		
TECHNICAL		Poor technical back-up, has to rely on manufacturer's sales team.
PRODUCT VARIETY	Wide range of industrial products, helping to spread sales costs. Could offer brand choice but this is unusual.	Restricted range of conveyor belts. Relies on manufacturer to supply unpopular sizes and specifications.
LOT SIZE	Small quantities available (and wants to deal with small volume purchaser).	Large volumes require supplier involvement. In some cases individual purchase volumes may command better discounts than those received by distributor.
DELIVERY	Emphasises quick delivery ability to local customers.	Non stock items can be more difficult to obtain. Channel effectiveness in this case is dependent on supplier back-up.
SPATIAL	As above	Operates within restricted area.
INSTALLATION	Can usually offer vulcanising teams. Labour management easier in smaller firms, enabling flexible service and 24 hour availability.	Lacks comprehensive technical know-how.

personnel required to perform all the service requirements of the market, and he does not have the training capacity to improve product knowledge among his staff; second, the distributor is unwilling to invest in the full product range for stock, or in large volumes - thus placing this burden on his supplier/manufacturer.

5.3. The Acre Rubber Co. Limited

The present Managing Director of the Acre Rubber Co. Limited recently wrote his company's history (2). Before discussing recent events, it will be useful to precis the story of the business.

The Acre Rubber Co. Limited was founded not long after Dunlop itself, one of the first chains of tyre distributors in the country. Its headquarters were originally in Long Acre, London, (hence the name), and by 1907/1808 branches existed in Birmingham and Manchester and, in 1909, in Glasgow. It also opened a branch in Cape Town. Its personnel were regarded as sufficiently knowledgeable to instruct army officers and men in tyre maintenance, but in 1913 the company went into liquidation. The present owner's father was then a young man working in the Glasgow branch, and later opined that the insolvency was "due to the directors predeliction for fast women and slow horses."

W.O. Winkfield bought the Glasgow branch in partnership with the former company secretary. The company became Goodyear tyre distributors for Scotland and expansion led them from one building to another, until by 1930 the present Turnbull Street premises were bought. Financial difficulty in the coach operating business left Acre with a number of bad debts and a third partner was sought to

provide additional finance - a move which resulted in the formation of a Limited Company.

By 1939 the company had branches in Edinburgh and Dundee, but growth was interrupted by the 39-45 war. By the end of the war these branches were lost and W.O. Winkfield's son Bill joined the firm. The build up of the nationally owned tyre distribution chains together with price cutting in the tyre market eventually squeezed Acre out of this business. From the mid fifties, however, Acre began to build up its interest in the conveyor business. Transferring knowledge of tyre repairs to rubber belt repairs, Acre started to splice and repair conveyor belts for BTR and later began to sell brands of belting. Selling relationships were already established by contacts through the tyre trade in the quarrying industry and by the early sixties Acre was handling complementary products such as spare idler sets for conveyors, rubber chute linings, etc.

Dunlop was one of the companies supplying belt to Acre from 1962 onwards. Bill Winkfield wanted to consolidate his company's interests by reaching a distributor agreement with one of the manufacturers, and approached Dunlop's competitors with this in mind.

Simultaneous with Acre Rubber's growing interest in the belting market, Dunlop switched its own direct selling policy in Scotland. Up to 1964, belting sales were handled by the Industrial Division of Dunlop Scotland (a selling company), but from this date Belting Division appointed its own representative - R.M. MacLeod. The difficulty of trading direct from Liverpool with one field sales

representative led the Company to search for a distributor/stockist to reinforce the selling activity in Scotland.

Acre and Dunlop made a distributor agreement at the end of May 1967. This provided for Acre to purchase stock quantities of belting at a given discount plus 90 days credit and overriding commission on Dunlop's non-contract sales in Scotland (excluding all business with the steel industry).

Belting is now a major product in the Acre Rubber Company's range. Tyres have been dropped altogether whilst other lines have been introduced: Acre now sells protective clothing, safety shoes, conveyor idlers, conveyor belt fasteners, wharf buffers, rubber sorting screens, chute linings, etc., as well as conveyor belt. Between 1964 and 1974 turnover tripled, from £100,000 p.a. approximately to £300,000 p.a.

The Acre Rubber Company is today totally owned by the members and close relatives of one family. Past employees have stayed with the company many years, and present employees continue this tradition of stability (of the three salesmen, one has 18 years service and another 24 years).

5.4. The Manufacturer/Distributor Working Relationship

One of the objectives of this project has been to provide an assessment of how effective channel communications are between manufacturer and distributor, of how effectively the channel services customers, and of how effectively the distributor works in the market. Three reports have been produced about Acre Rubber Company: the first

identified the Dunlop/Acre penetration of the Scottish market; it described the control and support mechanism between the Dunlop local representative and Acre; it identified areas for improvement in Acre's coverage of the market and in the commercial management of the Dunlop/Acre channel. The second report investigated stock usage at Acre Rubber and considered ways of improving inventory control. The third examined the market for belting in N.E. Scotland, included a detailed market survey of the area, and made suggestions for the improvement of sales coverage in the area. All three reports are attached as appendices, and summarised below.

Direct and Indirect Selling: Conflicts and Co-Operation

A distributor serves to widen the sales coverage of a manufacturer, but it is not possible to restrict his activities to new accounts or specific classes of account. So the manufacturer has the choice of either withdrawing his sales representatives from the distributor's market altogether, or ensuring that his direct sales representative and the distributor support each other. In the marketing of most industrial products there will be requirements for technical support, contractual arrangements and supply of particular product specifications which lend themselves to direct dealing between customer and manufacturer and this is one reason that direct representation cannot be dispensed with. Examples of this are reported by Hill, Alexander & Cross (3) in the supply of belting, abrasives, lubricants, and supply of materials such as metals, plastics and chemicals. The distributor too needs technical support, since his personnel will not have the detailed product knowledge on each of their lines that the manufacturer's representative has. Perhaps most important to the manufacturer though,

is the degree of control in the marketing channel he can exercise by retaining the direct representative. The distributor agreements cover pricing arrangements, stockholding and back-up service, and can be terminated by either party under agreed conditions. So both manufacturer and distributor are at risk, for long term security of the channel depends on their co-operation. The usefulness of one party to the other also depends on the amount of information - particularly marketing information - which each party possesses. Thus, the direct representative can retain the manufacturer's knowledge of customers - who they are, where they are, how much they spend, etc., - and can acquire knowledge of how the distributor operates by encouraging the latter to use him for advice ranging from strategic control of the business to specific selling problems.

Since Acre Rubber Company became Dunlop distributors, there has been a gradual transfer of many direct customers to the distributor (see Appendix A). When the author questioned the Dunlop representative about this, the latter said that he had resented this process at first, feeling that management believed that all distributor business should always be in addition to the business already being secured. This process unless specifically provided against, however, (as in the case of B.S.C. business) cannot be prevented - and in any case is a necessary part of the development of the distributor's own business. The result of this activity is that the role of the direct representative changes from one of detailed involvement in the market to one of supervision and market development. This in turn places an obligation on divisional sales management to manage and judge performance in the territory in a different way from

that applied to other direct sales territories.

So there are several potential pitfalls in a manufacturer - distributor relationship, and the commercial and organisational aspects need careful attention from both sides. Little (4) pointed to the problem of leadership in the marketing channel and saw this as the product of the informal nature of the channel structure. Rosenbloom (5) discussed "the efforts needed for effective motivation management in the marketing channel"; he cites the case of the U.S. flat glass manufacturer, Libby-Owens - Ford Co., whose typical distributor in the early 1960s was confronted with "(1) engulfment in conditions of rapid change, (2) complacency in the midst of change, (3) poor market penetration and, (4) an ominous decline in profits". L.O.F.'s way out of this set of problems was to provide management support to its distributors in the form of training and consultancy.

In studying stability factors in industrial marketing channels, Ford (6) found that control "is a variable possessed by all levels to varying extents" and not just by the manufacturer. It was also found that it was "rare for an existing channel member to initiate change".

Perhaps one significant difference in Belting Division's relationships with Acre Rubber Company as compared with TEK Rubber & Asbestos has been the involvement of a local representative on a continuous basis with the former, and the lack of such detailed contact with the latter. Potential conflicts are dealt with at an early stage with Acre; with TEK, conflict culminated in the ending

of trading relationships in an acrimonious atmosphere.

Channel Communications

In the report "The Scottish Market", (Appendix A), attention was focussed on aspects of communication between Dunlop and Acre which needed action. The local Dunlop representative and the Managing Director of Acre both agreed that local day to day contacts were friendly and helpful, but necessary contact and planning at a higher level in Dunlop was missing. This higher level contact involved four main areas:

(a) Awareness of the developments in belting: Mr Winkfield felt he could be kept more in the picture on technical and commercial developments, by more frequent meetings with the Sales Manager.

(b) Supporting the distributor: Dunlop was felt to be forcing decisions on Acre, rather than consulting. Although Acre would obviously like to get the best deal in price negotiations, it felt there were not many benefits in dealing with Dunlop, through lack of management contact.

(c) Identification: closer co-ordination of the distributor's and Dunlop's activities could be achieved by involving Acre's sales representatives more in the Dunlop organisation, by special training courses and incentives.

(d) Image and Promotion needs: Dunlop had failed to see Acre as part of its marketing channel. One of the consequences of this was that Acre customers lacked an awareness of the brand of belting they

were using (a market survey carried out by Dunlop in Scotland had already brought the attention of management to this). The position could be improved by promoting Dunlop alongside Acre with the aid of specially designed leaflets, lecture meetings, etc.

Penetration and Coverage of the Scottish Market

Distributor and manufacturer tend to have different skills and resources (see Ch.4), so their ability to penetrate and obtain coverage of the market will vary from segment to segment.

If one classifies segments by industry, Dunlop/Acre have best (and majority) market share in quarrying. This customer group requires technical contact infrequently, but relies on other services, particularly product availability and also sales contact. Buying is typically in the control of the Quarry Manager who, because of the day to day demands made on him by the operating conditions of the quarry, relies on sales representatives for contact with the various suppliers he needs to maintain his plant. He is often a passive buyer in that identification of need (enquiries) is elicited from him during the course of an interview, rather than an active search by mail or telephone being made by him.

In other industries, where technical contact is required, or where professional purchasing managers become involved in the buying decision, Dunlop has succeeded better in a direct approach to the customer. Conversely, the distributor concentrates on what he does best, and avoids selling situations which might expose a lack of resources and expertise. Thus, contacts at head office level of

the quarrying companies is maintained direct by Dunlop, as is contact with original equipment companies, and other businesses which require a more complex technical or commercial supplier approach.

Figure 5.2. displays the volume sales of Dunlop in Scotland up to the point at which the first study was made. The general growth in the belting market (see Chapter 2), was almost all taken up in Scotland by Acre Rubber. Figure 5.3. compares histograms of the distribution by length of orders for ex-stock specifications taken by Acre Rubber, and directly by Dunlop Belting (in the whole of the U.K.)¹ The results confirm that Acre Rubber had a higher concentration of short length orders relative to total orders taken.

Two main areas for the improvement of Dunlop sales in Scotland were identified: (a) where the additional support of a vulcanising service was required to promote business, and (b) where additional area sales coverage was required in the Aberdeen-Inverness area. Both required investment by the distributor and lack of market information combined with a conservative approach to decision taking, had inhibited Acre Rubber from taking action beyond agreeing that these gaps in the market existed.

To make an extra representative worthwhile for Acre, the Managing Director would look for an extra £50,000 overall turnover p.a. at 1975 levels. A subsequent report ("The Conveyor Belt Market in N.E. Scotland", Appendix C), estimated the annual replacement market in the area at 27000ft of belting. Of this, approximately half could be accounted for by the large quarrying groups with which Dunlop already had good contacts. In all segments of this area, Acre had

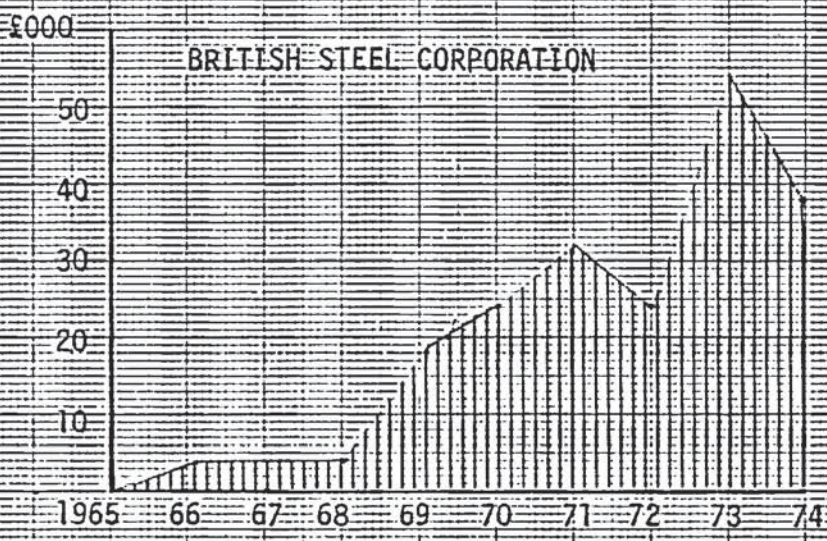
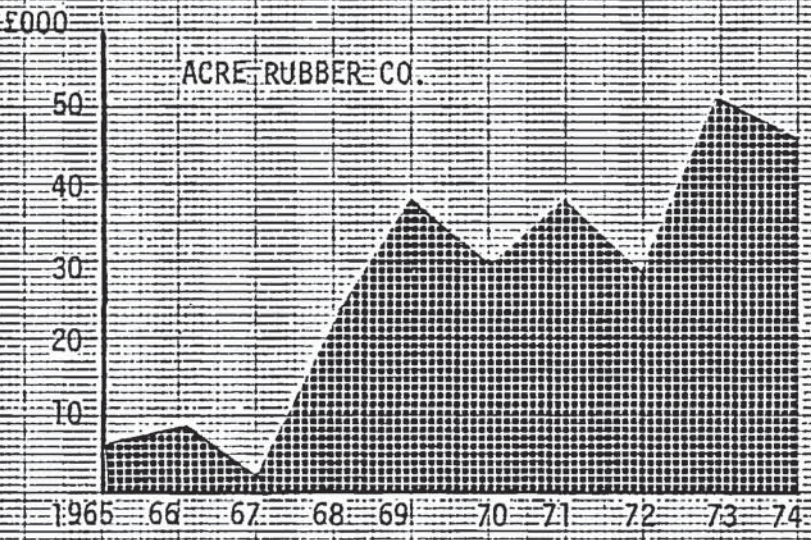
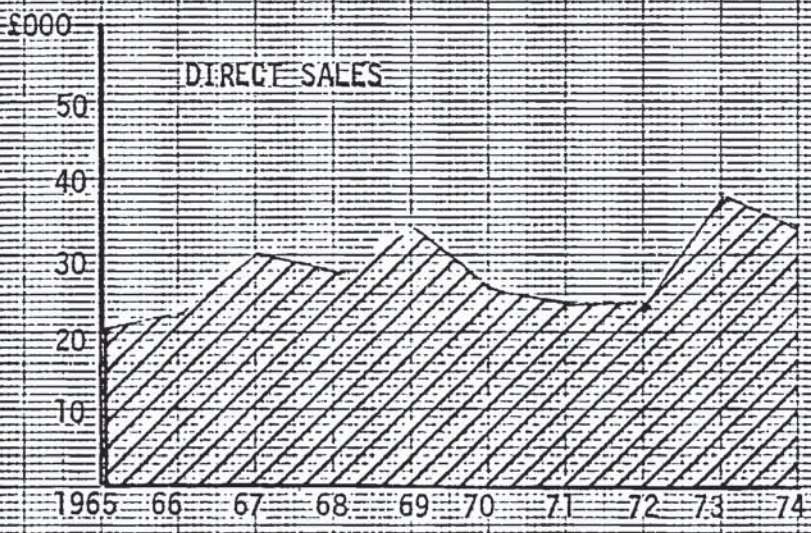


FIGURE 5.2. DUNLOP BELTING SALES IN SCOTLAND 1965-1974

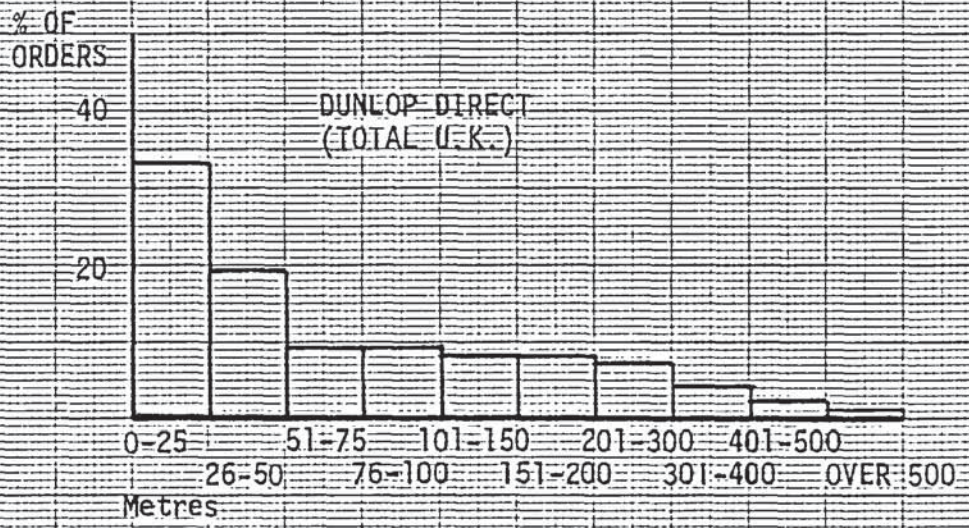
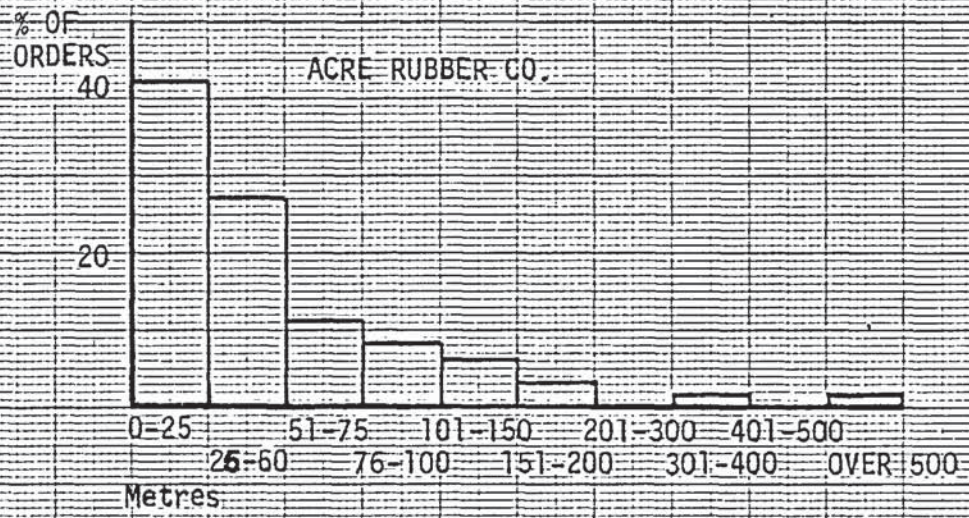
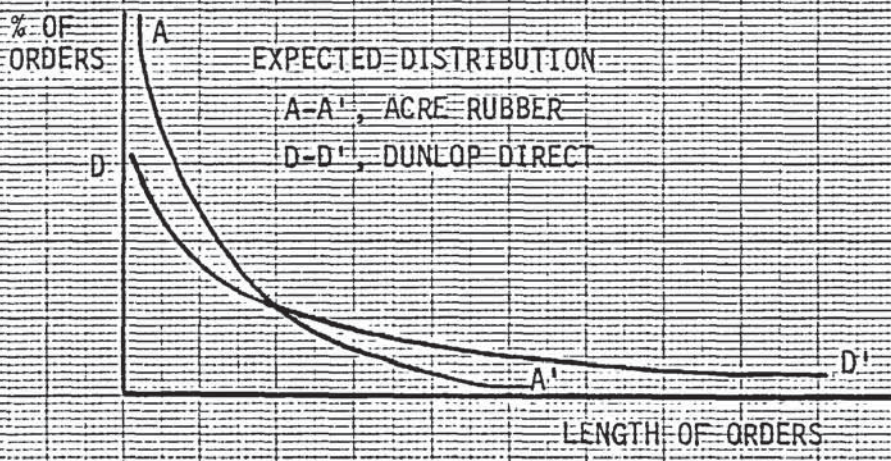


FIGURE 5.3. FREQUENCY-DISTRIBUTION, BY LENGTH, FOR EX-STOCK ORDERS.

achieved a market share far below that taken in the Scottish Midlands (24% against 60%). An increase of the activity rate for Acre Rubber of up to three times the present level on belting alone seemed possible - taking into account the weakness of other distribution activities in the area (Acre Rubber's actual sales were approximately 6000ft). Raising the level of effectiveness to that in other areas would yield up to £55,000 extra revenue at 1975 prices. The report therefore provided a basis for Acre and Dunlop to discuss extra representation for the North East area.

This issue highlighted the difference in business objectives of the two companies. Dunlop's objective is to increase the sales of its product in Scotland as evidenced by the targets placed on the local representative. Acre Rubber Company's behaviour suggests that the shareholders are unwilling to risk cash income in an attempt to increase sales. Thus Acre Rubber might use existing selling resources but be unwilling to employ additional ones. Dunlop's requirement is that additional sales must make a minimum return on selling expenses. At a gross margin of approximately one third, Dunlop would break-even on sales costs at an additional revenue of £30,000. So the problem for Dunlop was how to induce Acre Rubber to increase its sales force.

The provision of a permanent vulcanising service is regarded as essential by belting manufacturers or distributors supplying the foundry industry. Dunlop's experience with such a service in the West Midlands supports the views expressed by the customers themselves that service capability - and some customers look for a seven day, 24 hour, capability - is the most important requisite of a supplier. Acre Rubber had failed to provide a vulcanising service on a permanent

basis, and consequently failed to secure business in the long term in the foundry business (the Dunlop market survey found 25 outlets with a potential replacement volume of approximately 40% of Acre's total annual belting sales). Dunlop strategy has been to try and encourage Acre to come to a form of partnership agreement with an independent vulcaniser, whereby Acre could supply premises, administration base and contacts in return for the provision of a vulcanising service to customers as required.

Distribution Efficiency in Scotland

The third study in Scotland considered how a stock control system at Acre Rubber might be introduced, with the aim of persuading Acre Rubber management to order in larger economic quantities, with the possibility of the distributor carrying out the slitting operation himself.

For analysis purposes, Acre Rubber allowed full access to its records, and recommendations were made for improvements in respect of stock orders, stock recording and customer records.

Acre Rubber's orders with Dunlop were placed individually as customers placed orders on Acre. Taking advantage of a service which could provide overnight delivery between the Dunlop depot at Uxbridge and Acre Rubber at Glasgow, Acre Rubber avoided stockholding of any significant quantity of conveyor belting. Dunlop's management view was that the terms negotiated with Acre included Acre taking an active role in stockholding; and that the use of emergency delivery as standard procedure disrupted Dunlop's own operations, with associated

costs to Dunlop. This subject, as a matter of concern and negotiation, recurs throughout the correspondence between Dunlop sales management and Acre Rubber Company.

Analysis of orders placed by Acre Rubber, revealed that of five specifications of belt ordered, two accounted for 79% of business. The first of these specifications was in demand in three main widths, the second mainly in one width. These four widths accounted for 68% of all business. A stock control and ordering system for these specifications and widths to provide a theoretical 85% service level from stock was recommended. The balance of business could be drawn from Dunlop depot stock as required.

Analysis of Acre Rubber's customers revealed a concentration of business in seven accounts out of a total of thirty seven. These top seven accounted for just over 80% of business and 65% of the number of orders placed. Among these top seven customers were all the major quarrying groups in Scotland.

Comparison of both Dunlop's and Acre's records with the Dunlop market survey for Scotland, revealed seven market segments which were not being serviced adequately. These are itemised in Appendix A (Fig.5.2.), the largest unrealised potential being in the foundry industry.

5.5. The Acre Rubber Company - Summary

Whilst use of this distributor had enabled Dunlop to win a high market share in the general replacement business in Scotland,

nevertheless problems still existed for Dunlop. Expansion had taken place only in particular market segments, whilst in the larger quarrying groups, where Dunlop already had effective representation, Acre Rubber was taking this business for itself. Within its restricted scope of operation, Acre Rubber did show that small order business could be profitably solicited through an ex-stock operation, and comparison with Dunlop's own figures showed that small orders had not been a major feature of Dunlop's own ex-stock depot.

So parallel representation was deemed essential, if only to manage the selling activity at British Steel. Local Dunlop representation was also essential to maintain contact with, and supervision of, the distributor. But contact with the local representative was not enough, and Dunlop management had neither paid enough regard to this factor, nor to the equally important issue of promoting Dunlop's image at the user level.

These issues of channel control were highlighted by the studies and made Dunlop management wary of entering further industrial distributor agreements.

5.6. TEK Rubber & Asbestos Services Limited

The history of Dunlop's relationship with this company offers an interesting contrast to that with the Acre Rubber Company.

TEK was set up in 1961 by three technical representatives - Roy Taylor, Cliff Edwards and David Kings. Since 1961, TEK had moved from small premises in West Bromwich to larger accommodation

and more recently to brand new premises adjacent to a motorway junction. Business was helped by strong personal connections, particularly in the case of Mr Edwards, a former player and chief scout of West Bromwich Albion Football Club.

Dunlop's local representative in the Midlands, later to become General Sales Manager, dealt with TEK from the very beginning. In 1966, TEK sought a full distributorship for the whole of the Midlands and wished to hold comprehensive stocks of conveyor belting.

TEK was set up from the beginning to service the foundry industry and still maintains up to three teams of 2 splicers with a range of vulcanising equipment. Because of its vigorous activity in this market, Dunlop allowed TEK to operate independently, with contact between the two companies restricted to infrequent high-level contact and to aid given by Dunlop service engineers to TEK accounts.

So, whilst TEK appeared a more dynamic company than Acre Rubber, Dunlop's control of and information about its activities was very limited.

Written communication between the two companies was also infrequent (13 items were filed in 10 years). Analysis reveals all of this correspondence to be about areas of disagreement and conflict. This conflict derived from two main sources. First, TEK's growth led to financial weakness and under-capitalisation, with the result that strict credit limits were imposed by Dunlop on the trading arrangements. Second, Dunlop wanted to see TEK expand its field of operation from the foundry industry into other industry segments in the West Midlands.

Dunlop used financial power to influence TEK - in 1974 the provision of stock on a consignment basis (stock was paid for as it was sold, the balance being in Dunlop's ownership whilst on TEK's premises) was ended. However, customers were loyal to TEK, rather than Dunlop, and TEK used the power of its sales contacts to influence Dunlop - later in 1974, one of TEK's directors, referring to a technical problem, wrote to Dunlop "we are in danger, and I mean Dunlop, of losing the Elevator Belting business" at a large Midlands based foundry group.

When Dunlop was considering the establishment of its own Midlands depot, lack of contact between the two companies as to Dunlop's intentions enhanced this atmosphere of distrust. Originally Dunlop's intention was to supplement not replace TEK's activity locally whilst providing a national distribution centre. In early 1975, after TEK had requested some easing of credit terms, Dunlop's General Sales Manager had to reply that this was not possible but offered the assistance of the writer to try and find a way of improving the efficiency of the stockholding and ordering of conveyor belt at TEK. Reaction to this offer can be summed up in the last two words of TEK's letter: "Get Stuffed". For TEK, a decision to find an alternative supplier was probably the correct long term policy since Dunlop would be under pressure to obtain the best advantage locally from its distribution facilities.

At this point Dunlop left further initiatives to TEK and proceeded to plan for a totally independent operation in the West Midlands.

5.7. Summary

The history of the Dunlop/Acre and the Dunlop/TEK business relationships both highlight the difficulty a manufacturer can face in the strategic control of the marketing channel. Management of the channel was discussed in Chapter 4 and further writers were cited in this chapter. Rosenbloom (5) points to more effective planning; Webster (7) sees this as allocating the distributor a carefully and thoroughly defined role in the supplier's marketing strategy; Ford (6) studied stability and concluded that a contributory factor was "the ability of companies to combine more readily to prevent change in a channel than to innovate." Lack of direct power through shareholding means that all decisions must be negotiated and that the distributor has the implicit sanction of buying his supplies from a rival manufacturer. Takeover of both Acre and TEK has been considered by Dunlop in the past and rejected - but the motivation to consider such moves is the desire to bring greater stability and security to Dunlop's control of the marketing channel.

Both TEK and Acre demonstrated the effectiveness of the distributor in particular market segments, and his ability to contribute to sales growth in a territory.

The contrast in Dunlop's way of managing the two distributors underlines the need for close and frequent contact between the two parties.

The marked aggressiveness of TEK's business dealings and

managerial independence as compared with Acre's led to conflict becoming more pronounced with the former. In the longer term, Acre's conservative approach could have led to conflict of a similar nature when Dunlop would have had to consider the strength of the distributor's sales force or indeed the succession of ownership of the company. However, events have overtaken these longer term issues. In 1978, the distributor agreement with Acre Rubber ended after disagreement over pricing terms. The author was no longer involved with Acre Rubber at this stage, but speculates that the disagreement could have been resolved had communications with Dunlop management been improved.

Overall, Dunlop managers felt that they required more flexibility of channel control and quicker response to that control. This brought about a body of opinion in favour of expanding Dunlop's own ex-stock sales activity which could be enhanced by extra resources (e.g. vulcanising teams, salesmen, small regional depots) as necessary, and without the necessity of compromise with other channel members.

CHAPTER 6

EX-STOCK DISTRIBUTION FROM COMPANY FACILITIES

6.1. Introduction

Concurrent with the studies of the Acre Rubber Company and Belting Division's sales operation in Scotland, the provision of ex-stock distribution facilities in addition to those at Uxbridge was being considered.

From mid 1974, the researcher worked towards increasing distribution facilities for Dunlop Belting Division. This Chapter describes the options presented to management, the reasoning behind the choice of a particular option, and the implementation of that option.

Comment has already been made on the inability of manufacturers successfully to differentiate their product ranges. This fact, combined with changes in production and materials technology which were enabling parts of the sales process to be postponed to the distribution stage, encouraged competition on the basis of the marketing channel. Differentiation by this means was the challenge faced by all the belting suppliers. Their ability to adapt to this and organise their production and selling resources appropriately might have a significant impact on market share.

Options available to manufacturers were:

- (i) distribute via a chain of stockists who could provide their own sales force and other selling resources,
- (ii) distribute via an in-company organisation with its own sales/warehousing points and associated selling resources,
- (iii) distribute from one, or possibly two, central locations rather than from a multi-centre organisation,
- (iv) some combination of (i)-(iii),
- (v) opt out of the quick service market, and concentrate on package deals, offering bulk-buying discounts, but saving on distribution costs.

In Chapter 2, the strategic profiles of competitors in the U.K. rubber conveyor market were identified. The distribution strategies adopted by these firms can be categorised as follows. Each strategy is the commitment of marketing and distribution resources over the longer term. For example, a change from wholly-owned distribution to independent distribution network would be seen as a strategic change; change from one independent distributor to another by a manufacturer would be seen as a tactical change.

Strategy one consists of wide geographical and 'time-related' coverage by stocking in several centres throughout the U.K. This

strategy is followed by the big three - BTR, Dunlop and Goodyear.

Strategy two consists of incomplete geographic coverage with emphasis on small stockists and directly sold package deals. This strategy is associated with the smaller manufacturers - Uniroyal, Greengate & Irwell (Allied Polymer).

Strategy three employs selective outlets in key target areas, and is followed by importers. For example, Kleber (France) belts are sold by Simms of Sheffield; Trelleborg (Sweden) have a distribution/sales depot at Rugby.

6.2. Development of In-Company Ex-Stock Sales

The sales management of the Division had been hoping for at least two years to open a belting sales and distribution point in the north, probably in the Leeds area.

This general intention had followed the successful establishment of the Division's Uxbridge depot for ex-stock sales, and also reflected a general desire to counter the potential effect of foreign imports (Strategy 3 above). At the same time customers were generally beginning to accept all-synthetic belting.

The success of the Uxbridge depot in operating in the ex-stock market - a field in which Dunlop lacked expertise - encouraged managers to think that a similar and parallel operation could be run successfully in other geographical areas. It was thought that sales in the South Midlands and South had responded to a local presence, and that certain

customer groups such as the small to medium original equipment companies had been penetrated to a greater extent. At the same time in Scotland, The Acre Rubber Company had expanded its ex-stock turnover as the Division's distributor; T.E.K. the Dunlop distributor in the Midlands, also had an expanding turnover.

Between mid 1972 and mid 1973, detailed analysis of costs, equipment required, and potential markets, was carried out, to assess the feasibility of establishing a Leeds depot.

Sales Managers had committed themselves to the judgement that additional distribution facilities were required. The analysis was undertaken to reinforce this view. A parallel sequence of decision making and analysis took place with the researcher's own work. The tools of financial appraisal and other objective analysis are seen in these cases to have less power in terms of project selection than textbook theories suggest (for example, the N.E.D.O. advice on investment appraisal (1) assumes use of such rational criteria).

Analysis by sales managers indicated three short-term trends: between 1970 and 1971 there had been a 56% increase in sales in the territories closest to the Uxbridge depot; an increase in sales of over 100% in Scotland for the same period; a slight decrease in sales in territories distant from the Uxbridge depot (2).

From knowledge of Dunlop's overall market share, a potential market in addition to existing sales, of over £1million in the three Northern England sales territories was estimated (3).

The Field Sales Manager supported the proposal for an additional depot, reasoning that an extra 8% market share would cover operating costs. He foresaw growing competition from distributors and that there was "a distinct possibility that selling conveyor belting would follow a similar pattern to the tyre trade with a 'shopkeeper' type operation, with technical assistance where required coming from manufacturers. If this does develop, by having our own depots we should be able to get the additional margins for ourselves rather than financing an appointed stockist whose main loyalties will be to himself and the keenest supplier."

Ironically, by the end of 1973 the Division had decided to go ahead with financial help for a scheme to start a distributorship by the then Field Sales Manager. The business would be independently owned, but Dunlop would supply consignment stocks and provide a package of favourable trading terms. This scheme reflected the fact that divisional managers could not show a satisfactory rate of return on a wholly-owned company depot proposal. The scheme was, however, scrapped, and by mid 1974 the Division was still considering additions to its ex-stock sales and distribution, but with no positive proposal in mind. Tactically, Division managers needed a project geared to meet the Company financial criteria.

The Uxbridge Proposal

The Uxbridge depot was established as a response to two concerns.

The first, and by far the most important, was the need to have an operating base away from the labour troubled Speke manufacturing site. Such a base would, in the words of the Company proposal,

September 1970 (4), "in the event of industrial action at Speke, allow ex-stock goods to continue to be despatched to customers and facilitate merchanting of belting where appropriate."

The second concern was that the advent of stocked slab belting had created pressure on warehousing space at Speke, and extra accommodation was required.

The siting of the depot at Uxbridge appeared especially convenient to the Company because there existed a London office whose experienced staff could be transferred to the new operation. It was thought at the time that Liverpool could service the ex-stock market in the North. A site in the Midlands was acknowledged to have advantages in terms of communications with the total market and of transport costs. This option, however, was rejected.

Subsequently, the assumptions made about staffing at Uxbridge and about the viability of operating ex-stock business from Speke have been proved wrong. Depot management at Uxbridge changed soon after the operation began, and contact with London shipping houses, which had been a prime concern of the London office, became a Head Office responsibility. Ex-stock sales from Speke were never organised as ex-stock, as in Uxbridge, partly because the administrative and handling routines involved would have cut across established practices at Speke. Managers were not eager to distribute ex-stock from Speke, because they wished sales stock to be located away from the troubled industrial relations Speke site. There was therefore no pressure exerted to create the labour flexibility required in ex-stock depot operations.

Success of the Uxbridge Depot

The operation was judged a success by managers because business in Starflex ex-stock belts increased. Sales managers also felt that the depot created its own identity with customers and provided a more flexible sales and distribution service than had previously been possible from Speke.

Sales Organisation

Sales managers attributed a major part of the success of the ex-stock operation not to the distribution facilities themselves, but to the nature of the sales effort which was based at the depot.

They thought that three factors were important:

(i) Independence from the Speke site.

The ability to manage a department without being involved in demands generated by proximity to the rest of the management structure. For example, meetings with production and technical managers to resolve quality or scheduling problems.

(ii) Market segmentation.

The depot could deal with short length off the shelf orders supplied mainly to small works and quarries. Specialist technical requirements, business with the steel industry, etc., was still managed from Speke. This meant that the depot sales staff accumulated a

detailed knowledge of a narrower segment of the home market.

In the last full year (1976) of its operation, the Uxbridge depot dealt with 35% of the total value of U.K. orders and 45% of the total metres ordered. In the quarrying, cement, small original equipment, and general industry segments, the Uxbridge depot dealt with over 70% (by length) of the Division's orders, and over 50% (by length) of orders in the chemicals and distributor segments. The orders for these segments handled by the Uxbridge depot accounted for 31% of the total value of orders and 40% of total metres ordered.

(iii) Small Staff

The Southern Region Sales Manager was in charge of the depot and had responsibility for supervision of representatives in Southern England. Customers could speak to him directly, or to the sales clerk. Both manager and clerk had a full knowledge of the stocked range available, and due to frequent telephone contact could build up a rapport with customers. Both customers and representatives felt that they could get a faster response from the depot, than from the sales organisation at Speke. Here the response time to enquiries was longer due to more complex workloads involving a bigger organisation.

Along with this developing trend to segmentation of the market by sales management, and subsequent concentration of selling plans and

resources in specific areas, the advantages of an autonomously managed ex-stock sales effort encompassing distribution and selling activity and separated from management of other market segments became increasingly clear.

It was this marketing approach to service and segmentation which underpinned sales management desire to expand the ex-stock activity as much as the need to improve the geographical distribution of the business.

6.3. The Potential Market in the North

A report was produced (Appendix D) whose objectives were:

To establish the geographical pattern of Dunlop business in the North and to compare this with the location of the customer industries in the belting industry.

To estimate the total market value in this area and to estimate the potential for Dunlop.

To recommend a location, or alternative locations, for a Dunlop depot to service this market.

Market research of a limited nature has been used by Dunlop Belting Division through the Dunlop Belting Group Marketing Services Department. Regional surveys have identified users and have attempted to estimate the amount of conveyor belt in use at individual sites. The estimates have relied on data from plant managers rather than

actual counts on site, so there may well be a degree of error in the data source.

The replacement rate of conveyor belts varies according to both intensity of use and type of application, so usage rates can vary widely within an industry sector. It would be possible to work out average utilisation rates for industrial sectors and, by estimating the industrial sector size in a region, estimate the size of the replacement market. The detailed sampling work necessary to find the utilisation rates has not been done by Dunlop, so in practice a rate is estimated subjectively. Therefore it has not been possible to check the quality of the Dunlop survey technique by finding the true values for a particular sector, and so estimate the degree of error.

So estimates of market potential have a wide margin of error. However, for investment decisions the accuracy of the data is less important than demonstration that a likely substantial market exists. The estimates in this report, already referred to in Chapter 2, were made by comparing published data on the output and size of various customer industries, Dunlop sales to these industries and also Dunlop managers' own assessment of the market and competitors' shares.

In the general replacement segments, excluding sales to British Steel Corporation, original equipment companies, and sales via stockists, Dunlop appeared to have 18% of the market. Including these other segments, Dunlop's share was thought to be much higher, possibly up to 30%.

In the segments which would be most influenced by an ex-stock

depot, Dunlop's potential was considerable, whilst in other segments further growth from an already strong position would be difficult and expose the Company to the risk of over-dependence on one or two key customers.

Geographical concentrations of business were found to be on two main axes of activity: Durham/N.Yorks/Teesside and S.Yorks/Peak District/North and West Midlands.

The choice of potential locations was problematic in that the Midlands was already being serviced by a Dunlop distributor, TEK Rubber and Asbestos Service Limited. This company's sales, however, were restricted to particular customers and the foundry industry, a factor which was inhibiting Dunlop activity in the area.

6.4. Definition of Sales and Distribution Requirements

The stated sales objective of the Division was to expand sales in those market segments which showed the greatest potential margin on sales. This effectively meant a focus on the non-contract small-order business, the major share of which was supplied ex-stock. But the orientation (in terms of contacts and past experience) of the Division's selling organisation was heavily biased towards the big customer.

The sales team, organised on a regional basis, was responsible for contact with the full range of the Division's customers, with the sole exception of a specialist Original Equipment Manager. The Home Sales Manager was responsible for volume business from the Steel Corporation and other large customers, accordingly he led a sales

effort biased towards these market segments.

Dodge (5) considers one of the basic components of marketing management to be an "emphasis on the profits returned by sales rather than the magnitude of sales as depicted by volume or share of market". Belting Division sales managers had concentrated on sales-volume goals; achievement was gained by selling to the less profitable segments, partly because, as Dodge comments. "the more profitable (segments) will not comprise a large enough portion to sustain an adequate total profit margin".

Depot sales were still organised as a convenient distribution adjunct to the main selling effort, but they were in fact becoming essential to the sales strategy for the profitable ex-stock part of the market. In brief, the selling effort was, at least in part, out of step with the requirements for a significant market opportunity.

Accordingly, a change in emphasis which would put depot sales in a key position in the organisation, enabling selling resources to be diverted towards the ex-stock market, was one part of the strategy which sales managers felt necessary. Other elements of this strategy were further specialisation of management time and responsibilities with respect to markets; and directions to field sales representatives to allocate more selling time to the ex-stock customer.

Strategic choices were outlined (see Figure 6.1.)

- I Amplify the role of the Uxbridge depot, via promotional activity.

FIGURE 6.1. STRATEGIC CHOICES FOR DUNLOP BELTING DIVISION

STRATEGY	FOR	AGAINST
<p>I Amplify role of Uxbridge Depot</p>	<p>Low additional cost, quicker result. Minimum disruption.</p>	<p>Materials handling limitations, and badly placed for U.K. transport. Risk that users in the North would not respond to promotion campaign. High rent and rates.</p>
<p>II Improve and develop distribution from Liverpool.</p>	<p>Low cost. Space available.</p>	<p>Site industrial relations. Local market potential poor. This strategy and III, IV and V require extra sets of stock processing equipment when one set could handle predicted output.</p>
<p>III Teesside-Yorks depot IV Teesside-Yorks- Midlands depot</p>	<p>Improve competitive delivery against local distributors (e.g. Frazers of Hebburn in the N.E.)</p>	<p>Both strategies would require depot site too far North for optimum U.K. servicing. III would leave potential service gap in the Midlands.</p>

FIGURE 6.1. STRATEGIC CHOICES FOR DUNLOP BELTING DIVISION
(Cont'd)

STRATEGY	FOR	AGAINST
<p>V Strategy III and amplify role of TEK Ltd</p>	<p>Good potential U.K. market coverage. Builds on familiar channels</p>	<p>Risks, and difficulties, of dealing with a distributor. Conflict over objectives (stock holding, market expansion) still likely</p>
<p>VI Central depot (in West Midlands)</p>	<p>Optimum location for all U.K. business (least cost for transport). Enables raised service level to local Midlands customers. Provides fall-back against failure of distributor. Coverage of fringe areas - Teesside, S. Wales, S.E. England could be enhanced by addition of small depots.</p>	<p>Does not improve distribution throughout U.K. Risk of potential rift with TEK Ltd. Potential disruption of operations during move from Uxbridge.</p>

- II Improve and develop distribution potential from Liverpool.
- III Establish new depot to service Teesside and Yorkshire.
- IV Establish new depot to service Teesside, Yorkshire & Midlands.
- V Option III plus amplification of role of TEK in the Midlands.
- VI Establish one central depot for the U.K., with the option of regional sub-depots.

Option VI was preferred because it would need only one set of materials handling equipment; it followed that sub-depots would need only minimum facilities; the Company could retain flexibility in its siting of sub-depots to service smaller regions and in the timing of the provision of these sub-depots; transport costs from a central location would produce significant savings over the existing arrangements.

Ex-stock sales would be more vigorously promoted in their own right, and a campaign mounted to differentiate the ex-stock sales organisation under the Dunlop name. By this means, increases in the number of short-length orders, small account customers, and market share in the aggregates and roadstone quarrying segments were planned.

In effect this was the practical outcome of a philosophy of specialisation of both selling and distribution based on a segmented view of the total market. The choice of size and location of a distribution centre was related to the form of specialisation thought

necessary for the ex-stock market.

This view of organisational requirements combined with the estimates for market potential in the North and Midlands to influence the decision to establish a single sales/distribution centre capable of servicing the total U.K.

Physical requirements for the depot were outlined as follows (see Figure 6.2.):

Storage space: storage area would be expanded on that available at Uxbridge to accommodate up to 10 weeks usage of ex-stock specifications. Increased ex-stock sales were expected to be serviced as much by improved handling and stock usage as by increasing the total stocks available.

Materials handling: machinery and space would be made available to enable slitting of slabs and batching of slit rolls to take place at the same time. This would increase the output of the depot and reduce lead time from order acceptance to delivery. Additional facilities for splicing would be provided. Handling of production slabs would be improved by the provision of a 7½ ton overhead crane (for off-loading from transport, and handling until the belt weight had been reduced by slitting or cutting).

Offices: office space would be provided for both depot

administration and two sales managers.

Appearance: the site should provide pleasant working conditions and a suitable location and appearance for meeting customers.

Location: the Midlands was chosen as the locus for a search for suitable sites. This would provide distribution from a central point on the motorway network, and additional sales coverage in the Midlands where the Division's representation was weak.

FIGURE 6.2. DISTRIBUTION DEPOT: OUTLINE SPECIFICATION

	EXISTING UXBRIDGE DEPOT	NEW DEPOT
STORAGE AND STOCK PROCESSING AREA	8000 sq.ft.	13,000 sq.ft.
MATERIALS HANDLING	5000lb Fork-Lift Truck. Belt Slitting Machine	5000lb Fork-Lift Truck. Belt Slitting Machine. Batch-up/Let-off Splicing Table. 7½ton Overhead Electric Travelling Crane
OFFICE SPACE	750 sq.ft.	1500 sq.ft.

Search for Sites

Contact was made with estate agents in the Midlands area. Light

industrial estates within a radius approximately twenty miles north of the M6/M5 junction were visited by the researcher, and a short list drawn up.

At the end of September 1974 a visit with the General Sales Manager resulted in two sites being chosen for further action. See Appendix E for a summary of the sites visited.

6.5. General Proposal Outlined and Discussed

By the end of 1974, a written proposal had been formulated as the basis for discussion with divisional management. The proposal was to establish a main U.K. depot in the Wolverhampton area, and replace the Uxbridge depot with a smaller operation in Greater London.

Initial estimates of expenditure included the leasing cost of the overhead crane and the warehouse lease (leasing was the preferred option in view of the assumed lack of availability of cash for capital expenditure in Dunlop), and a small allowance for additional equipment. See Figure 6.3.

The estimated increase in revenue was £100,000 p.a. in the first year, building to £200,000 in the third operating year, and DCF return over a 5 year period was calculated as more than 50% (this return was reduced to 35% on the final proposal submitted).

At this stage, it was hoped by the author that the preliminary analysis could be circulated to other departments in Belting Division. However, the proposal was considered by the General Manager and

FIGURE 6.3. : FIRST COST & REVENUE ESTIMATES, DEPOT PROPOSAL

	<u>YEAR 1</u>	<u>YEAR 2</u>	<u>YEAR 3</u>
	£	£	£
<u>REVENUE</u>			
turnover via existing system	1,000,000	1,000,000	1,000,000
additional turnover via new system	100,000	150,000	200,000
Additional Nett Contribution based on a 90%:10% mix of own manufactured and factored products.	27,714	41,571	55,428
<u>OPERATING COSTS</u>			
(a) Direct Constants, existing system	36,590	36,590	36,590
(b) Direct Constants, new system	55,879	55,879	55,879
(b - a) Additional direct constants	19,289	19,289	19,289
Costs variable to sales turnover	3,250	4,875	6,500
Transport savings -	(3,500)	(6,160)	(6,160)
1st year costs: Overlap	7,556		
Moving	5,000		
Additional Operating Costs	31,595	18,004	19,629
<u>CAPITAL COSTS</u>			
(a) Lease (over 25 yr period)			
Existing system £8750 p.a.	(£218,750)		
Wolverhampton depot			
(incl. crane) £13,000 p.a.	£325,000		
Alternative London sub-depot			
£660 p.a.	£ 16,500		
Nett Leasing Cost	£122,750		
(b) Equipment - sundry office furniture, additional batch-up and let-off for warehouse materials handling, sundry other warehouse equipment: total	£ 3,000		
Total Capital	£125,750		

Footnotes

- (1) It was Dunlop practice to capitalise leases on sanction applications at the time of submission.
- (2) Nett Contribution is defined as Sales Price minus Full Works Cost.

General Sales Manager to be too sensitive to allow this. Equally they preferred not to enter discussions outside the Division. Though reaction from other managers at this stage might have helped to create a better proposal in terms of definition of facilities and their likely cost, these advantages were apparently outweighed within the total context of management decisions and planning at the General Manager level.

Such discussion that did occur centred on the involvement of Dunlop Belting Division with Transportation Systems Division in the use and lease of the Uxbridge depot. Dunlop Belting Division wished to move out of the site, but Transportation Systems Division did not, and this latter requirement hindered the move. Belting Division did not finally close its Uxbridge operation until 1978, and as a consequence of recent market conditions an alternative sub-depot has not been set up in the area.

6.6. Appraisal of Costs and Benefits

Further reports detailing the capital and operating costs of the proposal were prepared. Budgets for staffing, transport, and working capital, were estimated. Sales forecasts were made based on two factors: (a) the increasing proportion of all-synthetic belting under manufacture, and (b) the growth assumptions made in the Company plan.

Whilst the Division has succeeded in maintaining and improving its margins over the intervening years, volume growth has been far below the expectations of the plan. 1973/74 proved to be years of

peak demand, and at the time perhaps encouraged the Division's managers to be over-optimistic in their assessment of the future.

Savings on transport were estimated by sampling despatches made from Uxbridge and re-assessing freight costs from both the West Midlands and the previously considered alternative location, West Yorkshire. In 50% of the cases, supply via the West Midlands was cheapest; in 17% of the cases, supply via the existing Uxbridge depot was cheapest; in 23% of the cases, supply via a West Yorkshire depot was cheapest. Added to this were the potential savings of factory to warehouse transport, which would be approximately halved for a re-sited national distribution warehouse. Overall, estimated savings on the transport bill by retaining local S.E. deliveries from Uxbridge and delivering to the rest of the U.K. from the Midlands were calculated to be 35%. (Transport costs were not allocated to one cost centre by Accounts Department, but split between transport incurred by the depot itself and transport arranged from the Speke manufacturing site via the Dunlop group traffic scheme. The latter costs were charged back to the Division periodically, and all transport costs were allocated to a general account heading rather than one or several specific distribution cost centres). Change in the method of transport was not contemplated: the number of factory to warehouse journeys were 2 per week with daily pick-ups from the warehouse. These frequencies were not expected to increase significantly with expanded volume of business.

A revised report was circulated to divisional management with an introduction amended and extended by the General Sales Manager(6).

The proposal was, "To replace the existing Uxbridge depot by a larger main depot in the Wolverhampton area and a small sub-depot in the Greater London area."

In his comments on strategy, the General Sales Manager recognised the general shift among belting suppliers towards off-the-shelf sales and standardised product ranges. The conversion of the manufactured product to saleable units had now become the province of the distribution outlets whether independently owned or within the manufacturer's organisation. "Dunlop Belting Division's view," he comments, "is to retain the profitable conversion activity within its own control, the biggest profit being accrued at the point of sale to the medium and small end-user, providing proper stock control enables the outlet to operate efficiently. Suitable premises, efficient handling and conversion facilities, correct siting and manning levels plus effective transport arrangements are therefore of paramount importance to the success of this type of operation."

Further points were made that continental suppliers could be expected to attempt penetration of the U.K. market by distributor networks, and that doubts as to the financial viability of the Division's Midlands distributor made the establishment of a Company depot in the area more attractive.

The report was discussed at a board meeting of Dunlop-Angus Belting Group, at which the Director of Dunlop-Angus Industrial Group (DAIG) was present.

Subsequently, the Comptroller DAIG, one of the Director's staff,

indicated various issues which would need clarification (7). These were:

- (i) There was no indication as to how the additional sales would be achieved, and how the reorganisation of the U.K. sale force would contribute to the new sales pattern.
- (ii) Selling, distribution, and administration costs would have to be presented in more detail.
- (iii) An understanding of the failure of the existing distributor, TEK, to operate successfully would be helpful in assessing the proposal. This was particularly so in the light of TEK's own recent move to new and more expensive premises.

The strategy of decreasing dependence on the Speke site as a central distribution point did seem sound, in spite of the above reservations.

These points were replied to in some detail (8), by enumerating accounts with significant potential to Dunlop in the Midlands and North; developing the theme of centralised field sales control replacing the existing north and south regions; itemising the additional field sales and distribution costs to be incurred; and citing the apparent unwillingness of TEK to expand sales outside their existing local contacts, together with the strain on TEK's working capital incurred by the acquisition of their new premises.

6.7. A Sanction is Raised and Progressed

Requests for capital must follow a standard Company procedure. For capital projects of over £10,000 specific financial data must be provided, with a DCF rate of return for the project. This rate of return is supposed to be the main criterion by which sanction applications are judged. Usually, if a proposal satisfies the Company's minimum return target, it is accepted. This information is presented on a Sanction Application. The application must be supported by the departmental and general managers responsible for the division, and presented by them to their director.

In Chapter 3, the emphasis on formalised planning procedures in Dunlop was commented on. A change in distribution strategy would be outlined and expenditure provision made in the Divisional plan. Thus, the general intentions of the Division's management would be the subject of discussion with the Industrial Group Director before a formal sanction application was made. The commercial judgement of the Division's managers and the compatibility of a proposal with other company activity are tested in this way. Agreement to proceed can then result in a sanction which meets the objective criteria.

The sanction was first raised in July 1975 (subsequent to discussions referred to in the previous section), but the divisional General Manager was reluctant to present it until January 1976. During this period and the subsequent one to May 1976 when the sanction was signed, the sanction was revised several times. The major revision was conversion of the cost of the warehouse crane from lease to capital purchase. It is not known why there was a delay in presenting the

sanction, but it may be that it was more advantageous to the Division to schedule the sanction expenditure during the 1976 operating year. Also, there was a change of Director of Industrial Group at the end of 1976.

Once the sanction has been presented, modifications to the accompanying narrative were made to clarify issues raised in July 1975.

From this point, discussion in the Company centred on the choice of site, negotiations about the lease of the premises which were eventually occupied, and revision of the specification for the overhead crane.

Choice of site was questioned within the Company, because alternative locations already owned or leased by Dunlop were available. Two of these became the subject of negotiation. One, within a mile of the recommended site, was unsuitable as a building and quickly rejected. The other was obviously suitable as a building, but part of the Dunlop Coventry manufacturing site. Belting Group managers wished to secure total independence of the distribution unit from any Dunlop site, and this alternative was also eventually dropped. The sudden pressure to consider these alternatives, however, was a result of main board interest and not the involvement of Dunlop Group Property Department, which has a management responsibility for the acquisition and control of Company property.

The timing of the involvement and intervention of Group Property Department was dependent upon the sanction reaching a stage where project implementation was inevitable.

The role of this department appears in retrospect to have been unsatisfactory. Initial approaches to the department to find available sites drew little response, probably because most of its work is devoted to large-scale Company projects. The co-ordination of the specialist advice and services the department offers was not always properly tied into the project time scale. Objections to clauses in the lease were found and pointed out only months after a draft document had been received, and after a firm decision had been taken to go ahead with leasing a particular site.

Later, co-ordination of architect (responsible for extra building work required) and building services and mechanical services engineers proved difficult, although they were operating from the same department. In addition, geographical remoteness exacerbated the problem of communication and contributed to delayed completion of the depot proposal, as well as to poor financial control.

In Chapter 3, the advantages of centralising certain specialist services in a divisionalised company were discussed. In practice, the pressures operating on the central services involved with this project prevented good project control. Access from the divisional level to the expertise in the central department was also found to be restricted.

Specification of the crane for the building was also time consuming, since managers could not agree on the precise requirements. A compromise was reached by ordering a structure which could take a

load considerably in excess of the 7½ tons requested by the Sales Department. But the Goliath crane, whose support structure moves on rails, inhibits floor space, in spite of its greater lifting capacity.

In March 1976, a revised sanction was presented, including the crane as a capital purchase. After including the proposal in a presentation of Belting Group activities to a Dunlop main board Director, the sanction (its final version is shown in Appendix F), was signed in May 1976, two years after the first study had been carried out.

6.8. Implementation and Completion

From June 1976 to February 1977, additions and alterations to the site chosen were made. These included enlarged office accommodation, provision of heat, light and power, and installation of machinery.

The cost of the work was underestimated and additional expenditure (of approximately £8,000 or 25% of the original capital cost estimate) had to be sanctioned during the period. At the same time, other internal and external events were pushing managers towards a wider concept of the depot's role. Some re-organisation of the Sales Department (see below) led to further investment in office accommodation, whilst the ending of agreements with TEK Limited, (Chapter 5), led to more investment in warehouse vulcanising facilities.

By March 1977 the first staff had been employed at the new depot,

and sales stock had begun to be transferred from the Uxbridge unit.

In August of 1976, following the departure of the Division's Home Sales Manager to another division, the sales organisation was restructured.

The ex-stock outlet was renamed Dunlop Belting Services, and the Southern Region Sales Manager (then operating from Uxbridge) was transferred to Wolverhampton to be Assistant Sales Manager of the new organisation. It was envisaged that a sales manager would be appointed for the ex-stock market in the near future. Dunlop Belting Services would be responsible for the marketing of the Division's ex-stock range of products throughout the U.K. to non-contract customers. Contract customers would be handled by specialist managers from the head office at Speke. In addition, sales territories were redrawn and a new West Midlands territory created to generate local business.

From March 1977, the phased introduction of Dunlop Belting Services to the market took place. Mailing shots were devised along with a new logo, and Dunlop Belting Services featured on the Dunlop Belting stand at the International Mechanical Handling Exhibition in May, held at the National Exhibition Centre. Adverts and news items also appeared throughout the trade press.

6.9. The Project Time-Scale

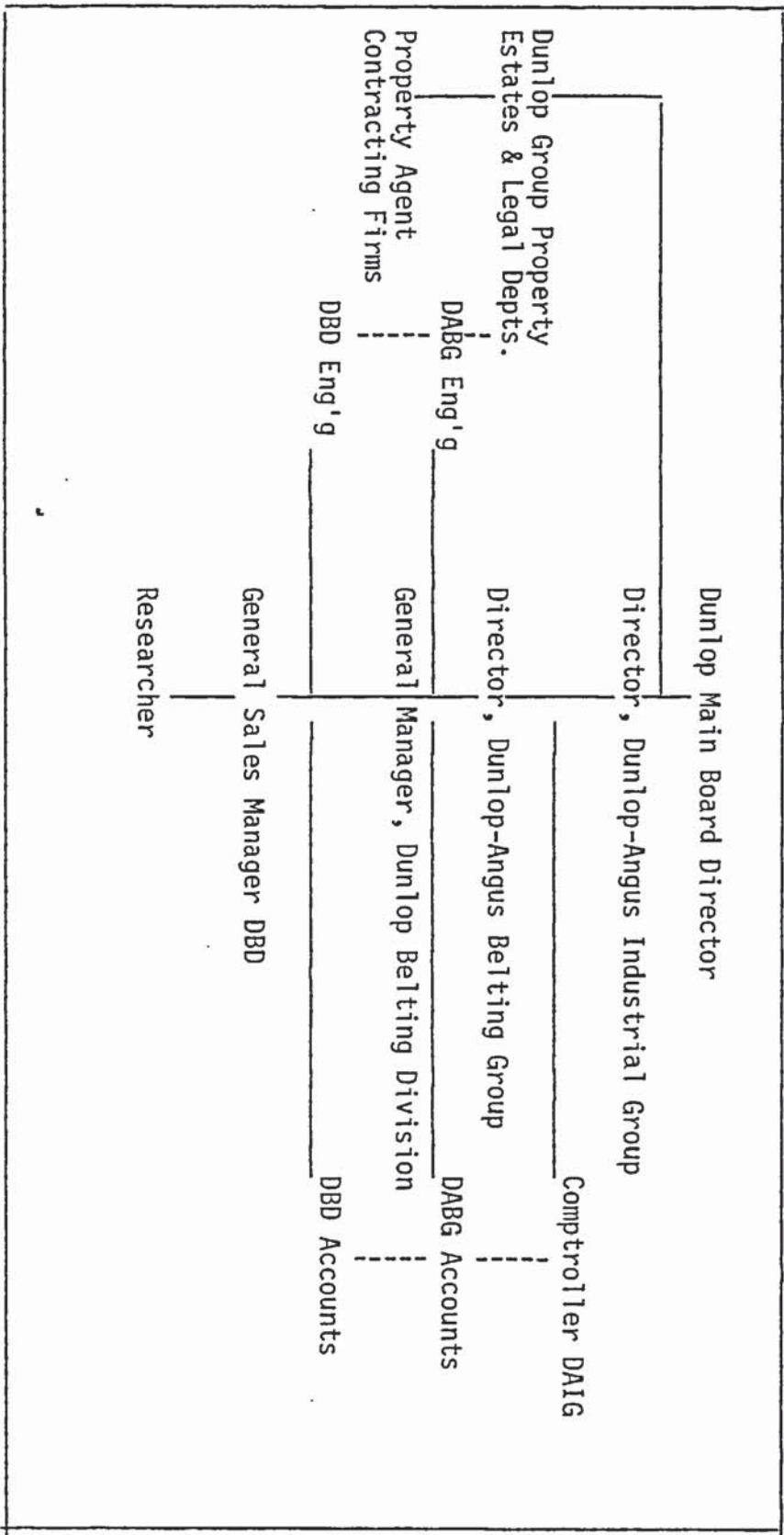
In this Chapter, there have been two themes: the reasoning

behind the distribution centre proposal, and the process of implementation of that proposal. In Chapter 3, the effects on this project of the structure and organisation of the Dunlop Company were discussed, and this section gives the details. Because implementing the proposal was a major concern of the researcher, and because the implementation process raises problems of timing and co-ordination, the time-scale of this project and the events which constitute the decision-making process have been examined. These events concern various levels of the Dunlop Company (Figure 6.4.), up to the main board; interpretation of the whole process can only be by placing papers, requests for information, and requests for revision of information, into the context of relevant meetings which took place at the time. A sequence of these events (Figure 6.5.) has been constructed, but the researcher (who by now had a functional role and organisational locus - see Chapter 1) could not attend or participate in discussion by managers in other than his own department.

Figure 6.4. presents the hierarchy of decision-making, which seems to have operated as a loose network.

Decisions taken at or near the top of the hierarchy fed back through the network to trigger revisions of proposals. Because certain parts of the network - e.g. Group Property Department - had a separate vertical command to that of the Division, co-ordination was difficult. The same mismatch of objectives and communications within the network occurred between functional departments in the same vertical structure (sales and engineering for instance) and between functions at different hierarchical levels (divisional engineering department and group engineering department for instance).

FIGURE 6.4. HIERARCHY OF DECISION MAKING



Such 'matrix' organisations enable adaptation and co-ordination to be formalised. However, the 'task' culture of development departments (e.g. marketing and R&D) may conflict with the 'role' culture of the steady state departments. Handy comments (9) that the effectiveness of co-ordinators may become so impaired that "to achieve anything they have to work informally to by-pass the formal structure and rely on personal power and inter-personal skill. Political links develop, supported by underground informal communication channels."

In a study of communications in organisations (10), March found information was both condensed and biased as it is passed through the organization. It was "often very difficult to say with much meaning who 'makes' a decision in an organization or when it is made. Instead, there seems to be a process of gradual commitment to a course of action."

Management of the project from the researcher's position was difficult because he had the lowest degree of authority in the structure, and only second or third hand communication with managers who made important decisions for, and modifications to, the project.

Figure 6.5. summarises the activity in the Company (detailed earlier in the Chapter), leading to the proposal's implementation. An explanation for the delays is that the objectives of Dunlop Belting Division did not fit the corporate strategy, and even that sometimes the Sales Department's objectives did not fit in with the Division's. It is possible to argue that the competition between management teams for resources in the whole Company could have led to delay on this particular project. Mutual adjustment - as Lindblom terms the

FIGURE 6.5. THE NEW DISTRIBUTION CENTRE. SUMMARY OF ACTIVITY LEADING TO DECISION TO IMPLEMENT PROPOSAL

TIME SCALE	RESEARCHER	BELTING DIVISION SALES MANAGEMENT	BELTING DIVISION AND BELTING GROUP MANAGEMENT	OTHER DUNLOP MANAGEMENT
1970/71			Implementation of Uxbridge proposal	
1972 July		Location of additional depot at Leeds under discussion		
August		Analysis of ex-stock market in the North. Specification of depot.		
October/1973		Search for suitable location in Leeds and cost analysis.	Discussion of option of supporting independent distributor vs in-company depot. Independent distributor scheme scrapped at end 1973.	
July/December				
1974 June/July		General Sales Manager asks researcher for review of depot project previously considered		

FIGURE 6.5. THE NEW DISTRIBUTION CENTRE. SUMMARY OF ACTIVITY LEADING TO DECISION TO IMPLEMENT PROPOSAL
(Cont'd)

TIME SCALE	RESEARCHER	BELTING DIVISION SALES MANAGEMENT	BELTING DIVISION AND BELTING GROUP MANAGEMENT	OTHER DUNLOP MANAGEMENT
August	Report submitted reviewing market potential in N. of England. Attempt to define service objectives and to define other sales requirements			
September	Search for potential sites in Leeds and Midlands areas	Researcher and General Sales Manager visit potential sites		
October/ November	Proposal for new depot submitted in outline. Appraisal of costs and benefits continues throughout project			
December	Request to General Manager for reactions of other mngmt. to proposal. Discussion not allowed outside Sales Department			

FIGURE 6.5. THE NEW DISTRIBUTION CENTRE. SUMMARY OF ACTIVITY LEADING TO DECISION TO IMPLEMENT PROPOSAL (Cont'd)

TIME SCALE	RESEARCHER	BELTING DIVISION SALES MANAGEMENT	BELTING DIVISION AND BELTING GROUP MANAGEMENT	OTHER DUNLOP MANAGEMENT
1975 April	Assessment of rents and allocation of rent between DBD and Transportation Systems Division at Uxbridge Depot			
May	First full proposal submitted Proposal revised after discussion in sales department	General Sales Manager's version of proposal circulated to other DBD managers	DBD Accountant's reaction Discussions between DBG Director and DIG managers	Reactions from DIG mgmt.
June				

FIGURE 6.5. THE NEW DISTRIBUTION CENTRE. SUMMARY OF ACTIVITY LEADING TO DECISION TO IMPLEMENT PROPOSAL (Cont'd)

TIME SCALE	RESEARCHER	BELTING DIVISION SALES MANAGEMENT	BELTING DIVISION AND BELTING GROUP MANAGEMENT	OTHER DUNLOP MANAGEMENT
July	Sanction raised and submitted to General Manager DBD		Communication between DBG Director and Comptroller Dunlop Industrial Group	Sanction discussed at Industrial Group board meeting
December	Discussion with General Manager		Review of additional staff requirement	
1976 January	Revision of sanction		Sanction resubmitted to DBG Director	Comptroller DIG requests further market information

FIGURE 6.5. THE NEW DISTRIBUTION CENTRE. SUMMARY OF ACTIVITY LEADING TO DECISION TO IMPLEMENT PROPOSAL
(Cont'd)

TIME SCALE	RESEARCHER	BELTING DIVISION SALES MANAGEMENT	BELTING DIVISION AND BELTING GROUP MANAGEMENT	OTHER DUNLOP MANAGEMENT
February February/ March	Discussion with General Manager to provide market information for DIG mgmt		Sanction submitted by DBG Director to DIG Level	Group Property Dept. contact General Sales Manager re depot requirement Choice of site raised by other Co. managers in view of availability of premises at other Dunlop locations. Necessity of crane questioned.

FIGURE 6.5. THE NEW DISTRIBUTION CENTRE. SUMMARY OF ACTIVITY LEADING TO DECISION TO IMPLEMENT PROPOSAL
(Cont'd)

TIME SCALE	RESEARCHER	BELTING DIVISION SALES MANAGEMENT	BELTING DIVISION AND BELTING GROUP MANAGEMENT	OTHER DUNLOP MANAGEMENT
1976 March			<p>Crane confirmed to be necessary, but at 25 ton capacity</p> <p>Director DBG discusses choice of premises with DIG Director</p> <p>Sanction resubmitted with crane in as capital purchase</p> <p>Presentation of proposal within Company plan to main board director visiting Speke site</p>	<p>Discussions with Group Property re choice of premises</p> <p>Sanction signed</p>
April				
28/5/76				

FIGURE 6.5. THE NEW DISTRIBUTION CENTRE. SUMMARY OF ACTIVITY LEADING TO DECISION TO IMPLEMENT PROPOSAL (Cont'd)

TIME SCALE	RESEARCHER	BELTING DIVISION SALES MANAGEMENT	BELTING DIVISION AND BELTING GROUP MANAGEMENT	OTHER DUNLOP MANAGEMENT
1976 July/ August	Implementation begins, including preparation of site for occupation		1st additional capital requirements sanctioned 2nd additional capital requirement sanctioned	Group Property involved in leasing arrangements. building alterations, etc.
1977 January		First staff employed at Wolverhampton		
March				

process (see Chapter 3) - took place in this case, but the delays incurred argue for better co-ordination.

The main observations which can be made are:

1. Having decided to promote the idea of a distribution/sales depot, the final implementation was unduly delayed. One consequence of this was that one major competitor (BTR) set up a similar operation in the Midlands before Dunlop.
2. The marketing proposals were not effectively translated into engineering specifications for buildings and equipment. This was diagnosed (by the researcher) as a consequence of an unwillingness to discuss across functional boundaries at an early stage, and later an unwillingness to lose initiative to management outside the local division. In turn, the project was delayed by building and engineering work, and additional expenditure had to be sanctioned.
3. In two key areas of the project, implementation went ahead on a scale against the recommendations of the original proposal.

These were: (a) the overspecification of the crane (finally supplied with a 10 ton crab and capable theoretically of modification to 15 ton capacity, the supply of 25 ton capacity having been found to be impossible), and (b) the retention of the Uxbridge

distribution unit at a higher cost than was necessary (brought about by the presence of a sister division in the same building whose operating costs were effectively subsidised by Belting Division's presence).

4. Lack of co-ordination of Dunlop group services inhibited decision taking, particularly the internal co-ordination of Group Property Department between engineers and estates sections and between Group Property and Legal Department.

Overall, the project took approximately three years from initiation to completion; this is not including policy discussion which had already taken place for two years prior in relation to a possible depot at Leeds.

After a site and building had been chosen, it was a full year before a sanction was raised, and a further five months of discussion and modification before the sanction was signed by the main board Director responsible.

6.10 Summary

The proposal and establishment of the distribution centre is a story of both success and failure.

The project failed in its ability to co-ordinate the right specialists at the right time, and therefore made inevitable compromises in choice of building and equipment. There was a

general failure in communication, both across departmental boundaries and up and down the chain of command between researcher at the lower level and Company board directors at the top.

The project's success was that the distribution centre was set up and that the U.K. sales function was re-structured.

CHAPTER 7

ASPECTS OF PRODUCT STRATEGY

7.1. Introduction

The purpose of this Chapter is to review the extent of marketing influence on product strategy in both Dunlop Belting Group and Dunlop Belting Division.

Product strategy will be related to the market and organisational dimensions of the firm as described in Chapters 2 and 3.

The Chapter will describe the practice of strategy formulation and product decision-making as observed in specific cases. It is not the intention therefore to give a comprehensive analysis of product strategies which might be employed in Dunlop Belting Group. Aspects of the theory of product strategy are used both to explore the deficiencies in management practice in Dunlop Belting Group and to explore avenues for improvement in this practice.

It has already been argued (Chapter 3) that marketing strategy in Dunlop Belting Division was inexplicit during the project period. This Chapter will attempt to demonstrate this argument in the case of product strategy. It is further argued that there was poor co-ordination of management activity in product development, partly because the marketing function did not contribute to the development

process.

Figure 7.1. EXTRACTS FROM STATEMENTS OF STRATEGY RELEVANT TO THE PROJECT PERIOD

(A) (of Dunlop Belting Division's long term objectives):

"As growth in the U.K. market is not likely to be more than 3 or 4% p.a., the main objectives of D.B.D. will be to streamline production methods and rationalise product variety, taking advantage of synthetic fibres. A re-direction of sales efforts, through penetration of the O.E. market and through local depots, will also be made. With increasing competition in export markets a containment of price increases and the maintenance of quality advantage will be sought, together with the development of new trading areas"

(D-ABG Management Plan 1972/74)

(B) "The main thrust of our development programmes is to renew and revitalise the Company's range of products and processes; future strategy in this area is to increase the proportion of resources devoted to 'business replenishment' - the replacement of obsolescent or unprofitable products by new ones."

(Chairman's Foreward, Annual Report of Dunlop Holdings Ltd., 1976)

(C) "The general D-ABG Strategy will be to develop business and products away from our traditional belting manufacture and towards technically and market related product areas to achieve a continuing satisfactory return on capital. At the same time, D-ABG will maximise profitability of existing belting divisions by rationalising product lines and introducing technically advanced belts."

(D-ABG Management Plan 1977)

7.2. Product Strategy in Dunlop Belting

Whilst strategy statements are made in Dunlop Belting Division, and at higher levels in the Company structure (see Fig.7.1.), these statements have failed to be translated in Belting Division into marketing operating plans at lower levels. Where tactical statements are made (e.g. item 'A' in Fig.7.1. specifies penetration of the O.E. market) there has been operational success (see Chapter 2).

Belting Division's objectives (item 'A', Fig.7.1.) are expressed in tactical terms and confuse 'means' (streamlining production methods) with 'ends' (achieving unspecified financial targets?); Belting Group's strategy (item 'C', Fig.7.1.) infers a new strategic profile based on (high value?) technical products. Both product diversification and product rationalisation are proposed - one could argue that in some circumstances the introduction of new technically advanced belts might be incompatible with the process of product rationalisation. At the same time, it is not clear why less effort was to be expended on traditional products if these were already making a satisfactory return on capital.

In marketing strategy terms it is not clear what market opportunities have been identified which justify moves into technically and market related product areas.

In Chapter 3, the structure of the Dunlop-Angus Belting Group was described. It was argued that there was unnecessary competition between, and overlap of, the activities of the sub-units of the Group, themselves 'mini' divisions.

New product strategy has been followed in this structure in the following way. First, development has been carried out at group level, isolated from the existing manufacturing divisions. Second, new market opportunities have been exploited by new marketing divisions (Sports Surfaces International, Transportation Systems) again isolated from the existing operations. The co-ordinating mechanism for product development - the Product Development Committee - will be referred to in section 7.3..

In Chapter 2, the market for conveyor belts was described. This market was shown to be long-established, and sales to be dependent on derived demand. Growth of demand was said to be uncertain due to the nature of the user industries, and the incremental nature of growth within the total market (e.g. O.E. sales to the steel industry). In general terms, competitors products were said to be interchangeable, so that poor product differentiation existed. Consequently, marketing strategy was concentrated on price and service.

These features conform to those listed by Levitt (1) for the maturity stage of the product life-cycle. The life-cycle concept is useful because it allows a longer term view of a company's product strategy, but as in the case of rubber conveyor belts is typically deduced in retrospect. Within the generic conveyor belt life-cycle, several other life-cycles could be operating, and therefore, providing analysis identified differentiated product types, growth opportunities could still be found in a market which in general terms could be said to be mature. Figure 7.2. displays schematically hypothesised life-cycles for rubber conveyor belts of different carcass materials.

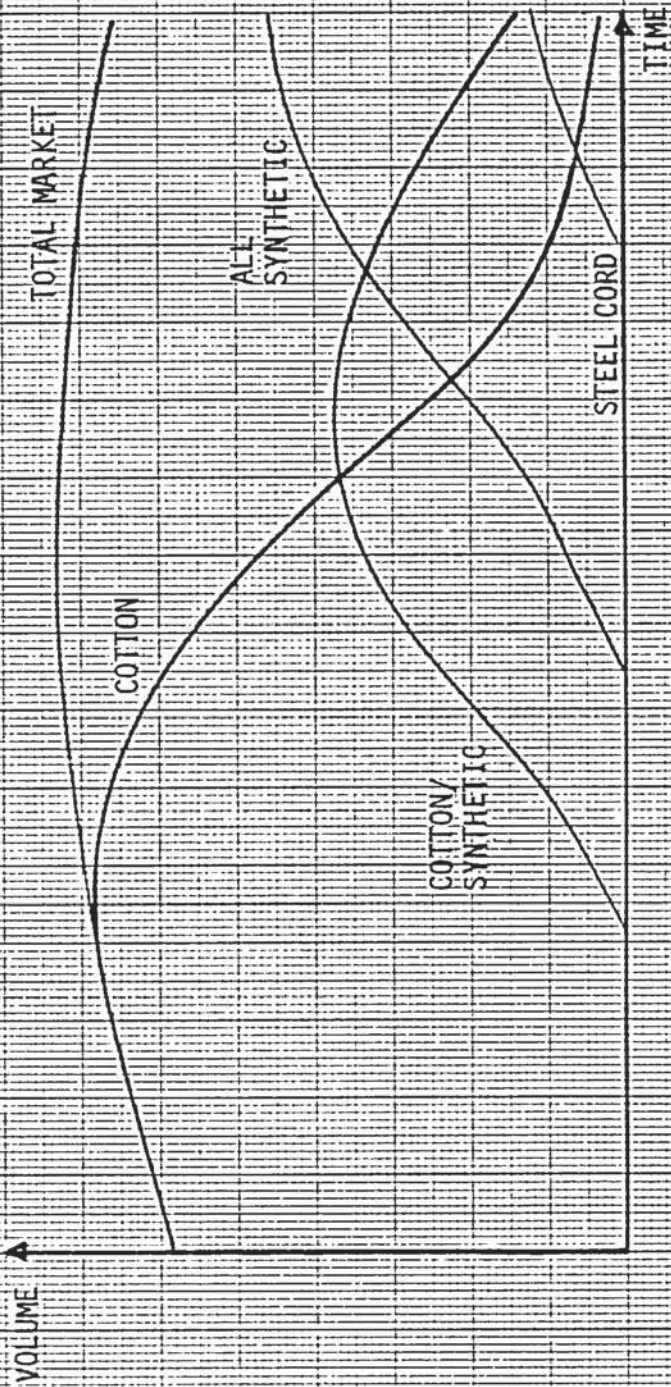


FIGURE 7.2. HYPOTHETICAL LIFE-CYCLES FOR RUBBER CONVEYOR BELTS OF DIFFERENT CARCASE MATERIALS

It would be possible to construct similar life-cycles for conveyor belts based on other methods of segmentation, for example applications type. The life-cycle also implies that products do indeed have a life of their own. However, if managements decided that a 'product' (e.g. cotton/synthetic-carcased rubber conveyor belts) should be eliminated, then the prediction of the decline stage becomes a self-fulfilled prophecy. In fact, the life-cycle seems more useful in its application to product variants (conveyor belts with different carcass types) or brands than to the long time scale involved in wider generic product types (conveyor belts). In the shorter time scale, management can act to control the volume, profit and other variables associated with a product and thus in some way determine the shape of the life-cycle(2).

The author has assumed that in Dunlop Belting Group, management came to the view that the conveyor belt was a mature product, and that future policy should be directed to the acquisition of new products or new markets. Levitt lists the strategic alternatives in the mature market as:

- I create more frequent usage among current users
- II " " varied " " " "
- III create new users
- IV create new uses for the basic "materials"

From Dunlop Belting Group's point of view, the setting up of Transportation Systems Division can be seen as an attempt to pursue strategy III, and the setting up of Sports Surfaces International an attempt to pursue strategy IV.

Simmonds (3) comments that the "choice of product strategy is perhaps the most crucial decision confronting top management", and criticizes decision aids such as those of Levitt and Ansoff (who is quoted later) for restricting options to the dimensions of product and market. Such restrictions lead managements to neglect to audit their resources, and thence build on strengths: "it may well be more profitable to build on the firm's technological know-how, or its distribution system" says Simmonds.

It is the author's opinion that such an audit was not taken in Dunlop Belting Group, and that subsequent marketing risks were not evaluated properly. For example, Transportation Systems Division (T.S.D.), was created to market passenger carrying conveyor systems (as used in airports). The Group had little experience of manufacturing and marketing such a product, and in fact had to depend on other parts of the Dunlop-Pirelli Union for the manufacture of the majority of the system. The Division was successful in selling and installing passenger carrying conveyors, but commercially has never produced the return on funds sought for in the Group strategy. In order to improve the revenue earning base of T.S.D., additional mechanical handling products were acquired through licensing arrangements. However, the selling organisation required for this business was too costly, and subsequently these activities were abandoned (in 1979). Additionally, original equipment customers for Belting Division's products protested that Dunlop was competing in the mechanical handling market: a market reaction either not considered or discounted at Group level.

7.3. The Orientation and Organisation of Innovation

Research reported by G. Wills (4) indicates that many firms do not conform to the pattern of product development derived from marketing practice in very large consumer goods companies, and that besides this 'ideal' marketing orientation of innovation "under which the company endeavours to make products which are wanted by the market", two other orientations exist. These are:

- "1. Production-facilities orientation; under which the company regards innovation as a process of developing improved versions of the same products or less frequently new products which are suited to its production facilities ... the starting point is not what the market wants but what the existing machines can produce.
2. Product orientation; under which the policy is to press for a technically superior product ... research and development is a much more important function than under other patterns."

These comments apply to both industrial and consumer goods companies. Development biased to customer needs may be a limiting factor in product strategy (5) and providing these 2 orientations are controlled, they could represent strengths rather than weaknesses.

Nevertheless, strategic expansion under these circumstances, as H.I. Ansoff (6) comments, "will take place in most firms regardless of whether the management devotes special attention to guiding and controlling it." The development and subsequent market adoption of

all-synthetic slab belting can be viewed in this light, with innovation being production-facilities oriented and sales growth in the total market a result of derived demand. Steel cord belts could be said to be the result of product-oriented research. Whilst developments in the conveyor belt market fit the pattern of extending the mature stage of the life-cycle, (Fig.7.2.), it seems more likely that product changes were motivated by product or production-facilities oriented policy.

The execution of research policy in engineering companies has been described (7) as falling between the extremes of (a) the basic research approach and (b) the customer service approach. Both suffer disadvantages: the first can be too general and wasteful and relies on the generation of ideas from high quality and highly specialised teams; the second can be too specialised, producing custom-made solutions too costly to be of value to a wide range of customers. The median solution is the 'selected problem' approach.

In Dunlop Belting Group, research has been split along the lines of these extremes. On the one hand Group Technical Department has controlled the development of projects derived from basic materials research; on the other hand, development of the existing product range - either within Division or Group technical departments - has been in response to specific customer problems, mainly concentrated on the quality of the belt cover. New products for the conveyor belt market have been promoted in their technical development for reasons such as reduced manufacturing cost, or backward integration of materials supply. The role of marketing in the innovation and development process has been limited, particularly in the early

stages of projects. Development projects lack a formal procedure for incorporating the marketing viewpoint, and this is compounded by the lack of a formalised marketing effort within Belting Division. The main organisational device which allows communication between divisional sales and group technical departments is the Product Development Committee. This committee's primary functions are co-ordination of field trials in a project's later stages and exchange of information about project progression, so the organised input of marketing information is precluded within this structure.

7.4. Marketing a New Type of Conveyor Belt

The New Belt

In Spring 1976, a new type of conveyor belt developed within Belting Group was ready to be considered by Belting Division for introduction to the U.K. market. It was not known within the Sales Department what degree of differentiation the product might possess. Lack of differentiation among existing brands could provide the Company with a market opportunity for the new belt type. The new belt had been developed from new carcass materials, the development of which had originated with Dunlop's Central Research Department. The belt required new manufacturing technology, which would eliminate the weaving stage for the current range of belt carcasses, and the process could be integrated into the manufacturing operation. So the belt offered Dunlop two advantages. Integration into raw material supply would provide greater control over materials supply; and substantial manufacturing cost savings were forecast.

In addition, technical aspects of the material and its

manufacturing process made greater variation in belt design possible, particularly in the combination of load support capability with tensile strength - so that the mixture of properties in the existing range of belts need not be adhered to in the range of new belts. The scope for re-designing the product range was indicated in an IHD Project Report written by the author and a fellow research student in October 1975 (8). This report analysed a sample of belt quotations handled within the technical section of the Sales Department in October 1974, and found that a significant number of belts were over-specified for tension rating (i.e. too many plies) in order to provide load support. Heavier, stiffer fabrics from the present range could be used, thus reducing belt costs in appropriate cases. The authors found that 53% of the belts in the sample could have undergone specification changes with an estimated saving on factory variable costs of up to 12% on these belts. The report was later updated using a larger sample, and similar results were obtained (9). With the new belt type, it was now possible to envisage a product range more suited to customer requirements than the present range, because the new belt could undergo design changes with more flexibility. The marketing implication of this would be that Dunlop would have belts more appropriate to customer needs than those of competition, and have a potential cost/price advantage at the same time.

The Sales Department: Devising a Marketing Plan

The Sales Department was 'presented' with the new belt at an advanced stage of its development. Production facilities had been commissioned; a range of product specifications designed (not to meet

the criteria implied by the study referred to above, but to match the existing range of specifications); it had also been decided to retain as much as possible of the added margin derived from the new belt's production savings (i.e. no price reduction). The launch, promotion and market development of the belt now needed to be planned.

However, Sales Department had several reservations about the new belt -

- (a) the performance of the belt with various types of mechanical fastener in popular use was unsatisfactory,
- (b) jointing by vulcanisation was possible but would require Dunlop teams using a special process,
- (c) compatibility with conventional plied belts was in doubt,
- (d) it was not known how the customer would receive the new belt, which had a thinner overall gauge than its plied equivalent. Sales personnel assumed a negative effect. The belt could be produced with covers thicker than required, but even so some customer reaction against a thinner carcass was anticipated.

A further reservation within Sales Department was that whilst the new product matched - or was designed to match - the performance characteristics of the current Starflex plied belt range, it had no technical advantage over its competitors.

It could not be sold as fully compatible with existing belts - which might have allowed a 'low-profile' substitution of the new product for the old - and it lacked advantageous product features, so to Sales Department it appeared to offer no marketing advantages. Lack of information led to lack of confidence in the product itself, and there was also confusion as to the longer term plans for production capacity in this product. Since the initial limited volumes would impose their own restrictions on the introduction of the product to the market, it was important to know what growth rate could be achieved by production. The first two years' production targets were known: 10-15,000 metres were planned for the first year, rising to 30,000 metres in the second. Comparing these figures with the volumes of type 315/2 and 315/3 Starflex belts (which the new belt would be selling alongside initially) sold during the peak year of 1973, a sale equivalent to 17% of Belting Division's sales of these specifications was indicated for the first year. (Appendix G)

In spite of reservations, Sales Department pressed on with the design of a marketing plan. As the new belt "appeared to hold no marked advantages/disadvantages over the current product the belt could only be made attractive in the market place by the method of marketing selected rather than by highlighting product features" (10).

Appendix G reproduces parts of a discussion paper prepared by the author; the paper concentrates on service features, and one important proposal was that a form of guarantee might make a significant impact on customers. A guarantee combining post-sales service and a pricing strategy linked to product leasing was envisaged. A sales campaign aimed at the original equipment market

was proposed; this would provide some flexibility in production lead times, give tight control over the type of application supplied, and facilitate economic and thorough follow up at the installations. Other potential benefits would be the encouragement of brand loyalty through servicing arrangements, a minimum risk that price levels on other conveyor belting sold in the U.K. would be affected, and predictable cash flow for the customer during the period of a service contract.

7.5. The Role of Marketing

In developing the proposals summarised in the previous section, the author became convinced that, apart from the subjective reports of its sales personnel, the Division had no idea how customers ranked product features. This was a problem similar to that faced by technical departments when they develop items without the aid of direct knowledge of market requirements.

Subsequent to the exploratory work done within Sales Department and the author's involvement, the new product's market introduction was delayed for technical and financial reasons. Nevertheless, the project's progress illustrated how a marketing input - particularly of market research information - could have helped development work both earlier in the project life and at the later stage of market introduction.

The new belt had many features which made it an attractive proposition to the Company, and potentially attractive to the customer. The translation of these potential benefits into actual

benefits had been hindered by lack of information and marketing planning. Such planning might have enabled the Company to (a) draw up specifications for the product which might have differed from those currently used (b) identify earlier in the development programme market segments as primary or secondary sales targets (c) anticipate user response to alternative belt types (d) create a service package appropriate to customer needs.

Belting Group already had two important sources available for some of the information required for such a programme. Market surveys, originated and controlled by Belting Group Marketing Services, assess the potential of individual customers, but include little technical information beyond the classification of users by industry type. Plant surveys, originated and controlled by Service Managers within Belting Division Sales Department, provide both customer and Company with detailed information about conveyors and their use in individual plants.

It would be possible to classify end-use characteristics of belts with a coding system such as that used by the American Conveyor Equipment Manufacturers' Association (Fig. 7.3.). The information already possessed by the Company structured on such a framework could provide the beginning of an assessment of the technical requirements of the market and the adequacy of products currently on the market to meet these needs. Such a programme implies a greater use of field trials, since the reproduction of all the damaging factors which influence belt performance, in the correct proportions, is acknowledged to be extremely difficult in the laboratory (11). There are no generally accepted service-related testing methods, and

FIGURE 7.3.

C.E.M.A. TABLE OF MATERIAL CHARACTERISTICS (14)

MATERIAL DESCRIPTION	BULK DENSITY LBS/CF	SIZE	FLOWABILITY	
			ANGLES OF DEGREES	FRIC-TION
	LOOSE			
	VIBRATED			
	SPECIFIC GRAVITY			
	MAXIMUM			
	CEMA WEIGHTED AVERAGE			
	MINIMUM			
	SIZED, PARTIALLY UNSIZED, UNSIZED			
	LUMP DIMENSIONS			
	PERCENT MOISTURE			
	FLOW FUNCTION BY SHEAR TESTS			
	COHESIVENESS			
	EXTERNAL WALL			
	INTERNAL WALL			
	MAXIMUM INCLINE			
	REPOSE-LOOSE			
	SLIDE			
	SURCHARGE			
	STICKINESS			
Definitions	A 8	A 9	A 14	A 17
	A 17	A 17	A 17	A 18
	A 13	A 15	A 12	A 10
	A 2	A 3	A 4	A 5
	A 6	A 7	A 18	B 18
Example: Iron Ore	125	150	2.3	6
			1/2No.100	PS
			6X3X2	5
				2.3
				Y
				30
				35
				15
				35
				30
				2
				Yes

only a few attempts have been made to introduce any. The National Coal Board carried out extensive laboratory analysis followed by related field trials between 1958 and 1962 (12), and this experience could provide the base for the methodology of a large scale field trial system in Belting Group. The N.C.B.'s belts had a narrow range of applications conveying the same material, so data was relatively easy to collect on a large sample of conveyors. Significant improvements to the service life of all-synthetic carcass belts for underground use were achieved during this period: in 1958 the standard rubber/cotton construction of the day had a service life approximately equal to the average life of all the synthetic fibre belts tested. By 1962, however, every form of synthetic belt approved lasted longer than the standard construction (13).

7.6. Summary

"What is required (to improve the process of product development) is good strategic planning, proper management controls, and healthy organizational attitudes" (15). Rothberg divides the "process of innovation" into "a series of six phases: concept generation, screening, business analysis, development, testing, and commercialization." A number of writers have proposed check lists to aid decision making in product development, among them Luck (16) (see Fig.7.4) and Miracle (17) (see Fig.7.5.).

In spite of Simmond's appeal (18) to widen the horizon of search for identifying dimensions of change, it is common to regard products as having only two dimensions: technology and markets (see for

Figure 7.4.: 10 NEW PRODUCTS DECISION AREAS FOR THE MARKETING FUNCTION

(after Luck)

1. Identifying unsatisfied needs that offer product opportunities.
2. Projecting sales opportunities in such markets.
3. Gathering of conceiving product ideas that would meet the needs.
4. Determining marketing tasks and costs expected in a product venture.
5. Planning and conducting product concept tests.
6. Appraising market reactions to proposed products or concepts.
7. Planning the method, timing, and scale of product introductions.
8. Planning price strategies and establishing price schedules.
9. Planning production and distribution schedules.
10. Establishing market performance standards and control systems.

Figure 7.5. CLASSIFICATION OF PRODUCTS BY NINE CHARACTERISTICS
(after Miracle)

1. Unit value.
2. Significance of each individual purchase to the consumer.
3. Time and effort spent on purchasing by consumers.
4. Rate of technological change (including fashion changes).
5. Technical complexity.
6. Consumer need for service (before, during or after the sale).
7. Frequency of purchase.
8. Rapidity of consumption.
9. Extent of usage (number and variety of consumers and variety of ways in which the product provides utility).

instance Wills and others (19)).

In Chapter 3, reference was made to the process of product development in Dunlop as a whole as being one of 'complementarity'.

This appears to be a similar process (if unconsciously so), to the one Simmonds is asking for: "the firm seen as an evolutionary organism responding to the opportunities and constraints of its environment." The author notes that successful strategies in Dunlop Belting Division (for example the expansion of factored transmission products in Export markets) have been responses to such opportunities. Subsequently, divisional plans have formalised the action already taken.

Some Dunlop Divisions have adopted this widely practised 'product management' concept in an attempt to co-ordinate Marketing with Research and Development. Hanan gives four reasons for a lack of co-ordination (20): a product-oriented corporate philosophy; a hands-off attitude toward R&D; the quest for the perfect product; Science (R&D) versus Art (Marketing). Hanan claims that because "R&D is the older, more firmly established and accepted function, it generally retains the upper hand. R&D says to Marketing, 'I've got an answer. Now you go out and find a question for it.' Rarely does Marketing have the opportunity to tell R&D, 'I've got a question. Now you go in and find an answer for it.'" To the author this seems to be a good summary of the activity described in 7.4. Hanan advocates co-ordination by a 'marketing action team' which "must be a decision-making group, not a staff group merely producing reports and data on which decisions can be made by others." This contrasts

with the structure for Dunlop Belting Group described in 7.3.

Rational planning suggested by writers on the topic of product development assumes that firms can make their strategies explicit. "The need for an explicit strategy," wrote Tilles (21), "stems from two key attributes of the business organization: first, that success depends on people working together so that their efforts are mutually reinforcing; and second, that this must be accomplished in the context of rapidly changing conditions."

In Dunlop Belting Group, product development has been an important part of the business strategy. An input of marketing information would have been a useful adjunct to the development of an important new type of conveyor belt. Ways in which existing knowledge within the Company and within the industry could be used have been suggested, to indicate how the marketing function could contribute to successful product development.

CHAPTER 8

CONCLUSIONS

8.1. Introduction

This project has two related areas of research interest. First, action research of the kind discussed in Chapter 1, designed to recommend, initiate and implement change in aspects of Dunlop Belting Division's marketing strategy. The particular focus of action, as explained in Chapter 2, was distribution strategy. The second area of interest arises from the evidence collected as part of this action research. In tackling the practical problems of the sponsor, the researcher is able to confront theoretical questions in some of the topics covered by the research. These theoretical aspects derive from a number of disciplines and perspectives. Specifically, case study material has been collected and presented on the subjects of (i) company divisional organisation structure (ii) managerial strategy and decision making (iii) marketing channels and (iv) market segmentation. The first two come broadly within the spheres of organisational behaviour and business policy, the latter two under marketing.

In methodological terms a case study can be of use in providing evidence for (a) confirming or rejecting general implications suggested by theory and (b) suggesting features of which account should be taken in constructing theories or frameworks. In this context it is not necessary to take a view on the nature or status of any particular theory or set of theories.

The remainder of this chapter will draw the implications of the evidence from the case study for theories (expressed variously through models, frameworks, and viewpoints) in the above four topics. The main conclusions will first be summarised; followed by discussion of the issues raised. Data about the operational effectiveness of the distribution depot at Wolverhampton will be presented in the discussion of marketing channels.

8.2. Summary of Conclusions

Although decentralised organisations are held in the literature, and in the statements of Dunlop company managers, to have a number of benefits (as reported in Chapter 3), evidence collected in this research suggests that:

(1) There are limits to effective decentralisation. From the evidence in this case, considerations such as product maturity, the range of products and the importance of each product (in volume and financial terms) in the range, the central provision of specialist services, and the career development of managers, all generated pressures towards limiting the ability to achieve the degree of delegation of decision making which is claimed by advocates of decentralised companies to be desirable for maximising company goals.

(2) There appears to be recognition of the above limitations in the behaviour of managers within Dunlop, even though there is a widespread belief (mirroring the company's official statements) that the company is decentralised.

(3) The Dunlop company structure is not in fact decentralised. Both the models of divisionalisation constructed by Channon (see Chapter 3) and by Dunlop recognise this in descriptive terms, but fail to modify the frameworks and classification of structure to account for this. Confusion of terminology (divisionalised companies may have organisational features some of which are decentralised, others not) contribute to this failure.

Models of the structural evolution of companies, such as that which Channon uses, need modification in these respects. Channon's suggestion that more devolution is needed to make divisionalised companies fully effective is not supported by the evidence in this case. Rather more careful definition of individual company needs is required before a particular structure and design process is imposed.

The systems of strategic planning and decision processes in Dunlop were found in several respects to be formalised. However, it was also observed that the formal strategies were in some cases too general, in others lacked the perspective of marketing analysis. Strategies in these cases could be ignored or, if followed, resulted in ineffective action. Similarly, some important decision processes (e.g. capital resource allocation) were informal and political in character, although formal systems existed in parallel. Decisions reached through the informal or 'deviant' systems were observed to be implemented. It is concluded that 'top-down' planning is not appropriate to the needs of divisions, and that attention in both planning and decision-making should be focused on the processes involved (to encourage responsiveness and adaptability) rather than on the statement of objectives.

The research was conducted in the marketing area and specific contributions to Dunlop Belting Division's operations were made in respect of distribution and product strategy. It was observed that decisions in both areas had at times been taken without adequate marketing analysis. The application of concepts derived from research in distribution and marketing channels proved useful and practical, although data for industrial products and markets was generally lacking. It is concluded that small scale industrial products markets can benefit from the application of marketing theory, but that published work which reports and explains the specific differences and similarities in these markets is lacking. Some of the evidence presented in this research suggests that there are important differences between industrial and consumer marketing which require that marketing concepts derived from work based in the consumer field requires adaptation for use in industrial marketing.

Segmentation analysis is illustrative of this. Because such analysis derives from studies of large scale consumer markets, it ignores the complexity and diversity of industrial products markets. It is concluded that segmentation analysis should take into account the availability of marketing resources, as well as the differentiation of markets on the basis of factors external to the firm.

8.3. Divisionalisation

In Chapter 3, the implicit conceptual model which lay behind the decentralisation of the organisation by means of divisionalisation was discussed. Advantages and disadvantages of the divisionalised organisation were listed; the observed forms of divisional structures

in British related product companies (of which Dunlop was said to be one) were noted from Channon's work; the espoused theory of divisionalisation in Dunlop was reported from statements made by the Managing Director soon after the organisation was restructured.

The theoretical advantages and operating mode of a divisionalised company can be compared with observed practice in the Dunlop case. Decentralisation in Dunlop was expressed as (1) "the ending of functional responsibility from managers at divisional level to individual directors, and the appointment of a general manager to each division with real responsibility in all its affairs, other than its 'frontiers' (geographical and product range), corporate structure and supply of capital." Flexibility and speed of response and delegation of authority to one decision-taker are among the advantages claimed for divisionalisation. But Channon observed that multidivisional related product companies continued to exercise strong central control both through systems (budgetary, planning, financial) and organisation (such as central R&D, finance and accounting, corporate planning, legal and personnel services, corporate marketing, management development). Consistent with Channon's observations Dunlop has retained such a structure.

These retained controls encompass large areas of managerial responsibility which are not decentralised. For instance, a key element of product strategy (in theory the responsibility of the division) is finance - i.e. capital as well as budgetary planning, both in practice controlled from the centre. Product-market extension or diversification would be strategies attractive to divisions in many business situations; in practice strong central co-ordination of such strategies is observed at the centre, because these strategies do indeed encroach on the

frontiers of the business. Complex and demanding planning procedures, (requiring bureaucratic organisation, delays in approvals, and a bias against risk taking) are not compatible with flexibility and speed of response.

One of the advantages claimed for divisionalised structures by Uytterhoeven and others (see Chapter 3) is that diversification of products or markets can be encouraged since performance can be measured at the level of the organisation's sub-units. The Dunlop plans reported in Chapters 3 and 7 reflect such a view. But the evidence from the author's observations is contradictory on this point. Formalised plans may commit organisations to actions unrelated to their capabilities (see Chapter 7 and 8.4. below), and the 'mini'-divisionalised structure of Dunlop Belting Group described in Chapters 3 and 7 facilitated an attempt at diversification which proved unsuccessful. Also at Belting Group level, divisionalisation appears to have run counter to the implied economies of scale highlighted in the Group's own plan. On the other hand, product and market development in Dunlop was observed to be a successful process where it matched the requirement for 'organic' or 'complementary' growth. However from the evidence it is not clear whether divisionalisation either helps or hinders this process; particularly as it appears to be unrecognised within the company's planning procedures.

The role of central departments in the divisionalised structure was discussed in Chapter 6. The experience reported in the project suggests that although central departments in theory make available expertise and resources to divisions incapable of carrying the full burden of such services, in practice both resource allocation and organisational procedure can operate within the central services so as to limit the

availability and usefulness of these resources to client divisions. In some cases a central service department could be more powerful than a particular division through the scope of its budget and company-wide activity.

The author is not suggesting that Dunlop be reorganised because the company does not fit the espoused model for divisionalisation; rather that the current terms 'divisionalised' and 'decentralised' do not adequately describe the practice of management in the company. Furthermore any view of structure must take account of the multitude of dimensions along which one can measure centralisation/decentralisation. In particular, the management of the company from the centre is a significant feature of Dunlop. Allocation of resources to activities can be seen in this context to be made easier by divisionalisation - for instance to support tyre making operations, alternatively to close down tyre making operations, or to support revenue growth in counter-cyclical products and markets. The criteria for such resource allocation are much more complex than the profit-centred reasoning of divisionalisation suggests.

The apparent contradictions presented here suggest that a simple structural view of divisionalisation does not reflect the observed practice because (a) companies (such as Dunlop) may be described as divisionalised or decentralised, when managerial practice contains significant centralisation (b) managers in a divisionalised company may believe they are also in a decentralised company, even when the scope for decision-making at divisional level is restricted.

8.4. Strategy and Decision Making

The process and implications of strategy making at a number of organisation levels has been presented and discussed throughout this research. Chapters 2 and 3 covered the topic at both industry and company level. Strategy was defined in this context as the organisation's response to both world-wide and national market environments. Chapters 4 and 7 dealt with two specific aspects of marketing strategy - channel strategy, and product strategy. Chapter 3 argued that the process of decision-making at both strategic and tactical level was an integral part of the process of strategy making. Chapters 5 and 6 presented evidence about aspects of decision making at the tactical level, the one chapter focussing on company-distributor decisions the other on intra-company decisions. So considerable evidence has been presented about the actual process of decision-making and strategy formulation in a large corporation in terms of its effects on, and inter-relations with, one organisational component.

Strategy-making in Dunlop is regarded as closely linked with the corporate planning process according to the public pronouncements of senior directors and to internal company literature (see above). Uytterhoeven and others (Chapter 2) see this process as necessary to give direction and cohesion to the enterprise. But evidence presented in this research suggests that such cohesion broke down in the Dunlop organisation. A normative view (taking Uytterhoeven et al as prescriptive) would suggest that this demonstrates that there was some deficiency in Dunlop, either in the corporate planning process, or in the implementation of a 'well -' formulated plan. But closer inspection of the evidence

suggests that this theory of planning and strategy-making is deficient in some way, and that the 'lack of cohesion' in Dunlop may have positive aspects.

To explore this possibility, consider the number of dimensions to strategy formulation. Strategy can be seen as statement (i.e. as including knowledge of particular subject matter and of particular options related to that subject matter) and as process (i.e. the method of formulation). de Smit and Rade (2) reviewed the planning process in this way, and adapted Faludi's (3) description. In this, there are three dimensions of statement and process each characterised by two extremes:

(i) normative - functional/instrumental. The normative planner has freedom to prescribe and change goals, the functional/instrumental planner's goals are prescribed by others;

(ii) blueprint (model-type) - process-type. In blueprints, goals are specified, whereas process planning describes adaptation (learning by doing);

(iii) rational-comprehensive - disjointed-incremental. This dimension was discussed in Chapter 3. Rational-comprehensive planning was said to be impossible due to the problems of data, but implies rational choice succeeding analysis. Disjointed-incrementalism accepts the impracticality of the other method, chooses among values and policies at the same time, and concentrates on marginal values and choices.

The existence of a planning system with a published plan - as in Dunlop - requires statements of divisional strategy to be made explicit. In theory, this enables the company to see "how much money can be obtained from customers against the claims of competing companies and products" (4). The corollary to the strategy is the budget whose prime consideration is

"how much money can be obtained from the corporate pot against the competition of other divisions and projects" (5). The difficulty in making any statement of strategy, is in the reliability of the strategic forecast, as Paul, Donovan and Taylor have shown (6). Failure of major companies to predict major environment changes (e.g. the oil crisis), leads Paul et al to advocate 'adaptive planning' - i.e. to move along a dimension from blueprint or normative planning towards process-type planning. Etzioni (see Chapter 3) saw strategy in terms of fundamental decisions. However, while this view accommodates planning for changes under the organisation's control (e.g. a take-over bid for another company), it fails to accommodate the ability to react to changes in the external environment. The way in which strategic choices are formulated and made is strongly influenced, according to evidence presented by Bower (7), by "the lines of structural form chosen to implement strategic objectives at one point in time." The structure will influence "the way in which individuals in the organization will perceive events in their environment." Doyle (8) has recognised that structure both follows strategy (as in decentralisation) and influences it. Because organisations are so complex (in the sense of presenting large numbers of variables, many of them hard to define or measure - let alone identify their interrelationships) it is difficult to measure the impact of structure by itself. Doyle proposes various criteria to measure organisational effectiveness but comments that a general theory to meet all these criteria does not yet exist.

It is concluded that any new theory of strategic planning should recognise not only the procedures through which plans are made explicit, but also the processes by which goals are integrated and conflicts resolved (or maintained) including the processes by which sub units take

into account both external and internal environment pressures and changes.

It has been shown that Dunlop has a planning system and that this is likely to include (depending on the conditions) all three types of strategy statement as described by de Smit and Rade. At divisional and company level, strategy is made explicit. However, the evidence suggests that marketing strategy for some of the time in Dunlop Belting Division was not made explicit. Furthermore, co-ordination of activity relevant to marketing strategy was lacking. (In Chapter 3, channel strategy was shown not to be expressed in marketing terms, although industrial relations policy had been an influence; in Chapter 7 new product strategy was poorly co-ordinated and shown not to have been significantly influenced by a marketing input). Furthermore, even where strategy was made explicit, deviance from the strategy can be demonstrated (e.g. Dunlop Belting Group has not developed a product mix based on high value and high technical content).

First, deviation might be shown to be good for business and that managers down the line might be the best judges of this in their particular area. In other words, operational managers without the resources to achieve the stated objectives, ignored the latter and, as Wildavsky suggested (see Chapter 3), they considered the organisational realities and did what was possible in the circumstances. In particular, there was a mismatch in Belting Group between top-down planning (i.e. general commitments to product development and subsequent resource allocation for this purpose) and the requirements and resources of the operating units. The conflict of interests appears as poor co-ordination, but this apparent deficiency was a symptom of the impossibility of the general commitments,

and the managers' responses to operating realities. It may be that the top-down plans should then be changed or reformulated to make them more 'realistic'. But in companies such as Dunlop, this may merely set off a search for a general form of words which would be applicable to all situations, and consequently without operational implication. Indeed, evidence in Dunlop suggests that the company strengths may lie in 'process' rather than 'statement'. The author has already suggested this in relation to product development. In a company like Dunlop, whose products and markets are highly diversified, all-embracing statements will tend to be too general. Successful decision making in the company is often incremental in character (e.g. Dunlop Belting Division's entry into factored products in export markets) and informal (as shown in Chapter 6). Strategy in these cases, follows successful evolution of particular thrusts.

Bower's research (9) indicated that the use of corporate planning procedures in divisionalised companies, "can provide better control over capital expenditure because the process enables management at corporate headquarters to influence the divisional strategy and to suggest that various options might be considered before an investment proposal is adopted as the 'one best way'." The decision making process observed in this research suggests that although the stated formal procedure in Dunlop enshrines this philosophy, in fact the informal network of communication between managers acts both as a filtering and as a modification mechanism prior to the use of the formal procedure. The formal review and assessment procedures have not prevented such planning mismatches as described above.

It is not that informal operating management practice in Dunlop is deviant and counterproductive. Rather, the accepted planning model (as used in the Company) does not fit in all respects successful strategy making (accepting the judgement that decisions such as Belting Division's sales decisions described in Chapter 3 were successful). It is not that better formulated strategy, or better management, would resolve the contradictions, rather that more attention to process planning and organisational constraints (as suggested by Archibald - see Chapter 3) is required. Ronchi (10) has observed that "a high degree of formality of the planning process" does not "appear to ensure an effective strategic formulation". In Dunlop, effective and competent management can be observed to operate without (or in spite of) this level of formality.

8.5. Marketing Channels

Chapter 4 examined research on the marketing channel and a framework for analysing Dunlop Belting Division's own particular channels was proposed. Chapters 5 and 6 report work by the author in the independent distributor channel and the wholly-owned channel. The appropriateness of the generalised marketing channel model to Dunlop Belting Division's business can be reviewed in the light of this work.

When the author began to study Belting Division's distributors, managers tended to regard these companies as 'the customer' and therefore a sale to a distributor was seen as ending the Company's responsibility in the sale of its products. By demonstrating (Chapter 5) the way in which the distributor in Scotland worked in the market, the channel concept gained some acceptance within the Company. Analysis of

the channel as a system contributed to a strategy of market segmentation which required the matching of channel types to particular market needs. The analytical framework provided by the channel model (derived from the literature) enabled comparisons to be made with actual channels including those in which Dunlop did not participate. Through this exercise Dunlop managers considered their own Company's strengths and weaknesses and in particular reviewed the inter-relationship of the direct sales force with channel types. Although much channel theory derives from the study of consumer markets in which channels comprise greater numbers of institutions and in which many channels exist, the theory is also appropriate to industrial product markets and to smaller scale operations. However in Dunlop Belting's case this small scale limited experimentation with different channel types.

The author found an institutionalised conflict between Dunlop managers and the owner-managers of the industrial distributor companies. Channon (11) considers that diversified multi-divisional companies inherently seek to maximise competitive goals and that this is one of the results of having to compete with other divisions in the same company for a share of company resources. Whilst it has already been shown that this view may need considerable modification, it emphasises the adherence of company managers to corporate, and personal, goals. Galbraith (12) saw the corporate organisations as divorcing ownership from control and entrepreneurship and managers would tend to formulate satisficing rather than profit maximising strategies. Both views are likely to be very different from those of the owner-managed company. In the latter, the manager may be motivated to maximise his personal net cash income up to a point, but not volume sales. In Dunlop individual managers cannot

maximise personal income in this way, but they can attempt to achieve corporate goals such as volume maximisation. This difference in objectives between these types can provide problems in their relationships. Channel management to resolve problems arising from the conflict of interests was needed, but the author found that although there was some awareness of the problem, a satisfactory solution remained to be found. Thus conflict recurred between Dunlop and the industrial distributors and led to the ending of agreements with TEK Limited and, very recently, the Acre Rubber Co. Limited.

In proceeding with the proposal to create Dunlop Belting Services, Dunlop managers were influenced by considerations of channel control and stability. They saw the development of the vertically integrated ex-stock channel as the key to reaching desired target market segments. The type of channel chosen was also dictated by managers' views of customer service requirements and the pressures bearing upon purchase decision makers. All these factors are accommodated within the marketing channel model and presentation of the Dunlop case in terms of this model enabled managers to see the various problems as interdependent. In turn, this led to the enhancement of the role of the distribution depot in the Dunlop sales organisation, with a major part of the sales effort being directed from this base.

Operation of Dunlop Belting Services

The distribution depot at Wolverhampton started work for Belting Division in March 1977. An overlap period of several months ensued whilst the functions carried out at the Uxbridge depot were

transferred to the new site. A comparison of ex-stock sales via Uxbridge in 1976 with those via Wolverhampton in 1978 has been made. These years were respectively the last and first full operating years before and after the changeover. The changes recorded are likely to be the result of several marketing variables acting at the same time: price competition became intense during 1978, influenced by a continuing depression in the market (particularly reflected in the total purchase volume of British Steel) and by the import of belts from Western and Eastern Europe; further stagnation of the construction sector which reduced the number of short length light-duty belts purchased; and disruption in the car industry which influenced the amount of business available from foundries. Dunlop used its sales and distribution facility at Wolverhampton to win volume - at the same time accepting lower sales margins if necessary; Dunlop also made changes in its sales organisation, appointing a new Sales Manager and implementing a new commission scheme. Figure 8.1. shows the shift of the Division's business to ex-stock supply on an increase in metres of rubber-covered conveyor belts ordered of 4.5%. Figure 8.2. gives more detail on those market segments responsive to ex-stock sales. Total business to these segments increased by 16.1% and ex-stock business increased by 19.5%. In spite of the success in gaining more business from these target segments, the distribution of the size of orders did not shift significantly. Figure 8.3. shows that the total number of ex-stock orders decreased by 2.8%, whereas the original expectation was that a substantial increase in orders in the 0-25 metre and 26-50 metre ranges would be recorded. Dunlop managers' impression is that Dunlop significantly increased its market share during 1978, so that if the figures are interpreted in this light the maintenance of real volumes represents a gain in the short-length light-duty market. In fact the

FIGURE 8.1. DISTRIBUTION OF BUSINESS BY INDUSTRY SEGMENT

MARKET SEGMENT	METRES ORDERED		% OF METRES ORDERED		EX STOCK SHARE (%) OF METRES ORDERED	
	1976	1978	1976	1978	UXBRIDGE 1976	WOLVERHAMPTON 1978
COAL	10174	10606	5	5	11	23
STEEL	34031	31237	18	16	11	16
AGGREGATES, ROADSTONE,) ETC. QUARRYING)	23780	28467	13	15	78	80
DISTRIBUTORS	38493	35736	21	19	52	59
LARGE O.E. (UK PROJECTS)	5654	5921	3	3	10	19
OTHER O.E.	17459	30518	9	16	74	87
ELECTRICITY	1292	4099	1	2	-	-
CEMENT	9598	9586	5	5	76	43
CHEMICALS	7883	10375	4	5	63	40
OTHER INDUSTRIES	12979	13294	7	7	78	77
ASSOCIATED COMPANIES	22850	12571	12	6	9	19
TOTAL	184193	192411	100	100	45	52

FIGURE 8.2. CHANGES IN VOLUME ORDERED BY INDUSTRY SEGMENTS MAINLY SUPPLIED EX-STOCK

MARKET SEGMENT	EX STOCK METRES ORDERED UXBRIDGE 1976	WOLVERHAMPTON 1978	% CHANGE ALL ORDERS	% CHANGE EX STOCK ONLY
AGGREGATES, ROADSTONE, ETC. QUARRYING	18647	22774	19.7	22.1
DISTRIBUTORS	20502	21084	(7.2)	2.8
OTHER O.E.	12899	26551	74.8	105.8
CEMENT	7294	4122	(0.1)	(43.5)
CHEMICALS	4971	4150	31.6	(16.5)
OTHER INDUSTRIES	10117	10236	2.4	1.2
TOTAL	74430	88917	16.1	19.5

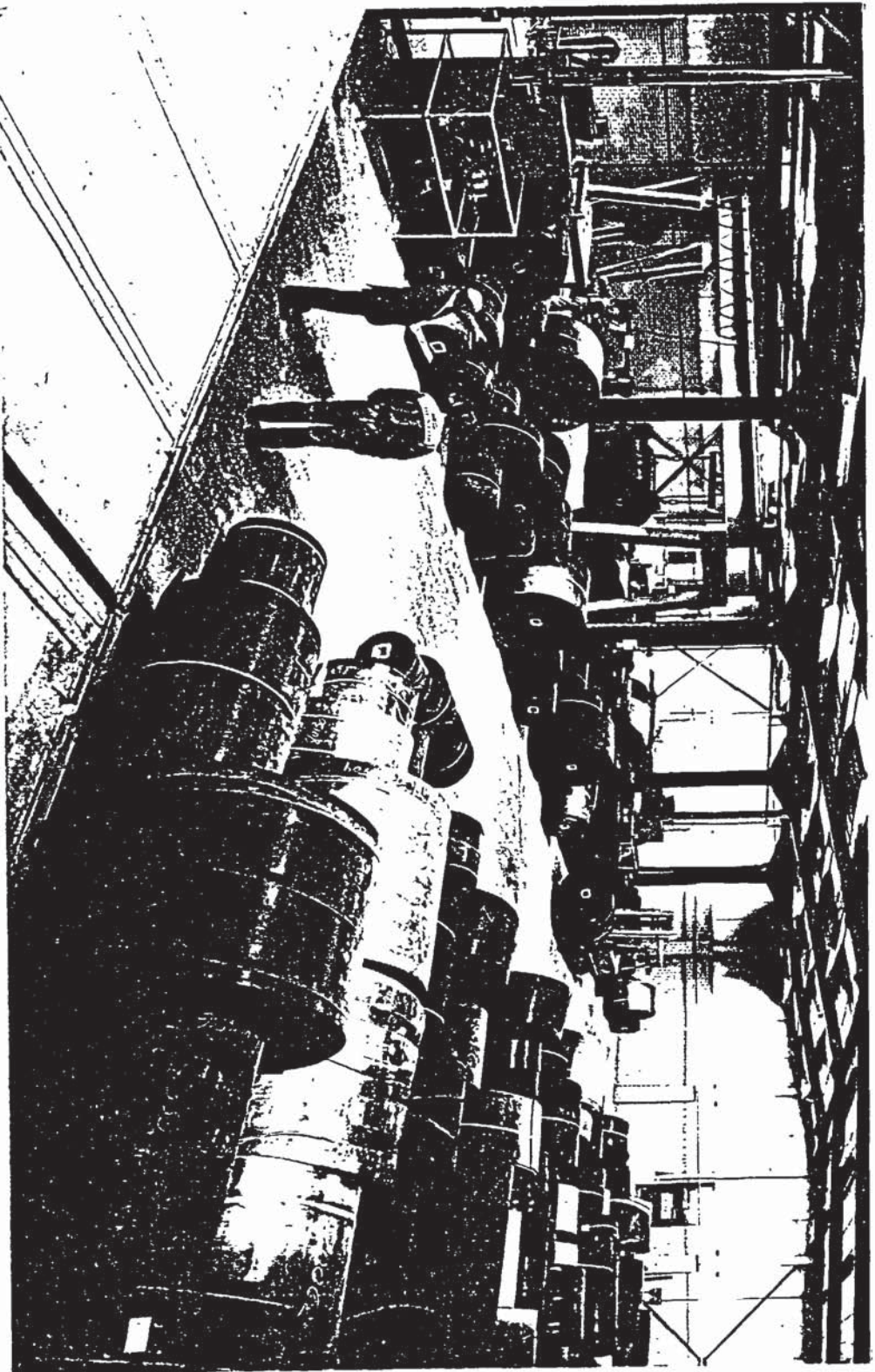
FIGURE 8.3. THROUGHPUT OF ORDERS VIA EX-STOCK DEPOTS

Metres Ordered	No. OF ORDERS		% OF ORDERS	
	1976 UXBRIDGE	1978 WOLVERHAMPTON	1976 UXBRIDGE	1978 WOLVERHAMPTON
0 - 25	441	469	31	34
26 - 50	401	341	28	25
51 - 75	158	169	11	12
76 - 100	134	170	10	12
101 - 150	90	67	6	5
151 - 200	117	64	8	5
201 - 300	39	43	3	3
301 - 400	18	28	1	2
401 - 500	4	9	) 1	) 1
> 500	6	8))
Total ≤ 200	1341	1280	95	94
Total > 200	67	88	5	6
TOTAL	1408	1368	100	100

number of orders in the 0-50 metres range was 3.7% less in 1978 than 1977, and in the 0-200 metres range (200 metres is a standard production batch quantity) the number was 4.5% less. In the supply of 200 metre and over lengths, the number of orders increased by 31% and this is a reflection of the greater materials handling capability at the Wolverhampton depot, which facilitates storage of production run quantities without breaking their bulk.

On a local scale, Dunlop Belting Services has provided vulcanising services for the West Midlands area and this together with the employment of an additional sales representative allowed the Division's direct sales in the area to grow by 13% in the first full year. New accounts continue to be penetrated - in the second six months of 1977, 15 new accounts in the foundry industry were taken representing 6% of the number of accounts ordering from Belting Division in the U.K. that year.

Action research thus contributed to Dunlop Belting Division's distribution strategy by importing channel theory. Whilst the research and literature examined was mainly concerned with consumer goods cases and large scale systems, sufficient common ground was found to make use of the concepts worthwhile. The systems viewpoint of the marketing channel was applicable in Belting Division's case, suggesting that this method of analysis could be more widely adopted for industrial products marketing. The use of the action research method enabled the researcher to combine practical and theoretical approaches to the needs of the client for analysis, proposal formulation, and implementation of change.



Dunlop Belting Services,
Wolverhampton:
interior



Dunlop Belting Services,
Wolverhampton:
exterior

Page removed for copyright restrictions.

8.6. Market Segmentation

Segmentation of the market by application, user or channel type has been used in this research for analysis and in Belting Division for the actual deployment of resources.

"Besides being one of the major ways of operationalizing the marketing concept, segmentation provides guidelines for a firm's marketing strategy and resource allocation among markets and products. Faced with heterogeneous markets, a firm following a market segmentation strategy usually can increase the expected profitability" (13). Wind continues his article in a special issue of the 'Journal of Marketing Research' devoted to segmentation, with a review of techniques such as discrimination technique and claims that consumer and industrial products can be treated together. This emphasis on the research techniques associated with segmentation is common to most researchers (including all the other articles in the issue mentioned), and other writers such as Lunn (14) and Cardozo (15).

In Chapter 3, the way in which Belting Division's direct sales effort was modified to cope with changes in a large customer's buying behaviour was described: specialist sales managers for key accounts were created. Dunlop Belting Services was also created in an effort to allocate resources to other market segments. It was noted that Belting Division's managers found some drawbacks in this segmentation of resources. Customers for some conveyor belts demanded too high a level of service (applications advice, personal representation,

physical distribution) to enable resources to be completely divided by segment. The marketing mix for each industry segment had to be drawn from common resources and this process in turn required co-ordination. Key account managers needed field sales representatives to work with them, distribution facilities worked for all segments, etc. The extent to which segmentation could be applied in practice was therefore constrained by organisational features. Whereas much segmentation theory assumes some kind of functional organisation (overlain by product management) easily adaptable to changes in brand or product appeal, the Belting Division organisation did not have the same characteristics. Mahajan and Jain (16) have defined this problem in general terms, observing that normative segmentation and allocation of resources are usually considered as separate issues but that it is "meaningless to develop market segments which cannot be serviced with available corporate resources or available marketing tools". Nevertheless, it appears that the constraint of the structure and the requirement for the elements of that structure to be interdependent in an industrial product market such as that for conveyor belts have not been taken into account so far by other researchers. Studies of segmentation are once again (as in marketing channel research) mainly derived from consumer products cases. The consumer product brand manager initiates and controls features such as product design, advertising and distribution in line with his segmentation policy. Manipulation of these variables is more complex in an industrial product market, and product management requires more complex organisational design. Accordingly, segmentation theory needs to be modified in this respect.

8.7. Suggestions for Future Research

This study examined marketing strategy from the perspective of an industrial products division of a large and well-known enterprise. It is common to make a distinction between consumer and industrial products in marketing literature and research. However, the characteristics which distinguish the products of Dunlop Belting Division and its competitors are not so much to be labelled 'industrial' as high unit value, low (or discontinuous) volume, restricted market, responsive to personal selling and so on. In other words it would be of more use to describe and categorise marketing processes by specific product and market characteristics. In this way comparisons of similar marketing problems (or opportunities) can be made across both consumer and industrial products and markets.

With the above considerations in mind, it would be useful to synthesise the research on marketing channels which handle products with characteristics similar to those of conveyor belting. The author found a gap in both information about such channels and in the availability of models which could predict the behaviour of members of those channels.

The literature on corporate planning and its application has been largely couched in terms of systems and procedures. To generalise, such systems and procedures have been designed to suit the central requirements of organisations (assuming some central planning intelligence). Research data on the actual process of planning would provide a more comprehensive check on such theory, since practice - as reported in this research - may not accord with the stated systems.

Therefore, in their methodology, such studies should take into account the discrepancy between managers' statements about their own activities and the observed practice. This caveat applies particularly to the design of single-shot questionnaires.

The nature and purpose of corporate planning is closely related to the degree of centralisation in a company. In Dunlop, the degree of decentralisation has been limited by a number of countervailing pressures. There is a case for recognising the needs for different degrees of central control within a single company according to the product/market mix of divisional 'businesses'. Although so-called multi-structures have been proposed, there appears to be a need for more studies to produce evidence about the effectiveness of decentralised and/or divisionalised structures where they have been introduced, and from this the possible derivation of a new - and more complex - organisational model. In Dunlop, the product mix in the total company (dependent on the performance of the tyre business) is a significant factor which suggests 'related-product' companies may have special needs in respect of structure and planning.

APPENDIX A

THE SCOTTISH MARKET

A preliminary assessment of distribution and marketing arrangements in Scotland in line with project work on the role of distributors.

AN I.H.D. PROJECT REPORT

February 1975

R.W. SABIN

Contents

- A 1. Introduction
- A 2. Recommendations
 - * The Acre Rubber Co. Limited
 - * Dunlop Belting Sales in Scotland
- A 3. The Dunlop-Acre Working Relationship
 - A3.1. : Dunlop turnover to various market segments
 - A3.2. : Total market turnover to various industry groups
 - A3.3. : Estimated market shares in Scotland
 - * Dunlop marketing strategy in Scotland
 - * Marketing Policy Decisions in Scotland
- A 4. Evaluation of direct sales vs distributor sales
- A 5. Analysis of Acre's demand for belting from Dunlop

The contents of the report have been abridged for use in this thesis as indicated *

A.1. Intrōduction

This report was prepared after a brief visit to Scotland

The situation of the Scottish distributor, Acre Rubber Co. Limited, could be used for comparison with marketing and distribution arrangements in other U.K. areas.

A market survey has been completed for Dunlop Belting Division by Dunlop Belting Group Marketing Services. This could be used as a basis for examining marketing and distribution policy in Scotland.

A 2. Recommendations

- (a) A Splicing Service identified with Dunlop should be considered. An agreement with an existing firm might be possible.
- (b) Communications between Dunlop and Acre Rubber Company should be improved.
- (c) A marketing plan incorporating specific proposals for promotion activities, servicing, plant surveys, splicing and other forms of support should be formulated for Scotland. A meeting between Home Sales Manager and Northern European Manager should map out objectives. Subsequently, plans to meet various promotional, servicing, etc., needs should be required of the various internal departments responsible.
- (d) More involvement in the activities of Acre Rubber Company is desirable to gain greater identification of Acre with Dunlop. In particular, Acre's plans for business expansion

should be looked at. Various levels of financial involvement could be assessed.

(e) The job of Company representative in Scotland should be reviewed in the light of his role as a 'supervisor' of the distributor's operations in his territory.

A 3. The Dunlop-Acre Working Relationship

A 3.1 The Formal Agreement

Acre is supplied at list price minus 12½% for lengths over 600 ft and list minus 10% for lengths under 599 ft. In addition there is a 2½% commission on all sales into Scotland excluding business with B.S.C. and national contracts. 3.3/4% discount is given for payment within 7 days. 90 days credit given on stock belts.

A.3.2: Market Segments: Dunlop and Acre Activity

Fig.A 3.1: Dunlop Turnover to various segments: Analysis from Company Accounts.

Segment	1972		1973		
	£000	% excl NCB	£000	% excl NCB	
NCB	135	-	68	-	
Steel	55	38	140	51	
Sand,Gravel,Quarry	16	11	12	5	
Bricks	1	0.4	5	2	
Original Equipment	20	14	23	8	
Cement	7	5	-	-	
Chemicals	0.4	0.3	0.1	0.04	
Misc	8	6	10	4	
					£000 1974
Acre	37	26	82	30	103
Total	279	-	340	-	
Total Excl NCB	144	100	272	100	346

Fig.A 3.2:Turnover to various Industry Groups. Columns 1-3

Extracted from Market Survey Table B

1	2	3
Industry Group	Estimated Market Size(ft) 1973*	Dunlop Sales (ft) 1973 % Market Share in Brackets
Aluminium	2,000.	1,000 (50)
Brickworks & Fireclay	12,500	4,350 (34)
Car & Truck Mfrs	900	nil (-)
Concrete & Cement	6,300	1,300 (21)
Small Factors	9,800	2,000 (20)
Foundries	13,400	300 (2)
Glassworks	4,000	2,000 (50)
Mining & Coal Handling (excl NCB)	7,900	1,800 (20)
Limeworks & Fertilisers	5,600	1,050 (19)
O.E.	40,000	11,000 (27)
Paper Mills	1,500	nil (-)
Quarries	63,000	53,300 (85)
Refuse Disposal	6,800	450 (7)
Sugar Refining	1,500	1,000 (67)
Misc	19,000	9,000 (47)
Total Including Groups Not Shown	196,000	89,000 (46)

*All estimates in the market survey are based on 1973, which was assumed to be a 'good year'.

Acre is mainly tied to the quarrying and cement industries. Splicing service is no longer provided by Acre since their splicer (J. Cassidy) set up on his own account. Supplies to the foundry industry are tied to splicing capability - hence Acre's or Dunlop's current inability to supply this segment. Attempts to mend the relationship between Acre and Cassidy by Mr MacLeod have failed (though Cassidy still splices on a jobbing basis for Acre and Dunlop).

Geographically Acre is confined to the south (as most of the business has been). However, Acre representatives do travel north - see section on expansion.

A 3.3:Resources Employed by Acre in Scotland

Warehouse & Offices: Old ramshackle building affording poor layout and working conditions. Acre intended to move out to new premises after the site's expected compulsory purchase for a new road scheme - but this is now in some doubt.

Enough space is provided to stock and cut belts, but not slit full slab widths. There is no slitting machine.

The office provides enquiries handling and a point of contact for belting purchases in Scotland.

Stockholding: Average Stockholding 2,500 ft £6,800 (1974)

A proportion (20%)? of Acre's business is ordered from Dunlop on firm orders. Acre acts as a selling agent in this respect.

Transport: Local delivery van.

Trailer for use with van and representatives' cars.

Delivery is usually by general carrier.

Finance: Credit facilities to small businesses.

Working capital for small orders.

Debtors said to be £65,000 month end.

Managers: Mr Winkfield has some technical background. Acre can handle most general enquiries, but not specialised conveyor engineering problems. Mr Smith manages the routine administration of the business.

Representatives: Two. Mr Alec Lyons and Mr Bill Crooks.

Other Staff: Six including stores and office.

Goodwill: A wide range of contacts built up over the years, combined with a physical presence in Scotland.

A 3.4:Resources Employed by Dunlop in Scotland

Representative: Northern European Sales Manager, Mr R MacLeod.

Servicing: (a) Extensive involvement in technical problems at B.S.C. (trial belts on coke wharves, etc.)

(b) O.E. Manager's contact/liaison with O.E. companies (Birtley Engineering and Anderson Mavor).

(c) One-off type surveys at various plants carried out by either Mr MacLeod or by Dunlop Service Engineer (special visit)

(d) Special visit by Dunlop Service Engineer or Service Manager to investigate complaints.

(e) Occasional visits by Dunlop splicing team - probably to B.S.C. or relating to a complaint.

Transport: 24 hour delivery to Acre via Tartan Arrow available from Uxbridge.

A 3.5. Dunlop and Acre: Areas of Selling Conflict

Certain accounts are regarded as Dunlop house accounts. Whilst the Acre representative may call on the customers to sell other products, he should not, and does not, sell conveyor belting to them. However, if a contract is up for renewal, or renegotiation, or the buyer's characteristics change (e.g. the person responsible for the purchasing decision is replaced), then the Acre representative may find an opportunity to convert the account to Acre. His sales line might be - "We are the Dunlop distributors in Scotland....". To avoid creating a bad sales image with the customer, there is little the Dunlop representative feels he can do about this. Whilst he has lost a direct account, the distributor has widened the stability and spread of his own operation, and created more time for the Dunlop representative to concentrate on sales development, new accounts, etc.

Thus the Dunlop representative is under pressure to do two things: firstly, to expand the business supplied direct; secondly, to exercise strategic control of the distributor who is replacing the day to day functions of selling.

A 3.6. Selling Methods:

The Acre representatives are selling a product range. They tend to

have a closer relationship with the customers they deal with than the Dunlop representative. They call on smaller customers more frequently with a probability that one of the products they have will be in demand. They do not have to protect the big-company image, or interests of the manufacturing unit - so secondhand belting might in an emergency be bought and re-sold in this context. Acre's representatives are encouraged to be members of various institutes (e.g. quarrying) to get contacts.

There are some customers who prefer to deal with Dunlop direct. These are the big organisations (B.S.C., quarrying groups at area management level) and the O.E. companies.

The Acre representative is not controlled in a systematic way. Most mornings he will be in the Glasgow office where control is in the verbal exchange which takes place. There are no written sales reports, and no sales plan is made.

A 3.8. Competition:

Since Acre and Dunlop have a monopoly of the Scottish market, competition does not appear to be significant. David Strothers Limited is now the BTR distributor however. Strothers are wholly owned by Tilcon. The conveyor belt manager for Strothers, J Smith, was previously employed by G Angus (a Dunlop company). Strothers are thought to be working hard to break into the belting market, but so far with little success.

BTR are the biggest single competitor, with direct sales around 20,000 ft. p.a. (see Table 5.3 for other details). Goodyear are

Fig. A 3.3 ESTIMATED OVERALL MARKET SHARES IN SCOTLAND AND DISTRIBUTION ARRANGEMENTS

(From Tables C & D, Market Survey)

MANUFACTURER	SALES 1973 (ft)	% MARKET SHARE	EXCLUSIVE DISTRIBUTOR	DISTRIBUTOR'S LOCATION
D.B.D.	89,000	46	ACRE RUBBER	GLASGOW
BTR	40,500	20	D STROTHERS	GLASGOW
UNIROYAL	17,200	9	-	FACTORY IN DUMFRIES
GOODYEAR	10,600	6	CMT POTTER COWAN	GLASGOW ABERDEEN
ANGUS	5,900	3	DICK BEARINGS	EAST KILBRIDE
DAWSONS	5,000	2.5	-	-
FENNER	2,700	1.5	-	-
BBA - SCANDURA	2,200	1	-	-
ALLIED POLYMER	1,350	0.5	-	-
TURNERS	1,000	0.5	-	-
OTHERS & UNIDENTIFIED	19,000	10	SIMM(KLEBER) G&I, RUBBER HOUSE	GLASGOW ? "
TOTAL	196,000	100		

now trying to make a greater impression via Potter Cowan and CMT distribution.

One area in which competition might occur is the Aberdeen area. Acre has been unwilling so far to expand its operations to open a branch at Aberdeen, though an Acre representative does go to the area. The amount of business is not thought enough to cover the on-cost of such a scheme.* As the local economy expands, however, so must the construction industry, and there are small distributors who could supply the market locally.

It is possible that in time, and in certain circumstances, a competing distributor in Aberdeen might begin to expand and become a threat to Acre in other areas. As a corollary, Dunlop too might have been excluded from the Aberdeen area.

* Mr Winkfield considered a turnover of £50,000 p.a. to be the minimum for this, not necessarily in belting alone.

A.4 EVALUATION OF DIRECT SALES vs DISTRIBUTOR SALES

This analysis compares the savings Dunlop would make by replacing Acre by total direct business and the costs Dunlop would incur to achieve this replacement. All figures are at 1974 levels.

(a) Savings (estimates for 1974)	£ p.a.
(i) Commission on Scottish sales	5,650
(ii) Gross Margin earned by Acre	20,600
(iii) Discount at 3.3/4%	3,863
	<hr/>
	30,113

(b) Costs	
(i) Sub-depot premises and staff	10,000
(ii) Increased representation	4,500
(iii) Working Capital (stock and credit)	3,300
(iv) Transport	2,500
	<hr/>
	20,300
(v) Charge for 1st yr change-over costs	500

(c) Net Savings

$$£30,113 - £20,300 = £9,813 \text{ p.a.}$$

The break-even volume of sales which would cover the extra costs is given by:

$$\text{£ extra costs} = (\text{£ savings per ft} \times S_b) + \text{gross margin/ft} \\ (S_b - \text{Acre's present volume})$$

Where S_b is the break-even volume.

Extra costs =	£20,300	
Savings/ft =	$\frac{£30,113}{45,000}$	= £0.66
Gross margin/ft =	£0.632	(27%)
Acre's volume =	45,000	ft. p.a.

$$\begin{aligned} 20,300 &= 0.66 S_b + 0.632 (S_b - 45,000) \\ 1.292S_b &= 48,740 \\ \underline{S_b} &= 37,724 \text{ feet.} \end{aligned}$$

If Dunlop expected to sell at or below this level, then it would be expecting to make a loss on the operation.

37,724 feet represents 84% of Acre's volume.

A.5 ACRE'S DEMAND FOR BELT FROM DUNLOP

Acre's orders through 1974 have been analysed. The order pattern is irregular for most items, but 500/3 3.0 x 1.5 belts in 24" and 30" widths were ordered with sufficient frequency to suggest a 'standing order' could be placed for these items.

% of orders placed by Acre by belt type

315/3	3.0 x 1.5	11.7%
315/3	5.0 x 1.5	1.2%
500/3	3.0 x 1.5	58.2%
500/3	5.0 x 1.5	5.9%
630/4	H.D.	1.6%
630/4	Extra	21.4%

APPENDIX B

THE ACRE RUBBER COMPANY LIMITED

RECOMMENDATIONS FOR SLAB ORDERING

AN IHD PROJECT REPORT

AUGUST 1975

R W SABIN

Contents

Introduction

- B 1a: Summary of Proposals for Slab Ordering.
- B 1b: Demand on Acre of Key Specifications Monthly.
- B 2a: Example of a stock card; its explanation; working examples of the recommended ordering system.
- B 2b: Implementation.
 - * Summary of orders taken by Acre Rubber Company, 1975.
 - * Full tabulation of demand per month on Acre for Starflex specifications.

The contents of the report have been abridged for use in this thesis as indicated *

Introduction

A visit was made to the Acre Rubber Company Limited, Glasgow, during the week 18 - 22 August. The invoice log-books for 1975 and the stock records were examined. An analysis of the monthly demand in each specification of Starflex conveyor belting was made and an ordering system as described in Section 2 is recommended.

B 1a : Summary of Proposals for Slab Ordering

1. The following specifications can be ordered by slab:

- (a) 500/3 3.0 x 1.5 HD 600mm in orders of $\frac{1}{2}$ slab 1200mm
- (b) " " 750mm " " 1500mm
- (c) " " 900mm " " " *
- (d) 630/4 5.0 x 1.5 E 750mm " " "

* 500/3 900mm should be combined with 600mm when the former specification is required.

The method for stock control and ordering is described in Section 2.

2. An order for $\frac{1}{2}$ slab of 1200mm 315/3 3.0 x 1.5 HD to slit 600 = 600 should be placed.

Subsequent stock control and re-ordering should take place, after review, in the same way as for the specifications above.

3. Splicing-on of short lengths to minimise the build up of slow moving stock should take place. Stock control will also be easier if this is done.

4. Stock records as shown in Section 2 should be kept. The cards and file can be printed and supplied by Dunlop.

5. A review of the system should take place monthly to begin with and afterwards at regular intervals. The review should assess the effectiveness of the system in (a) ability to supply ex-stock, (b) ability to control stock levels, (c) delivery performance of Dunlop.

B 2a : Sample Stock Card - Explanation of Terms Used

A Front

- Re-order Quantity: Amount of belting to order from Dunlop each time an order is placed.
- Specification: Product Specification - e.g. 500/3
3.0 x 1.5 H.D. 600mm.
- Re-order Level: Level of Free Cover at which a replacement order should be considered.
- Reference: Enter customer's name/order for an Issue or Customer Requirement; Acre order no. for a Receipt or Order.
- Issues: All issues from stock - i.e. sale of belt, scrap, etc.
- Receipts: All receipts into stock - i.e. delivery of belts from Dunlop.
- Stock: Balance of issues and receipts - i.e. old stock and receipts - issues = new stock.
- Orders: Orders placed on Dunlop for more belts.
- Orders O/S: Total orders not yet delivered (outstanding).
- Customer Requirements: Customer orders placed but not delivered from stock due to nil stock, or delivery not yet due.
- Cust'r Rq'ts O/S: Total of such requirements not yet delivered.
- Free Cover: Total of the stock and orders outstanding balances less known customer requirements, i.e. stock + orders O/S - C'r Rq'ts O/S = Free Cover.

B Back

The back can be used like the present Acre stock cards. Total metres

left on all rolls in stock should equal the stock balance on the front of the stock card.

Stock Control and Ordering

Note: It is assumed all orders for slabs will be placed on Dunlop Speke. The procurement time (i.e. the time taken between placing an order and receiving the goods into stock) is assumed to be six weeks.

Calculation of the Re-order Level

Enough stock should be held to satisfy demand during the procurement time.

The amount of stock necessary could be roughly calculated by taking the average demand per six week period. We know, however, that the pattern of demand for belting fluctuates quite a lot around the average. This fluctuation can be expressed statistically. The re-order levels have been calculated by taking into account both the average demand and the likely fluctuations of demand.

The re-order levels recommended will not cover every eventuality, but should provide ex-stock availability at least 85% of the time. A higher 'service level' than this would mean a higher re-order level and hence higher stock levels. A decision to raise or lower the re-order level would be taken in the light of competitive conditions at the time.

Re-order levels are not given for 500/3 3.0 x 1.5 HD 900mm nor for 630/4 5.0 x 1.5 E 750mm and it is recommended that these are ordered

as required, until more information about these specifications is collected.

Method for Using the Stock Cards

1. Each 'transaction' - i.e. orders placed, stock issued, etc., should take a separate line on the front of the card.
2. The re-order level for each specification will be at the top of the card. Each time the Free Cover balance breaks this level, a replenishment order on Dunlop should be placed for the amount shown against Re-Order Quantity.
3. The balance of stock left on each separate roll can be recorded on the back of the card.

B 2b :· Implementation

1. Stock should be ordered in $\frac{1}{2}$ slab quantities for the following specifications, providing current free cover is below the re-order level:
 - (a) 500/3 3.0 x 1.5 HD 1500 mm, to slit 600 and 900 mm
(and see 2c below).
 - (b) If the level of 500/3 3.0 x 1.5 600 mm is still below the re-order level having re-ordered as in (a) order 1200mm of the same specification to slit 600 + 600mm.
 - (c) 500/3 3.0 x 1.5 HD 1500mm, to slit 750 + 750mm.
2. Stock should be ordered in $\frac{1}{2}$ slab quantities for the following specifications, bearing in mind the lack of statistical information to set re-order levels:

- (a) 630/4 5.0 x 1.5 E 1500mm to slit 750 + 750mm.
- (b) 315/3 3.0 x 1.5 HD 1200mm to slit 600 + 600mm.
- (c) 500/3 3.0 x 1.5 HD 1500mm to slit 600 + 900mm.

- 3. Either temporary duplicated stock cards, or printed stock cards if ready, will be provided.
- 4. The stock on hand, orders outstanding and customer requirements outstanding should be detailed on the cards for each specification.
- 5. Dunlop will undertake to ensure the Storekeeper at Acre Rubber Company understands how to fill in the stock cards, when to recommend re-ordering, etc.
- 6. The re-order level for 500/3 3.0 x 1.5 HD 600mm is recommended at 800 metres of Free Cover, and for 500/3 3.0 x 1.5 HD 750mm at 250 metres of Free Cover.

APPENDIX C

THE CONVEYOR BELT MARKET IN

NORTH EAST SCOTLAND

AN I.H.D. PROJECT REPORT

September/October 1975

R.W. SABIN

Contents

C 1. Introduction, and description of,
the study.

Background; aim of the present survey;
scope of the present survey; method.

C 2. Summary of Results.

Total business available; market shares;
distributor activity; Geographical
distribution of customers; business
forecasts; comparison with D-ABG survey.

* Survey Data

Results by each customer visited.

Customers not visited.

Distribution of customers by size
of replacement business.

Maps (i) districts used in the
survey reference

(ii) customer locations; size
of customers' business.

(iii) distributors' influence.

Questionnaire.

Survey sheets (details of belting at
various customers' plant) - copy for
R MacLeod only.

The contents of the report have been abridged for use in this thesis
as indicated *

Background

1. Over the past 2 years and particularly since the Scottish Industrial Belting Survey was carried out, the Company has attempted to persuade the Acre Rubber Company to open a depot in the N.E. of Scotland.
2. Recent meetings with the Acre Rubber Company have emphasised this aspect, but Acre have been unwilling to take action. This unwillingness is (according to Acre's M.D.) founded on (a) a belief that not enough extra business exists to justify an expansion of activity (this would include all products carried by Acre); and (b) a mistrust of the information presented in the Scottish Industrial Belting Survey.
3. Supposing enough business did exist, in the Company's view, for Acre to expand in the N.E., then future action would be to:
 - (a) pressure Acre into opening a small depot for belt stocks in the area, and/or
 - (b) pressure Acre into employing another representative, or
 - (c) consider using another factor in the area (e.g. H. Drummond) in competition with Acre.

Aim of the present survey

1. To establish a reliable estimate of the annual replacement business in industrial belting in N.E. Scotland.
2. To establish the activity of the various suppliers and distributors

already in the area.

3. To test the accuracy of the original survey (mainly carried out by telephone) by comparing its results with those of the present survey.

Scope of the present survey

Geographically, the survey was limited to Tayside from Perth to Dundee northwards; Grampian Region; particularly Aberdeen and the belt of the country between Aberdeen and Inverness; Inverness and the area around the Moray Firth to Invergordon; customers in the Fort William district.

The customers selected for interview were taken from the previous survey, together with a small number of others suggested by the Northern European Sales Manager.

Some customers were excluded either because (a) they were customers about whom the Company already had reliable information (e.g. Kings & Co. quarries), or (b) they were customers in locations too remote for a visit to be worthwhile.

Method

A very simple questionnaire was used to glean the following elements of basic information:

- 1 - the supplier or distributor used most by the customer
- 2 - other suppliers or distributors contacting the customer
- 3 - the quantity of replacement belting purchased annually

- 4 - the quantity and types (particularly width and ply) of belting installed on the customer's plant
- 5 - the names of other belting users in the area
- 6 - a simple statement about future prospects for the customer's business

C 2 : Summary of Results

1. Total business available

A. Customers surveyed	11,900ft	(43%)
B. *Estimates for customers not surveyed		
(i) visits planned but not made	6,800ft	(21%)
(ii) locations excluded from survey	7,000ft	(25%)
(iii) other locations mentioned by customers	1,750ft	(11%)
	<hr/>	
	27,450ft	(100%)
	<hr/>	

* estimates taken from R MacLeod, D-ABG survey, and guesswork.

2. Market Shares in Customers Surveyed

<u>Supplier</u>	No. of customer mentions		Estimate of replacement business in most regular buyers	This estimate as % of 11,900ft
	<u>Total</u>	<u>As most regular</u>		
Acre	7	6	2,900 ft	24
Potter Cowan	10	6	2,550 ft	21
BTR	3	1	2,000 ft	17
Angus	5	3	1,000 ft	8
H Drummond	2	2	600 ft	5
Goodyear	2	1	600 ft	5
C.M.T.	1	1	400 ft	3
DIK	2	1	300 ft	2
Dunlop	4	2	150 ft	1
Uniroyal	4	2	?	
D Strothers	2	1	?	
G & I	2	-	-	
G Boyd	1	-	-	
Canning Conveyors	1	-	-	
Numec	1	-	-	
Schultz	1	-	-	
Hallamshire	1	-	-	
Atholl Asbestos	1	-	-	
H Glendenning	1	1	nil	
Milne	1	1	nil	
			10,500 ft	

Comments on distributor activity

The market shares, given in the above table, relate only to the amount of belting supplied to customers who could be considered to be regular buyers from particular suppliers (Dunlop's share is low because many Dunlop direct customers were excluded from the survey).

Acre shows an approximate 24% share of the market on this basis. This would appear to be low when compared with their share of the market in the Scottish Midlands (60% in quarries), and with their own comments about their activity in general.

Potter Cowan was the supplier most mentioned and could have a market share higher than the 21% given, assuming the company could be taking a significant proportion of the belting 'unallocated' in the table.

Angus was mentioned by 5 customers. One of these commented that the Angus representative had mentioned that Angus supplied belting to Dunlop (this was at Amalgamated Quarries, Stirlinghill, Nr. Peterhead). In view of the number of distilleries (which must use package and food belting) in the area, it is not surprising that the Angus representative should be particularly active here.

D. Strothers was mentioned only twice, once by Elgin Building Services. The latter is part of the same group as Strothers (Tillings), but was under no obligation to buy, and had not yet used Strothers as a supplier.

3. Geographical Distribution of Customers & Business

The area surveyed has been split into seven districts and the number of customers, with estimates of replacement business, in each are shown below.

District	No. of Customers		Replacement (ft) p.a.		
	<u>surveyed</u>	<u>not surveyed</u>	<u>surveyed</u>	<u>not surveyed</u>	<u>total</u>
A Tayside/ Dundee	3	6	800	1850	2650
B Aberdeen City	14	13	4450	5550	10000
C Aberdeen/ Peterhead	3	6	1100	2800	3900
D Fraserburgh/ Forres	9	2	2900	50	2950
E Inverness	9	6	2150	200	2350
F Fort William	2	5	500	1650	2150
G Other areas not visited in the Highlands		<u>6</u>		<u>1700</u>	<u>1700</u>
	<u>40</u>	<u>44</u>	<u>11900</u>	<u>13800</u>	<u>25700</u>

Add estimate for other locations mentioned by customers (14 in all, included in No. of customers not surveyed column)

1750

27450

% of Total Estimated Business & Customers by District

District A: 10% of business and 11% of customers

"	B:	36%	"	"	"	33%	"
"	C:	14%	"	"	"	12%	"
"	D:	11%	"	"	"	12%	"
"	E:	9%	"	"	"	18%	"
"	F:	8%	"	"	"	9%	"
"	G:	6%	"	"	"	5%	"

6% other locations

4. Business forecasts

Most customers thought of themselves as having gone through their period of initial expansion due to the oil business. Business this winter was going to be either ' a little bit slack', 'as much as this time last year', or ' continuing at a level'. The longer term was regarded as being a period of gradual expansion, but slower than in the recent past.

5. Comparison with previous survey

Since various distrustful comments were made about the D-ABG survey, a comparison of results obtained from the same customers in both surveys has been made.

In their total estimates of available business, the surveys agree very closely - only 800 ft difference between them. Individual differences appeared mainly in manufacturing or O.E. industries, whilst the quarrying sector estimates again agreed closely.

APPENDIX D

LOCATION OF A NORTHERN DEPOT

AN IHD PROJECT REPORT

AUGUST 1974

R.W. SABIN

- * Brickworks etc. in England and Wales
- Fig.D 4.5 Cement and R.M.C. production
- * B.R.M.C.A. members' depots by county
- * Estimates of Potential Belting Market
- Fig.D 4.6 Comparison of estimated Dunlop market share in the North with Dunlop market share in U.K.

The contents of the report have been abridged for use in this thesis as indicated *

Contents

- D 1. Objectives
 - D 2. Method
 - D 3. Summary of Conclusions and Recommendations
 - * The North: definition
 - D 4. The Pattern of Dunlop Business,
Customer Industries in the North, and
Estimates of the Belting Market
 - D 5. Possible Strategies
-
- * Summary of Manufacturing Activity in the North (table)
 - * Employees in Employment, June 1972, in the North (table)

Bibliography

Tables and Maps in the Text

- * Definition of the areas discussed
- * Turnover Analysis by County 1972 and 1973
- Fig.D 4.1. Distribution of Sales by Industry in the
North 1972 and 1973
- Fig.D 4.2. Turnover to Sand and Gravel and Quarrying
- the North and the rest of England
compared, 1972 and 1973
- Fig.D 4.3. Turnover to General Manufacturing Industry
- the North and the rest of England compared,
1972 and 1973
- D 4.4 Proportion of Quarries, Pits, etc. in North
as entered in 'Directory of Quarries and Pits'
- * Production of Minerals 1962 - 1972
- * Quarries and Pits in England and Wales

Location of a Northern Depot

D 1. Objectives

1. To establish the geographical pattern of Dunlop business in the North and to compare this with the location of the customer industries of the belting industry.
2. To estimate the total market value in this area and to estimate the potential for Dunlop.
3. To recommend a location, or alternative locations, for a Dunlop depot to service this market.

D 2. Method

1. Locations of Dunlop customers and potential customers have been drawn onto maps of the area, using trade directories and company reports as references.
2. Regional statistics for the major customer industries have been obtained where possible and compared with our estimate of belting sales to these industries.
3. More general information has been obtained from sources such as the reports of the Regional Economic Planning Councils.

D 3. Summary of Conclusions and Recommendations

1. I estimate a potential non-Dunlop market in the North of up to £1,500,000 p.a.. BTR is said to have sales of £700,000 p.a. in the area.

2. The 2 main axes of activity (excluding B.S.C. and N.C.B.) are the Durham/N. Yorks - Teesside area, and the S. Yorks - Peak District - North West Midland area.
3. Because the region splits like this, any decision on location must consider the role of TEK very carefully. If a second depot similar to Uxbridge is decided on, then the West Riding around Leeds appears suitable.

An alternative to this proposal is to establish one main Dunlop depot to serve the whole of the U.K. - possibly located in the North Midlands - and a series of sub-depots and/or agents. Cutting equipment, etc., would be confined to one location. One sub-depot could be located on Teesside and Uxbridge would become another sub-depot.

D 4. The Pattern of Dunlop Business

The table illustrates the dominance of NCB and BSC accounts in the area. When these figures are discounted we find 6 areas where there has been an increase in turnover 1972 - 1973.

N. Wales	+ £2210	(+109%)
Durham	+ £ 989	(+5%)
Yorkshire	+ £6808	(+17%)
S. Yorks	+ £18221	(+80%)
Notts	+ £21650	(+ 31%)
Lancashire	+ £10800	(+ 32%)

The whole region's turnover fell, after discounting sales to Angus Belting Products, by 6.5%. The most significant fall was in

Derbyshire where two accounts, BCA and Numec, accounted for a drop of over £20,000.

Fig. D 4.1: DISTRIBUTION OF DUNLOP SALES BY INDUSTRY IN THE NORTH

	1972 £000	% excl. coal + steel	% of total UK sales to this ind'y excl coal + steel	1973 £000	%	% of total UK sales to this ind'y excl coal + steel
Coal	832			938		
Steel	287			350		
Sand & Gravel	65	16	)	71	22)
Quarrying & Clay	23	6	) 19	29	9	) 18
Construction	3	1	)	0.6	-)
Bricks	10	2	)	12	4)
Factors	75	18	24	29	9	33
O.E.	111	27	33	126	39	28
Chemicals	91	22	7	27	8	2
Others	26	6	)	18	6)
Assoc. Cos.	7	2	) 17	8	2	) 9

Fig. D 4.2: TURNOVER TO THE SAND & GRAVEL AND QUARRYING INDUSTRY

	TURNOVER - NORTH REGION		TURNOVER - REST OF ENGLAND	
	72	73	72	73
	BIG GROUPS*	£62266	£69402	£135443	£149450
ALL ACCOUNTS	£87897	£99737	£153924	£165804
% OF BIG GROUPS IN TOTAL	71	70	88	90
% OF RMC IN TOTAL	4	9	40	35

* Big Groups consists of: B.C.A.; Hoveringham; R.M.C.; B.I.S.; A.R.C.; E.C.L.P.; Tarmac; Tilcon; E.C.C.; Hargreaves; Watts, Blake and Bearne.

Less business is done with big groups in the North, than in the rest of England as a proportion of turnover to the quarrying and sand and gravel industries.

The picture for 'other industries' is given below. Associated companies' accounts have been excluded.

Fig. D 4.3: TURNOVER TO GENERAL MANUFACTURING INDUSTRY

	72			73		
	No ACCTS	£	£AV/ACC	No ACCTS	£	£AV/ACC
THE NORTH	67	25580	382	37	17667	477
REST OF ENGLAND	90	64357	714	64	59679	932
LONDON	12	24077	2006	13	29962	2305

Customers in this category in the North are concentrated in S. Lancs

and the West Riding and are characteristically small accounts. Very few accounts in the category exist on Tyneside, Teesside or Humberside. However, the figures do not suggest any success on Uxbridge's part in picking up this type of account. The presence of the depot alone does not automatically open doors to small accounts, or accounts not normally dealt with.

The Quarrying Industry (excluding Sand & Gravel)

This can be divided into two broad sectors: roadstone quarries, and limestone quarries producing crushed stone, powders, etc., for the chemical industry.

The limestone quarries are mainly situated in the Yorkshire Dales and the Peak District. The roadstone quarries extend throughout the Pennines right into Northumberland. They are spread out, whereas the limestone quarries tend to be in concentrated pockets. There are two main groups in these sectors in the North - Tarmac (for whom road construction occupies approximately 30% of group activity) and Tilcon. U.K. production of igneous rock, limestone and sandstone (which doubled between 1962 & 1972) is about 145 million tonnes p.a.. I estimate Tarmac accounts for 12% of this production and Tilcon 4%. Both Tarmac and Tilcon operate slag works around the steel production plants on Teesside, at Scunthorpe, and in S. Yorkshire.

A simple count of the entries (i.e. separate enterprises, some of which had more than one location) in the 'Directory of Quarries and Pits, 21st ed' revealed the following breakdown of activity.

Fig. D 4.4: PROPORTION OF QUARRIES, PITS, ETC. IN THE NORTH

	QUARRIES & PITS	BRICKWORKS & CLAYS	READY MIXED CONCRETE
THE NORTH (No of entries)	958	291	112
% of ENGLAND & WALES	35.2%	42.5%	32.4%

The densest areas of activity were concentrated in Durham and the Peak District though Yorkshire has the largest number of quarries of any county.

The attached maps (2 & 3) reveal the complete pattern, and emphasise the importance of Staffordshire which includes high activity in limestone quarrying; sand and gravel and brickmaking. Teesside heavy industry appears to have generated high activity in quarrying, construction, and slag processing in a comparatively small area.

Sand and Gravel

This is located in a belt from Lincolnshire to the West Midlands - i.e. the belt of country north west of Birmingham. The Northern, Yorks and Humberside and N. West planning regions together account for 12% of those employed in Great Britain in the industry, 8% of the net capital expenditure and 5% of net output. The West Midlands alone accounts for 11% of employment, 19% of net capital expenditure and 4% of net output. Much of the West Midlands output is in Staffordshire.

These figures suggest the West Midlands will become more important in this industry in the future, though the South West will continue to outstrip all other regions in this industry.

The West Midlands/East Midlands belt is dominated by the big groups - B.C.A., Hoveringham, etc.

Bricks and Refractory Goods

This industry is much better represented in the North, with 27% of the U.K. employment, 27% of the net capital expenditure and 22% of the net output. Yorks and Lancs together account for 20% of the entries for England and Wales in the Directory of Quarries and Pits. Apart from Steetley, the industry would seem to be composed of many independent operators.

Construction

About 24% of the value of orders taken in the industry are for contracts in the North, Yorks and Humberside and North West planning areas. The proportion for industrial construction alone is 30%. The construction industry in the Development Areas is generally more buoyant than in the rest of the country and in the Northern planning region, the industry is particularly strong.

The regional breakdown of cement production is tabulated as follows:

Fig. D 4.5: U.K. CEMENT & READY MIXED CONCRETE PRODUCTION

	TONNES PROD 1st QR 1974	% OF U.K. TOTAL	% OF U.K. RMC TOTAL
TOTAL CEMENT	4,151,823	100	-
RMC	1,723,304	41.5	100
NORTHERN CEMENT	242,523	5.8	-
RMC	107,028	2.6	6.2
YORKS & HUMB. CEMENT	287,735	6.9	-
RMC	121,175	2.9	7.0
NORTH WEST CEMENT	408,640	9.8	-
RMC	181,848	4.4	10.6
NORTHERN REGION CEMENT	938,898	22.6	-
RMC	410,051	9.9	23.8

Source: B.R.M.C.A. NOTE: Cement figures are inclusive of RMC

If we assume the North will take 25% of the rubber belting market (since it accounts for 30% of the U.K. net manufacturing output, and I estimate 30% of quarrying and 24% of construction activity) then based on the estimate of £9 million for the U.K. market, the North should account for £2.25 million worth of belting. Of this total, approximately £1.25 million is accounted for by sales to the British Steel Corporation and to O.E. companies. The following table gives estimates for the remainder.

Fig. D 4.6: COMPARISON OF ESTIMATED DUNLOP MARKET SHARE IN NORTH
WITH DUNLOP MARKET SHARE IN U.K.

INDUSTRY	ESTIMATED MKT	DUNLOP SHARE %	DUNLOP SHARE IN U.K. %
SAND, GRAVEL Q & C	£353,000	28	24
CONSTRUCTION	£ 35,000	NIL	8
BRICK & TILE	£ 59,000	20	8
CEMENT	£107,000	NIL	13
CHEMS & FERT.	£160,000	16.9	8
OTHER MFG. IND.	£233,000	11.2	22

Whilst these figures are all estimates, they appear to confirm at least two impressions I have formed:-

1. Dunlop business with the Sand and Gravel and Quarrying Industry is quite broadly based and at a healthy level in the North - though there are still areas such as Tilcon business which offer potential.
2. Dunlop's share of the business supplied by general manufacturing industry is small in the North and could be improved substantially.

D 5. Possible Strategies

1. Amplify the role of Uxbridge - via promotion, etc.

2. Utilise despatches from Speke more effectively.
3. Establish depot to serve Teesside/Yorks - Lancs.
4. Establish depot to service W. Midlands sand and gravel as well as North.
5. As 3, but amplify role of TEK as well.
6. Establish one main depot in Britain from which a series of small sub-depots could be served.

The importance of the W. Midlands and the Peaks and the relative distance of these areas from either Uxbridge or the W. Riding means that the decision to site a depot in the North must be taken in association with a full understanding of the role of TEK.

The whole question of locality is based on assumptions about;

1. ease of communication between customers and supplier,
2. speed of delivery. The second point seems to me to be a subject for further study. The factor of proximity becomes more important when the concept of vulcanising and service teams is introduced into the depot operations. The first point might be overcome (if it is a problem) by more effective promotion of our existing facilities.

The most effective strategy seems to be to establish one central depot with one set of sophisticated belting handling and cutting equipment. This would then serve other Dunlop depots and agents with belts which would need a minimum of handling and cutting. By establishing only one 'permanent' depot, the Company can retain the flexibility of setting up smaller operations at selected points

- for example a depot might be set up on Teesside rather than further south. This strategy would mean a diminution of the role of Uxbridge.

Bibliography

1. Company Reports consulted
 - Thomas Tilling 1972
 - Tarmac 1973
 - A.R.C. Ltd. 1973
 - Redland Limited 1973
 - Blue Circle Group 1973
 - Tunnel Cement 1973
 - Hoveringham 1973
 - London Brick Co 1972
 - National Carbonising Co 1973
 - Coalite and Chemical Products Ltd 1973/74
 - English China Clays Ltd 1973
 - R.M.C. Ltd 1973

2. Economic Planning Reports consulted
 - 'A Review of Yorkshire and Humberside' - Yorks and Humberside Economic Planning Council; H.M.S.O. 1966.
 - 'The North in the Sixties' - North East Development Council; NEDC 1971.
 - 'The North West of the 1970's' - North West Economic Planning Council; H.M.S.O. 1968.
 - 'The East Midlands Study' - East Midlands Economic Planning Council; H.M.S.O. 1966.
 - 'Opportunity in the East Midlands' - E.M.E.P.C.; H.M.S.O. 1969.

3. Sources of statistical information consulted
 - B.R.M.C.A. Directory of Members' Depots; Spring 1973.
 - " R.M.C. Production & Cement Usage, 1951-1973.
 - " Cement; Channel of Sale Figures, 1st Qtr 1974.

Business Monitor; Reports on the Census of Production 1971.

PA 103 Chalk, clay sand and gravel extraction

PA 101 Coal mining

PA 469.1 Abrasives

PA 464 Cement

PA 463 Glass

PA 462 Pottery

'Abstract of Regional Statistics 1973'; H.M.S.O. 1973

'Annual Abstract of Statistics 1973'; H.M.S.O. 1973.

'Directory of Quarries & Pits, 21st edition';

The Quarry Managers' Journal Limited 1974.

APPENDIX E

DEPOT-SEEKING TOUR - 24TH & 25TH SEPTEMBER 1974

SUMMARY OF SITES VISITED

1. BOND STREET, WEST BROMWICH

Building had only just commenced at this site and early occupation would be out of the question. On the other hand, the building could be built to our own specifications regarding crantage.

2. WEDNESBURY TRADING ESTATE

About half of this estate was completed, some units being occupied already (e.g. the distributors of Tandy hi-fi equipment had the most prominent site). Other units were nearly completed, but their aspect - especially of the offices - was not so good. In addition the unit sizes were slightly under our requirements, whilst two together would have been too large.

3. WODEN ROAD WEST, WEDNESBURY

A unit whose lease was for sale. Situated very near Wednesbury Trading Estate but in an unattractive situation. The building had no offices and was unsuitable structurally. It was being used as a store for aluminium window frames.

4. BESCOT INDUSTRIAL ESTATE, DARLASTON ROAD, WEDNESBURY

This is the unit for which we have a quote from Richardson Developments Limited. The site overlooks rooftops/valley towards Birmingham New Road and the Tipton area. The building is well lit with windows running along two sides. A 5 ton

crane can be accommodated. The site's weakest point is the approach from Darlaston Road (straddled by large Rubery-Owen works).

5. PARKSIDE INDUSTRIAL ESTATE, HICKMAN AVENUE, WOLVERHAMPTON

This is the other site which most impressed. Light industrial units have been built opposite East Park and from a Company image point of view the site is very suitable. A quote has been asked for from the Agents, Grimley & Son, to enable comparison with the unit at Bescot Industrial Estate.

6. FRYER'S ROAD WALSALL

Very near the M6, but again an unattractive situation next to a canal. The offices were small and on two storeys. Cranage may have been possible and the slope of the approach was such that a sunken loading bay would be easy to construct. The warehouse size was under our requirement.

7. MAYBROOK INDUSTRIAL ESTATE, OFF COPPICE ROAD, WALSALL WOOD

New units in a very bleak situation which was on the fringe of our ideal area anyway. In general, not at all appreciated.

8. MINWORTH INDUSTRIAL PARK, BIRMINGHAM

On the new A.38 route (Kingsbury Road), this is a very big development. The situation was bleak and until the whole scheme was developed, it was felt labour supply and public transport availability would inhibit efficient depot operations.

9. CURDWORTH, FAIRVIEW INDUSTRIAL ESTATE

On the A4097 (Kingsbury Road) not far from the Minworth site,

this place suffers the same disadvantages. In addition the buildings were tucked away round the back of the estate.

BEST BUYS: Items 4 & 5

APPENDIX F

SANCTION APPLICATION

FINAL VERSION

SANCTION APPLICATION FORM

Date: 22 March 1976
 Application Ref: 6 May, 1976
 Authorised: 28 May, 1976

DUNLOP BELTING DIVISION
 Sanction Total £330,400
 (Includes rental £11,900 x 25)

CAPITAL REQUIREMENTS

Transfers from Assoc. Cos.	330,400
Other Expenditure	
<u>SANCTION TOTAL</u>	<u>330,400</u>
Less Revenue Items	27,000
Capital Expenditure Required	
Other Related Capital Expenditure	
(a) Sanctioned	-
(b) To be sanctioned	<u>27,000</u>
<u>TOTAL CAPITAL EXPENDITURE</u>	<u>27,000</u>
Less Government Grant	-
Sub-Total	<u>27,000</u>
<u>NET WORKING CAPITAL</u>	
(Normal Year)	<u>60,000</u>
<u>ADDITIONAL NET CAPITAL</u>	
EMPLOYED	<u><u>87,000</u></u>

FINANCIAL RESULTS

	Year 1 1976	Year 2 1977	Year 3 1978	Year 4 1979	Year 5 1980
Additional Net Turnover	£ 141	£ 179	£ 199	£ 210	£ 223
Additional Gross Contributions and/or Savings	47	59	66	70	74
Less: Depreciation	(1.9)	(1.9)	(1.9)	(1.9)	(1.9)
Additional Period Expenses	(26)	(15)	(15)	(15)	(15)
Revenue Items (A&R etc.)	(18)	(12)	(12)	(12)	(12)
Taxation	-	12.4	(16.6)	(20.3)	(22.4)
Net Profit/Loss	1.1	42.5	20.5	20.8	22.7
Cash Flow	(64)	33.4	16.4	19.7	20.6

Net Yield (after Tax) on Additional Net Capital
 Employed (Normal Year) 24.0%

Pay-back period based on Total Capital
 Expenditure 1 Year

D.C.F. 38%

SANCTION APPLICATION FORM

CAPACITY Quote unit used, e.g. lbs, feet, etc.	Existing per week	Additional per week	Sales Estimate per week
METRES		300	

ALLOCATIONS

FINANCIAL ACCOUNTS HEADINGS

Rent Payable	<u>Amounts</u> £297,500	<u>Depreciation'</u> <u>Additional p.a.</u>
A & R etc. (staff removals - alterations to buildings).	£ 5,900	
Additions to plant & equipment	£ 25,200	£1,720
" " fixtures and fittings	£ 1,800	£ 180

EXPENDITURE GROUPS

Amounts
(Excl. Revenue)

<u>Nos.</u>	<u>Titles</u>
5	Legal, Social & Admin.
	£ 27,000

AUTHORISED No. B.220

IMPROVEMENTS TO DISTRIBUTION

A new distribution depot for Belting Division is proposed, located near Wolverhampton and adjacent to the motorway network.

The Division at present operates a single depot at Uxbridge to handle the sale and distribution of its ex stock belting. This was established in 1970 in existing Hose Division premises which were transferred to Belting Division. In the first full year of operation the turnover of belting through Uxbridge was approximately £200,000, the turnover is currently in excess of £760,000. We now find that we are limited in our handling facilities in the existing premises. Our product is now manufactured in wider and heavier specifications, and it is not possible to install crange facilities in the existing structure. Handling by stacker truck cannot safely be employed without restricting the weight to be handled. These limiting features plus the depot's geographical situation also prevent us from packing for export and we are, therefore, unable to take full advantage of a unified stocking operation.

The selection of the West Midlands as the site for a new depot was made after very thorough investigation of the natural centre of our market, both actual and potential. Its siting enables economies to be made in transport and provides us with better distribution facilities on a countrywide basis in terms of speed of delivery.

It is our intention that the new depot will replace all the primary functions of the Division's present depot at Uxbridge. The

Uxbridge operation will be reduced in scale progressively over a 12 months' period, at the end of which it will be operating with minimal stock levels, and personnel (3 instead of 6). Approximately one third of the existing floor area available at Uxbridge will be required and the Uxbridge lease will be sold, following which the premises of 4,000 sq. ft. will be sought. These assumptions are taken into account in our Sanction application. We consider that the area and facilities in the new premises at Wolverhampton will be sufficient for our requirements covering at least 10 years.

The pattern of trading from stocking units was initiated by DBD but has been copied by BTR who have recently established two, as well as by importers from Scandinavia, Germany, France, and Goodyear from Ireland who now operate from 15 local stocking points.

Siting of our new depot in the Midlands will make available to the Division an increased share of the business from the locality. This additional turnover is quantified within the Sanction application, (approximately £140,000 in the first normal year).

There will be no major increase in administration costs. Significant savings on the rental of a smaller floor area for the sub-depot operation will help to offset the increased rental of the new premises. Transport savings, arising from reduced mileage and through the use of the Fort Dunlop Transport Department, should amount to 35% of the existing transport costs, which were estimated for the Uxbridge Depot operation at £24,000 in 1975.

All costs and revenues are quoted at 1976 levels though the rentals for premises are subject to periodic review.

Profitability of depot operations in the first year will be £112,000, i.e. 12½% profit on estimated sales of £900,000 (based on full works cost).

The capital expenditure figure of £27,000 includes £23,000 (£21,000 plus contingency) for the purchase of a 15 ton gantry crane, which will not be a fixture. The crane will be capable of being strengthened to 25 tons in the future.

Five years ago when our depot at Uxbridge was set up, the average weight of belting per roll handled by the depot was of the order of 1½ tons. This would represent a cotton or cotton/synthetic mixture belt made to width on the press. In addition at this time we began to market slabs of all synthetic belting up to a maximum width of 60" and a length of 600 ft. These slabs could weigh up to 3 tons.

In the intervening five years our stock belting has gone almost wholly onto all synthetic constructions and the production length has increased to 400 metres. We are handling heavier and wider specifications. In the heavier specifications roll weights can be between 7½ and 10 tons. It is envisaged that when the press is widened and we are producing up to 2000mm wide slabs that we will be wishing to handle rolls weighing up to 15 tons. Subsequently the introduction of Kevlar belting over the next few years will require handling facilities in excess of 15 tons.

DUNLOP BELTING DIVISION

DEPOT SANCTION - CASH FLOW £000

	0	1	2	3	4	5	6	7	8	9	10	11
Profit before Tax	19.1	42.1	49.1	53.1	57.1	61.1	66.1	71.1	76.1	82.1	88.6	-
Depreciation	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.4	1.4
Tax	-	12.4	(16.6)	(20.3)	(22.4)	(24.4)	(26.5)	(29.1)	(31.7)	(34.3)	(37.4)	(40.6)
Total Cash In	21	56.4	34.4	34.7	36.6	38.6	41.5	48.9	46.3	49.7	52.6	(39.2)
Capital Expenditure	(27)	-	-	-	-	-	-	-	-	-	-	-
Revenue Expenditure	(18)	(12)	(12)	(12)	(12)	(12)	(12)	(12)	(12)	(12)	(12)	+28
Working Capital	(40)	(11)	(6)	(3)	(4)	(4)	(4)	(4)	(5)	(5)	(5)	+72
Total Cash Out	(85)	(23)	(18)	(15)	(16)	(16)	(16)	(16)	(17)	(17)	(17)	+100
Cash Flow	(64)	33.4	16.4	19.7	20.6	22.6	25.5	27.9	29.3	32.7	35.6	60.8
D.C.F. 38%	(64)	24.0	8.6	7.5	5.7	4.5	3.7	2.9	2.2	1.8	1.4	1.8

APPENDIX G

Extracts from

'New Product Strategy'

A discussion paper prepared by the
author at the request of the
General Sales Manager, Dunlop Belting Division.

June 1976

Introduction

A new type of conveyor belt based on the use of new carcass materials and new manufacturing technology has been developed within the group technical departments. This paper explores ideas for marketing the new belt.

Product Profile

The product represents a new manufacturing technology. It is cheaper to produce than the present range of belting and tension characteristics can apparently be more easily modified at the production stage than is the case on conventional belting to which plies must be added for increased strength.

Product performance is not significantly different from the present range (on results so far), though it might supply the low tension/high load support market for which Belting Division has no precise product.

Customer Benefits

Benefits to the customer might therefore be in some other category than performance;

- i.e. price
- convenience to use
- availability
- transferability between conveyors
- 'new status'
- other service characteristics

Volume

First year production target is 4000 slab metres, doubling to 8000 metres in the second year. This would give an estimated 10-15000 sold metres in the first year rising to 30000 in the second. In year 1 this amount represents about 17% of Belting Division's sales in 315/2 and 315/3 specifications. On the total U.K. belting market, initial impact if all output is sold will not be past the 2% share mark.

Available market

Applications - all light-duty applications now covered by 315/2 and 315/3.

- ? packaging
- ? food
- ? specialist factory materials handling
- sand and gravel, light duty quarrying
- general manufacturing including foundries
- cement and concrete

Segment/specification matrix - Belting Division's sales

(figures show % of metres order intake in 315/2 & 315/3 specifications)

	Quarries etc		O.E.			Total
	<u>Direct</u>	<u>Factored</u>	<u>Small</u>	<u>Chems</u>	<u>Other Ind</u>	
315/2 HD 3 x 1.5						
450mm	3	1	-		4	8
500mm	1	-	5		7	13
Other	1	-	1	1	7	10
315/3 HD 3 x 1.5						
450mm	6	-	2	-	2	10
500mm	1	5	-	-	1	7

(Cont'd)	Quarries etc		O.E.	Chems	Other Ind	Total
	Direct	Factored	Small			
650mm	3	8	6	-	6	23
800mm	4	5	3	1	2	15
900mm	1	1	1	-	6	9
Other	-	-	-	-	1	1
Remainder	1	1	2	-	-	4
	21	21	20	2	36	100

The Buyer's Perception of the Product

Four features worth considering are:

- (a) Natural conservatism of the market - viz promotion of Starflex and resistance to nylon belts still actively maintained.
- (b) Suspicion of product - unwillingness to risk key operating plant on an untried product (this relates to (a)).
- (c) Suspicion of Company - past record of product innovation.
- (d) Responsiveness to brand names; brand image (name, quality, service, price).

A marketing survey which concentrated on the buyer's perception of the product (rather than a market survey which quantifies total demand) would help to define the selling strategy. For instance, the buyer or purchase influencer (e.g. plant engineer) might be asked to rank the following product features in order of importance:

- brand name (supplier company reputation)
- easy to splice
- overall thickness
- number of plies

- thick covers
- hard wearing covers
- availability
- after sales service
- price
- personal representation
- long life (reliability)

Such a survey would tell us which perception barriers would have to be removed by promotion/selling, and how responsive buyers might be to the idea of a performance guarantee and how this might rate in comparison with price. The survey might also explore the respondents exposure to potential promotion media - professional meetings, technical magazines, etc.

Outline Plan

Sales Objectives

The sales objectives for the new product might be:

1. To convert Starflex repeat purchasers to the new product)create
2. To sell the new product to first time buyers, i.e. O.E. plant) triers
3. To repeat sell the new product to its triers
4. To sell on non-price grounds if possible
5. To achieve a sales growth of

The Strategy

1. To establish brand loyalty
2. To penetrate selected market segments as a first move
3. To develop the product quality and collect field evidence of this
4. To provide better total service (specification, customer relations, delivery, replacement, after-sales service) than

is available from any other source

5. To expand into and take over the Starflex general duty market.

The Adoption Campaign

1. Make the customer aware of the new product
2. Provide him with an incentive to find out more/be interested
3. Encourage him to search for/select the product (buy!)
4. The customer tries the product
5. Monitor and learn from the customer's post-purchase behaviour

This is the new product adoption process - a model of the individual buyer's behaviour. The immediate objective is to create product triers - this will happen by identifying and exploiting the stages which lead to trial. Repeat purchase sales will depend on an understanding of post-purchase behaviour.

Awareness - contact the customer via advertising, promotional evenings, personal visits, etc.

Interest - develop product features for customer via literature and face to face: service, package deal, etc.

Encourage to Try - emphasise security (customer can't lose), price comparison.

Post-Purchase - visit site, collect data about product.

Collect user opinion. Encourage loyalty to product.

Developing a Promotion Angle - The Maintenance Contract

One way of creating an attractive product feature not related to the technical properties of the new product which has been suggested is the maintenance contract.

There is no data available on expected product life of the present product range. Nor is there any available for the new product.

The appeal to a buyer of a contract which guaranteed belt life or replacement for normal failure (i.e. belt wear due to product carried or accidental damage not a result of inadequate maintenance) might be:

1. Removes risk of buying an untried product
2. Removes organisational barriers to replacement ordering for plant engineer (and see 4)
3. Provides price incentive for purchasing officers
4. Provides plant engineer/quarry manager with opportunity to have 'good' belting on his plant and not to make do and mend - pride motivation, risk aversion (loss of use).
5. For the period of the contract, removes need to provide for sudden 'lumps' of purchase due to belt failure. Removes short-term financial pressures not to replace from operating managers. Makes plant running costs more predictable for the operators, which will aid pricing.

Such a contract might encourage the buyer/operator to replace sooner than he might otherwise have done - if he has an apparently cost-free way of keeping good belting on his plant. This would lead to higher

cost for the supplier, but would also increase dependence of the user on the supplier thus encouraging brand loyalty.

The problem would be to structure the premium so that it and the added margin gained by keeping the price high (a) covered all replacement during the contract life (b) provided the incentive for the buyer to join the scheme knowing that nil or low levels of replacement could be expected in the first period or periods. The buyer, however, is also enabled to hedge against price inflation on replacement belting by this method.

In the case of the whole plant scheme starting from new, we might not expect belt replacement to begin for 2/3 years (except on short feeder conveyors). After this an active plant in the sand and gravel or quarrying sector could be replacing a third of its belting every year. On plants with small amounts of belting the fraction is probably much higher since a greater proportion of the belting is in use on 'high risk' plant.

If a contract was offered for 4 years and a two third replacement was expected by the end of the 4th year, then premium and added margin would have to cover the cost price of this two third replacement. Conversely, the total cost to the buyer should represent an attractive saving (? 15%).

Example 1

Assume a quarry buys 2000 metres of belt at £10 per metre for a new plant. A replacement contract is agreed for the first 4 years of operation. In year 2, 1/6th of the belt is replaced, in year 3 1/6th, and in year 4, 1/3rd.

	Yr 1 O.E.	2 1/6 repl.	3 1/6 repl.	4 1/3 repl.	Total
Buyer's cost	£20,000				£20,000
Mfg cost	£12,000	£2,000	£2,000	£4,000	£20,000
Margin	£ 8,000				
Expected Margin at 35% G.C.	£ 6,500				
Added Product Margin	£1,500				

Premium to be charged for £8000 worth of replacement belt

$$= \frac{£8000 - £1500}{4}$$
$$= £1625 \text{ p.a.}$$

Replacement

Buyer's potential cost	=	£13,300
" actual cost	=	£ 6,500

Total Cost

Buyer's potential total cost	=	£33,300
" actual " "	=	£26,500
Saving	£ 6,800	(20%)
Manufacturer's revenue	=	£26,500
" costs	=	£20,000
Margin	£ 6,500	(24.5%)

Example 2

Assume manufacturer wishes to recoup 35% margin on replacements,
then premiums become $\text{£}8000 \times \frac{100}{65} - 1500 = \text{£}2705 \text{ p.a.}$

$$\frac{65}{4}$$

Replacement

Buyer's potential cost	=	£13,300	
" actual "	=	£10,820	
		<hr/>	
saving		£ 2,480	(19%)
		<hr/>	

Total

Buyer's potential cost	=	£33,300	
" actual "	=	£30,820	
		<hr/>	
saving		£ 2,480	(7%)
		<hr/>	

Manufacturer's revenue	=	£30,820	
" cost	=	£20,000	
		<hr/>	
margin	=	£10,820	(35%)
		<hr/>	

Example 3

Assume buyer will purchase at 15% overall saving

$$\text{Actual cost} = \text{£}33,300 \times 85\% = \text{£}28,300$$

$$\text{Premium} \quad \text{£ } 2,075 \text{ p.a.}$$

$$\text{Manufacturer's margin } \text{£}8,300 \quad (29\%)$$

A lower margin than the list price is acceptable since repeat selling

costs will be lower. Psychologically at this level of premium, there may be a need to persuade buyer to take a certain amount of replacement belting in order to make him feel he has had good value for money.

Rates of return (example 3)

(a) Buyer

	1	2	3	4
Premiums	2075	2075	2075	2075
Value of goods replaced	nil	3300	3300	6700
Saving (cash flow)	(2075)	1225	1225	4625
NPV =	(2075)	+ $\frac{1225}{1.16}$	+ $\frac{1225}{1.16^2}$	+ $\frac{4625}{1.16^3}$
(at 16% interest rate of capital)	= £2854			

(b) Manufacturer

	1	2	3	4
Revenue	22075	2075	2075	2075
Cost	12000	2000	2000	4000
<hr/>				
Cash	10075	75	75	(1925)
NPV @ 16% =	10075	+ 65	+ 56	- 1233
=	£8963			

or replacement only:

	1	2	3	4
Revenue	2075	2075	2075	2075
Cost		2000	2000	2000
Cash	2075	75	75	(1925)
NPV @ 16% =	£955			

If Dunlop has planned ROR on the product, this could be used to work back to a satisfactory premium. There is an incentive for the supplier to keep the initial price high, so that subsequent yearly premiums will be as low as possible.

Again marketing research would help to resolve certain questions. Recent buyers of O.E. plant could be asked for figures on belt life/belt failure - this would help to set the contract period and the rate/amount of failure would help to set the contract premium. On very light duty sand plants, life expectancy could be at least 5 years, in which case premiums could be set much lower. A scale of premiums for different applications could be established.

Inflation of manufacturing costs might be covered in the contract in an escalation clause. This would avoid charging excessive premiums against unpredictable future events.

Summary - Maintenance Contracts

Maintenance contracts would provide a way of marketing belting with the emphasis off price. The buyer, however, would still retain a substantial saving against all-nylon type belt costs.

The customers for this sales strategy need to (1) be O.E. buyers (better running conditions; larger purchase volumes; identifiable plant): (2) have a predictable belt usage rate which the customers themselves perceive to be a substantial operating cost: (3) preferably have tight organisational controls for replacement purchasing.

The maintenance contracts would provide the opportunity for:

1. the buyer to become supplier dependent
2. lower repeat selling costs in contract period, since these become administration costs
3. introducing the new product to customers
4. establishment of brand loyalty.

Once a contract period had ended, the buyer would replace the product at list price with no contract.

The strategy would only apply to O.E. applications which would probably absorb all initial production. It might be seen as a long term venture, or a short term penetration strategy - with a reduced price list coming into force after ?3 years.

Marketing research would help to clarify some of the unknowns, particularly to do with the qualitative product features a buyer considers, and also belt-life expectancy.

List of References

Chapter 1

- (1) Susman, Gerald I. and Evered, Roger D.:
"An Assessment of the Scientific Merits of Action Research",
Administrative Science Quarterly, Dec. 78, Vol.23 :
- (2) Curle, A: "A theoretical approach to action research."
Human Relations 2 (1949).
- (3) Rapoport, Robert N.: "Three Dilemmas in Action Research."
Human Relations, Vol.23, No.6, Dec.1970.
- (4) Lippitt, R. : "Dimensions of the Consultant's Job"
Journal of Social Issues, Vol.15, No.2, 1959.
- (5) Clark, Peter A. : "Action Research and Organizational Change."
Harper and Row, London, 1972.
- (6) Jenks, R. Stephen. : "An Action-Research Approach to
Organizational Change."
Journal of Applied Behavioural Science. Vol.6, No.2, 1970.
- (7) Lees, Ray and Smith, George. : "Action Research in
Community Development."
Routledge Direct Editions, London, 1975.

- (8) Lees, Ray. : "The Action-Research Relationship," in "Action Research in Community Development!"
op.cit..
- (9) Lippitt, R., op.cit..
- (10) Perrow, C. : "Organizational analysis: a sociological view,"
Tavistock, London, 1970.
- (11) Pounds, William F.
"The Process of Problem Finding;"Industrial Management
Review, Vol. 11, No. 1. Fall 1969.
- (12) Susman, Gerald I, and Evered, Roger D.,op.cit..
- (13) Clark, Peter A. op.cit..
- (14) Rapoport, Robert N. op.cit..
- (15) Susman, Gerald I, and Evered, Roger D., op.cit..
- (16) Handy, Charles B., "Understanding Organizations;"
Penguin Books, 1976.
- (17) *ibid.*

Chapter 2

- (1) Arthur, Henry B.
"Market Structure and Functions in Agricultural Control Programs."
In Cox, R., Alderson, W. and Shapro, S.J.(Eds) 'Theory in
Marketing'; R.D. Irwin Homewood (Ill), 1964.

- (2) McInnes, William.
"A Conceptual Approach to Marketing"
in Cox, R., et al, op.cit..
- (3) ibid
- (4) Alderson, W., "The Analytical Framework for Marketing",
in Lawrence, R.J., and Thomas, M.J. (Eds.), "Modern
Marketing Management", Penguin Books, 1971.
- (5) Dodge, H. Robert, "Industrial Marketing", New York,
McGraw-Hill, Inc., 1970.
- (6) Drucker, P.F., "The Practice of Management", Heinemann, 1970.
- (7) Copley, Dr.M., writing in "Dunlop News", March/April 1980.
- (8) Levitt, T.
"Marketing Myopia".
Harvard Business Review, Vol. 38, No. 4, 1960.
- (9) Kotler, Philip, "Marketing Decision Making: A Model Building
Approach", London, Holt, Rinehart and Winston, Inc., 1974.
- (10) Uytterhoeven, Hugo, E.R., Ackerman, Robert, W. and Rosenblum, John W,
"Strategy and Organization . Text and Cases in General Management".
R.D. Irwin, Homewood, Ill. 1973.

- (11) Cohen, Kalman, J., and Cyert, Richard M.
"Strategy: Formulation, Implementation, and Mointoring".
Journal of Business, 46, July 1973.
- (12) Ziemer, D.R., and Maycock, P.D.
"A Framework for Strategic Analysis".
Long Range Planning, No.6. June 1973.
- (13) This definition is paraphrased from N.G. Ramsden's report
for Dunlop Belting Group.
"Correlating Belt Selection, Laboratory Testing and
Field Performance", July 1974.
- (14) Streets, H., "Sutcliffe's Manual of Belt Conveying",
W. and R. Chambers Ltd., 1956.
- (15) Mersey Docks and Harbour Board, "The Dock Engineer's
Reports 1861-1931", Local History Collection, Liverpool
City Library.
- (16) Obituary to George Fosbery Lyster, Minutes of Proceeding
of the Institute of Civil Engineers, Vol.139, 1899-1900.
- (17) Streets, H., op.cit..
- (18) See, for example, Davies, H., "Belt Conveyors",
Association of Engineering and Shipbuilding Draughtsmen,
Technical Pamphlets, Vol. 15, 1934-35.

- (19) Internal Report, 12/12/76.
Strategic Planning Dept., Dunlop-Angus Belting Group.
- (20) "Only one drive even if you change direction".
Bulk, March/April, 1980.
- (21) Wood, Lisa. "Export Growth Essential! from Mechanical Handling
a Financial Times Survey, Financial Times, 16/5/79.
- (22) Wills, Gordon and Others.
"Technological Forecasting".
Penguin Books, 1972.
- (23) Norvall, J.G.
"Conveyor Belt Performance".
Iron and Coal Trades, No. 178.
- (24) Business Monitor, Quarterly Statistics, PQ491 Rubber
Manufacturers, Business Statistics Office, Government
Statistical Services, H.M.S.O..
U.K. Imports, Jan-Dec 1974, British Rubber Manufacturers'
Association Ltd..
- (25) Business Monitor, PQ491, op.cit..
- (26) Annual Abstract of Statistics, H.M.S.O.
- (27) *ibid.*..

Chapter 3

- (1) Alderson, W. "Marketing Behaviour and Executive Action".
R.D. Irwin. 1957.
- (2) Argenti, A.A. in Kempner, T. (Ed.). "A Handbook of
Management", 3rd Edition.
Penguin Books, 1980.
- (3) Mintzberg, Henry. "Patterns in Strategy Formation",
University of Aix-Marseilles, March 1976.
- (4) Lindblom, Charles, E. "The Science of 'Muddling Through'."
Public Administration Review, XIX, No. 2. 1959.
- (5) Etzioni, Amitai. "Mixed Scanning: A 'Third' Approach to
Decision-Making".
Public Administration Review, Dec. 1967.
- (6) *ibid.*.
- (7) Archibald, K.A. "Three Views of the Expert's Role in
Policymaking: Systems Analysis, Incrementalism, and the
Clinical Approach".
Policy Sciences, 1. 1970.
- (8) Wildavsky, Aaron. "Policy Analysis is what Information
Systems are not".
Accounting, Organizations and Society, Vol.3. No.1 1978.
- (9) *ibid.*.

- (10) Jennings, Paul.: "Dunlopera".
Dunlop Rubber Co. Ltd., London, 1961.
- (11) Edwards, R.S. and Townsend, H.
"Business Enterprise: Its Growth and Organisation".
Macmillan, London, 1964.
- (12) Dunlop Ltd. "Dunlop - A Brief History".
London, 1971.
- (13) Geddes, Reay. "Decentralizing at Dunlop Rubber".
The Manager, July 1965.
- (14) Channon, Derek F., "The Strategy and Structure of
British Enterprise", London, Macmillan, 1973.
- (15) Uytterhoeven, et al. op.cit. Ch.2.
- (16) Geddes, Reay. op.cit..
- (17) The financial control system in Dunlop is described in
Edwards, R.S., and Townsend, H., - op.cit..
- (18) Geddes, Reay. op.cit..
- (19) Heller, Robert. "Where Dunlop is Driving".
Management Today, May 1969.

- (20) Thomas, Doina. "Dunlop-Pirelli's Squeezed Start".
Management Today, Nov.1971.
- (21) Ensor, James., "Dunlop-Pirelli: inflation Italian Style",
The Financial Times, Saturday October 28th, 1972.
- (22) Dunlop Ltd., "Dunlop - A Brief History", op.cit..
- (23) Bain, Joe S. "Economies of scale, concentration and the
condition of entry in twenty manufacturing industries".
Americian Economic Review, Vol.64. 1954.
- (24) Geddes, Reay. op.cit..
- (25) Thomas, Doina. op.cit..
- (26) Jennings, Paul. op.cit..
- (27) Cost Indices for Conveyor Belting, issued to conveyor
belt manufacturers by the British Rubber Manufacturers'
Association Ltd.
- (28) James, B.G.S., "Integrated Marketing", London, Batsford,1967.
- (29) *ibid.*,
- (30) Levitt, Theodor. "Communications and Industrial Selling".
Journal of Marketing, Vol.31. April 1967.

- (31) Sheth, Jagdish N. "A Model of Industrial Buyer Behaviour".
Journal of Marketing, Vol.7., October 1973.
- (32) Webster, Frederick E. Jr., and Wind, Yoram. "A General
Model for Understanding Organizational Buying Behaviour".
Journal of Marketing, Vol.36., April 1972.

Chapter 4

- (1) . Mallen, Bruce, "Understanding Marketing Channels",
Bradford, M.C.B. Monographs, 1976.
- (2) Vaile, R.S., Grether, E.T., and Cox, R., "Marketing in
The American Economy", New York, Ronald Press, 1952.
- (3) Bowersox, D.J., Smykay, E.W., and LaLonde, B.J., "Physical
Distribution Management", Revised edition, New York,
Collier-Macmillan, 1968.
- (4) Bucklin, L.P., "A Theory of Distribution Channel Structure",
Berkeley, California, Institute of Business and Economic
Research, 1966.
- (5) Stern, L.W., and El-Ansary, A.I., "Marketing Channels",
Englewood Cliffs, U.S.A., Prentice-Hall Inc., 1977.
- (6) Bucklin, L.P., "The Economic Structure of Channels of
Distribution" in Bell, M.L. (Ed.), "Marketing: A Maturing
Discipline", Chicago, American Marketing Association, 1960.

- (7) Kotler, Philip, op.cit., Chapter 3.
- (8) Kotler, Philip, "Marketing Management: Analysis, Planning and Control", Englewood Cliffs, U.S.A., Prentice-Hall, Inc., 1967.
- (9) Revzan, D.A., "Wholesaling in Marketing Organization", New York, John Wiley and Sons, 1961.
- (10) Breyer, R.F., "Some Observations on Structural Formation and the Growth of Marketing Channels", in Cox, R., Alderson, W., and Shapiro, S. (Eds.), "Theory in Marketing", Homewood, Ill., U.S.A. Richard D. Irwin, 1964.
- (11) Dodge, H.R., op.cit., Chapter 3.
- (12) McVey P., "Are Channels of Distribution What the Textbooks Say?", Journal of Marketing, Vol.24, Jan.1960.
- (13) Bucklin, L.P., op.cit..
- (14) Kotler, Philip, "Marketing Decision Making", op.cit., Chapter 3.

Chapter 5

- (1) Webster, F.E. Jr., "The Role of the Industrial Distributor In Marketing Strategy", Journal of Marketing, Vol.40, No. 3., July 1976.

- (2) Private communication to the author from Mr W.A. Winkfield.
- (3) Hill, Richard M., Alexander, Ralph S., and Cross, James S. "Industrial Marketing", R D Irwin, Homewood, (Ill), 1975.
- (4) Little, Robert, W., "The Marketing Channel: Who Should Lead This Extra-Corporate Organisation". Journal of Marketing, Vol. 34., Jan. 1970.
- (5) Rosenbloom, Bert. "Motivating Independent Distribution Channel Members". Industrial Marketing Management, Vol.7. 1978.
- (6) Ford, David I. "Stability Factors in Industrial Marketing Channels". Industrial Marketing Management. Vol. 7. 1978.
- (7) Webster, F.E. "Industrial Marketing Strategy". J. Wiley and Sons, New York. 1979.

Chapter 6

- (1) National Economic Development Office. 'Investment Appraisal'. H.M.S.O., London. 1971.
- (2) Internal memorandum, Dunlop Belting Division Sales Dept., 7/8/72.
- (3) do. 14/8/72.

- (4) "Belting Division, Depot Project", Internal Report, 4th Sept. 1970.
- (5) Dodge, H.R. op.cit., Chapter 2.
- (6) "Revised Distribution Scheme, D.B.D.", Internal Report circulated to various Belting Division managers.
- (7) Internal memorandum, Dunlop Belting Group, 16/6/75.
- (8) do. 8/7/75.
- (9) Handy, Charles B., op.cit., Chapter 1.
- (10) March, James G. "Business Decision Making". Industrial Research, Spring 1959.

Chapter 7

- (1) Levitt, T., "Exploit the product life-cycle", Harvard Business Review, Vol. 43 No. 6, 1965.
- (2) Clifford, Donald K. Jr., "Managing the Product Life Cycle" in Mann, Roland (Ed.), "The Arts of Top Management: A McKinsey Anthology", McGraw-Hill Book Co. (1971)
- (3) Simmonds, Kenneth. "Removing the Chains from Product Strategy", Journal of Management Studies, February 1968.

- (4) Wills, Gordon. "Strategic Issues in Marketing", London, International Textbook Co. Ltd., 1974.
- (5) Simmonds, K. op.cit.
- (6) Ansoff, H.I., "Toward a strategic theory of the firm", from Ansoff, H.I. (Ed.), "Business Strategy", Penguin Books, 1969.
- (7) Alderson, W., "A Marketing View of Business Policy", from Lawrence, R.J., and Thomas, M.J. (Eds.), op.cit., Chapter 3.
- (8) Ramsden, N.G., and Sabin, R.W., "Scope for Rationalisation in the Starflex Product Range", I.H.D. Project Report for Dunlop Belting Group, October 1975.
- (9) Massey, S.D., "Rationalisation of the Starflex Product Range", Project work carried out for first Degree and undertaken in Dunlop Belting Group, 5/7/77.
- (10) Internal Report, Belting Division Sales Dept., 17/6/76.
- (11) Hallam, W.G., "Laboratory Assessment of Conveyor Belt Performance", Colliery Guardian, Vol.200 No. 5, 1960.
- (12) Norvall, J.G., op.cit., Chapter 2.
- (13) Hallam, W.G., "Recent Developments in Polymers and Fibres with particular reference to Conveyor Belting - Part 1", Proceedings of the Institute of the Rubber Industry, Vol. 2, Oct. 1964.

- (14) "Classifications and Definitions of Bulk Materials",
Book No. 550 - 1970, Conveyor Equipment Manufacturers'
Association, Washington, 1970.
- (15) Rothberg, Robert N., "Product Innovation in Perspective", in
Rothberg, Robert N., (Ed.), "Corporate Strategy and Product
Innovation", The Free Press, New York. (1976).
- (16) Luck, David, J., "Product Policy and Strategy",
Englewood Cliffs, U.S.A., Prentice-Hall Inc., 1972.
- (17) Miracle, Gordon E., "Product Characteristics and Marketing
Strategy", Journal of Marketing, Vol. 29 No. 1, 1965.
- (18) Simmond, K., op cit.
- (19) Wills, G., Midgley, D., Hayhurst, R., "Creating and
Marketing New Products", Staples, 1973.
- (20) Hanan, Mack., "Effective Coordination of Marketing with
Research and Development", in Buell, Victor (Ed.), "Handbook
of Modern Marketing", McGraw-Hill Book Co., 1970.
- (21) Tilles, S., "Making Strategy Explicit - A Special Commentary"
Boston Consulting Group, 1966.

Chapter 8

- (1) Geddes, Reay. op.cit., Chapter 3.

- (2) de Smit, J. and Rade, N.L., "Rational and Non-Rational Planning", Long Range Planning, Vol. 13, April 1980.
- (3) Faludi, A., "Planning Theory", Pergamon Press, Oxford (1973)
- (4) Tilles, S., op.cit. Chapter 7.
- (5) ibid..
- (6) Paul, Ronald N., Donovan, Neil B., and Taylor, James W., "The reality gap in strategic planning", Harvard Business Review, Vol. 56, No. 3, May-June 1978.
- (7) Bower, Joseph L., "Managing the Resource Allocation Process", R.D. Irwin, Homewood (Ill.) 1970.
- (8) Doyle, Peter., "Management Structure and Marketing Strategies in U.K. Industry", European Journal of Marketing, Vol. 13, No. 5, 1979.
- (9) Bower, Joseph L., op.cit.
- (10) Ronchi, Luciano., "The Decision-Making Process for Strategic Adaptation", Long Range Planning, Vol 13, Feb.1980.
- (11) Channon, Derek F., op. cit. Chapter 3.
- (12) Galbraith, J.K., "The New Industrial State", 2nd edition, Pelican Books, 1974.

- (13) Wind, Yoram., "Issues and Advances in Segmentation Research", *Journal of Marketing Research*, August 1978.
- (14) Lunn, Tony., "Segmenting and Constructing Markets", in Worcester, R.M. (Ed.), *Consumer Market Research Handbook*, McGraw-Hill Book Co., London, 1972.
- (15) Cardozo, Richard N., "Segmenting the Industrial Market", in King, Robert L., (Ed.), "Marketing and the New Science of Planning:" Proceedings of the 1968 Fall Conference of the American Marketing Association.
- (16) Mahajan, Vijay and Jain, Arun K., "An Approach to Normative Segmentation", *Journal of Marketing Research*, Aug. 1978.