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A METHODOLOGY FOR IMPLEMENTING A DECISION SUPPORT SYSTEM:
A SMALL COMPANY CASE STUDY

By

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submitted for the
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SUMMARY

The importance of non-technical factors in the design and implementation of information systems has been increasingly recognised by both researchers and practitioners, and recent literature highlights the need for new tools and techniques with an organisational, rather than technical, focus.

The gap between what is technically possible and what is generally practised, is particularly wide in the sales and marketing field. This research describes the design and implementation of a decision support system (DSS) for marketing planning and control in a small, but complex company and examines the nature of the difficulties encountered. An intermediary with functional, rather than technical, expertise is used as a strategy for overcoming these by taking control of the whole of the systems design and implementation cycle. Given the practical nature of the research, an action research approach is adopted with the researcher undertaking this role. This approach provides a detailed case study of what actually happens during the DSS development cycle, allowing the influence of organisational factors to be captured.

The findings of the research show how the main focus of the intermediary's role needs to be adapted over the systems development cycle; from co-ordination and liaison in the pre-design and design stages, to systems champion during the first part of the implementation stage, and finally to catalyst to ensure that the DSS is integrated into the decision-making process.

Two practical marketing exercises are undertaken which illustrate the nature of the gap between the provision of information and its use. The lack of a formal approach to planning and control is shown to have a significant effect on the way the DSS is used and the role of the intermediary is extended successfully to accommodate this factor. This leads to the conclusion that for the DSS to play a fully effective role, small firms may need to introduce more structure into their marketing planning, and that the role of the intermediary, or Information Co-ordinator, should include responsibility for introducing new techniques and ideas to aid with this.

KEY WORDS: INTERMEDIARY MARKETING PLANNING AND CONTROL
DSS IMPLEMENTATION

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CHAPTER ONE
RESEARCH OBJECTIVES AND METHODOLOGY

1.1 CHAPTER INTRODUCTION

Chapter One introduces the background to the research, highlighting the need for tools and methods to improve the implementation of marketing information systems. Against this background, the objectives of the research are set, available research methods and strategies are reviewed and the selection of the research strategy and method justified. The final sections of the chapter outline the specific questions to be addressed by the research and describe the organisation of the thesis as a whole.

1.2 RESEARCH OBJECTIVES

Continuing advances in information technology have meant that computers have become cheaper, more powerful, and easier to use. Computer systems have already been integrated into the basic operations of many companies and for the past few years, attention has been turned to the provision of information for management decision-making. However, this has proved to be an area where the benefits of the new technology have been difficult to exploit and many management information systems (MIS) have not lived up to expectations (1). The debate on how to improve the success rate of MIS implementation continues, with practitioners and theorists from different disciplines arriving at different conclusions. Many factors have been identified as contributing to the successful implementation

of an MIS, but one of the recurring themes in current literature is the importance of human and organisational factors, and the need for tools and techniques to accommodate them (2).

Sales and marketing is one area where the gap between what is technically possible and what is generally practised is particularly wide, an issue highlighted by several recent studies (3,4,5). If improved decision-making follows the provision of better information, improving support for marketing should enable companies to cope more effectively with changes in their environment. However, few firms are using new technology to create the kind of database that will enable them to monitor and plan their marketing activities (6). Ways of overcoming the barriers to the effective use of marketing information systems are required, in particular, ways of relating system design to the organisational context in which it takes place (7).

The aim of this research is to develop a methodology for the design and implementation of a computer-based information system, which will provide improved support for marketing decision-making in small companies.

The use of computer-based systems to assist with management decision-making presents a complex field for research. Not only does it draw on several source disciplines and research areas, but also, it is based on a technology which continues to experience a rapid rate of change. One of the first computers, constructed in 1943, and was housed in a gymnasium. By contrast, today's small desk top computers are many times more powerful.

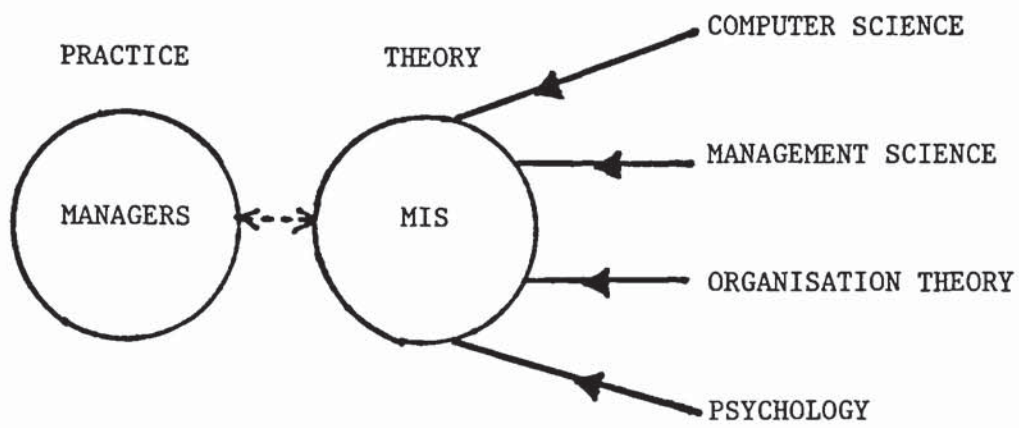
Research into the development of MIS and the factors associated with success or failure has been extensive but not conclusive. The significance of user involvement, top management support, the user-designer relationship and the influence of decision-styles have all been studied, but remain areas for debate (8,9,10,11). Furthermore, the quality of MIS research has been questioned (12). Sprague suggests that this may be due to the characteristics of an emerging field where research appears to lack rigour. This occurs particularly in the MIS field where MIS as an academic discipline draws on both social and scientific source disciplines, and is not yet fully established (7). Figure 1 illustrates the range of source disciplines contributing to the MIS field. The development of theory, including generating precise definitions, controlled experiments and causal relationships, will always be complicated by what actually happens in practice. As MIS is an applied field, looking at the application of computer systems in organisations, this is an inevitable complication (12).

The development of the Decision Support System (DSS) approach has been one attempt to draw together the practical, theoretical, and behavioural insights gained and create a distinctive concept for computer-based management decision aids. This approach implies the use of computers to:

- assist managers in their decision-making processes
- in semi-structured tasks.

FIGURE 1

SOURCE DISCIPLINES: MANAGEMENT INFORMATION SYSTEMS (MIS)



SOURCE: Adapted from Sprague (7)

-support, rather than replace, managerial judgment.

-improve the effectiveness of decision-making rather than its efficiency (13).

Even this attempt to provide an overview of the field has caused controversy. A recent article by Naylor (14) suggests:

"DSS is a redundant term currently being used to describe a subset of management science that predates the DSS movement."

The president of EXECUCOM Systems Corporation, Gerald Wagner, acknowledged the problem when he stated that, "DSS is so successful that everyone is jumping on the buzz-word bandwagon for commercial exploitation." (15). Watson and Hill suggest that there is still no universally accepted definition of DSS (15).

Against this background there have been many calls for further research. In 1980, a conference on "DSS Issues and Challenges" (16), called for more research on the development of design methodologies, implementation and criteria for evaluation. After a conference on the Information System Environment in 1980, Land, Lincoln, Mumford and Supper, called for further research on the interaction between information systems and human and organisational factors (2). Earl concluded a recent working paper by suggesting that remarkably little is known about what is happening in organisations as new technologies are introduced (17).

Keen and Scott Morton (13) also suggest that the implementation process is not fully understood, particularly with regard to how it should be managed. Observations of DSS implementations in a number of organisations by Curley and Gremillion (18) suggest that a "system champion", can be a key contributor to implementation success. Alter and Ginzberg found that a single implementer reduced the risk of system failure (19). Much theory draws on the experience of operations research and management science in implementing management decision aids. However, current theory on the role to be played by this individual and his relationship with users offers conflicting advice. Ackoff (20) found that a common thread in a number of unsuccessful management science implementation efforts, was the lack of a power base for the implementer. His strategy for getting this power included ensuring that top management support would be available to force cooperation from relevant personnel. Argyris (1) however, found that the management scientists' intervention was often resented by managers who saw their rational approach as a threat. He argued that the management scientists should concentrate on developing interpersonal skills to overcome this and should avoid the use of power. Grayson took this argument even further (21) when he suggested that the real cause of the implementation problem was the lack of mutual understanding between manager and management scientist, and he concluded that a major educational effort was required to bring the two sides closer together.

Attempts to analyse why more marketing MIS have not been adopted have come to similar conclusions. Schewe (22) found that the lack of

user orientation was one of the main factors influencing disenchantment with marketing information systems. He suggested several reasons for the low level of usage, despite the availability of considerable system sophistication, and these included:-

- System Designers are technically orientated, not user orientated.
- User training is lacking.
- The marketing culture is one of 'seat of the pants' judgmental decision-making.
- Lack of user experience in computer use
- Communications problems between designers and users

This conflict between managers and systems designers was one of the main areas for discussion during the Information Systems Environment conference in 1980 (2). The main conclusion presented by the discussion suggested that there was a gap between design philosophies; between the technologist's, or traditional systems analyst's, concentration on hardware and software requirements and the human and organisational factors which would influence the success of the system. This was described as the socio-technical environment and papers presented at the conference warned of the danger in ignoring informal information systems, managers' personalities and decision-

making styles, and in particular, the fact that the introduction of an information system meant managing organisational change (23,24,25). Efforts to impose the "right" information system onto an organisation, no matter how sophisticated, were likely to be unsuccessful if no attempt was made to involve the people the system was intended to support.

In the light of this knowledge, this research aimed to develop a method which would address these issues and have a significant impact on the implementation of an information system to support sales and marketing decision-making. In order to overcome the obstacles identified by past researchers, the use of an intermediary with functional rather than technical expertise, was chosen as a possible method of fulfilling this objective. This offered the opportunity to explore the following hypothesis:

An effective way of designing and implementing a DSS to improve sales and marketing support in a small company is to use an intermediary with functional rather than technical expertise.

1.3 RESEARCH METHOD

1.3.1 THE INTERDISCIPLINARY HIGHER DEGREES SCHEME

The research was carried out under the Interdisciplinary Higher Degrees Scheme (IHD) at Aston University and it differed in several ways from a traditional research project. The IHD Scheme places the

researcher in a company to work on a practical problem which requires the application of an interdisciplinary approach. The aims of the IHD Scheme have been summarised as follows:-(26)

"To equip postgraduate students for positions of responsibility in industry-----by providing training in practical, real-world, problem solving: more specifically in:

- application of existing knowledge
- generation of new knowledge where needed
- appreciation of academic disciplines different from those of the student's first degree.
- appreciation of the practical constraints in real-world problems.
- implementation of solutions.

The researcher's first degree had been in Business Studies and subsequent work experience in sales and marketing, so the new discipline required was in the systems analysis area. Knowledge of this subject was acquired through attending courses at Aston University.

The Company where the research was to take place, (J and J Cash Ltd), was a small but complex one. It manufactured a range of woven products for industrial and retail markets and was a household name. Its industrial business had been under attack during the last few years as the recession in the textile trade increased competition, and

like many firms in the industry, the Company was forced to cut back and restructure its organisation. The Company's consumer products had held up well during this difficult period but competition was now increasing in those markets and sales growth was minimal.

The Sales and Marketing Department within the Company found itself badly equipped to respond to these challenges. The cutbacks and restructuring which had occurred during the recession had meant that the management brought in to handle the new product areas developed within the Company, had been severely reduced. The remaining managers' roles had been extended to cover both sales and marketing under a highly centralised management structure and tight budget control. Consequently, resources were scarce, particularly in terms of management time and financial flexibility.

The aim of the project was therefore, to provide improved marketing support to this department, utilising existing resources as effectively as possible.

One of the major requirements for improving marketing support was to increase the availability of marketing information, particularly with regard to the internal information necessary for sales and marketing managers to monitor and control their activities. They were becoming increasingly frustrated at the lack of basic marketing information available within the Company and at the difficulties experienced in trying to obtain it within their time and money constraints. The marketing information requirements of the Company were not only complex but also required the manipulation of large

amounts of data. The Company's products could be divided into 5 main product groups, which were sold into three different markets through a variety of distribution channels, so even the provision of basic marketing information represented a complicated task.

Table 1 shows the sales data which would have to be analysed to provide this basic information.

This suggests that the provision of a marketing support system using a manual operation would have required three staff: one to undertake the analysis for the three product groups serving the textile market; one for the Gifts section with its high number of products and agents; and one to cope with the high volume of orders received by the Nametapes section.

Providing internal marketing information by this method may have been adequate in terms of speed; the availability of up to the minute sales were not so crucial to the Company's operation compared with the needs of a fast moving consumer goods company for example. However, the cost of employing 3 extra staff could not be justified.

A potential alternative was to make use of the Company's existing computer facility, which although limited to batch-processing technology, would allow the storage, retrieval and manipulation of this large data-base in a cost-effective manner. As the Company's order-processing and invoicing procedures were already computerised, the data required for this type of analysis were already being entered

TABLE 1
OUTLINE OF BASIC SALES DATA FOR EACH PRODUCT GROUP - JULY 1981

Product Groups Sources of Sales Data	Labels & Badges	Ribbons & Webbing	Printing	Names	Gifts
Invoices per month	← - - - - -	- - - - - 200 - - - - - →	- - - - - →	High Season - 8000 Low Season - 4000	400
No. of Products	Bespoke Labels & Badges 2 Qualities x range of widths Stock Labels 5 lines	Bespoke & Stock Ribbon Up to 11 grades in Range of widths & colours Webbing 3 Qualities in range of widths & textures 2 stock lines	Bespoke Labels 2 Qualities x range of widths Sales of licensed Materials	7	200
No. of Sales Areas	8	8	8	12 regions divided into 70 counties	12
No. of Customers	700	250	350	7000	1500
Distribution Channels	Wholesale Manufacturers Export Clubs & Associations	Wholesale Manufacturers Direct to Public + Retail Trade with Webbing Stock Products	Manufacturers	Schools Retail trade Mail Order Export Clubs & Associations Hotels & Laundries	Retail Trade Direct to firms Exports

into the computer. It was therefore decided to design and implement a computer-based marketing decision support system, using existing computer facilities.

The practical problem faced at the Company offered an ideal opportunity within the framework and ideals of the IHD Scheme to test out the use of an intermediary to control the design and implementation of a new information system, with the researcher undertaking this role.

1.3.2 RESEARCH STRATEGY

The research strategy employed was of necessity a case study strategy, as a detailed analysis was to be made of one company. This type of research is particularly useful as it attempts to examine a contemporary phenomenon in its real-life context, where the boundaries between the phenomenon and its context are not clearly evident (27). This contrasts with experimental research which deliberately divorces a phenomenon from its context in order to measure it, and with historical research, which is limited to phenomena of the past, when relevant events are unavailable for direct observation.

Yin describes the role of case studies in building explanations by using an analogy of a detective constructing an explanation for a crime (27). Drawing from the scene of the crime, using evidence from eye witnesses, the detective must make decisions about the relevance of various data and build up a plausible rendition of motive,

opportunity and method for the crime which accounts more fully for the facts than other explanations.

Although clearly appropriate to a real-life situation where the number of variables makes standard experimental and survey designs impractical, the case study approach is not without criticism, particularly due to the qualitative nature of the data collected. Miles described the case study approach as intuitive, primitive and unmanageable. He found that respondents objected to case study results much more frequently than surveys, and generally attempted to rewrite history (28). Furthermore, the case study represents a unique sample of one, and consequently the research findings may not be generally applicable. With an experiment or survey, it should be possible to repeat the tests on the hypothesis and obtain similar results, but due to the dynamic nature of the case study situation, this may not be possible.

However, many researchers feel that not enough is understood about organisations to focus on one or two variables using a questionnaire, or simulate their functions in a laboratory (29,30,31). Such simplification overlooks the dynamic nature and complexity on which research should focus. Mintzberg (31) refers to the case study approach as "Direct Research". He produces an analogy which compares the flows and processes of the organisation to a marble cake. In his view, traditional research slices out one cross-section and tries to understand it out of context, forcing the organisation into abstract categories which often distort rather than explain reality.

Building explanations, rather than testing a single variable or factor is also the main objective of grounded theory. Grounded theory is theory discovered or generated from data, rather than being abstract or tentative. It is developed by entering the fieldwork without a hypothesis, describing what happens, and then formulating explanations as to why it happens on the basis of observation (32). Glaser and Strauss suggest that there has been too much emphasis on testing theories and that research generating theory should go hand in hand with theory verification (33).

The research was in essence exploratory, and aimed to use the rich detail collected, plus anecdotal evidence, to build up explanations of how and why difficulties occurred and were tackled. However, it had a well-defined focus and was essentially practical in its aims unlike grounded theory. The case study approach is complementary to the practical philosophy behind the IHD Scheme, and seemed an appropriate way to record and analyse what actually happened during the design and implementation of a sales and marketing DSS; particularly to capture the influence of organisational factors on the system development process.

1.3.3. RESEARCH METHOD

With these aims in mind, the main research method employed during the project was one of action research with the emphasis on participation by the researcher in the project. In this sense, the approach could be described as an extension of the participant observation approach where the researcher is part of the proceedings

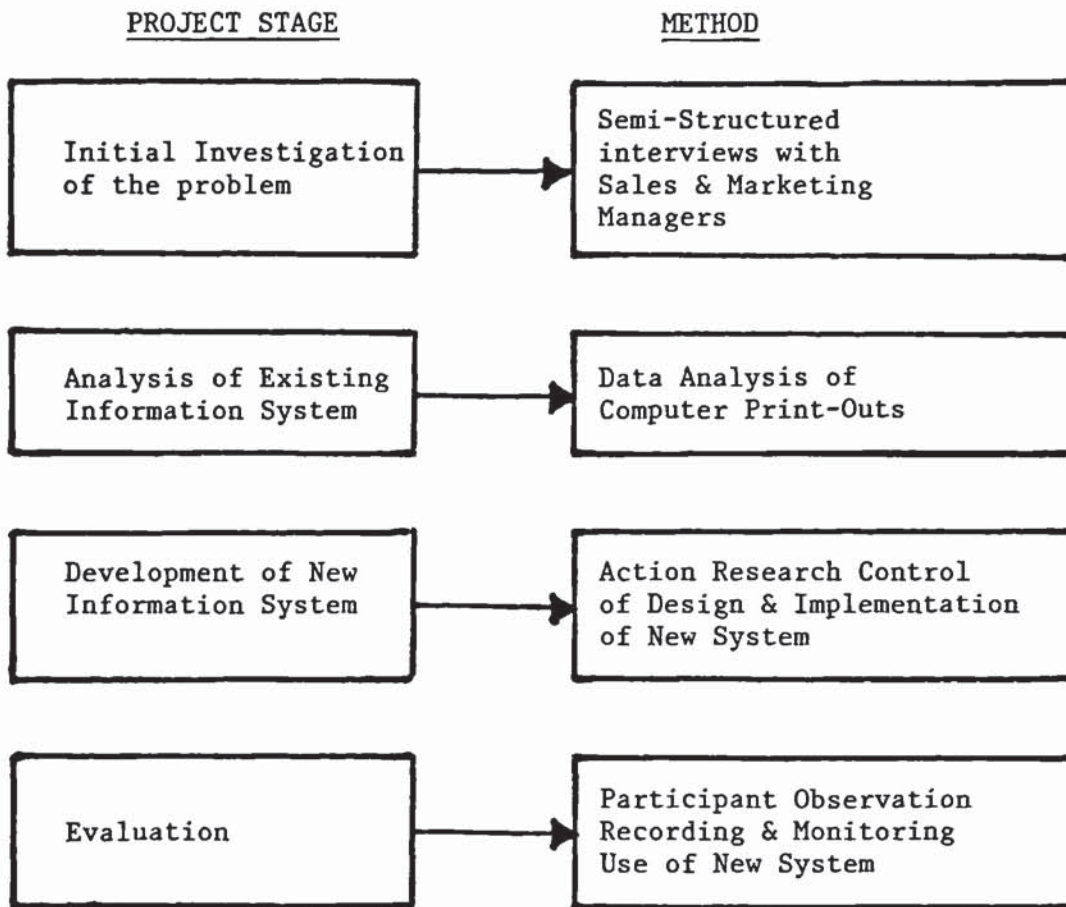
but does not influence them directly. During the project, other research techniques were also used including participant observation, semi-structured interviews, and data analysis. Figure 2 illustrates how different techniques were used at different stages of the research.

The main characteristics of the action research approach were summarised by Warr as follows (34):-

- (i) Action research is change-orientated, with a strong emphasis on intervention to alter and improve an operational system. In this way, not only are practical goals achieved, but more is learnt about people and organisations.
- (ii) The action researcher is closely involved in the change process and is able to acquire knowledge and understanding that would otherwise be unavailable.
- (iii) Action research is theory-orientated and aims to reduce the gap between research and its applications.
- (iv) Roles and relationships change over time so the role of the researcher and the subjects of the research may need to adapt.

FIGURE 2

RESEARCH METHODS EMPLOYED DURING THE PROJECT



The features of this method appeared particularly relevant to the research situation. The Company wanted to see an improvement in marketing support which implied that some degree of change was to be anticipated. Resource constraints meant that the researcher would be responsible for co-ordinating the development of a new information system, rather than merely observing an internal or external systems analyst undertake the work. The close involvement with the Company meant that the researcher was able to monitor the influence of organisational factors, particularly the influence of the informal information system. Many researchers have stressed the difference between what managers say they do and what they actually do (35,36). This would not be revealed by a questionnaire or interview alone. Questionnaires and interviews may not be truly representative as their snap-shot approach may record what happened but not all that happened, or why. Finally, one of the main issues raised by the literature was the need to find out why the gap between theory and practice was so wide. This study enabled the researcher to observe the effects of changes in organisation structure, personnel and attitudes over a period of two and a half years, monitoring the influence of these organisational factors on the design and implementation process.

However, Warr also suggests four areas of difficulty inherent in the action research method. First, to whom is the researcher responsible? The researcher must be careful not to identify too strongly with particular sub-groups as this will introduce a further element of bias into the research. Second, the boundaries of the project may be difficult to establish and may change throughout the project hindering the successful conclusion of the research. Third,

the researcher may become too involved in the project, with the danger that the members of the organisation have a passive and dependent role. Finally, the tension between action and research may mean that one side suffers at the expense of the other as the researcher attempts to satisfy two masters.

To these difficulties could be added the problem of validity. It is difficult to assess whether all the important variables influencing the research results have been identified and interpreted correctly (37).

Warr concludes that although the action research method can be fraught with difficulties, the benefits outweigh the problems. The nature of this research problem and the need identified for explanatory theory suggests that the action research approach offered the most effective way of contributing to current knowledge, by bringing theory and practice together. Indeed, Land and Kennedy McGregor stressed the importance of understanding the needs of managers and the processes by which they made decisions at a recent workshop organised by Computing (38). They urged that unless these problems were understood and overcome, systems could not be designed or built effectively and it is towards this increased understanding that the IHD research philosophy and action research approach is particularly well-suited.

1.4 THE RESEARCH CONTRIBUTION

The research aims to increase understanding of the following issues:

- (i) What are the main barriers hindering the successful implementation of a sales and marketing DSS for a small company?
- (ii) What are the advantages and limitations of the use of an intermediary with functional rather than technical expertise, to control the design and implementation process?
- (iii) In what way does the organisational context influence the system development process?
- (iv) What approach should a small firm wanting to improve its marketing information system adopt?

1.5 ORGANISATION OF THE THESIS

Having introduced the objectives of the research and established the particular problem areas it addresses in this first chapter, Chapter Two looks at the Company and its requirements in greater detail. The marketing function within the Company is reviewed and the lack of adequate marketing information is identified as one of the Company's main problem areas. The internal information system,

including the existing sales analysis system, is investigated to identify the reasons behind this lack of information.

Chapter Three reviews the literature of MIS in general, and of marketing information systems in particular. An appraisal of current approaches to the development of MIS and DSS, shows that although many of the criticisms directed towards the original management science influences have been addressed, none of these fulfill the needs of small firms.

Having identified the need for a specific approach for developing marketing information systems in small companies, the role of the Information Co-ordinator is introduced as one way of achieving this. Chapter Four outlines the method used in the case study company and describes how it was put into practice, focusing on the nature of the obstacles encountered and how these were tackled.

In Chapter Five the effectiveness of the DSS as a marketing tool is assessed as two practical marketing exercises are described in detail. The limitations and contribution of the DSS are analysed and the influence of the informal approach to planning within the Company is highlighted.

Chapter Six returns to the evaluation criteria set-up at the beginning of the DSS development cycle and uses these to review to what extent the system objectives have been achieved.

The implications of the research results are appraised in Chapter Seven, focusing on the role of the Information Co-ordinator throughout the stages of development. The contribution of the research findings with regard to current theory on the use of an intermediary, user involvement and the effects of organisational changes is discussed. This leads to a review of the systems development method, and a checklist of practical advice for a small firm intending to develop a marketing information is presented.

Chapter Eight summarises the achievements and main conclusions of the research and identifies areas for future research which will build on these.

1.6 CHAPTER REVIEW

Having identified the main obstacles to the successful implementation of marketing information systems, the use of an intermediary with functional, rather than technical, expertise is put forward as one way of overcoming these obstacles. The action research approach, in a detailed case study, is chosen as the most appropriate way of testing this, given the practical aims of the project. The practical nature of the project suggests that the main contribution of the research will be case material to increase understanding of what actually happens during the design and implementation of a marketing information system in a small company, and a specific test of the use of an Information Co-ordinator as an intermediary.

CHAPTER TWO

THE COMPANY: BACKGROUND AND PROBLEM ANALYSIS

2.1 CHAPTER INTRODUCTION

This chapter begins by introducing the Company and its products in more detail, in order to set the organisational context in which the research took place. The Company's approach to marketing is assessed, leading to an analysis of the existing sales and marketing system within the Company. This aims to establish what information the Company lacked and why the current information systems failed to provide it.

2.2 BACKGROUND

Established in 1846, the Company was founded by two Quaker brothers and was one of the first to introduce the factory system in Coventry (39). Originally producing silk ribbon and fancy trimmings, the Company survived the effects of the Free Trade Bill of 1860, which allowed an influx of cheaper French ribbon into England, and entered the 20th century as one of the main employers in Coventry manufacturing woven labels, trimmings, hat ribbons and nametapes as well as fashion ribbon. The Company also survived after major damage during the bombings of World War II meant that all of its weaving capacity was either destroyed or damaged and half the workforce had to be made redundant (40).

The 1970's saw the Company under pressure once more, with a successful take-over bid by a textile holding group replacing family control. This was followed by the severe recession in the textile trade which reduced total capacity by 30% during 1979 and 1980 with the loss of 155,000 jobs in the textile industry. This had serious consequences for the industrial side of the Company's business. However, it had already begun to exploit its traditional weaving skills and had not only diversified into weaving silk pictures, but had also begun a highly innovative project to harness micro-processor technology to the weaving of nametapes. The successful completion of this project in 1980 turned this specialist, labour intensive process, into a highly efficient order-entry and production system, reducing delivery time from 8 weeks to 10 days.

The 1980's presented the Company with a new challenge. Although it had emerged from the recession with a leaner, fitter operation, competition in both its traditional and new market areas was fierce and the Company needed to consolidate its position and begin to grow again.

2.3 PRODUCTS AND MARKETS

At the beginning of the project period the Company was manufacturing the following range of products for a variety of markets as illustrated in figure 3.

FIGURE 3

PRODUCTS AND MARKETS - JULY 1981

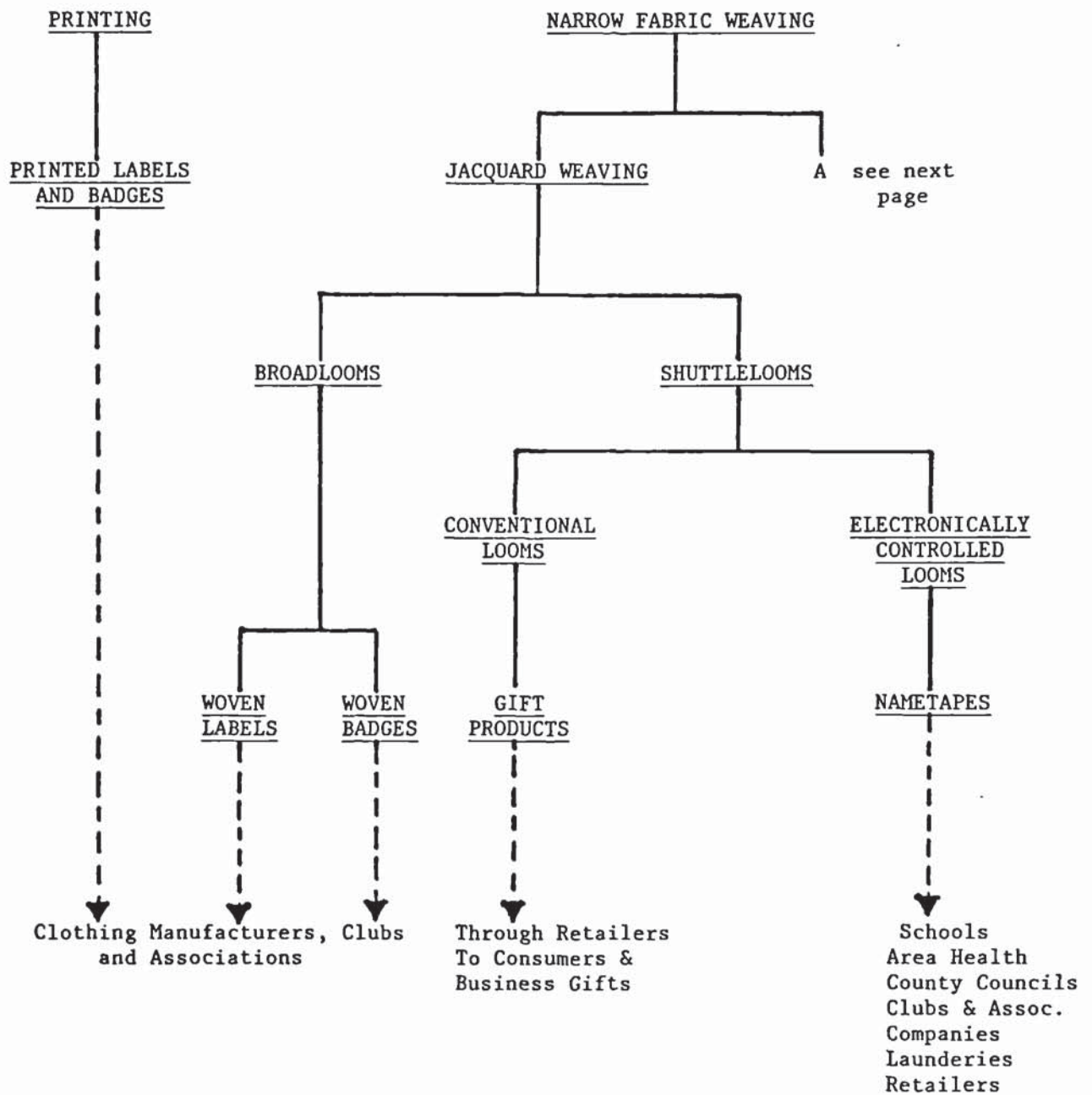
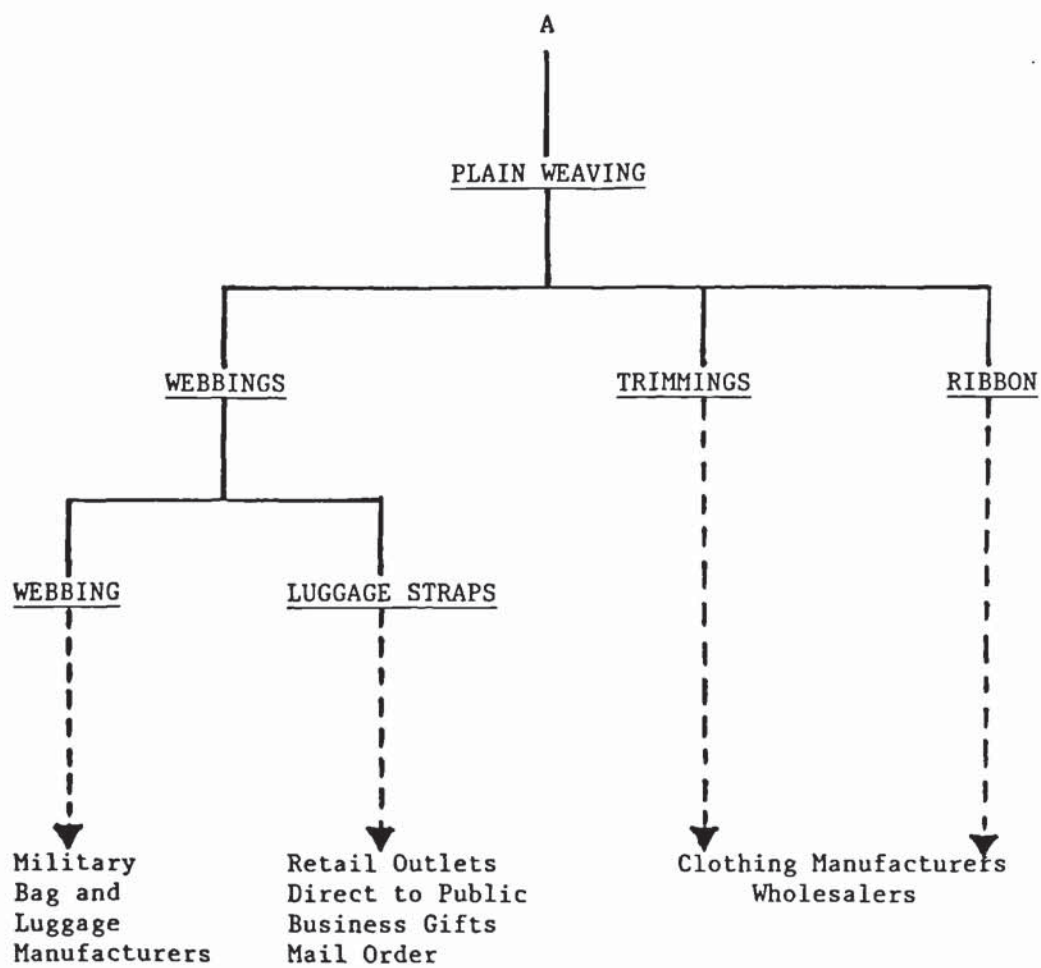


FIGURE 3A

PRODUCTS AND MARKETS (Cont)



2.3.1. WOVEN LABELS AND BADGES

Jacquard woven labels and badges were produced on a custom-made basis to customer specifications. This was a complex process which entails creating a detailed draft from the original sketch or design from which a set of punched cards was prepared. The cards carrying this information were then fed over the top of the loom and control the warp and weft threads to weave the specific pattern required. Orders were generally received from clothing manufacturers or large associations as the minimum order quantity was high (10,000 labels) to cover the costs of preparing a draft, cutting cards and setting up a loom.

Close relationships with clothing manufacturers, a reputation for service and quality, and competitive prices and lead times were critical factors in winning and retaining customers. Although a label might only represent a small part of the final garment, if it was late or incorrect, production of a whole line could be held up. The Company were a well-established industry supplier, and this product group traditionally provided the largest part of its turnover.

2.3.2. RIBBONS AND WEBBINGS

Ribbons and trimmings were part of the Company's original product line, being sold direct to retail outlets throughout the country. In 1973 an agreement was reached with a major wholesaler to supply standard shades and widths to them and cease supplying the retail trade direct. This wholesaler accounted for 25% of ribbon sales. The

Company also supplied ribbon to clothing manufacturers, dyed to their requirements. More recently, the ribbon looms had been successfully adapted to weave a higher value product, webbing, and this was sold to the fashion trade for bags and belts.

In addition, the technological advances achieved with the nametapes production were being harnessed to the webbing looms. A microprocessor controller instructed the loom to weave characters or letters into a strip of webbing, and this facility had been extended to produce a a webbing luggage strap which could be made to order for an individual with his name or initials, made as a standard luggage strap carrying the word 'BAGSTRAPPER', or custom-made for a company with its name, brand name, or logo.

2.3.3 PRINTED LABELS

The Company had run a small-scale printing operation in-house for about fifteen years. The majority of its turnover was produced by printing labels for clothing on to Fasco, a high quality american fabric, for which the Company was the sole licensee in the U.K. Its market was essentially the same as the market for woven labels, although the high speed turnround of orders required in the printing business meant that the operational side was significantly different.

2.3.4 GIFTS

In 1975, the Company launched a small range of woven silk pictures, sold as a gift line to exclusive gift shops. Early success meant the

range mushroomed, and by 1981, 110 pictures were in the collection, plus an extensive range of bookmarks and other gift items which incorporated a woven piece. The Company had also produced some custom-made pictures as business gifts or commemorative items.

2.3.5. NAMETAPES

The Company had been producing nametapes for almost a century and it was this product that had made the Company a household name. Originally the nametapes were woven using sets of jacquard cards which had to be assembled for each different name. Consequently 40 staff were employed in the operation and delivery time was 6-8 weeks. Two years ago, the completion of a sophisticated order-entry and production control system meant that the looms were now controlled by microprocessors; this eliminated the need for jacquard cards, reducing the staff from 40 to 1 and delivery time to 7-10 days.

Nametapes were sold primarily to identify school clothing, but over the past few years, different types of tapes had been introduced, and these were sold to Area Health Authorities for long stay patients, County Councils for childrens' homes, clubs and associations for identification and hotels for marking laundry.

2.4 MARKETING OPERATIONS WITHIN THE COMPANY

2.4.1 DEFINING MARKETING

Before looking at the marketing operations of the Company in detail, it would be useful to begin with a comprehensive definition of the term "marketing".

In 1976 Kotler orientated his definition of marketing towards human behaviour describing it as:-

"Human activities directed at satisfying needs and wants through the exchange process" (41).

The Institute of Marketing has a short, clear definition:-

"Marketing is the management process responsible for identifying, anticipating and satisfying customer requirements profitably" (42).

Leavitt proposes that marketing success is achieved by winning and keeping a customer, with the problem being that conditions under which consumers buy change, and the company must react to those (43).

These definitions put the emphasis firmly on developing products and services in response to consumer needs, rather than attempting to find customers for products developed internally as in a production-orientated company.

2.4.2 THE SALES AND MARKETING FUNCTION

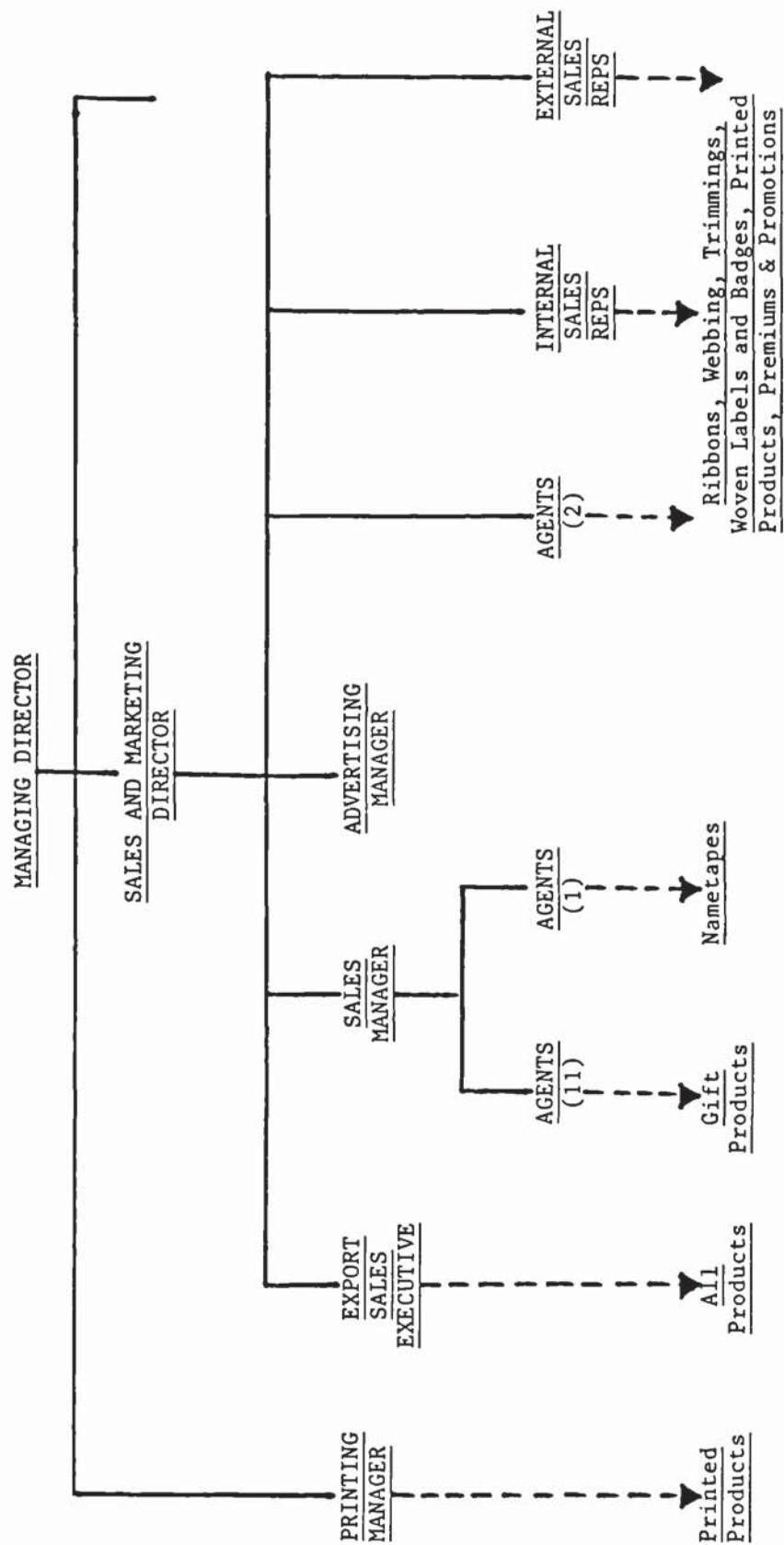
Overall responsibility for the Company's marketing operation was held by the Sales and Marketing Director. He was directly responsible for the sales and marketing of woven labels, badges, ribbons and webbings. The sales and marketing of nametapes and gifts, exports, and printed labels, were controlled by three managers who reported directly to the Sales and Marketing Director, as the organisation chart in figure 4 illustrates.

The sales of woven labels, badges, ribbons, webbings and printed labels were handled by two external sales representatives, one of whom specialised in the sales of ribbons and webbings, and the other in woven labels, badges, premiums and promotions (business gifts, advertising material, etc). These representatives followed up enquiries, called regularly on large customers and dealt with specific problems. Two internal sales representatives operated on similar lines, with one specialising in ribbons and webbings and the other in labels and badges. A third internal sales representative handled printed label sales exclusively, and reported to the Printing Manager. The sales for all the products in Scotland and N Ireland were handled by two agents who had been associated with the Company for many years. The organisation chart in figure 4 illustrates the allocation of responsibility for the various products.

The sales representatives did not have individual targets or area responsibility but earned commission if product sales targets were

FIGURE 4

ORGANISATIONAL CHART: SALES AND MARKETING - JULY 1981



attained i.e. total sales for woven labels, badges etc. There were no targets for number of calls, new business or top accounts. The sales representative responsible for generating premium and promotion business received commission on any orders she gained, and also exhibited at an annual Premiums and Promotions trade show.

No other trade shows were attended or advertising undertaken on a regular basis, although a large mailshot of 7,000 textile companies had just been completed (July 1981).

The gift products were sold through a team of agents, who were not directly employed by the Company but were paid on a commission-only basis. No consumer advertising was undertaken but the Company exhibited at several regional and national gift shows, supported by some trade advertising.

The manager for gift products was also responsible for the sales and marketing of nametapes. Only one agent was employed on this product line, based in the south-east. Orders were generally received directly from an extensive network of retail outlets. Once again, promotion was limited to exhibiting at one major trade show and trade advertising, although in the past regional advertising had been undertaken.

Exports for all the Company's products were handled by the Export Manager with gift products providing almost half the Export Department's turnover. Export sales of nametapes were minimal, although some potential had recently been identified in Scandinavia.

Sales of woven labels and badges were mainly concentrated in Eire and were controlled by the internal sales representatives, with the Export Department handling the documentation.

2.4.3 MARKETING ANALYSIS

Each of the Company's product groups faced increasing competition leading to low growth rates and profit margins. However, the Company had harnessed its technological ability and textile expertise to produce several innovative ideas which had the potential to combat these challenges if effectively marketed.

Sales of woven labels had been falling as the effects of the recession in the textile industry made competition intense and price-cutting common. A phase of investment had just been completed to install new equipment which allowed increased production flexibility and improved capacity. Consequently marginal orders had been accepted to ensure that overheads were covered. The need to return to profitable trading meant increasing business with existing customers, winning back former customers and carefully fostering new ones. Development of a computer-aided design system was underway which would significantly improve the time required for designing, drafting and card cutting, so the Company needed to be prepared to exploit the commercial advantage that it would gain from this.

Its knowledge of the textile market was an asset the Company was trying to exploit to build up printed label sales, particularly the close ties which had been built up over many years with Marks and

Spencer plc -a dominant influence on the UK textile industry. This product group had never developed satisfactorily and was giving cause for concern, particularly as up-to-date figures on the printed label market showed that the Company had not benefitted at all from the high growth rate experienced by the industry in general. However, a new Sales and Marketing Manager had been appointed for this product group, who was also responsible for production, and improving quality and delivery times.

The Company had used its weaving and design skills to develop a range of woven pictures which had been very successful initially. By setting up a retail distribution network for these pictures, the Company had also reduced its dependance on the textile industry. However, sales growth had declined and excellent sales of a set of bookmarks commemorating the Royal Wedding, masked an actual decline in the sales of standard pictures and bookmarks. New subjects being introduced at the annual trade fairs were not achieving the same popularity and stocks were rising. Price increases were amplified by the addition of high retail mark-ups. This meant that the price of a picture in a shop had risen by 60% during the last three years.

In 1981 a rationalisation programme was underway and new products to revitalise the range were being sought. New agents were being recruited and some point of sale display material was under development. Export markets were being developed, particularly in the Far East and Canada. The Company was also experimenting with personalised fabrics, a new product opportunity afforded by its new

woven label equipment, which could be sold as co-ordinated bags and accessories.

Changing fashions had reduced demand for ribbons and trimmings, but the Company had already adapted some of its looms to manufacture webbing. This now offered the opportunity to move into the military or high specification webbing market. If all the testing and quality control procedures could be met, high value, long-term contracts could be gained. In addition, the personalisation skills developed in the nametape product group were applied to the manufacture of webbing and personalised webbing products had also been developed. These new product opportunities had only been available for about five months and plans to exploit their full potential had not been finalised. The introduction of consumer products for this section once again reduced dependence on the textile industry. Sales through the Company's nametape and gift product outlets had not proved a success initially, so sales through mail order catalogues and direct response were under consideration.

Sales volumes of nametapes had been static for the past two years and the Company was still heavily dependent on the school market as sales to other markets had not reached a significant level. Once again, using its production and personalisation expertise, the Company had developed a new type of nametape, which could be aimed at the market segment not covered by traditional woven labels- small businesses. A new method of sales for this product was required as the current retail network was not appropriate. Modern technology meant that the Company could now look at expanding the export market

for nametapes, using electronic mail to transmit high volumes of orders.

2.4.4 MARKETING EFFECTIVENESS

An assessment of the Company's strengths and weaknesses in marketing suggests that whilst the Company had intuitively exploited its technical and innovative abilities, it had not been effective in anticipating or reacting to changes in its markets.

The boom in sales of printed labels went unexploited by the Company and changes in fashion away from the use of trimmings and fancy ribbons, compounded by the cost-cutting measures pursued by the garment trade in the recession, had left the Company with high stocks of obsolete lines and over-capacity.

On the consumer products side, after their initial success, the woven pictures appeared to be losing their appeal. This suggested that market conditions had changed and the Company had failed to adapt its product and pricing policy accordingly. A decline in its traditional market due to the falling birth rate, had been anticipated for nametapes. The basic product had been adapted for use by other groups so that it would appeal to a wider market of clothing identification in general. However, this diversification policy had been slow to achieve any significant sales levels and the Company was still firmly dependent on the school market and the retail trade.

One of the main factors hindering the Company in improving its effectiveness in this area was a lack of adequate marketing information. The length of service and experience of the Company's managers meant that their marketing information was obtained primarily from informal sources; close contacts with trade sources, major customers and retailers, and visiting exhibitions. This meant that their external information was restricted to those markets in which they had been operating for many years. Little market research had been undertaken. Two surveys on nametapes had been commissioned, one to look at childrens' clothing identification in general in 1979, and one assessing the potential for exporting nametapes to the U.S.A. in 1978. One survey on consumer attitudes to woven pictures had been undertaken in 1978. The most recent piece of research had been done in-house and consisted of analysing nametape orders to identify type of school attended, sex of child, most popular styles and colours. Market share figures for labels and badges, ribbons and webbings and printed labels, had been collected up until 1978, when staff cuts meant that this task was no longer undertaken.

The Company's sales operation had become more complex but marketing information for the new products, new distribution channels and new market areas was unavailable. It was impossible to tell from webbing sales figures how much had been sold as luggage straps for promotion purposes, as opposed to plain webbing sold by the metre to bag manufacturers. It was difficult to assess how important the new mail order accounts were for nametapes or whether sales of bookmarks were up or down on the same period last year. Profitability was also difficult to assess as the only costs available were standard rather

than actual. Annual accounts did not show actual profits for different products, but showed the contribution of each product group to overheads after deduction of direct costs from sales turnover. The profitability of sales to different customers, different distribution channels or varying order sizes was impossible to assess.

A further factor hindering the Company in responding to market developments was the increasing complexity of its sales and marketing operation as new products and markets were developed. In addition to illustrating the allocation of responsibilities in the Sales and Marketing Department, figure 3 also shows how some areas of the business were fragmented, whereas others overlapped, causing additional control problems. Webbing could be sold as an industrial product, a technical product to the military market, a consumer product through the retail trade, or a personalised product direct to the consumer. Conversely, woven labels, badges, printed labels and ribbons were all sold to clothing manufacturers.

The wide range of responsibilities of each of the sales and marketing managers meant that little time was available for medium or long term planning. The Sales and Marketing Director, for example, had to assist in selecting new products for the gift range, liaise with major customers for labels and badges, plan direct response advertising for the Personalised Luggage Strap (P.L.S.), control internal and external sales representatives and liaise with production on quotes for large contracts. The Sales and Marketing Manager for gifts and nametapes also found his efforts thinly spread and had to concentrate on short-term problems. The long-term objectives of the

Company were not expressed in a formal plan or statement. However, if specific goals and strategies had been made explicit, it would have been impossible for the Company to monitor its progress towards its targets as the only formal control measures were financial budgets which consisted of sales turnover targets and expenditure limits.

In 1981, the organisation structure was under discussion by the board so the main priority appeared to be to provide improved marketing information.

2.5 THE EXISTING SALES AND MARKETING INFORMATION SYSTEM

A detailed investigation of the existing information system operating within the Company was carried out to establish what information was missing and why this information was difficult to obtain. The existing information system consisted of both formal and informal elements. Formal elements included manual records, management accounts, annual budgets, and a computer-based sales analysis system. Informal elements included ad hoc reports and analysis undertaken by managers which were not formally issued or distributed within the Company. At this stage the investigation concentrated on the formal system.

At first sight the formal system looked comprehensive. Targets for each product group were set up in the annual budget and a weekly sheet produced from the management accounts gave product sales vs budget throughout the year. Manual records of all orders received were kept on customer record cards for the textile products. Customer order

forms were filed for gift orders. Invoice details were listed by the Export Department. The number of nametape orders received daily was entered into a large black book kept in the Sales Department. Area, sales representative, and product sales information was contained in the sales analysis reports produced by the Computer Department.

However, trying to find the answers to some basic questions of who, what, where and when, revealed considerable inadequacies in the system. Annual budgets gave little indication of how or where increased sales would be generated. The weekly sheet produced by the Accounts Department did not show where sales had come from and it did not give any indication of why any difference between actual and targeted sales had occurred. The data recorded on the manual system was used only to answer invoice queries or specific customer queries. It was not manipulated or aggregated to provide information for decision-making except in the case of the nametapes black book which was used to monitor sales volumes. The sales analysis reports did contain information on areas, sales representatives, and products, but attempts to use these for analysis and planning purposes revealed several difficulties.

First, volume sales of individual products, for example the robin picture, were available but were not summarised to give product line sales -sales of all birds for instance. Consequently it was a laborious task to calculate how many pictures had been sold last year, or how many labels had been sold. On the other hand, although sales value for a product group was available for textile products, it was impossible to assess what percentage of that turnover was contributed

by stock lines, as opposed to custom-made products, without additional calculation. In the case of webbings, it was impossible to tell what percentage of sales lettered luggage straps represented, without going through each order received.

Second, as customer information was presented in value only, it was impossible to tell how many items a customer had bought during the last year, for example, how many needlecases or boxes had he purchased.

Third, product sales within an area were not available, so it was impossible to tell if Supertapes sold better in one area of the country rather than another, or if one particular agent was not gaining distribution for a new product.

Fourth, sales through various distribution channels or to different market sectors, were impossible to ascertain; for example, what percentage of gift sales came from department stores, or how important were sales of nametapes to area health authorities? No "this year/last year" comparisons were provided, so the figures on their own did not convey any real meaning.

At a minimum this sales analysis system should have provided a comprehensive record of sales by product, product group, area, customer, distribution channel and market sector. It should have enabled the sales and marketing managers to monitor performance, identify trends and problems and measure actual sales growth. Table 2 summarises the basic elements and combinations of sales data required

TABLE 2
ANALYSIS OF AREAS WHERE BASIC SALES INFORMATION
IS DIFFICULT OR IMPOSSIBLE TO OBTAIN - JULY 1981

Sales Information Requirement	Types of Information Unobtainable
Sales Value	By Product Line By Distribution Channel By Customer Type By Market Sector
Sales Volume	By Product Group By Area By Distribution Channel By Customer Type By Market Sector
Customer Sales	By Product Group By Distribution Channel By Customer Type By Marketing Sector
Area Sales	By Product By Product Group By Distribution Channel By Customer Type By Market Sector
Distribution	No Information Available
Market Sector	No Information Available

to achieve this and highlights those which were unavailable or difficult to obtain. A closer examination of the sales analysis reports produced several factors which help to explain this. All but one of the reports produced by the sales analysis system were lengthy documents as details of all the products were contained in every report. Figure 5 lists the reports and shows the number of pages contained in each. 400 to 500 pages was the norm.

All the reports contained a high level of detail, with no summaries or intermediate totals. One report showed every colour of ribbon taken by a particular customer and if a robin or blackbird picture had been purchased. Another listed volume sales for all the Company's products in such detail, that to find the monthly sales of the Collector range of bird pictures entailed manually adding sales volumes for each month for the 34 birds in the range. The reports also contained details of carriage charges and sundry sales such as the public telephone revenue.

Finding certain products within the reports also presented difficulties as the reports were split into two sections, manufacturing customers and retail customers. This split was no longer relevant as the company had undergone substantial restructuring in August 1980, one year after the sales analysis system had been completed, and was no longer organised into manufacturing and retail sections. This meant that the presentation of sales data had become confusing. Ribbon sales for example, appeared in both halves of the report as ribbon was sold both as a custom-made product to manufacturers and also as a stock product to a wholesaler. Bespoke

FIGURE 5

EXISTING SALES ANALYSIS REPORTS - JULY 1981

<u>REPORT NAME</u>	<u>CONTENT</u>	<u>LENGTH</u> (No. of Pages)
SAL 6 AREA SALES	MANUFACTURING RETAIL NAMETAPES	200 580 680
SA02 AGENTS SALES	RETAIL	4
SA03 PRODUCT LINE SALES	ALL PRODUCTS	400
SA04 CUSTOMER SALES	MANUFACTURING RETAIL	100
SA05 PRODUCT SALES	ALL PRODUCTS	400

woven labels appeared in the manufacturing section and stock labels, (size marks, material contents etc.), appeared in the retail section. The person responsible for the sales of stock and bespoke labels only received the manufacturing part of the report and did not know that any information on stock labels existed.

The change in organisation structure also affected the distribution of the reports and meant that whilst some managers received copies of all the print-outs, some did not receive any. The Sales and Marketing Manager for gifts and nametapes received the retail part of the reports and consequently had all the details of stock ribbon sales, stock label sales and any wholesale badge sales. There were no separate reports for exports and neither the Export Manager nor the Printing Manager received copies of any of the reports. Figure 6 shows the organisation chart and distribution of the reports.

The report containing information on product sales grouped all the Company's products together by their product code. However, extracting information for any one group of products was not an easy task as the codes appeared alphabetically and this did not necessarily correspond with the way the products were grouped together in the organisation. Sales of woven labels and badges had always been grouped together as they were manufactured on the same looms. They were essentially the same product but differentiated by the way they were finished, so each had a different product code. In trying to assess the total product sales of labels and badges, badges (B), appeared first on the print-out, followed by gifts, (F-Fine art woven pictures), then the bespoke labels under (L), and finally stock labels

FIGURE 6

EXISTING SALES ANALYSIS SYSTEM - JULY 1981

DISTRIBUTION, LENGTH, FREQUENCY

<u>TITLE</u>	<u>REPORT NAME</u>	<u>LENGTH</u> (No. of Pages)	<u>FREQUENCY</u>
<u>SALES DIRECTOR</u>	SAL6	MFTG 200	MONTHLY
		RETAIL 580	MONTHLY
	SA03	400	6 MONTHLY
	SA04	100	QUARTERLY
	SA05	400	QUARTERLY
<u>SALES MANAGER</u>	SAL6	RETAIL 580	MONTHLY
		NAMES 680	QUARTERLY
	SA02	4	MONTHLY
	SA05	400	QUARTERLY
<u>ADVERTISING MGR.</u>)		
)		
<u>EXPORT MANAGER.</u>) NO REPORTS RECEIVED		
)		
<u>PRINTING MANAGER.</u>)		

would be found under the code for stock woven and printed labels (PW).

The accuracy of the figures presented in the reports also gave cause for concern, particularly as they did not correspond with those contained in the management accounts. Exports sales figures were not extracted from any of the reports so this department generally relied on their manual records for most purposes. On several occasions, the Export Department refused to accept the areas sales figures for their various agents around the world as shown on the print-outs, as they did not correspond with their own manual records.

As liaison between the Computer Department and the Sales and Marketing Department was minimal, little had been done to overcome these difficulties. Discussions with both departments suggested that this could be traced back to the original design and development stage of the system. The Computer Department claimed that they had tried to involve the sales and marketing managers at the beginning of the project, but had found that they were unable to specify their requirements clearly and did not seem to know what they really wanted. The sales and marketing managers claimed that it was impossible for them to tell the Computer Department what they wanted as they had no idea of what they could have. All the managers were unfamiliar with computer technology and ill-at-ease with its surrounding jargon. Consequently, the sales analysis system was developed with minimal input from its future users. Once complete, it was not properly introduced. A memorandum was issued which outlined the contents of the reports, but no attempts were made to see if this had been understood.

The report most frequently used by the Sales and Marketing Department had in fact, been amended from an original report under pressure from the Sales and Marketing Director. However, it was far from easy to use, and any personnel trying to use it found it frustrating and cumbersome. The other reports remained unused and largely unknown. When SAL6 was not published for two months no-one noticed, and even when the answers to simple questions could have been provided by the reports, sales department personnel had no idea where to find them, for example the sales of gift products to Harrods store during the year, or which customers had bought Marks and Spencer labels.

2.6 CHAPTER REVIEW

The analysis of the Company's sales and marketing operation suggests that its effectiveness was being hampered by a lack of adequate marketing information. The investigation of the Company's internal information systems revealed that although much of the information needed was being collected, it was not being collated or analysed to enable it to be used for marketing planning and control purposes. The existing sales analysis system was found to be particularly inaccessible, with the result that it remained virtually unused by the sales and marketing managers. The lack of liaison between the Computer Department and the Sales and Marketing Department was identified as one of the major factors in the failure of the system, and it also hindered any progress towards improving the situation.

CHAPTER THREE

LITERATURE REVIEW

3.1 CHAPTER INTRODUCTION

In this chapter, the background theory to the development of marketing information systems is examined in order to assess its relevance to the needs of a small firm faced with the task of attempting to improve its marketing support.

A short introduction to the concepts behind information systems for management is followed by a detailed discussion on current ideas on the development and use of marketing information systems. Finally the characteristics of small firms are highlighted and their implications for information systems design and implementation assessed.

3.2 MANAGEMENT INFORMATION SYSTEMS

The use of a computer offers an effective way of providing increased information to support management decision-making, through the systematic collection, analysis and presentation of timely information.

King suggests that improved managerial decision-making will be accomplished by providing managers with information that will not only permit them to take better decisions, but also to take advantages of opportunities they might otherwise have missed (44).

Simon divided decisions into two types, programmed, and non-programmed, arguing that it was the lack of information which distinguished between problems requiring decisions (45). Where all the variables are known and outcomes can be predicted with certainty - such as inventory re-ordering - decisions can be programmed. At the other end of the scale, decisions such as hiring managers or selecting promotion material are basically dependent on human judgement. Lack of information means that the possible outcome of a decision or even the variables influencing that decision are unknown. Keen and Scott-Morton related this concept to problem-solving in general, by using the terms structured and non-structured (13). In between these two extremes, they added a third classification, semi-structured decisions, for which information relating to part of the problem is well known but the final decision is a subjective one - for example, setting marketing budgets.

Gorry and Scott Morton (46) developed a framework which provided one way of classifying information systems which incorporates Simon's three types of decision with Anthony's definition of management activities (47). He classified management activity under three simple headings:

STRATEGIC PLANNING.

" the process of deciding on the objectives of the organisation, on changes in these objectives, on the resources used to attain these objectives, and on the politics that are to govern acquisition and disposition of resources " (47).

MANAGEMENT CONTROL

" The process by which managers assure that resources are obtained and used effectively and efficiently for the accomplishment of the organisation's objectives"

OPERATIONAL CONTROL.

" The process of assuring that specific tasks are effectively and efficiently carried out "

Table 3 shows how using these two concepts together can provide a framework for classifying information systems and gives examples of management tasks in each category and the type of support required. In this taxonomy the bulk of marketing planning and control decisions would fall into the class of unstructured, management control activities.

The uncertainty surrounding a decision can be reduced by the provision of additional information. Simon proposed that as understanding of management problems grew, this would lead to more structured decisions as their outcomes could be more easily predicted.

TABLE 3

A FRAMEWORK FOR INFORMATION SYSTEMS: EXAMPLES OF MANAGEMENT TASKS

Type of Decision/ Task	Management Activity			
	Operational Control	Management Control	Strategic Planning	Support Needed
Structured	Inventory reordering	Linear programming for manufacturing	Plant location	Clerical, EDP or MS models
Semistructured	Bond trading budgets for consumer products	Setting market analysis	Capital acquisition	DSS
Unstructured	Selecting a cover for Time magazine	Hiring managers	R & D portfolio development	Human intuition

SOURCE: KEEN & SCOTT-MORTON (13)

3.3 MARKETING INFORMATION SYSTEMS

Recent literature on marketing information systems has tended to focus on the need to structure the decision process in order to allow provision for increased support for decision-making

Management Scientists have argued that the development of a computer-based information system and in particular, the development of mathematical models, can help to structure a decision by making managers think rationally about why and how the decision process works. Although use of a model to represent the decision process cannot give the right answer in every case, it should give managers a new insight into the problem and help reduce uncertainty about the outcome of decisions.

Kotler has outlined the benefits of this approach to the marketing situation where companies now have large marketing budgets, yet many decisions are made in the face of substantial uncertainty (48). He suggests that the current way in which companies tend to cope with the complexity of the marketing situation has significant weaknesses. Many firms rely on the experience of their managers which can lead to difficulties when several managers are working on the same problem, as each person's experience is unique. Standard operating procedures and company guidelines, such as historical ratios of advertising to sales, may have been relevant when originally introduced, but may not be applicable to every situation. Even relying on seemingly objective facts, for example market research reports and predictions of consumer preferences, may not always relate accurately to actual behaviour.

Finally, all marketing executives have their own theories and internal models, but attempts are rarely made to exploit the benefits that would be gained by integrating these into explicit statements which can be shared. He suggests that even if the data required for a model are difficult to obtain, marketing models provide a useful insight into the marketing process. Better decisions may be reached through the use of simple but robust models requiring some judgmental input, where alternative sets of assumptions can be exploited. In particular they allow the effects of manipulating variables, such as advertising distribution, to be tested in advance.

As early as 1966, Kotler suggested that the increasing complexity of a company's business environment meant that an efficient marketing information system was becoming essential (49). Intensifying competition, frequent product changes, and complex and shifting customer wants had led companies to diversify to spread risk. This led to increasing planning and control problems. Kotler classified marketing information flows under three distinct headings:-

- (i) Marketing Intelligence - information flowing from the environment into the firm such as information on retailers, customers, or competitors.
- (ii) The Internal Information System - this system relays information to appropriate points within the organisation and includes both internally generated reports such as sales analysis and marketing intelligence.

(iii) Marketing Communication - the flow of information from the firm to the environment, by means of promotions, publicity, literature etc.

Figure 7 illustrates the relationship between these information flows.

Whilst both good internal and external information are important, an informal approach to the control of the internal information system may actually hinder external information or marketing intelligence from reaching the right person. It may arrive late, in a form which is unusable or be lost if no storage or evaluation criteria exist. Not only must information flow into an organisation but it must also flow through it. One planned experiment by Albuam (50) illustrated how easily information could go astray, when he arranged with a sample of a company's customers to pass on six pieces of fabricated marketing information to company salesmen. He wanted to discover how fast and how accurately this information would reach the company. Of the six pieces of market information, only two ever reached the company. One arrived in three days seriously distorted and the other arrived 10 days later, although it was still fairly accurate. Albuam summarises the three main problems of an informal information system as follows; the possibility that information may be lost or forgotten, the delay which may occur as intelligence travels to the appropriate point, and the possibility that it may be distorted if it is passed on many

FIGURE 7

MARKETING INFORMATION FLOWS



SOURCE: Kotler (49)

times. The role of the marketing information system should be to transform marketing data and intelligence from a complex environment into information that can be used effectively by the decision-maker. Figure 8 illustrates the course of this process.

It is in this context that mathematical models should play a significant role, by allowing the use of mathematical techniques for optimising certain decisions which involve large quantities of data and numerous calculations. A model is a set of ideas and relationships which describe the way the world is thought to work. Statistics can be used to relate data to models in an attempt to explain or predict outcomes of certain actions.

Data can be analysed to find meaningful patterns or cause/effect relationships by using multi-variate statistical techniques such as multiple regression, which can be used for estimating the influence of a set of independent variables on an important dependent variable. Once a sophisticated model has been developed, it should reproduce the response patterns of the real world. It can then be used by managers to test proposed policies in a simulated environment, to evaluate their effectiveness and find the best possible solution.

Many models have already been developed to varying levels of sophistication in all areas of marketing planning and control, although criticism is still raised regarding the detailed data they require, and the exclusion of important issues such as competitor information.

FIGURE 8

TRANSFORMING DATA INTO INFORMATION

THE ROLE OF THE MARKETING MIS



SOURCE: Kotler (41)

Mumford et al (6) found the most widely known were the following:-

DEMON is a marketing planning model for introducing new products, developed by an advertising agency as an aid to management in evaluating alternative plans. It was based on the adoption approach to new product purchase; the assumption that an individual passes through several stages before buying a new product, moving from awareness, through to interest, desire and ultimately, action. The DEMON MODEL includes the influence of advertising, sales promotion and distribution on expected sales and gives expected profit levels, advising a GO or NO GO decision (51). Urban's SPRINTER is also widely used and gives a similar GO or NO GO decision. It can be used at a highly sophisticated level and includes risk and competitive effects (52).

ADBUDG is one of the most sophisticated advertising budget planning models. Developed by Little, it can incorporate subjective judgement if hard data is not available (53). Little and Lodish's MEDIAC also assists advertising planning with media selection. The model shows how sales levels vary in response to various media schedules and can include market segments and carry-over effects (54).

ADBUDG is a predecessor of an interactive decision support model developed by Little called BRANDAID (55). This model relates sales, distribution and market share to marketing actions. It combines subjective judgements from managers on individual components, integrating them to show the full interactions of price, advertising and promotion.

Alter found that an additional benefit of developing models was in providing a common conceptual basis for decision-making, ensuring consistency between different departments, such as in reconciling production and marketing differences (56).

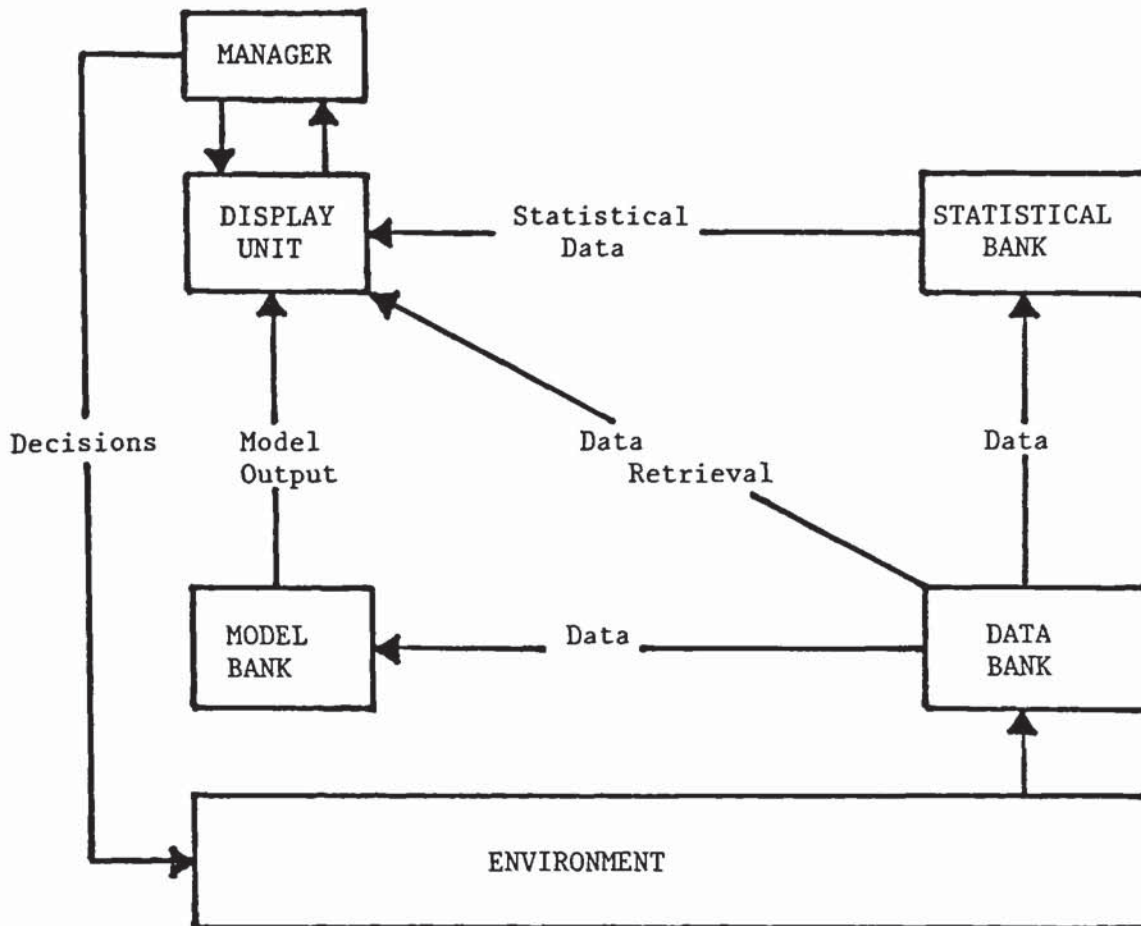
As early as 1970 Urban and Montgomery suggested that a balanced marketing information system should not only include data collection, storage and retrieval, but also take advantage of the benefits of information technology, and combine management science models and statistical techniques with the data to build a system which really did offer support for marketing decisions (57). Figure 9 shows the key elements they felt should be included in a marketing information system: a databank, model bank, statistical bank and communication facility.

3.4 CURRENT THEMES

Whilst many of the concepts inherent in these approaches to marketing management information systems are important, for example the importance of good internal information systems, in reality, the practical achievements of MIS as regards improving management decision-making appear to have been negligible in the field of sales and marketing. Amsutz surveyed 500 marketing executives in the late sixties and found not only general disinterest in MIS, but also a dramatic difference between what was theoretically possible and those systems actually used, and more concern with data retrieval than models (58). Kegerreis's (59) experience during the same period

FIGURE 9

KEY FEATURES OF A MARKETING INFORMATION SYSTEM



SOURCE: Adapted from Montgomery & Urban (57)

showed that although managers were not averse to using computer-produced information, they still preferred to make decisions on intuition and experience. He felt that this would change as managers became more familiar with computers but the results of more current research suggest that, over a decade later, this has not occurred yet. Jobber and Rainbow undertook a similar survey in the U.K., published in 1977 (4). They sent questionnaires to the top 440 industrial companies in the UK and out of 168 replies, only 76 claimed to have a marketing information system, and only 23 possessed model-building and simulation facilities. A small survey by Marketing in 1979 found only 2 firms out of 100 interviewed used marketing models (3). Even as recently as 1982, research by Alloway and Quillard found that 79% of information systems used by 944 managers were only used for monitoring and exception reporting (60).

The early seventies saw many attacks on the management science approach to providing information and techniques to assist with semi-structured and unstructured decisions. Management science appears to have been concerned with decision-making from a normative point of view, using models of how managers should work, rather than taking into account how they actually behave.

Ackoff pointed out that many of the main assumptions behind the development of information systems to help improve management decision-making, showed a lack of understanding of the manager and his role (20). In particular, he questioned the assumption that the manager lacks information. He suggested that the manager often has too much information, much of which is irrelevant. Also he questioned

whether giving the manager the information he needs will improve decision-making. This ignores the fact that there are often too many options in a management decision and also that there are often no rules to say when to stop searching for a better solution (61).

The rules surrounding management decisions are often unrealistic in a business environment, where practical constraints on time and resources mean that the search for the best solution may not depend on the information available but on political and organisational factors. Mumford and Pettigrew's research into the introduction of computer systems into organisations, found that in this situation the entire decision-making process is highly uncertain and dynamic - particularly as the alternatives keep changing (62). The personal characteristics of the participants in the process may also add to the uncertainty, due to conflicts of interest and lack of information. They suggested that the decision process could be seen as a battleground in which the prizes are increase in power, influence, status and security.

Mason and Mitroff suggested that management science had assumed that managers were happy to use rational models and impersonal computer print-outs (61). Argyris took this theme further and suggested that it was precisely this rational approach which managers saw as a threat (63). From his empirical research, Argyris found that the management scientists with the organisation he studied felt they were "unfreezing the colossus and pushing it forward into the 21st Century" (63). They felt they were coercing managers into thinking rationally and had difficulty in hiding their frustration when even simple ideas were not understood.

Grayson views the same problem from the managers' side and argues that Management Science has had very little impact on management in the past and that its contribution has been very small compared with the revolutionary predictions of the sixties (21). He argues that the management science solution to problems is usually unworkable in a practical environment where there is not usually enough time to find the data needed. He felt that management scientists took a long time to generate solutions to problems, concentrating on making sure the techniques are valid and the best ones to use, which is of little use to a manager in a crisis. The complexity of management problems is often overcome by making assumptions which render the model useless.

In 1974, Urban found that only 5 out of the 150 models described in the journal "Interfaces" had ever been implemented (64). The use of management science based models in marketing is still low as a recent article in Interfaces shows (65). A survey by Christy and Watson found that only 24% of the organisations questioned used simulation in marketing areas, as opposed to 59% in production. As the sample was based on 300 non-academic members of ORSA, even the authors admitted that this led to a disproportionately high percentage of firms who are advanced in the use of Management Science being included in the sample. This suggested that a more representative sample would show an even smaller number using management science techniques in the marketing area.

The relationship between the innovator or staff specialist, and line managers has been identified as a critical factor in the transfer

of systems from technical staff to users (66). Several approaches have been developed during recent years which attempt to tackle these issues.

3.4.1 THE PARTICIPATIVE APPROACH

This approach involves potential system users from the beginning, handing responsibility for the design of a new work system to the employees who eventually will have to operate it (67). Participation in systems design can take a number of different forms: Consultative Design, Representative Design, or Consensus Design. Each approach requires a higher degree of participation than the last. Consultative Design leaves the bulk of design decisions with the traditional systems design group, although the objectives they set and the eventual form the system takes is greatly influence by the needs of the user department. With Representative Design, a design group is formed to represent all grades of users in the departments concerned. The task of this particular group is to design a new system of work to fit with the new technology. This work system must provide both high job satisfaction and high efficiency. Consensus Design attempts to involve all members of user departments continuously throughout the system design process.

Having joint objectives of improving efficiency and job satisfaction, this approach is often referred to as the socio-technical approach. The set of techniques put forward to achieve this (68), begin by analysing the "essential system" i.e. the set of operations necessary to carry out the objectives of the

organisation in question. This is then compared with the existing system and an analysis of the variance used to isolate areas of weakness. In this way, the technology can be used to assist in attaining efficient operating procedures. Emphasis on the essential human system is included with this, including job satisfaction, support needs and ethical needs. An effort is made to assess what system requirements may be in the future, estimating changes in the technology, the organisation, the environment etc., consulting not only internal staff but external consultants.

The advantages of this approach are that it captures the whole range of information needs, both formal and informal, and it also emphasises user involvement and needs (69). However, its main benefits seem to be in the area of computerising large scale clerical operations or where the decision environment is a structured one. It requires a great deal of commitment and time on the part of the organisation concerned, particularly as it requires a knowledge of system technology and system design which few managers possess (70). It appears to ignore the fact that managers may be reluctant to get involved in the planning of information systems design themselves, and feel that they have other priorities. Mintzberg's (35) research on management behaviour emphasised that managers spent less time on planning than normative theory on management would suggest, but spent more time in meetings and with their staff. The participative approach therefore appears to offer greater benefit when the system to be implemented involves a large number of staff whose role and job security may be significantly affected.

3.4.2. THE PROTOTYPE APPROACH

This focuses on the learning and organisational change aspect of MIS development and suggests setting up pilot schemes in order to build up the knowledge of the system and eradicate any errors or mis-matching along the way (71,72). Building on the work of Argyris (1), this approach proposes that prototype systems should be set up for exploration and experimentation before the main system is developed. Argyris found that most organisational learning is single loop learning where errors are identified and corrected without questioning any basic organisational norms or objectives. The design and implementation of an MIS usually requires changes in the approach to decision-making, whereas organisational behaviour tends to inhibit this. He suggested that design processes were needed to encourage double loop learning where new attitudes and responses could be learnt and the prototype approach evolved from this.

The expense of developing a computer system usually means that there is pressure to minimise amendments and force acceptance to ensure that the investment starts to pay back as soon as possible. Organisational requirements push projects into the implementation phase too quickly, with the result that systems may be technically sophisticated but not effective. The use of a prototype system builds up knowledge and attempts to discover problem areas before the main system is developed. This can provide an ideal vehicle for participation avoiding some of the problems of the implementation period. Earl also felt that using a prototype would contribute to overcoming the pressure for stability and dislike of system



maintenance, by creating a climate of continuous reassessment in the prototype which would continue with the main system.

However, the prototype approach does not appear to have been widely adopted. This may be due to the time and money needed to set up prototypes when the full scale system might still incur problems which have not come to light in the prototype. Furthermore, the value of a prototype system to a manager may be limited as the benefits that the whole system will provide might not be obvious from a small sample.

3.4.3. THE DECISION SUPPORT SYSTEM APPROACH (DSS)

This approach takes the users' decisions as its starting point, with users and designers working together to provide systems which will assist in arriving at the key decisions and evaluating the outcomes. The emphasis here is on a multi-disciplinary approach, where the criteria for assessing whether the system is a success should be based on whether the user liked it, used it and learned from it, no matter how inelegant or unsophisticated it was (13,16,73).

The DSS approach is more specifically directed towards unstructured decision-making, the type generally undertaken by senior management, where managerial judgement is still essential. By trying to help improve a manager's effectiveness, a DSS often necessitates change. Indeed, Ginsberg suggests that a change in a manager's approach to tasks is intrinsic to successful DSS adoption (74). Consequently, the design team needs to understand, in some detail, the existing decision process and ways of improving it. Although the DSS approach stresses

the importance of participation, it differs in its emphasis on the fact that design, implementation and evaluation are inseparable. Other approaches seem to suggest that if all the factors influencing systems implementation are present, particularly user participation, implementation will be successful automatically.

However, most definitions of DSS bring in the idea of interactive computer systems using analytical and modelling techniques. Indeed, Little has stated that a system could not be described as a DSS unless it included a databank and models (54). Scott-Morton defined DSS as "Interactive computer-based systems which help the decision-maker utilise data and models to solve unstructured problems" (75). This differentiates it from an MIS, whose main impact has been on tasks where the decision rules and information flows can be reliably defined (25). In 1975, Alter found a broader based approach more useful when looking at what was actually in use, and defined a DSS as a system "designed with the intention of aiding decisions rather than processing transactions" (76). This definition has been criticised in an article by Hill and Watson (15), who reported that although it had been cited frequently, it should be discarded as it was too broad to be useful. However, this would effectively limit the use of DSS to larger companies with a sophisticated approach to management, and considerable time and expertise to devote to the development of an information system.

3.4.4. THE LUCAS STUDIES

Lucas (11) analysed the research studies into the implementation of information systems and amalgamated the findings with his own work to produce a taxonomy of factors influencing the successful implementation of an information system. He felt that both managers and systems designers should be aware of the critical importance of systems implementation and of the issues involved. By consciously developing a plan for implementation, the systems analyst or designer would then improve the chances of a successful system's implementation.

Figure 10 shows the factors he identified and gives the possible relationship between them.

Although many of the factors he identified are organisational and behavioural in nature, he includes technical characteristics in the list, emphasising that while reliability, accuracy of data and technical quality are essential for success, they are not sufficient. Other technical characteristics such as the user interface with the computer assist in creating user satisfaction and increase system use, (for example ensuring that terminals are easy to use or batch reports clear and easy to understand).

Management support and user involvement are classed under the heading of client action and these are noted as being essential to ensure commitment to, and adequate resources, for the system.

FIGURE 10

FACTORS INFLUENCING THE SUCCESSFUL IMPLEMENTATION
OF AN INFORMATION SYSTEM



SOURCE: Lucas (11)

Attitudes towards computer systems, decision styles and situational and personal factors are included in his model although he found the research on these was inconclusive; all the factors are significant in their influence on the implementation of a system but it has proved difficult to identify how and in what way. They are all built on the unique experiences of individuals and are difficult to influence in the short-term. For example, modifying decision styles may not only be impossible but also undesirable, given certain personal and situational characteristics.

He then integrates these factors with the Kolb-Frohman model of organisational change and suggests that the characteristics of each factor are different at each stage. Figure 11 outlines this approach.

Whilst it would be of value to take the factors Lucas identifies into account in developing a new information system, his taxonomy is limited when applied to a situation where a change in the decision-making process is anticipated. His main criteria for judging systems success is whether it is used; this is not adequate when it is how the system is used that is equally important. Furthermore, he does not specify organisational context as one of his factors, although this must influence both management support and situational and personal factors, so the usefulness of his taxonomy may vary with the size and organisational style of the firm in question. The limitations of the factor study approach to producing information system methodologies has been underlined by Ginzberg (77). He looked at 14 factor studies and identified 140 distinct factors reported as

FIGURE 11

OUTLINE OF KEYMAN APPROACH

STAGES	FACTORS			
	TECHNICAL CHARACTERISTICS	CLIENT ACTION	ATTITUDES TOWARDS THE SYSTEM	DECISIONS STYLE PERSONAL AND SITUATIONAL
SCOUTING				
ENTRY				
DIAGNOSIS				
PLANNING				
ACTION				
EVALUATION				
TERMINATION				

CHARACTERISTICS OF EACH FACTOR
CHANGE AT EACH STAGE

Adapted from Lucas (11)

having a significant correlation with success, of which only 15 appeared in 3 or more of the studies.

3.5 DECISION-MAKING IN SMALL COMPANIES

Much of the published research on the development of information systems has concentrated on large companies and projects, for example, Mumford and Henshall on Rolls Royce (78), Little on the application of Brandaid in a well-established consumer goods company (55), Gerrity on a Portfolio Management System (79).

This is obviously partly due to the fact that using computers has only recently become a feasible proposition for a small company in terms of cost and ease of use. Consequently, research is required to establish whether small companies encounter the same problems as large firms or whether the special features of small firms require special attention. Several studies highlight characteristics which might influence the successful implementation of a marketing information system in a small firm.

McAlesees's survey of literature on small companies found that lack of liquidity was the main cause of failure in small firms, caused by inadequate product-costing analysis, lack of cash and poor human resources (80). A lack of specialist expertise, is also noted by Bamberger (81) as a typical trait of small and medium sized firms. As management is limited to functional areas which are not generally highly differentiated, the benefits of specialisation and the use of specialised knowledge diminish. His list of the properties of a small

firm also include the low degree of formalisation of their information systems. The production of external and internal information is generally weak and long-term planning is frequently neglected in favour of short term action. Mintzberg's study of managerial activity (35), was repeated by Choran in a small company and several significant differences observed (82). Mintzberg found that management activity was fragmented, with more time spent in meetings with sub-ordinates or peers than on planning or desk activity. The fragmentation of tasks was increased when managers in small companies were analysed; 90% of their activities took less than 9 minutes in a small company, whereas only 49% took less than 9 minutes in a large company. More time was spent in unscheduled meetings and telephone calls, and a larger proportion of time was spent in verbal contact with subordinates, clients and suppliers.

Davies' study of the decision-making process in the small company also found that the average manager spent more time preoccupied with day to day activities, rather than future planning, dealing with a continuous stream of problems requiring immediate attention, rather than trying to achieve explicitly formulated objectives (83). These constraints, combined with the volatile environment facing small firms, means that the information handling capacities of small firms are limited. Consequently, the decision-maker usually restructures his task into a simplistic one and decisions take place in a degree of management isolation and lack of data unknown in large companies. Decisions are taken on the basis of experience rather than with the assistance of sophisticated management techniques. Furthermore, he found that in a small company where decisions have a make-break

effect, managers tend to be more risk averse and be personally committed to the successful outcome of a course of action.

3.6 CHAPTER REVIEW

The appraisal of the literature and the present state of research suggests that current knowledge is too general and prescriptive to be of value to a small firm. Furthermore, not enough is known about how the characteristics of the small firm will influence the design and implementation of a marketing information system. Whilst many important principles have been identified by past research, these need to be incorporated into a specific approach which focuses on the functional needs of the small firm and on the informal nature of planning and control within this type of company.

CHAPTER FOUR

DESIGNING AND IMPLEMENTING THE DECISION SUPPORT SYSTEM

4.1 CHAPTER INTRODUCTION

Having highlighted the need for a specific methodology for the design and implementation of marketing information systems in small companies, this chapter puts forward guidelines for a new methodology and describes how these were put into practice. The objectives and evaluation criteria for the DSS are set up and the pre-design, design, and implementation stages of the project are discussed. The chapter aims to illustrate the nature of the difficulties encountered and show to what extent they could be overcome.

4.2 METHODOLOGY AND CONTEXT

The literature on developing marketing information systems, although useful in showing how and why internal information systems should be improved, particularly if computer facilities are available, does not offer any realistic advice for a small firm. The Bolton Report (84) defined companies in a manufacturing industry employing less than 200 employees as small, and at this time the collaborating company employed just over 200 employees.

Although several of these recent approaches to system design and implementation incorporate some features which meet the Company's needs, none offer a practical method of addressing the particular characteristics of the Company and of small firms in general- the lack

of specialist resources and an informal approach to the collection and use of information.

The Company exhibited many of these traits. Specialist expertise and trained staff were limited and resources, in terms of management time and finance, were scarce. Management were overloaded and forced to deal primarily with day to day problems with little time for future planning. Decisions were based on informal information and experience, i.e. market and customer knowledge through contacts. Communication was mostly verbal and informal; there were no statements of the Company's objectives or strategy and information for internal planning and control was minimal.

One of the main methods put forward for providing improved support for marketing managers, is the introduction of mathematical models. These assume that basic sales data has been collected and stored over a period of time, whereas this has been noted as one of the Company's particular areas of weakness. The lack of specialisation and human resource constraints identified meant that the knowledge and expertise required to build these models did not exist within the Company and were beyond its means at that time. Also the wide functional responsibilities of the managers at the Company meant that they had become used to working without detailed plans, relying on experience and informal sources of information. They found it difficult to describe their decision process in an explicit or structured manner.

The main priorities for the Company seemed to be first, to develop a comprehensive internal information system, and second, to extend a

more formal approach to the collection and analysis of marketing intelligence. Simple forecasting and new product introduction models could be aimed for once these systems were complete. This approach reflects some of the ideas incorporated in Amsutz's evolutionary method of increasing system sophistication (85). He states that the information system will evolve over time as management and systems personnel learn to structure their problems, but once again, he does not give any specific advice on how this evolution should be controlled.

Consequently, it was decided to follow the principles of the DSS approach, although in practice, the methodology would have to be adapted to incorporate the need for additional support on the marketing side from the systems implementer. The small number of people involved and the close lines of communications meant that it was possible for all the managers who would be using the new system to be participate in its development, rather than having to just have representatives of the user department on a development team. Rather than setting up an official team, the researcher took on a co-ordinating or intermediary role, as Information Co-ordinator. In this way the emphasis was placed on functional rather than technical expertise to accommodate the specific needs of the Company and the role of the Information Co-ordinator was used to overcome the communications difficulties identified in the firm and highlighted as a common problem in the literature for firms of all sizes.

The review of the literature shows that a specialised approach to the development of a sales and marketing information system for small

firms is required. This should take into account their unique characteristics and needs and ensure that the difficulties created when the system is imposed from outside the sales and marketing department are avoided. Figure 12 illustrates the effect of the past approach in the Company to developing the information system, where lack of user involvement throughout the system development contributed to its subsequent limitations. Figure 13 puts forward a simple model for an alternative approach, which starts with the users' requirements and takes into account the informal approach to planning and control typical in small firms, only moving on to more sophisticated analysis once the basic internal information system is complete.

The systems development process was to be controlled by the researcher, who was to fulfil an intermediary role as Information Co-ordinator. Representing the Sales and Marketing Department, the Information Co-ordinator's role was to establish the managers' requirements and formulate these into an outline specification for a new system. The Computer Department could then use this as a basis for programming, and once this was done, the Information Co-ordinator was to implement and evaluate the new system. Figure 14 shows the planned sequence of events and the rest of this chapter describes how this was put into practice, highlighting the difficulties which were encountered and how they were overcome.

FIGURE 12

THE EXISTING SALES ANALYSIS SYSTEM
RESULTS OF THE APPROACH TAKEN TO THE SYSTEM DEVELOPMENT

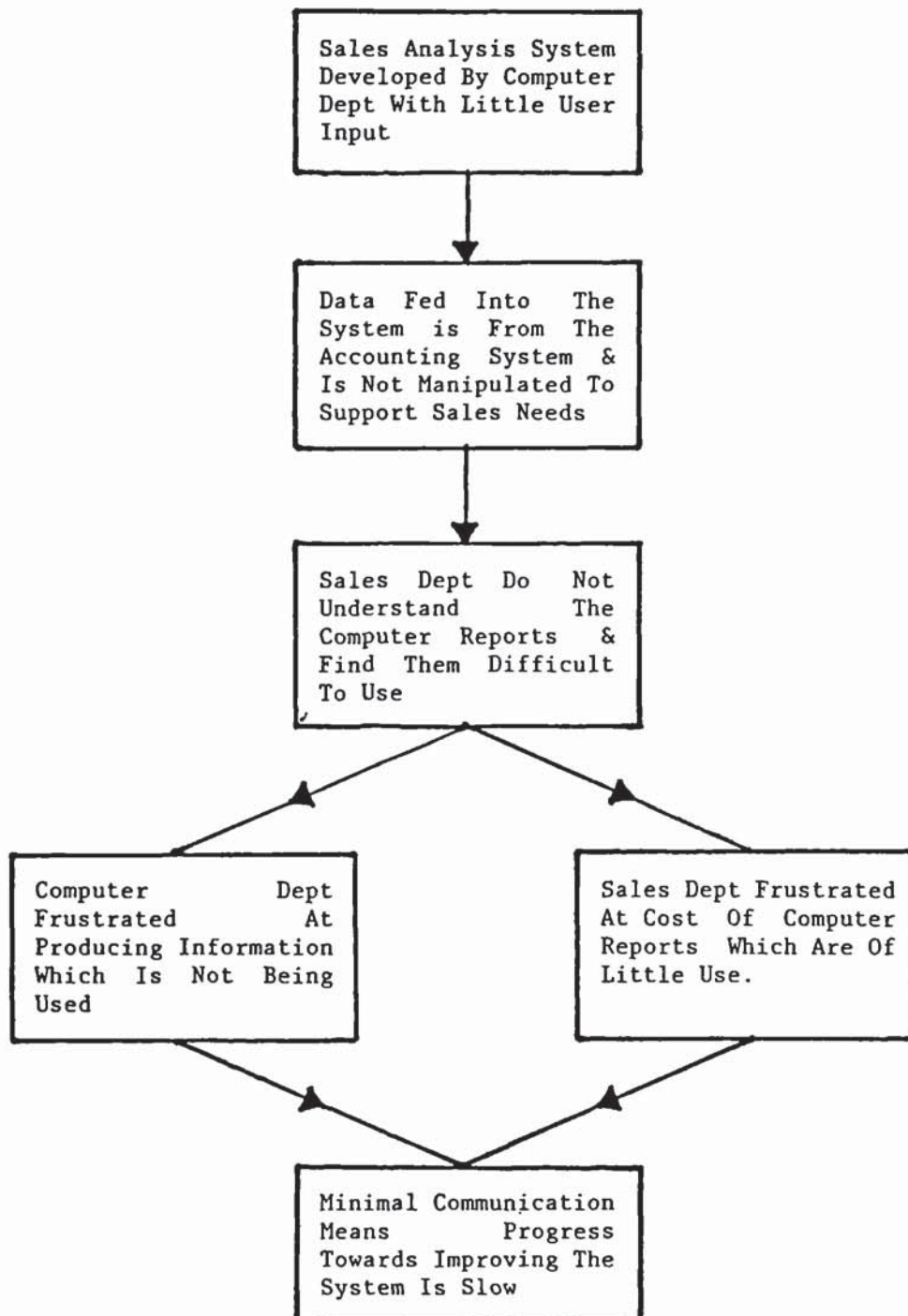


FIGURE 13

A MARKETING DSS FOR A SMALL COMPANY
AN ALTERNATIVE SYSTEMS DEVELOPMENT METHODOLOGY

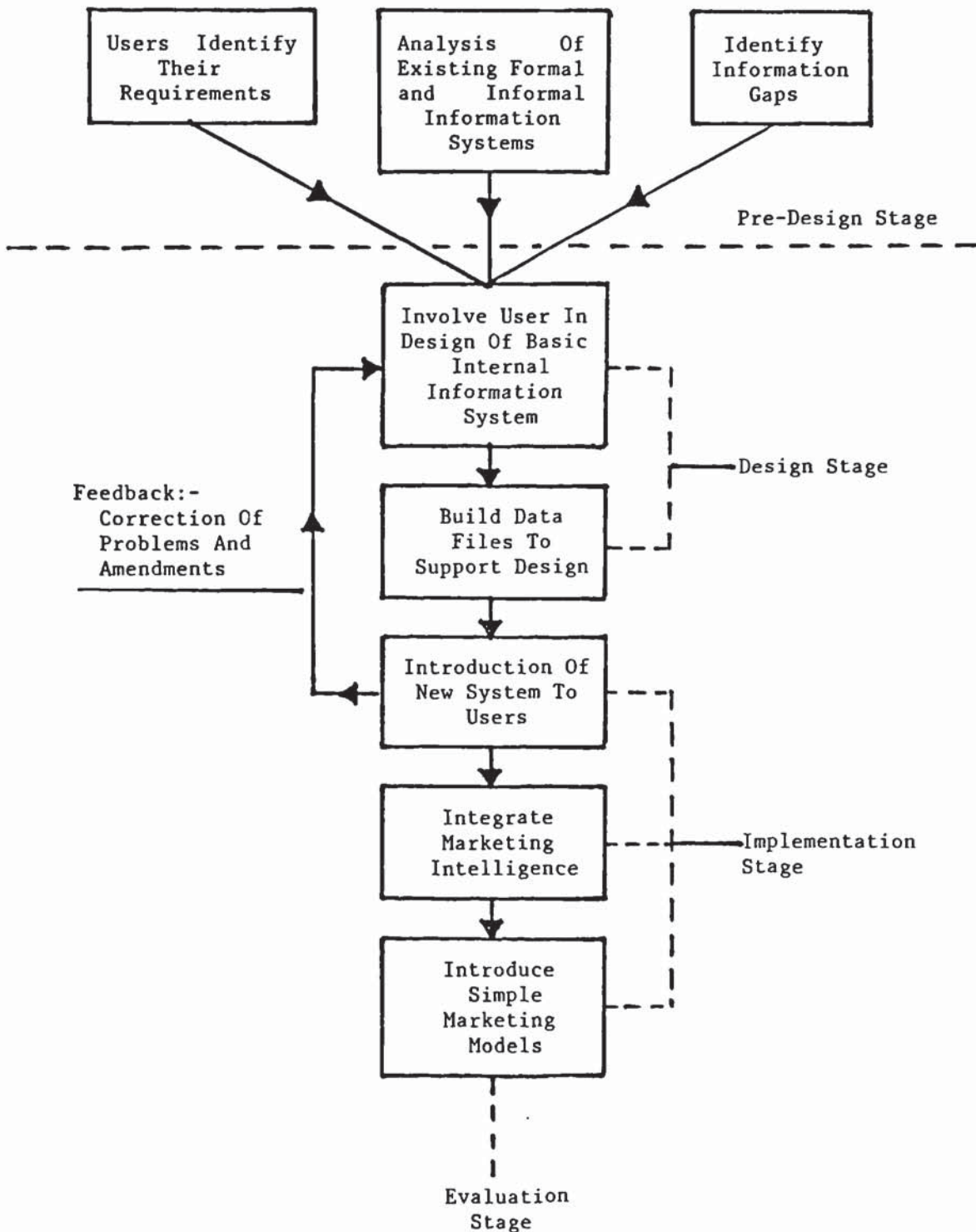
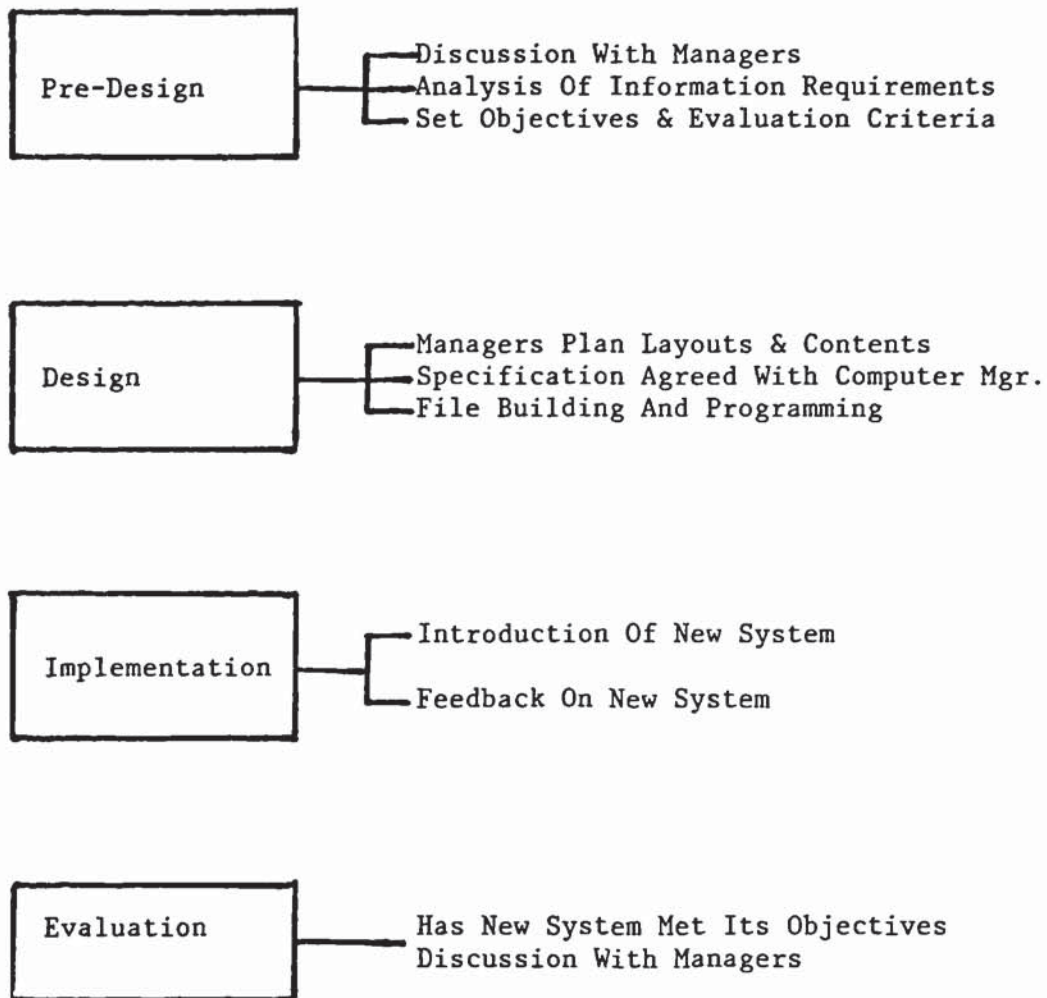


FIGURE 14

DEVELOPMENT OF THE DSS
PLANNED SEQUENCE OF EVENTS



4.3 OBJECTIVES AND EVALUATION CRITERIA

The objectives for the new DSS were set in two stages. First, broad systems development goals were defined which outlined the purpose of developing a new information system. Then specific objectives, which laid out how the information needs should be fulfilled, were set after the pre-design stage so that the views of all the user managers would be included.

The broad system development goals were agreed after discussions with the Financial Director, Sales and Marketing Director, Managing Director and Computer Manager, in November 1981. These goals were as follows:-

- (i) To provide improved support for marketing planning and control.
- (ii) To develop a system which all the sales and marketing managers could understand and use easily.
- (iii) To bridge the communication gap between the Computer Department and the Sales and Marketing Department.

The criteria against which the new DSS would be evaluated were also set-up at this stage to ensure that all the data needed to monitor the effectiveness of the new system would be collected. Keen and Scott Morton found that this important stage of the system development process was often forgotten or ignored (13). The long-term nature of

DSS projects and the problem of deciding whether this should be the manager or the system designer's responsibility, contribute to this area of weakness. Keen and Scott-Morton suggest setting up a formal plan prior to the system development which should include details of expected improvements. They also advise that the system development should be divided into several self-contained stages and considered as providing a service rather than a product. The evaluation criteria set up at the Company were as follows:-

- (i) Assessment of whether the systems objectives had been achieved.

The achievement of the systems development goals was to be assessed by the same top management team who had set them, whereas the specific systems objectives were to be assessed by a review of the practical use of the DSS.

- (ii) Changes in the attitudes of managers toward their information system.

This was to be measured by a series of discussions to be undertaken at the pre-design stage of the project, an interim one to be undertaken half-way through, and a final one once the DSS had been completely implemented.

(iii) Responsiveness of the DSS to requests.

Any requests made to the Computer Department for additional or revised information were carefully monitored to establish first, the nature of the requests and what degree of success was achieved in responding to them, and second, how long this took.

(iv) The integration of the DSS into the decision-making process.

The use of the reports by the sales and marketing managers was to be monitored to assess how and why the new system was being used, in particular to establish whether the availability of additional and improved information led to any changes in the decision process.

(v) Distribution and frequency of the computer reports.

A comparison of actual and required distribution was to be undertaken at the end of the DSS implementation period to ensure that not only were the right people receiving the information but that any irrelevant reports were being discontinued.

- (vi) Monitoring the number of changes initiated by the users.

Measuring this variable would provide some indication of whether the system was evolving with the Company and whether it was becoming more sophisticated.

- (vii) Cost/benefit analysis.

Reduction in costs was not a main criterion to be satisfied by the DSS, as it had already been established that the provision of this type of information was essential. Nonetheless, the cost of producing the information with the DSS could be compared with the costs and time required to produce the existing sales analysis reports which were unused. This cost should also be compared with the value of any time saved in preparing reports and budgets which had previously entailed collating information from many different sources.

- (viii) Improvement in Marketing support.

As the aim of improving marketing support was ultimately to improve marketing effectiveness, the evaluation should conclude with an assessment of the extent to which the marketing weaknesses identified in Chapter 2 had been overcome.

4.4. THE PRE-DESIGN STAGE

4.4.1 USER INVOLVEMENT

Prior to any development work, discussions were held with all the sales and marketing managers. These discussions had two main aims:-

- (i) To draw out the managers' attitudes towards the information currently provided for them by the computer and find out what they really wanted.
- (ii) To try and create a climate of participation so that managers could see that their needs were being taken into account and feel that their input was essential.

The main points to be covered were organised as shown in Appendix 1.1 but in practice, the discussion took the form of a semi-structured interview, centred on the manager's experience with computer-produced information in the past, what he would ideally like to have, and what it would be used for.

The managers interviewed were responsible for the four main areas of the Company's business. Detailed discussions, lasting approximately two hours, were held with the Sales and Marketing Director, the Printing Manager, the Export Manager and the Gifts and Nametapes Sales Manager. The Managing Director and Financial Director

were also consulted on a less formal basis with the aim of ensuring that they received summary information. Even though the system was primarily to support the sales and marketing management team, their staff were also brought into the development process at this stage, for several reasons.

First, they would probably have to use the computer reports to provide information requested by the manager.

Second, as they were largely responsible for generating the orders which provided the data going into the system, it was felt that the more they knew about the eventual use of the data, and became involved in the system development process, the more commitment they would take for entering the data correctly.

Finally, the Sales Director, in particular, wished to encourage his sales representatives to use the DSS to monitor their own progress.

4.4.2. THE RESULTS OF THE DISCUSSIONS

The results of the discussions were highly revealing. Although there was a consensus in requests for certain information, the four managers concerned showed different priorities in their sales and marketing activities, and this came over clearly in their requests. All the managers requested the following information:

This year/last year comparisons.

Summary information with detail on request.

Highlighting of problem areas.

More frequent information.

A brief summary of the individual discussions shows where and how the differences arose. (The summaries are contained in Appendix 1.1).

(i) Sales and Marketing Director

Responsible for Labels, Badges, Ribbons and Webbing.

His main priority was to be able to identify customer sales patterns, ensuring that top customers were properly serviced and new customers developed. Customer sales information was considered more important than product information, i.e., sales of satin or taffeta labels. To analyse product sales, value sales were more relevant than volume figures as the price of a label or badge was dependent on several variables other than quantity.

(ii) Sales and Marketing Manager

Responsible for Gifts and Nametapes

The main requirement identified for these product groups was to have all the information broken down into regional areas, due to the large number of customers involved. The manager felt that a three-tier information system would be ideal, giving differing levels of detail. The first level would give total area sales, the second, customer sales within an area and the third would show the product lines purchased by each customer. His main objectives were to monitor agents sales on a monthly basis and to be able to assess product, area

and customer trends for future planning. He also requested information on new accounts opened by area, on a monthly basis. Information on market sector, and distribution were considered to be useful but should just be available on request to be used if needed.

(iii) The Export Manager

Responsible for exporting all the Company's products.

His main requirement was to be able to look at export information separately from total sales information. Customer/agent information was essential as most of his sales were via agents or distributors. Value and volume information were required to give meaningful comparisons between sales to different countries where goods were sold at different prices.

(iv) The Printing Manager

Responsible for the production and sales and marketing of printed labels and badges.

Similar to the Export Manager, the Printing Manager wanted to be able to use printing sales information separately from the total sales information. As he was responsible for the total printing operation he was more concerned with immediate problems and wanted more information from the daily print-out of orders received and dispatched to enable him to control day to day activities more effectively. He also requested information which would assist him in assessing profitability. Although he was servicing essentially the same market

as the woven labels, sound pricing was crucial, given the fast turn round required for orders, and the low margins involved.

From the systems design point of view, these results presented three areas of difficulty. First, the information requested was specified in very general terms and required some interpretation before it could form a basis for the Computer Department to use to prepare the system specification. A major area of concern indicated was, "highlighting of problem areas", but this was expressed through general examples, such as agents who were not performing well, or customers who had not placed their usual, seasonal, large order, rather than with specific recommendations of how, when and where this should be done.

Second, the results also reflected the different features of the Company's various markets and the different responsibilities of the managers involved. The Printing Manager's role was not confined to sales and marketing for his section, but also included responsibility for production control and profitability. Consequently, he requested much more detailed, up-to-date, information than the other managers. The Sales and Marketing Manager for gifts and nametapes, saw his role as primarily to motivate and control his sales agents and support the retail trade, whilst also looking for new product opportunities. The Sales Director, who had overall responsibility for all these product areas, felt the need for summary information in particular to enable him to see the whole sales picture quickly. Efforts had to be directed therefore, at developing a comprehensive system which would integrate all the managers' requirements in an efficient way, without

duplicating information or requiring excessively complicated programming.

Third, as specified by one of the system development goals, the aim of the system was to provide the information necessary to improve marketing support. Whilst much of the basic sales data needed to achieve this was actually requested by the managers, information on market sectors or distribution was not specifically included; an area identified as a weakness of the existing information system. This implied that this kind of information was not incorporated by the managers into their sales and marketing planning activity at this time and consequently, if it was to be included in the system, they would need to be made aware of its availability and potential importance.

4.4.3. THE SYSTEM OBJECTIVES

Working from the results of the discussions, the following specific system objectives were set and agreed by the managers concerned:

- (i) To develop a flexible system which would provide the minimum amount of information necessary for an effective planning and monitoring system.
- (ii) To identify areas where action is required.
- (iii) To identify trends.

(iv) To enable the results of specific sales promotion activities to be monitored.

(v) To ensure that the system remains a working tool and evolves with the Company.

4.5. THE DESIGN STAGE

The system outline was drawn up by the Information Co-ordinator based on the issues raised in the discussions. It ensured that the basic sales data requirements identified in Chapter 2 were incorporated, even if they were not specifically identified during the discussions. The Computer Manager then assessed the technical feasibility of the proposals and prepared the program specifications. The Information Co-ordinator then worked with each manager to decide on layouts, report content and frequency.

The design of the new system meant that although much of the data going into the system was largely the same as for the existing system, the presentation of the data was to be significantly different.

First, it was decided that all the sales information should be presented within a product group structure, with separate reports to be issued for each group. This meant that different analyses could be performed on each product group data, offering substantial advantages given the variation in the types of markets in which the Company was operating. This would immediately cut down on the size of the reports

and mean that each manager would only receive information relevant to the products he handled.

Second, the reports were to be organised into a series of monthly, quarterly and yearly reports, containing increasing levels of detail. The monthly and quarterly reports were monitoring tools, giving summary information and the yearly reports presented more detailed analysis which could be used for planning purposes. Any part or section of these detailed reports was available on request, to provide support for specific exercises, and there were several options on detail and content on all the reports, which allowed considerable flexibility.

Third, problem areas were highlighted by the use of a this year/last year comparison, showing where and when discrepancies had occurred. This would also enable the effects of any specific promotional activity to be readily identified.

The administrative changes necessary to achieve this flexibility, were introduced by means of small group discussions which fulfilled an educational role in explaining to the staff concerned why the changes were required. Only one group of staff reacted strongly to the proposed changes as they had not incorporated one of their own informal control mechanisms. A second look at the problem enabled their requirements to be met without altering the overall schema. The Computer Manager explained that the working methods of this particular group had been affected by the introduction of the computer in the past and that they were generally averse to changes of any kind.

One of the other problems identified with the existing system was the difficulty in distinguishing orders for webbing and lettered straps. This had been further complicated by the growing number of orders for high specification webbing for military contracts. This problem was discussed with the Production Services Manager and the Production Planner, who then produced a new set of codes which were implemented without any difficulty. This work also revealed that no-one was responsible for maintaining or updating the product codes. Consequently, many items on the product code file held on the computer had been discontinued and many new lines had no description at all. Two members of staff were then made responsible for this work and an updating exercise was initiated by the Information Co-ordinator.

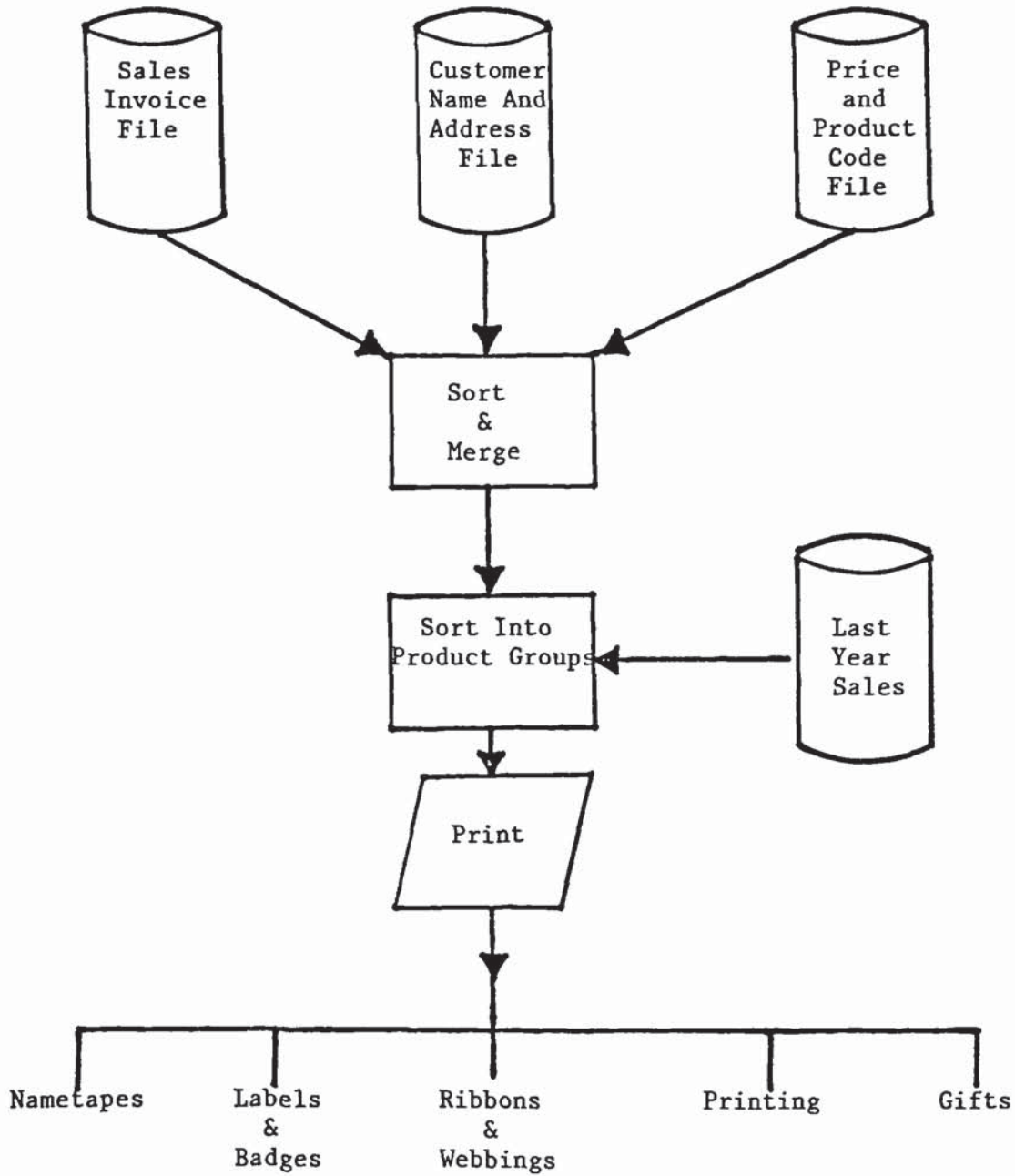
The outline of the new system is illustrated in figures 15-18. Figure 15 shows the data going into the new system and the first split into product groups. The reports provided by the system for each product group are illustrated in figures 16, 17, and 18.

4.6 THE IMPLEMENTATION STAGE

The implementation stage was anticipated as being critical to the success of the system as it was here that the managers would see the outcome of their requests, and find out whether they could understand and use the reports produced easily. As planned, each manager received a copy of the reports relating to the products for which he was responsible. As each report became available for the first time, individual training sessions were held with each manager and any

FIGURE 15

DECISION SUPPORT SYSTEM OUTLINE



Monitoring & Planning Reports

FIGURE 16

DECISION SUPPORT SYSTEM
TEXTILE DIVISION

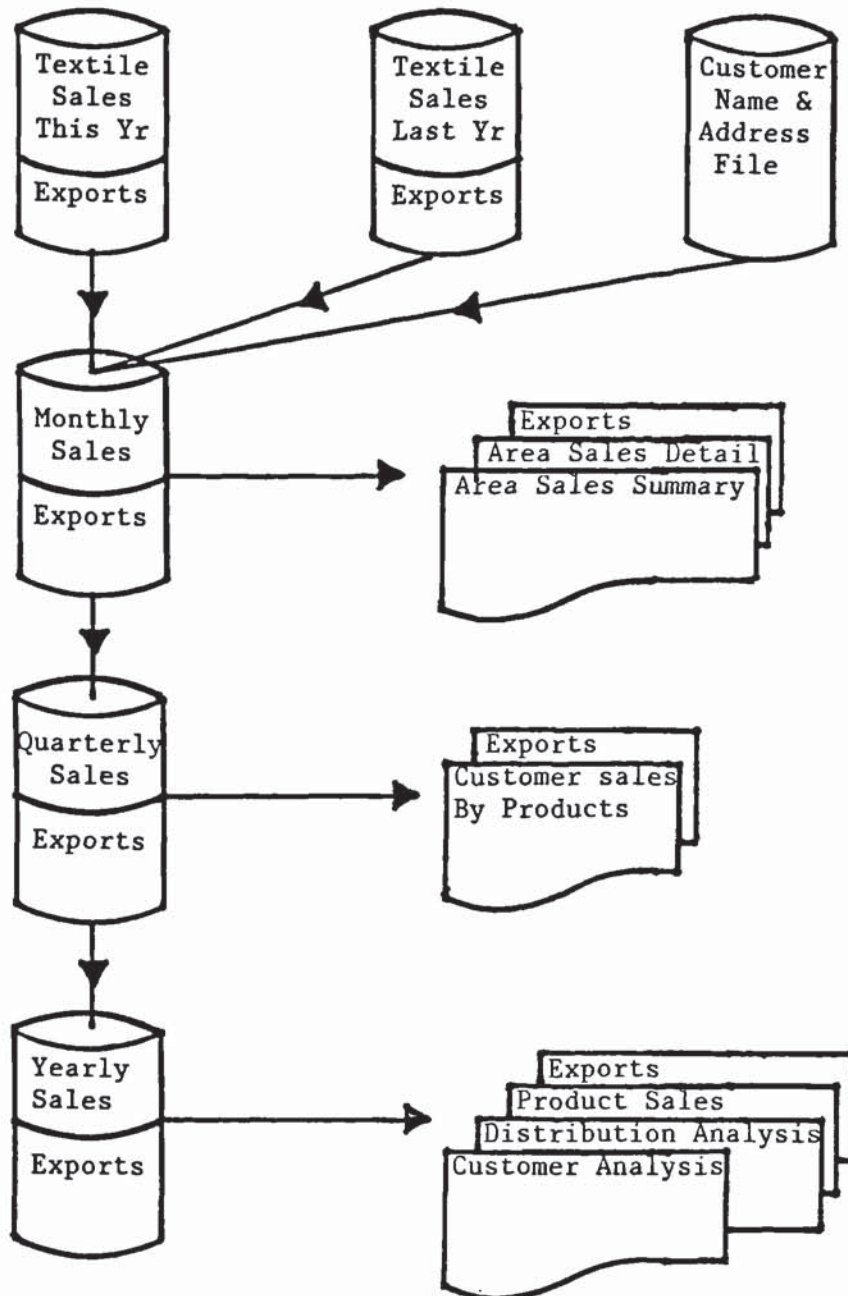


FIGURE 17

DECISION SUPPORT SYSTEM
GIFTS DIVISION

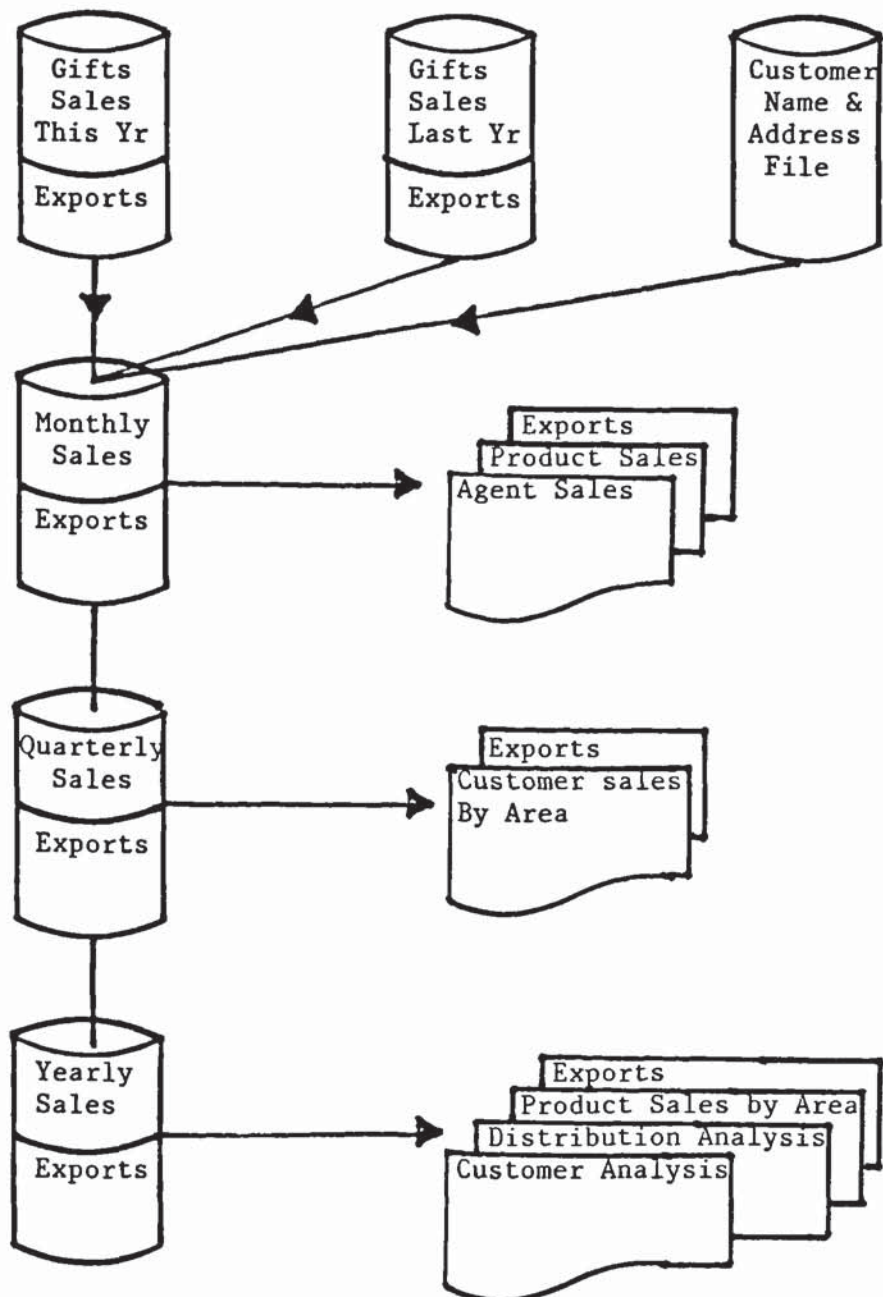
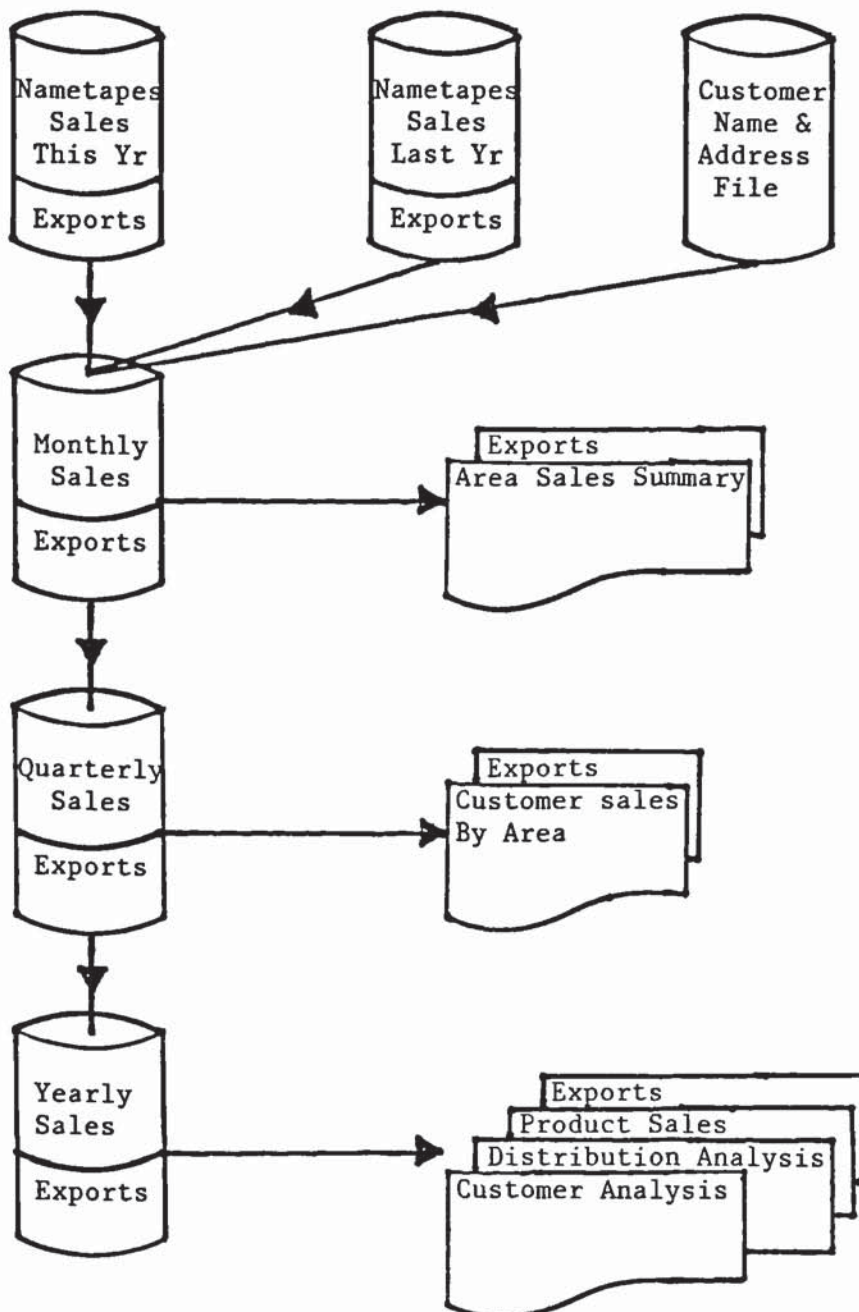


FIGURE 18

DECISION SUPPORT SYSTEM
NAMETAPES DIVISION



immediate problems or inaccuracies fed back to the Computer Department for correction. A computer reports manual was produced by the Information Co-ordinator and the relevant sections issued to each manager. In fact, the manual was reissued three times to incorporate managers' comments on how it could be made more useful. (The final version of the manual is contained in Appendix 2).

The scope of the Information Co-ordinator's role at this stage was wider than anticipated. Co-ordinating between the two departments was no longer sufficient to ensure the successful implementation of the system, and a more directive role was required to overcome the obstacles that arose.

Not only was it necessary to introduce the new reports to the managers individually, but for the first few months, practical assistance from the Information Co-ordinator in using the reports was sought on several occasions. Managers came to the Information Co-ordinator with specific questions and used these as a mechanism for learning their way around the new reports. Some examples of questions asked were:- who were the top five ribbon customers?, how much of the Printing Department's business came from customers supplying Marks and Spencers PLC, or how many pictures had been sold in France so far?

Considerable effort was required to ensure that the system implementation progressed smoothly. The monthly and quarterly reports were completed on time, but the yearly reports were six months late. The Computer Department had to put back development as a result of other priorities set by the Financial Director to whom they were

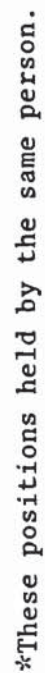
responsible. The most difficult task however, was ensuring that amendments and corrections were done. The Computer Department did not appear to have allocated sufficient time for this, and considerable pressure had to be exerted to achieve any action, including enlisting the support of the Managing Director. One particular problem was discovered in October 1982, which caused complications for the managers in using area information and it took until October 1983, for a temporary solution to the problem to be implemented. Title pages for every report were requested in December 1982, and a sample was produced which was well received by the managers. (An example of the title page and also of some layout amendments which were completed are contained in Appendix 3). However, a year later, despite repeated requests, the rest were still not completed.

The difficulty encountered in getting amendments completed was compounded when the decision to buy a new computer was taken in September 1983, halfway through the second year of the DSS implementation. As the new computer was based on new technology and from a new manufacturer, preparing for this became the Computer Department's main priority. They wanted to leave any amendments not yet complete until the moment when they were transferring the sales data files and analysis programs over to the new computer. The up-to-date facilities offered by the new computer meant that programming and the handling of data would be considerably easier, so whilst this reluctance to finish the amendments could be justified from this viewpoint, it produced a very negative reaction from the managers who had already been waiting some time for their corrections.

The accuracy of the data contained in the reports was found to play an important part in their acceptance, and constant attention had to be given to trapping reports containing errors. This occurred on many occasions; when the reports were first issued for example, carriage charges were included by mistake, technical webbings were omitted, and even at the end of the first year, the year end reports did not contain the sales for the last quarter. (Appendix 3 contains some examples of the errors which appeared in the reports.). The errors did not help to boost confidence in the report contents, particularly in the early stages when managers were still inclined to disbelieve the computer generated figures.

Lastly, even during the first year of the DSS implementation, several unanticipated changes took place within the Company which had implications for the DSS. In February 1982, the Company was restructured and four divisions were formed, each with a divisional sales and marketing manager. Figure 19 shows the new organisation structure and new areas of responsibility. This meant transferring one set of products from one product group to another, amalgamating two product groups, and reorganising the distribution of the reports to incorporate a new manager for the Gifts Division. The Information Co-ordinator took responsibility for ensuring that the necessary modifications to the system were completed, and this did not present any real difficulties, as the Information Co-ordinator had had some guidance from the Managing Director on the future changes at the design stage of the system.

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As a result of this new structure, the responsibility for maintaining the customer name and address file, (the record of the Company's customers held on the computer), was allocated to each division, rather than being controlled centrally. This proved to be a significant factor in restoring confidence in the accuracy of the data as now the managers and their staff were able to control one of the most important sources of data for the DSS. Now they could see for themselves how out-of-date this file was and how many inaccuracies it contained, such as duplicated account numbers, which had repercussions on the data presented in the analysis reports. All the divisional managers initiated work to up-date these records and made considerable use of this facility to examine their distribution network, and reactivate former customers.

The DSS also had to be modified when the Textile Division reorganised its sales operations on two occasions. First allocating representatives responsibility for a geographical area, and then allocating responsibility for certain groups of accounts, irrespective of location. Similarly, in the Gifts Division, new agents were appointed and territories reallocated accordingly. Whilst the DSS was able to incorporate these changes, it was not an easy process as it involved altering all the past history for the accounts in question. As this was likely to be a recurring problem as the Company continued to adapt to the needs of the market place, it suggested that the facility to handle amendments of this type more easily, needed to be integrated into the system.

4.7 CHAPTER REVIEW

The detailed data provided by the description of the systems development cycle, shows that whilst the role of the Information Co-ordinator as a co-ordinating mechanism was sufficient during the initial stages, its boundaries had to be extended during the implementation stage. The nature of the difficulties encountered meant that a more directive role was required not only to overcome the lack of computer experience of the managers but also to ensure that reports were accurate, amendments completed, and corrections done. The influence of organisational factors was clearly illustrated, showing how the DSS had to adapt to changes in organisation structure, personnel and sales methods.

CHAPTER FIVE

THE DECISION SUPPORT SYSTEM AS A MARKETING TOOL

5.1 CHAPTER INTRODUCTION

During the implementation stage of the new system, the opportunity arose for the Information Co-ordinator to become closely involved in the planning and control of two market exercises. This provided an ideal occasion to monitor the performance of the new system as a marketing tool. The material collected illustrates what kind of decisions were being taken, what kind of information was required, and the nature of the gap between the provision of information and its use. The two marketing exercises in question were, a new product launch and the preparation of a sales and marketing budget for one of the Company's divisions.

5.2 CASE STUDY ONE- A NEW PRODUCT LAUNCH

5.2.1. BACKGROUND

The Company had launched two new personalised products over the past four years and neither had performed well in the Company's traditional sales outlets, with sales growth slow until alternative sales channels were tried. Sales for the first product, Supertapes, were low in its first year, only increasing significantly when the product was selected for a mail order catalogue. Moreover, once the mail order firm decided to discontinue it, sales fell back to their original level almost immediately. The technical development for the

second product, the personalised luggage strap, was complete five months before any orders were received and the machinery stood unused until, once again, the product was selected by a mail order catalogue. However, sales did not grow significantly until another new sales channel, direct response, was tried.

This left the Company with the impression that both product launches could have been more effectively managed. In order to try and avoid some of the mistakes, it had been decided that a market research project should be undertaken for their latest product, to assess areas of potential demand, and to evaluate alternative sales channels. The Information Co-ordinator was made responsible for undertaking the initial market research for the new product, setting up a market trial, preparing the marketing plan for the first year of sales, and organising the appropriate support systems to monitor sales progress against the objectives established.

The new product was an "up market" nametape, to be called Designer Labels, developed as a result of the facilities provided by the new computerised nametape production system. The new tape carried two lines of information, woven in script lettering using a wide range of colours. Small motifs could be incorporated into the design if required. (An example of the new product is contained in Appendix 4.2). In addition to exploiting the benefits offered by the new production system, the Company also hoped that this new product might be complementary to its traditional school nametape business, and help to spread demand, which was heavily concentrated in the summer months.

The decisions taken during the new product launch period and the information needed to support those decisions, fall into three categories, market research, the market trial and the marketing plan. The level of support provided by the DSS varied considerably at each stage.

5.2.2. THE MARKET RESEARCH

Prior to launching the new product, information on its potential market was needed so that decisions on the product features, price, promotion and distribution could be made. This kind of information falls into the category of marketing intelligence, the flow of information coming into the Company, and in this case, it was obtained through market research. The market research brief presented to the Information Co-ordinator, outlined two main areas for investigation; the home crafts market and the small business market. The Company felt that the new tapes would appeal to small craft industries who could not afford the high minimum order quantities, (10,000 labels), required for woven Jacquard labels. The main aims of the market research were:-

- (i) To identify the size and structure of potential markets and assess whether they offered a worthwhile opportunity for the Company.
- (ii) To assess the appeal of the product in terms of price, quality, colour range, motifs.

(iii) To identify the most appropriate methods of sales to potential markets.

(iv) To rank potential markets in order of priority.

Desk research was undertaken to establish market sizes and structure using published reports and government statistics. Field research was undertaken to assess the appeal of the product to different market sectors and the best methods of promotion. Information was obtained from the following sources:

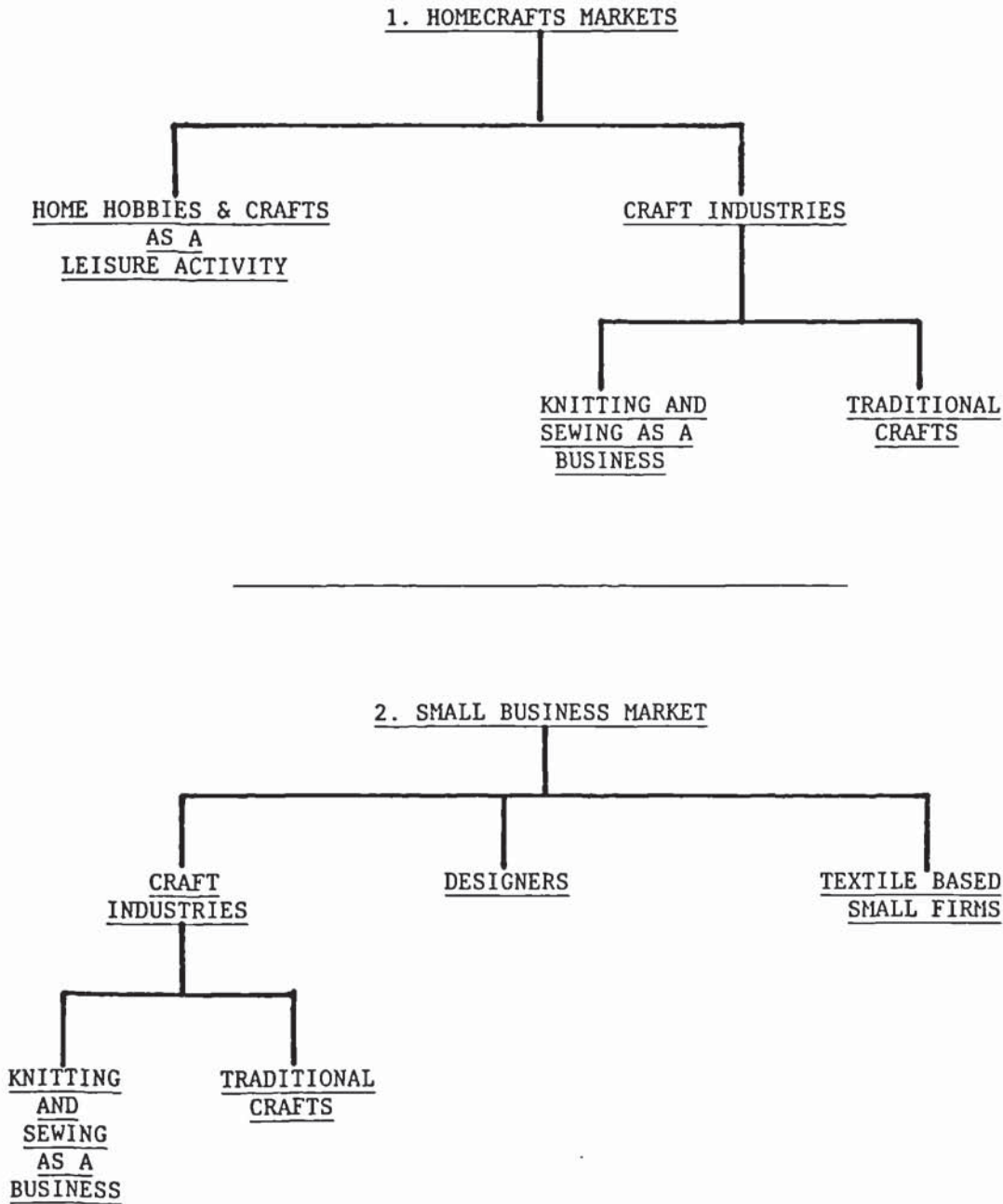
- a consumer questionnaire completed by 77 women interested in knitting and sewing.
- a telephone survey of 20 Craft Associations.
- a trade survey of 12 retail buyers of handicrafts and haberdashery products.
- in depth interviews of 5 small textile businesses.

A full summary of results and recommendations can be found in Appendix 4.1, but for the purposes of the case study, the following results were of greatest significance.

The potential market for the Designer labels could be divided into several sectors, as shown in figure 20. This complicated market structure offered both advantages and disadvantages. It meant that

FIGURE 20

THE TARGET MARKET FOR DESIGNER LABELS IN
MARKET SECTORS



advertising and promotion could be easily targeted to specific market sectors, making it more cost-effective. However, as the different market sectors had different characteristics, it also meant that it would be impossible to set up one distribution and promotion policy as this would not fulfil the needs of all potential customers.

Figure 21 also shows the potential number of customers in each selected market sector. Published reports suggested that all sectors of the market were growing, many with government encouragement, such as the small business sector.

At this stage, potential sales levels in terms of numbers of orders were difficult to estimate as the product was new and unknown. Different market sectors looked likely to order in different quantities and although in some cases it was possible to identify the number of potential customers, it was impossible to identify their requirements, i.e. how many garments would they be producing and over what time scale.

Although the market research results indicated a considerable number of potential customers for the new product, this represented both new markets and new distribution possibilities for the Company. Consequently, the Information Co-ordinator recommended setting up a market trial to build up much needed knowledge on the new markets, and on the most effective means of sales promotion and distribution to those markets.

FIGURE 21

MARKET SIZE: DESIGNER LABELS

<u>MARKET SECTOR</u>	<u>SIZE</u>
<u>CRAFT INDUSTRY</u>	
Registered Craftsmen and Regional Association Membership	15,000
<u>HEMECRAFT MARKET</u>	
No. of Women Involved	13 Million
(Heavy Knitters	2.7 Million)
(Knitting Machine Owners	0.7 Million)
<u>SMALL BUSINESS</u>	
Textile Firms	3500
Young Designers	1000

The market research confirmed that merely launching the product through the Company's traditional retail outlets would not reach all the target market sectors, particularly as the size of the launch budget precluded any consumer advertising. By segmenting the market, the Information Co-ordinator was able to set out several specific promotion exercises with costs and targets which would enable the limited budget to be used as effectively as possible.

Figure 22 sets out the plan for the market trial showing the activities planned for each market sector over a six month period, testing out different promotion and distribution possibilities.

5.2.3. THE MARKET TRIAL

During this trial period it was essential to be able to monitor the results of the various exercises undertaken, not only to identify where product performance was poor or promotions not cost-effective, but also to provide information on which a realistic marketing plan for the first year of sales could be based. To achieve this it was necessary to record the following:-

- (i) Sales volumes and values for each specific exercise.
- (ii) Sales volumes and values for each market sector.
- (iii) The split between the three main order quantities available, (36 labels, 72 labels, 144 labels),

FIGURE 22

DESIGNER LABELS - MARKET TRIAL - JULY - DECEMBER 1982

	Jul-Aug	Sept	Oct	Nov - Dec
TARGET GROUP	RETAIL TEST	EXHIBITION TEST	DIRECT RESPONSE TEST	BACK UP TESTS
Home Hobbies & Crafts	200 Knitting & Sewing Shops in S.E. Area	Pins & Needles Show 30 dates - national	"Fashioncraft" Magazine "Home & Country" Magazine	Dept. Stores Mailshot plus Personal Visits
Machine Knitters		Knitting Machine Convention Bournemouth	"Worldwide" "Knitting" Magazine	Mail Order
Craft Industry			"Crafts" Magazine "Loomcraft" Magazine	Promotion by British Craft Centre
Small Textile Firms & Designers			Direct Mail to Textile Design Polytechnic & Colleges	Direct Mail

related to each market sector.

(iv) Motif sales related to market sector.

The role of the DSS at this stage was to ensure that this information was collected, analysed and presented to the appropriate managers. This information provided the basis for the final decisions on how the product should be promoted, priced and distributed to the various market sectors identified. The DSS provided the link between the information coming into the Company in the form of market research, and the information going out, in the form of marketing communication. The planned approach and analysis of the market research provided the framework for evaluating the information coming into the Company, identifying which variables should be monitored and in which combination. Without this planned approach, the role of the DSS would have been unclear, and the increased information it could provide for preparing the marketing plan would have gone unexploited.

Although the role to be played by the DSS in monitoring the trial market was a simple one, initially several difficulties were encountered.

The method of recording nametape volumes on the computer made calculating the number of orders received a very complicated procedure, which required the full 7 digit product code and a calculator. Consequently, it was difficult to establish how many orders had been received and for which quantities. A temporary solution to the problem was provided by one of the division's manual

systems. The number of orders received were recorded daily in a control book, prior to data entry and these totals were entered weekly into an infamous "black book" in the nametapes sales office. With some manual calculations, this could provide a record of the number of orders received but still did not give the split between the main order quantities.

This difficulty could be attributed to the fact that the computer system had never been used to monitor volumes of nametape orders before. The Designer Labels product launch was the first to be planned in advance by identifying target markets and testing out alternative methods of exploiting them. Specific objectives to be attained by the promotion activities were set up. Previous product launches had not been undertaken in this way, and no specific targets had been set. Consequently there had been no need for support systems to monitor progress towards any objectives other than that of total sales value for the product group. In fact, in the initial discussions carried out by the Information Co-ordinator on user requirements, the need to monitor sales in this way was not raised at all, and the problems in doing so not anticipated.

Receiving sufficiently up-to-date information presented a further difficulty. Monthly sales information on the new product line was not easy to obtain. The original outline of the DSS, prepared in conjunction with the managers, had allowed for a monthly summary of area sales for all nametape products, with a quarterly customer report listing all customer sales detailing which products they had bought. However, as this was split into areas, this meant searching through

every area to identify which customers had purchased the new product. An option had been included to produce this report monthly if required, but as it was 250 pages long and its main aim was to monitor customer performance, it was not a practical solution to the problem. Once again, the fact that monthly volumes and values of specific product lines had not been required before, meant that this problem was unforeseen. It was solved by adapting a monthly product report produced for the Gifts Division, which gave value and volume figures for each product line, and this proved an effective, simple way of monitoring the new product.

The monitoring of sales to different market sectors was hampered initially as the distribution report was not completed in time for the beginning of the market trial. This meant that, at first, orders had to be analysed manually. Fortunately, volumes were low enough at this stage and the relationship between the Computer Department and the Information Co-ordinator close enough for this to be a feasible solution. However, once the distribution analysis was ready, it showed clearly where sales were coming from. It also allowed the expansion of the retail network to be easily monitored.

5.2.4. THE MARKETING PLAN

At the end of the trial marketing period an analysis of the information collected by the DSS, showed clearly where the product's strengths and weaknesses lay, which market sectors were easiest to exploit, and which distribution channels and promotion activities most effective. For example, machine knitters were identified as a

promising market sector and the DSS showed that promotion through specialist magazines and specialist mail order companies had proved effective. However, building up a retail network and promoting the product to the large number of women with knitting or sewing as a hobby, was shown to be more difficult.

The trial market period was a learning experience in more ways than one. It was not only necessary from the marketing point of view to build up market knowledge, but also from the systems point of view to establish which were the most important variables to monitor and how to do this most effectively. As a result of the work undertaken, comprehensive information was available to plan the marketing strategy for the first full year of sales. Realistic targets could be set and the best ways of achieving them put forward. The difficulties experienced in using the DSS to support the trial market had been overcome and the DSS could now be used easily to monitor the progress of the plan and identify areas where action was required.

5.3. CASE STUDY TWO - THE PREPARATION OF A SALES AND MARKETING BUDGET

5.3.1. BACKGROUND

The Nametapes Division was one of the Company's most profitable, even though it was built up on a high volume of low value orders. However, the number of orders for 5/16" school nametapes which represented 88% of the Division's sales had declined over the last three years and the growth in sales value had not kept ahead of price increases or inflation. Additional lines had been introduced but

sales of these remained low, representing only 12% of total volume, and showed no signs of increasing.

Consequently, the Company decided efforts should be directed towards increasing sales volumes and halting the decline in traditional school nametapes. The Information Co-ordinator was asked to assist the Sales and Marketing Manager and the Divisional Manager in preparing a fully documented budget proposal, showing where and how this could be achieved.

5.3.2. THE INFORMATION REQUIREMENTS

The aim of the planning exercise was to assess the Nametape Division's current position in the market place. From this, the managers would then be able to set their priorities, and allocate the limited resources of the division most effectively. Obviously much of the information required for such an exercise was available within the Company from informal sources. The Company had been involved in manufacturing nametapes for almost a century and the Sales and Marketing Manager had worked with the product group for five years. Consequently, the Company had a considerable amount of experience of the market. However, this knowledge had never been collected and analysed on a systematic basis in the past. No formal planning documents existed except budget reports which were summaries of the planning process. Generally they contained a short paragraph justifying the budget figure submitted. New products had been launched, new sales channels adopted and new markets penetrated but

this had been on an ad hoc basis, with no formal targets or objectives.

This had partly been due to the lack of internal information. Due to the nature of the nametape business a large number of accounts were involved, so until the introduction of the computer, it was virtually impossible to undertake any kind of planning or analysis. The first report produced by the computer in 1980, went some way towards overcoming this, by making customer sales information available by area. However, the report was very bulky and it was difficult to extract meaningful trends for the business as a whole, (for example, changes in the retail network, such as a growth in the importance of department stores or decline in co-operatives).

Furthermore, there had never appeared to be any real need for more formal analysis or plans. Until 1980, sales growth had been more than satisfactory and the technological advances on the production side had meant significant improvements in the level of service the Company provided. The information required for the Company's budget procedures was based on a predicted turnover figure for the product group as a whole and for this, information on the performance in the market vis-a-vis its opportunities was not necessary. Consequently, the informal approach to planning had been adequate. However, once sales had started to decline and competition became more intense, the Sales and Marketing Manager needed greater resources in terms of advertising and promotion money and had to justify not only how and where this money would be spent, but also what it would achieve.

This informal approach to planning in the past meant that there was neither an established planning process, nor any past data, to work from. Consequently, the first stage in the preparation of the new budget was to set up a framework for analysis to show what information was needed and why. This was done through a discussion document prepared by the Information Co-ordinator, which set out a series of questions aimed at building up a complete picture of the nametape market:-

- What is the division's present target market?
- Who is in that market?
- What are their needs?
- Who is the buyer and what are the main influences on the purchasing decision?
- How and where do they buy?

A considerable amount of time and resources would have been necessary to provide the answers to all these questions immediately, as this would require information from both inside the Company and extensive desk and field research outside the Company. However, by using information from within the Company, provided by the managers and the DSS, plus some desk research, the target market was identified and divided into sectors. This formed the basis for assessing where current business was coming from in comparison with the opportunities available. Table 4 shows how the division's products were mapped against the market sectors identified, and the DSS was then used to establish current business levels within each category.

TABLE 4

NAME TAPE DIVISION TARGET MARKET

Framework for assessing value & volume of Product Sales
by MARKET SECTOR

Product	5/16" Tapes	Super Tapes	1/2" Tapes (one line)	1/2" Tapes (two line)	Designer Labels	Braille	1" Wide Tapes	Laundry Marks
Market								
Retail								
School								
Companies								
Area Health								
County Council								
Military								
Hotels								
Sports								
Clubs & Association								

5.3.3. THE CONTRIBUTION OF THE DSS

This formal analysis provided a clear picture of the Nametapes Division's position in the market. It clearly showed where resources were urgently required, as the following examples illustrate.

The analysis confirmed the high percentage of turnover coming from the retail sector which primarily serviced the school nametape market. Table 5 shows the percentage of turnover from each of the market sectors identified, with 88% coming from the retail and school shop sector.

However, even within this sector, where the total number of school children was falling, analysis by area showed that the market was not yet saturated. Comparison of sales by area with the distribution of the school population, highlighted several areas which were poorly penetrated and could provide increased levels of business if promotion efforts were directed there. Traditionally, the majority of promotional activity had focused on the south-east, the area with the highest concentration of public schools. Table 6 illustrates this by comparing the distribution of the school population with the distribution of nametape sales.

Table 5 also shows the low levels of business undertaken with other potential market sectors. Comparison with market potential, where known, enabled realistic targets and expenditure levels to be set up for these sectors. For example, an area analysis of sales to Area

TABLE 5

STANDARD NAMETAPES SALES TO MARKET SECTORS

	% of Sales
Retail Shops	86
School	2
Companies	2
Area Health	2
County Council	2
Military	0.5
Laundry	0.5
Hotels	-
Sports	1
Clubs & Associations	4
TOTAL	100

SOURCE: Sales and Marketing Budget 1983/4

TABLE 6
COMPARISON OF POTENTIAL WITH SALES BY AREAS FOR
SCHOOL NAMETAPES

<u>Area</u>	<u>% of School Population</u>	<u>% of Nametapes Sales</u>
S. West	6.5	7.4
S. East	9	16.6
London	11	10
Gtr. London	7	9
W. Mids	6	7.4
E. Mids	8.7	9.3
Wales	6	2.2
N. Mids	8.8	8.8
North	23	23
Scotland	11	4.3
Ireland	3	2
TOTAL	100	100

SOURCE: Sales and Marketing Budget 1983/4

Health Authorities, showed clearly where sales activity had been directed in the past. Even allowing the same resources to be channelled into all the other areas, could produce significant results.

The lack of knowledge of both the hotel and company business markets, put these as a lower priority in terms of promotional effort. The target for the year was expressed in terms of finding out what the market required and whether the division could supply it profitably.

A comparison of current accounts with the list of customer names and addresses held on the computer, revealed that 40% of the accounts in the customer file had not placed an order for two years. This was a more significant variance than the Company had imagined. Here the the DSS highlighted a problem area which required attention. Information from outside the Company was needed to establish why and how this situation had arisen. A telephone survey of a sample of the inactive accounts was undertaken, followed by a postal survey of the rest. As a result of this, almost half were re-activated and given up-to-date information on new products etc. The rest were closed and taken off the name and address file, making it an accurate reflection of the division's distribution network.

Incorporating this structured approach into the preparation of its sales and marketing budget proved successful for the division, resulting in its proposed expenditure plans being accepted in full for the first time in three years.

Despite the support provided by the DSS, one of the difficulties involved in preparing the budget, was the length of time it took to classify the nametape customers by market sectors as this had never been done before. This had been proposed by the Information Co-ordinator at the design stage of the DSS, but the Sales and Marketing Manager could not see the point in undertaking all the work it entailed unless it was a formal requirement for the budget. Demonstrating the benefits of this approach proved to be the best way to show how this additional information could be used effectively.

A further limitation of the DSS in providing information for the marketing plan, was the lack of past data from which trends could be identified. When the original sales analysis system had been set up, virtually all sales of the nametape product group were through retail outlets, and any new products followed the same route. Consequently there had been no need for the system to collect data for monitoring the sales to different market sectors, or through different sales channels. The introduction of alternative outlets and customers had occurred gradually over the past three years, and the ways of handling these had been added to the computer system on an ad hoc basis. The Computer Department had never had any indication of the extent of the new developments, or how the Sales and Marketing Department saw their information needs changing in the future to cope with these. The new budget represented the first stage in introducing a more structured planning process which would outline the aims and objectives of the division, and indicate to the Computer Department which were the important variables to be monitored.

mechanism for anticipating changes and incorporating them into the decision-making process. One of the functions of sales and marketing is to help the firm adapt to the changing needs of its markets. The Nametape Division had responded to market opportunities in the past but as there was no procedure for managing or recognising future changes, the support provided by the original sales analysis system remained static. This problem was compounded by the lack of communication between the Sales and Marketing Department and the Computer Department. The Computer Department often voiced the complaint that they never knew what was going on until after it had happened.

The case studies suggest that the participation of the sales and marketing managers in the design process is not sufficient to ensure a successful system implementation when the managers approach to marketing planning is informal, and they are unfamiliar with many marketing planning concepts. There are no established procedures to provide a framework for analysing data and no past experience from which problems could be anticipated. In both case studies, new marketing concepts and techniques were being introduced which meant that these represented a learning experience for both the managers and the systems designer.

During the case study period, the role of the Information Co-ordinator was extended to introduce new ideas and concepts. This provided a practical demonstration of the new techniques and, increased understanding of how the DSS could be useful for both the sales and marketing managers and the Computer Manager. The case

5.4 ANALYSIS OF CASE STUDIES

The case studies provide detailed illustrations of the decision-making process involved in two typical marketing exercises. The contribution of the DSS varied throughout the different stages in each of the exercises. In the first case study it provided a monitoring tool which ensured that the data required to judge whether specific promotion activities and ideas were successful, were collected in sufficient detail. It also ensured that a comprehensive body of knowledge was built up on which future plans could be made. In the second case study, it provided a means of highlighting problem areas and opportunities for future growth, giving the necessary justification for promotion and advertising expenditure.

However, using the DSS in this role demonstrated the need for a more formal approach to the planning and control of these exercises. In order to use the DSS as an effective way of monitoring the results of the market trial for the new product, it was necessary to develop a framework from the market research results which set out clearly what was to be monitored and why. The opportunities and problems highlighted by the DSS in the preparation of the Nametape Division's budget, required a more structured approach to the planning process. The previous method of developing a budget did not require structured analysis of this kind, so the capability of the DSS to provide additional support would not have been used.

The more formal approach to planning which exploited the DSS facilities, also provided an additional benefit by offering a

studies proved to be 'trial and error' periods whilst knowledge was being gained, and were very time-consuming. In this instance, the role of the Information Co-ordinator was particularly valuable as the managers did not have the time to spend on the initial problems, but after the benefits of the increased information were demonstrated, they were prepared to devote the additional resources required, for example, by hiring a temporary sales representative to undertake the telephone survey of the dormant accounts.

Although changes are an integral part of the sales and marketing function, the case studies show that these need to be incorporated into the planning process so they can be catered for. In order to achieve this, a structured approach to planning is required so that objectives and targets are made explicit. Without this clear definition, it is difficult for a computer department to provide effective support systems no matter how good communications are between the departments.

5.5 CHAPTER REVIEW

The two case studies described in the chapter illustrate the limitations and contribution of the DSS. Many of the limitations were found to result from the previous informal approach to planning and control within the Company. This meant that new techniques and methods were being introduced for the first time. The detailed analysis of the support provided by the DSS suggested that a more structured approach to planning was required in order to exploit the full benefits of the DSS. The role of the Information Co-ordinator

was found to be an effective way of introducing new planning and control techniques and demonstrating how and where the DSS could be used. It also triggered a review of dormant accounts and increased attention on the need to maintain the accuracy of customer records.

CHAPTER SIX

EVALUATING THE DECISION SUPPORT SYSTEM

6.1 CHAPTER INTRODUCTION

The evaluation of the DSS began concurrently with the implementation stage and was based on monitoring how and when the DSS was used, in addition to more formal discussions with the managers. This chapter assesses the achievements of the DSS using the evaluation criteria set up in Chapter 4, which were as follows:-

Changes in attitudes towards the use of computer-produced information.

The response of the DSS to requests.

Changes in distribution and frequency of the reports.

Changes initiated by managers.

Use of the DSS.

The results of this evaluation then form the basis for a discussion on the extent to which the objectives set for the DSS have been achieved, focusing on how marketing support has improved.

6.2 ATTITUDES TOWARDS THE DSS

The pre-design discussions undertaken with the managers drew out their dissatisfaction with the original sales analysis system and with the service provided by the Computer Department. The information they received was of little use to them and they were unsure what was available or how to request changes. There was a lack of confidence

in the data produced by the system and the managers of the two smaller departments raised complaints over the amount of money they had to contribute to the Computer Department for little in return.

The interim discussions took place at the end of the first year of the system implementation, when all monthly, quarterly and yearly reports had been issued. (Appendix 1.2 contains the interview outline and summaries of the discussions). However, the full system was not yet in operation, as the "this year/last year" comparison was not available, and there had been no opportunity to request the various options offered on the yearly planning reports which enabled them to be used for specific exercises. Consequently, although the managers were not fully familiar with the system as a whole, their use of the monthly and quarterly reports had already had an effect.

The Gifts Division was now under a new manager who had just completed a Masters Degree in Business Administration (MBA). Her first action within the Company had been to establish a strategic marketing plan for the division, which set out specific objectives and targets. She had used computer-produced information in her previous company, and was keen to use the DSS to monitor progress towards these objectives closely. The manager, and her staff, had quickly become familiar with their monthly and quarterly reports and had initiated several changes. These included developing a summary report on product sales each month, and increasing the frequency of their customer sales report, from quarterly to monthly, for the Sales Co-ordinator. She found it particularly useful for monitoring the distribution of new products to customers, and answering telephone

enquiries about where products could be purchased. The accuracy of the data contained in the reports was no longer questioned, although it was pointed out that there was no easy way of checking it, so it had to be believed. The production of a Company summary sheet which gave the sales of each of the Company's divisions for the month, as recorded in the management accounts, meant that the accuracy of the data could be verified. (An example of this report is contained in Appendix 3.4). All the computer reports were balanced to these totals and although this document was not essential, all the managers requested it as it appeared to provide reassurance on this point.

The Textile Division was, at this stage, still experiencing difficulty with its monthly report, due to the area coding problem. However, the quarterly report, which was not split into areas, was well received and had been used extensively, particularly in the preparation of sales budgets. For these, assembling customer sales information had previously taken up to one week, whereas now the information was instantly accessible. The Sales Director was very pleased with progress in general, but frustrated that the area code problem had not been solved, and annoyed that the description and title pages had not yet been completed.

The Printing Division Manager was also very pleased with his quarterly report, finding it invaluable for telesales in particular. Once printed label sales were split from woven label sales, the Printing Manager could see additional ways in which the information could be used, but found that these were constrained by the product code structure. The product code structure had been developed with

the sales of woven labels and badges in mind, but it was not until the two product groups were under separate managers that it was found to be inadequate for monitoring the sales of printed labels effectively. Discussions were organised with the Financial Director and the Computer Manager to see how this need could be accommodated within the existing structure of the DSS.

The Nametapes Division appeared to be using the DSS as a record of customer sales and as such, it was merely a replacement for their customer sales report produced by the original sales analysis system. Although the Sales Manager expressed approval of the options available with regard to the level of detail, very shortly after this new quarterly report had been issued, he requested additional details, which replaced much of the detail that had just been removed. The reason for this appeared to be that the DSS reports provided the only record of customer sales and had to be used by the Sales Manager to plan and prepare for customer visits as well for analysis and control. He was also wary of the accuracy of the data contained in the reports, particularly the relationship between values and volumes. This obstacle was difficult to overcome due to the complex nature of the nametape sales operation.

Nametape orders were received in two different ways. Some orders were received directly from the customer, produced, dispatched and invoiced. Others were received from retail outlets on order cards which had been purchased in books of ten by the retailer. This provided a simple administrative system for the retailer. He treated the cards as a stock item and sold them to the customers, who filled

in their order requirements and posted the card to the Company. It also meant that the Company received the money in advance of producing the goods. Consequently, the invoiced sales of prepaid books could not be credited straight to the Company accounts, but were held in a reserve. It was still essential to monitor the sales of these books as this gave an indication of forthcoming sales levels. The number of cards coming in from customers was recorded and used to calculate how much could be transferred from the reserve at the end of each month.

This meant that three sets of figures had to be monitored which all came from different sources; the sales of prepaid books and normal orders were included in the DSS, the number of prepaid cards coming into the Company was recorded in the "Black book", and the management accounts showed the value of the normal orders invoiced plus an allocation from the prepaid reserve. All these figures were important for different reasons, but it meant that providing the reassurance of the accuracy of data for the manager concerned, could not be done in the same way as for the other divisions through the Company summary sheet.

The Export Manager was very satisfied with the DSS as the importance of exports to the Company could be seen clearly. The Gift

appeared to resolve the Export Manager's doubts about the accuracy of the data. He was now happy to use the figures contained in the reports to plan his future sales budgets.

All the managers described the service performed by the Computer Department as much improved. They all felt that the Computer Department were willing to help but expressed concern over the length of time it took to get amendments done or problems corrected. They also expressed concern over the way the reports were distributed. The majority felt that these just "appeared on their desks", and they were never sure if they received everything they should. This was partly due to the absence of the description sheet requested as the first page of the reports, but also suggested that a formal circulation list might be required. Two of the managers suggested that they should sign to receive the reports. Lack of communication from the Computer Department to advise managers when the reports were going to be late or to explain why mistakes had occurred, was also raised by the managers as a point of annoyance.

The views expressed in the final discussions on the DSS, nine months later, revealed similar attitudes. (The summaries of these discussions are contained in Appendix 1.3). The Printing Division had been transferred to a newly formed company which had become a wholly-owned subsidiary, and was consequently not assessed. By this stage, all the other managers were familiar with the DSS structure, and had used all the reports on various occasions. The monthly and quarterly reports were now used regularly, and the Computer Department was now under considerable pressure to produce the reports on schedule

as the managers were waiting for them at the end of each period, raising complaints if they were late. The accuracy of data within the reports was now accepted, with the exception of the Nametape Division. The fact that the area code problem had just been resolved, and only on a temporary basis, had created considerable annoyance for all divisions, as did the failure to provide title and description pages.

The Information Co-ordinator had withdrawn from the intermediary role between the two departments for the last three months of the implementation period, so all requests were being directed straight to the Computer Department. Although all the divisions assumed this responsibility easily, and were happy with their relationship with the Computer Department, the feeling that it took a long time to fulfil requests still prevailed. It was also felt that this way of requesting changes or new options was haphazard and prone to mistakes. Once again, this suggested that a more formal policy was required. A steering committee had been set up to control the purchase of a new computer, consisting of the Technical Director, Technical Manager, Financial Director and Computer Manager. It could have provided the mechanism for channelling these requests, but unfortunately this committee did not meet regularly and had no sales and marketing representative at this time.

Whilst monitoring how and why the managers' attitudes towards the Computer Department had changed, it was also interesting to note the change in attitude on the part of the Computer Department. At the beginning of the research project in July 1981, the Computer Department expressed the view that the managers did not seem to know

what they wanted from the computer. However, after the first year of the DSS implementation, the Computer Department was able to see how and why the DSS was being used. At this stage, a decision was taken, for reasons unrelated to the DSS development, to look at replacing the Company's batch-processing computer system with an on-line, interactive system. Even before the specifications for a new computer system were drawn up, the Financial Director and Computer Department Manager had detailed discussions with all the divisional managers on their information needs for the future. The sales and marketing managers were invited to attend a computer manufacturer's roadshow, where demonstrations of the way interactive enquiry packages could be used to assist the sales and marketing function were given.

The reactions of the managers to this demonstration led ultimately to the purchase of an easy to use, interactive enquiry package called "PRESENT", which would run on the new computer system. This new package was also demonstrated to the sales and marketing managers before the new computer was installed, so that any ideas on how it could be used could be discussed. Any changes required in the current DSS, which was to form the data base for the new enquiry package, could then be organised and incorporated into the system as the files were transferred to the new machine.

This approach to the purchase of the new system meant that all the managers were aware of the new opportunities which would be available to them, and were all looking forward to the arrival of the new computer. Their experience gained in setting up and implementing the batch-produced DSS meant they had a clearer concept of what

information they needed and what they did not need. Unfortunately the new computer was to be installed after the end of the research project so its impact could not be assessed. However, the approach to the purchase of the new enquiry package was monitored and seen to incorporate several of the principles that the Information Co-ordinator had been trying to introduce in the design and implementation of the DSS.

6.3. THE EVOLUTION OF THE DSS

Throughout the implementation of the DSS, any requests for modifications to the system were channelled through the Information Co-ordinator and the reasons for these recorded. In setting up the evaluation criteria at the beginning of the DSS development process, it was proposed that requests for amendments and modifications would mean that the system was being used and was being adapted to the needs of the managers. The types of modifications made were classified into five categories; changes in the distribution and frequency of the reports, requests for the various options available to the managers, requests for new reports or analysis which could be developed within the structure of the DSS, and amendments and corrections to the current DSS reports. Table 7 shows the number and type of modifications and the length of time they took.

Ten changes in the distribution and frequency of the reports were recorded during the eighteen month implementation period. These were mainly additions to the frequency and distribution of the reports, and occurred as a result of increased use of the reports as they became

TABLE 7

CLASSIFICATION OF REQUESTS FOR MODIFICATION TO THE DSS AND RESPONSE TIMES

TYPE OF MODIFICATION	NO. OF REQUESTS	RESPONSE TIMES
Changes in distribution and frequency	Increase in frequency = 5 Increased circulation = 2 Reduction in circulation = 3	For next Issue of reports
Requests for Options	Dormant Accounts = 3 Special Customer Analysis = 5	2 days 3-4 days
Requests for new Reports	Product Line - Val & Vol Products by Area New Accounts	2 weeks 1 week 1 week
Amendments	Monthly reports = 4 Quarterly reports = 8 Yearly reports = 3 Title Sheets	3 months 1 month 2 months not yet done
Problem Area	Area Code Problem Transfer of Accounts from one area to another	Temporary Solution 1 year Not yet solved

familiar, and as a result of organisational changes. The quarterly customer report for the Gift Division was requested on a monthly basis by the Sales Co-ordinator, the Export Manager and the new Divisional Manager, who also initiated a new move to send a copy of the relevant sections of the report to the sales agents in the field. Additional copies of the monthly customer report for the Textile Division were requested so these could also be issued to the sales representatives, who could now monitor their own customers' progress. Changes in the organisation structure with the divisionalisation of the Company's operations, meant that a new Divisional Manager for nametapes was added to the distribution list, at his own request.

The distribution list was reduced as a result of this re-organisation, as the Sales and Marketing Director took responsibility for the newly formed Textile Division and no longer needed reports on the Nametapes, Gifts and Printing Divisions. A further reduction in the production and distribution of reports occurred when the Printing Division was reformed under a new subsidiary company. The new Printing company did in fact continue to use and develop further their part of the DSS but this was not included in the final research results. Initially, the summary reports appeared superfluous and were not being used. The Divisional Manager for Gifts cancelled hers. However, during the second year of the DSS implementation, these were resurrected and began to be used extensively, primarily due to the "this year/last year" comparisons they incorporated. A copy of all the monthly summaries had originally been sent to the Directors, but this proved too detailed for their

needs and was successfully replaced by the monthly summary of Company sales.

Organising the distribution of the reports required considerable attention by the Information Co-ordinator to ensure that it was done correctly. This entailed splitting the reports into their relevant sections for each division, separating exports, filing archive copies and it was six months before this could be done without mistakes and the archives kept up to date. Subsequent changes to this system, once in operation, also needed careful monitoring. However, this careful control may have contributed to the ability of the DSS to respond to organisational changes, and meant that no superfluous reports were being produced at the end of the implementation period.

There were no requests for the options offered by the DSS, during the first year of its implementation whilst the managers were becoming familiar with the basic outline. Seven requests for options were recorded during the first nine months of the second year, and these included requests from all the divisions for lists of customers who had not ordered during the year so that attempts could be made to reactivate these. Details of specific groups of customers were requested to support marketing exercises; details of current and dormant ribbon accounts for a ribbon marketing report, details of the top 100 nametapes customers to analyse why sales were down in the first quarter, and details of all Gift Division customers who had bought a new range of pictures so special display stands could be allocated. The distribution analysis was used to assess which towns did not have a retail outlet for the Gift Division and also to monitor

the growth of the retail network for Designer Labels. The Computer Department responded quickly to all these requests issuing the reports within three days.

Three new reports were requested during the implementation period. A summary of product lines sales by value and volume each month, was requested by the new Gifts Divisional Manager and this report was subsequently adopted by all the other divisions within the Company. The Textile division did not use it on a regular basis but found it useful for analysing the way the various production facilities were being utilised vs the value of business this produced. The Nametapes Division found the report became useful as a range of new products were introduced, as it enabled their progress to be monitored easily each month. For example, it had proved invaluable for monitoring the growth of Designer Label sales. A report on product sales by area was requested by the Gifts Divisional Manager, specifically to prepare for a sales conference, but was found to be so useful, that she asked to have it included as an option which would be available on request. One of the options included in the DSS was modified to produce a report for the Nametape Division on the new accounts that had been opened during the year, showing the value of their sales. These reports were completed within two weeks of the original requests.

By comparison, amendments to the DSS reports, such as layout, content or modifications, took several months, and required considerable pressure from the Information Co-ordinator to ensure that they were completed. (Some examples of these are included in Appendix 3). Nine amendments of this kind were requested, including

modifications to headings, altering the position of certain figures, producing title pages for each report. The amendments to the monthly reports took three months and those to the yearly reports, seven months. This point was raised in Chapter Four where it was suggested that the Computer Department had not allowed enough time for amendments, and the need to revert to enlisting support from the Managing Director to get two major problems solved was highlighted.

6.4. USE OF THE DSS

The majority of the changes observed in marketing decision-making could be attributed to either the availability of additional information which gave the opportunity for new types of analysis, or to the method of presentation of the information, which allowed marketing questions to be answered more easily.

The availability of additional information meant that several new marketing activities could be undertaken, particularly in the area of monitoring and control. All of the divisions undertook reviews of their distribution networks, using the DSS to analyse the growth/decline of their customers or outlets. In the Textile Division, any dormant accounts with possible sales potential were allocated to the external sales executives for a sales visit. The Nametapes Division set up a telephone survey to find out how and why so many of their accounts had not ordered for two years and this was followed up with a postal survey. The Gifts Division used their analysis to isolate towns with no retail outlet and sent this information on to the sales agents, as a first step to achieving their

objective to increase their retail network by 15%. The dormant accounts from all divisions were closed and deleted from the name and address file, which meant that each division now had a realistic record of its distribution network, from which any growth or decline could be assessed in the future.

A significant factor which contributed to the success of this exercise, was the reallocation of responsibilities which occurred when the Company was divisionalised. This meant that each division was now responsible for coding its own orders and keeping their own name and address file up to date. Now the source of the data for the customer and area reports was under the control of the divisional managers and they could clearly see the effect of errors in coding or out-of-date information.

The Divisional Managers could now set up sales budgets which contained both volume and value projections as sales volumes were now presented in the reports. This was a significant improvement on the former method, where the Sales and Marketing Department put forward projected turnover figures, which the Production Department then broke down into monthly volumes, using their historic information and experience of what usually happened. The use of volume information as a basis for planning provided a basis for assessing actual growth or decline in sales by eliminating the influence of price increases; for example an analysis of volume sales over the last three years by the Gift Division revealed how steep the decline in sales of birds, butterflies and bookmarks had been.

The introduction of a "this year/last year" comparison of sales on the majority of the reports, gave an immediate indication of performance. This facilitated the monitoring of sales agents and customer progress, highlighting areas where action should be taken. The Nametapes Division in particular, took full advantage of this analysis when sales in the first quarter were less than over the same period last year. The Sales and Marketing Manager organised a telephone sales campaign concentrating on all the major accounts whose sales were down and this generated substantial sales.

The reports provided information to show where each Division's current business was coming from, and used in conjunction with external information or published sources of data, could be used to highlight areas where potential opportunities existed. This matching of internal and external information formed the basis for the planning exercise undertaken to prepare the Nametapes Division's sales and marketing budget, for the preparation of the marketing plan for the new Designer Labels, and for the preparation of marketing reports on ribbons, webbing, labels and badges by the Textile Division.

The way the information was now presented and organised was particularly useful in assisting the Divisional Managers in planning for the future. The Textile Division could clearly see which customers would be affected by any changes in production facilities, and could make a realistic assessment of how much business might be lost, as compared with the increased business that would be gained by improving service levels. The yearly customer analysis report enabled customers to be split into value bands and showed how the business was

spread over the customer base. This information was used to make decisions on where the sales executives should allocate their time and to control the proliferation of small unprofitable accounts. The Nametapes Division was able to monitor the increasing importance of alternative sales channels, for example sales through mail order companies was seen to rise from 6% of turnover to 14% within nine months. The Gifts Division was able to track its progress towards its objective of reducing the importance of woven picture sales and increasing the contribution of other products. The Export sales reports were used extensively in planning a new sales operation for Nametapes in Eire and monitoring its progress and for planning the transfer to a new distributor for Gift products in the U.S.A.

6.5. IMPROVEMENTS IN MARKETING EFFECTIVENESS

The two main factors hindering an improvement in marketing effectiveness for the Company were identified as the lack of adequate marketing information and a restrictive organisation structure. Changes in organisation structure had occurred as the Company split into divisions. Responsibility for specific product groups and markets was allocated to each divisional manager, with the result that the wide areas of control and complex mixture of products and markets were eliminated. This decentralisation of responsibility through the organisation, gave the divisional managers the freedom to experiment with new ideas and techniques, and to concentrate their resources on the key opportunities. A totally new presentation of the traditional woven picture range was developed. Technical webbings sales grew substantially, breaking into a new market area. Three new product

lines had been developed by the Nametapes Division and they were being marketed using new sales methods. A television advertising campaign had been undertaken for the first time and overseas expansion was under consideration. The computer-aided design system for weaving labels and pictures was virtually complete.

Each of the Divisional Managers was expected to set objectives and targets for their division and support these with detailed plans of how they would be achieved. Medium-term plans to increase profits and stimulate growth had been drawn up for the Textile and Gift Divisions and progress towards these objectives was monitored by the DSS. It provided all the basic sales data requirements highlighted in Table 2 in Chapter 2, with data now available on sales volumes and values by product, product group, area, customer, distribution channel and market sector. All the data files were being stored on magnetic tapes to form a bank of history which could be used in the future for developing models or for forecasting. Back copies of the computer reports were held in an archive, so were easily accessible to all managers.

Information on profitability had improved with the introduction of divisional profit and loss accounts. However, the relationship between volume and profit was still unclear for some products, and the cost-effectiveness of sales through one type of distribution channel vs another, or to different market sectors was still impossible to assess. At this stage no information on profitability was available through the DSS, but a standard costing system for gift products was in the process of being implemented and it was anticipated that data

from this could eventually be incorporated in the DSS. Manual records of the number of orders coming into the Company for nametape products was still being recorded in the black book, but a new order entry package which included all the new products was being developed for the new computer which would include facilities to replace this manual system. Other options were being planned to take advantage of the facilities offered by the new computer, which included recording the date of the last order for each customer, flagging customers who had been on a mailshot list, or who had opened an account at a specific exhibition or been included in a telesales campaign. Analysis of sales performance against budget figures, although not considered as a priority by managers originally, had now been requested by all managers as a future requirement on the new computer.

6.6. COST/BENEFIT ANALYSIS

It proved impossible to undertake a realistic comparison of the costs of the DSS against the costs of the original sales analysis system, as the computer was upgraded during the DSS implementation period, which made running times more efficient. A direct comparison of printing times and running times for the two systems showed that the new system was only marginally more expensive in total costs, and as the former system only included one analysis report for nametapes, it offered better value for money. Figure 23 gives a detailed comparison of the run times and print times for each system. This attention to cost, however, meant that for the first time, managers were able to establish how much each report cost them. The yearly

FIGURE 23

EXISTING SALES ANALYSIS SYSTEM VS DSS

COMPARISON OF COSTS

EXISTING SALES ANALYSIS SYSTEM: (COST PER YEAR) 1981

<u>REPORT</u>	<u>PRINT TIME</u>	<u>RUN TIME</u>	<u>COST (@ £20 ph)</u>
SAL6	15 hrs	18 hrs	£660
SA02	2 hrs	4 hrs	£120
SA03	4 hrs	2 hrs	£120
SA04	4 hrs	4 hrs	£160
SA05	4 hrs	4 hrs	£160
	<hr/>	<hr/>	<hr/>
TOTAL	29 hrs	32 hrs	£1,220

DSS (COST PER YEAR) 1984

<u>REPORT GROUP</u>	<u>PRINT TIME</u>	<u>RUN TIME</u>	<u>COST (@ £20 ph)</u>
TEXTILES	15.4 hrs	6 hrs	£428
GIFTS	19.3 hrs	9 hrs	£566
NAMES	11.2 hrs	12 hrs	£464
	<hr/>	<hr/>	<hr/>
TOTAL	45.9 hrs	27 hrs	£1,458

costs for each division were under £500 and all the divisional managers felt that this was acceptable. These costs did not include the cost of developing the system. This had been estimated at approximately £2000, but in the last evaluation discussion with the Financial Director and Computer Manager, they both expressed the opinion that the cost of development had been worth the benefits the system provided.

A comparison of the total number of pages printed out each year showed that this had risen by 25%, but as the reports were distributed in a different way, the number of pages received by any one manager had been significantly reduced, as illustrated in figure 24. For example, the Sales Director had received copies of all the reports produced by the old system and this amounted to 1200 pages each quarter, plus an additional report of 400 pages twice a year. With the DSS, his monthly report was approximately 50 pages long, his quarterly report 60 pages long, with an additional 70 pages contained in his year end reports.

Estimating the time saved on preparing budgets and reports also proved difficult to calculate as the style and content of budgets and plans changed during the project period. The Textile Division Manager suggested that it saved his assistant about one weeks work in putting together the basic budget information, but that additional work was still required on those figures. The main advantage therefore seemed to be that additional information could be supplied for plans and budgets without employing any extra staff and at little extra cost.

FIGURE 24

COMPARISON OF REPORT LENGTH AND DISTRIBUTION

<u>SALES DIRECTOR</u>		
<u>FREQUENCY</u>	<u>SALES ANALYSIS</u> (No. of Pages)	<u>DSS</u>
MONTHLY	700	50
QUARTERLY	500	60
YEARLY	400	70

<u>SALES MANAGER: NAMETAPES</u>		
<u>FREQUENCY</u>	<u>SALES ANALYSIS</u> (No. of Pages)	<u>DSS</u>
MONTHLY	-	50
QUARTERLY	1,700	800
YEARLY	-	300

6.7 ACHIEVEMENT OF OBJECTIVES

The objectives set up for the DSS were split into two levels; specific systems objectives which outlined the type of system required, and broader goals covering the organisational problems to be tackled by the approach taken to developing the new system.

The evidence collected to satisfy the evaluation criteria suggested that the specific system objectives had been achieved. These were as follows:-

(i) To develop a flexible system which would provide the minimum amount of information necessary for an effective planning and monitoring system.

The DSS proved itself to be sufficiently flexible, (within the technical limitations of a batch-processing system), to cope with two major changes in organisation structure and with the arrival of new members of personnel with new ideas. The options it offered enabled specific marketing exercises to be undertaken easily, and the Computer Department were able to respond to requests for additional information quickly. The inadequacies of the DSS were mainly imposed by the batch-processing system used to produce the reports; the managers still had to look through reports to find specific customers or products and any different ways of looking at the data not foreseen by the original discussions required a new program to be written. However, it was anticipated that the enquiry package purchased for the

new computer and the interactive enquiry facilities it offered, would solve this.

The amount of information produced for each manager had been reduced with the use of summary reports, with the exception of the Nametapes Department, who had requested the re-instatement of all the detail that had been cut out. However, it was interesting to note how the acceptance of summary information grew over time and appeared to relate to increased confidence in the reports and the accuracy of the data they contained.

(ii) To identify areas where action was required.

The "this year/last year" comparison was the principal way of identifying areas of concern. Using the DSS in conjunction with outside sources of data was equally successful in highlighting areas where action was needed. The DSS was not extended to incorporate the concept of exception reporting, basically due to the length of time the managers had needed to become familiar with the reports, accept the summaries and build up confidence in the data. The DSS did not show sales vs budget targets as this had not been seen as essential at the beginning of the design process. However, it was now under discussion.

(iii) To identify trends.

Setting up an archive system and saving the data each year on magnetic tape meant that a bank of data was being built up which could

be used to identify trends. The technical limitations of the current computer only allowed two years data (this year/last year), to be held on the computer at any one time, so any historical analysis would entail a manual operation using copies of the reports held in the archives. The facilities offered by the new computer meant that in the future, any analysis requiring historical data could be performed on the computer itself, as all the data already collected could be transferred onto the computer, temporarily, when needed.

(iv) To identify the results of specific activities and promotions

Facilities to undertake this kind of analysis were included in the DSS, but had not yet been used extensively. The Gifts Division were planning to monitor the effect of replacing three agents in one region by one Company representative, in order to decide whether this policy should be extended to all areas. The Nametapes Division, however, had experienced some difficulty in using the DSS to judge the effects of a television advertising campaign in the Midlands. This appeared to be due to two main factors. First, the analysis was affected by the problem which occurred with the area codes, and as this was only solved in the middle of the campaign, it contributed to doubts about the accuracy of the data showing how area sales had been affected. Second, the quarterly area report was used for the analysis and this contained details of all the products sold by the Division. Only one of these was included in the advertising campaign. One of the limitations of the batch processing system meant that the report could not be issued containing details of that particular product on its own without a new program being written.

These obstacles resulted in the evaluation of the campaign becoming a time-consuming exercise although these limitations to the system were known, and some steps could have been taken to overcome them if the managers had discussed the way they wished to evaluate the campaign before it started. The DSS provided the facility to extract certain customers and their sales data on request, and this option could have been used to set up a "before" picture and repeated after the campaign to see exactly how the relevant accounts had been affected. Unfortunately as the evaluation of the campaign was not discussed until it had finished, it was too late to take advantage of this facility.

(v) To ensure that the the system remained a working tool, and evolved with the Company.

The analysis of the distribution and frequency of the reports, revealed several changes in the original distribution schedule set up for the DSS, and at the end of the implementation period, all the reports and options were being used. This suggested that the DSS had been able to respond to the organisational and personnel changes that had occurred and also, to the changing requirements of the managers as they became more familiar with the system. However, the work undertaken by the Information Co-ordinator to ensure that the distribution and frequency of the reports was carried out correctly, and the managers' impressions that the way requests were handled was rather haphazard, implied that a more formal method of doing this was required.

The achievement of the broader systems goals was assessed by the Directors who had set them in November 1981, and in general, it was felt that significant progress had been made towards these goals. The Directors agreed that the greatest area of improvement had occurred in the support for marketing planning and control, and in bridging the communications gap between the Computer and Sales and Marketing Departments. The area where some further work was required was in ensuring that all the managers were completely familiar with the system as a whole; it was taking longer than expected for the managers to assimilate all the facilities offered by the DSS. The Managing Director and Sales Director both felt that if anything, the system was too sophisticated, and could be even simpler. It was interesting to note that this contrasted with the Information Co-ordinator's own opinion that the DSS was a basic one, which should gradually be developed to a more sophisticated level. The Financial Director had been concerned about the growing number of requests for the additional options, which might have led to overloading of the Computer Department in the future, but he was now confident that the interactive enquiry package purchased for the new computer would accommodate this need.

6.8 CONCLUSIONS

The evidence provided by this evaluation suggests that the system had been successfully implemented with significant progress being made towards achieving the objectives, within the limitations of the present batch-processing computer system.

However, the successful implementation of the system could not be attributed only to the approach taken to its development, as it had also been influenced by the organisational changes which had occurred during the system development process. The restructuring of the Company into separate divisions gave clear responsibilities for specific markets and products, making the identification of information needs easier, and allowed different types of analysis to be undertaken for different markets. In conjunction with this decentralisation of responsibility, co-ordination mechanisms, in the form of plans, divisional objectives, and progress reports, were introduced. The DSS provided the necessary facilities to prepare and monitor these plans. In many instances, this was the first time a formal approach to planning and control had been required. The Information Co-ordinator was involved in a significant amount of the groundwork needed to set up frameworks for these new planning and control operations, which began to replace the informal, ad hoc measures of the past, and through this initial work, she was able to show how and where the DSS could be used effectively.

The full benefits of the DSS were not exploited until this more formal requirement for plans was introduced, and many of the obstacles encountered were a result of undertaking this type of exercises for the first time. Other obstacles were encountered in building up confidence in the accuracy of the data; summary reports were not used until this had been achieved. Balancing the totals of all the reports to one main Company report proved an essential feature in building up this confidence, and where the complex sales operation of the

Nametapes Division made this impossible, confidence in the data remained a problem.

The length of time required to build up this confidence was compounded by the long delays experienced in getting mistakes corrected and amendments completed. Table 8 shows the extent of some of the delays experienced. This caused considerable frustration and annoyance amongst the managers and gave rise to the impression that the Computer Department took a long time to do everything, whereas in reality, simple reports and requests for options had been processed very quickly.

TABLE 8
DEVELOPMENT OF THE DSS
ACTUAL vs PLANNED

Development Stage	Activity	Planned	Actual
Pre-Design Jul-Dec 1981	1. Analysis of Marketing info 2. Identification of Info 'Gaps' 3. Discussions with Managers	Jul-Sept 81 Oct-Nov 81 Nov-Dec 81	✓ ✓ ✓
Design Jan-Mar 1982	1. Outline of System prepared 2. Technical Feasibility discussed 3. Managers design layouts etc 4. Programming Monthly Quarterly Yearly	Dec 81 Jan 82 Feb 82 Mar 82 May 82 Oct 82	✓ ✓ ✓ Apr 82 ✓ Feb 82
Implementation Apr-Feb 84 June 1982 - New Gifts Manager Oct 1982 - Divisionalisation	1. Introduction Monthly Quarterly Yearly 2. Amendments Monthly Quarterly Yearly	Apr 82 Jul 82 Dec 82 July 82 Sept 82 Jul 83	June 82 ✓ Mar 83 Oct 82 Oct 82 (Except area code) Sept 83 Oct 83 (Except report description)
Evaluation June 82-Feb 84 June 83 Separate Co. Printing July 83 New Gifts Manager Jan 84 New Export Mgr	1. Monitor use in Marketing (Throughout Period) 2. Interim Evaluation 3. Final Evaluation	Mar 82 Dec 82	Feb 84

6.9 CHAPTER REVIEW

The evaluation of the DSS suggested that the system had largely achieved its objectives; the support for marketing planning had improved, a system had been developed which managers could understand and use easily, and the communications barrier between the Computer and Sales and Marketing departments had been removed. However, the practical examples of how and where the DSS had been used revealed that the achievement of these goals was not due to the approach taken to developing the DSS alone. The improvement in marketing support in particular, appeared to be related to two additional factors; the organisational changes, which outlined marketing responsibilities more clearly and introduced a need for a more formal approach to planning and control, and the initial work of the Information Co-ordinator with the managers in showing how and where the DSS could provide support.

CHAPTER SEVEN
DISCUSSION OF RESEARCH RESULTS

7.1 CHAPTER INTRODUCTION

The research set out with a clearly defined focus of attention in order to ensure that the wealth of data collected during the three year period, could eventually be presented in an organised manner. The first part of this chapter outlines the research contribution and discusses to what extent the original hypothesis has been supported by the research results. However, the nature of the case study method meant that whole series of hypotheses were raised during the course of the project. A review of the project progress follows which draws out the full extent of the study's contribution to the field of marketing information systems implementation in small companies. A critical appraisal of the research methodology puts these findings in perspective and looks at the difficulties encountered and how they were addressed.

7.2 THE RESEARCH CONTRIBUTION

7.2.1 THE MAIN ACHIEVEMENTS OF THE RESEARCH

The major achievement of the research lies in the identification of three main constraints hindering the successful implementation of a DSS in a small company, and in the development of a method to overcome these through the use of an intermediary. Rich data is provided which

shows how these constraints affect DSS implementation and use, giving a new insight into the role and responsibilities of the intermediary.

The first constraint, the lack of functional expertise within the company, was identified at the beginning of the project period. An initial marketing review revealed many gaps in the Company's marketing knowledge and the lack of an explicit marketing strategy. Whilst the Company had intuitively exploited its technical and innovative ability and introduced new products, it had not been effective in anticipating or reacting to changes in its markets. For example, the boom in printed labels had gone unexploited whilst sales of woven labels fell, the initial high sales of woven pictures had not been maintained, and there had been a lack of success in finding new markets for Nametape products. Indeed, the lack of marketing orientation within the Company had been highlighted in an earlier study on innovation by a previous IHD student (86).

The research clearly reveals the kind of difficulties this creates for DSS development. First, the lack of functional expertise meant the marketing managers definition of their requirements proved to be inadequate as a basis for the DSS. The initial investigation into the internal sales and marketing information within the Company by the researcher, highlighted a deficiency in basic analysis data. No profitability, distribution or market segment information was available and in pre-design discussions with the managers on their information needs, these areas were not raised. Consequently, whilst a system designed around user requirements would have satisfied the DSS objective in providing improved support to this department, it

would have failed in its ultimate aim to help improve the Company's marketing effectiveness.

The managers lack of experience in using computer-produced data was compounded by this limited level of marketing expertise. Once the DSS was implemented, the managers not only had to become familiar with using this type of data, but also learn how to use the new information provided effectively. It was found that the managers took months to become familiar with their reports, and leaned heavily on the assistance of the researcher at first. They began by using the system to try and answer specific questions, and gradually moved onto using it to prepare monthly reports and support routine decisions, such as planning sales representatives' journey cycles.

Much of the new information provided by the DSS remained unused by the majority of managers until its relevance was demonstrated by the researcher. Information on school nametape sales by area was available for three months before the researcher was involved in a practical marketing planning exercise which enabled her to show how this could be matched with external market intelligence to identify areas of potential. Volume sales of a new product line to different market segments were targeted and monitored for the first time by the researcher during the trial market for Designer Labels, showing how market research findings could be tested out on a small scale.

Finally, this constraint led to the implementation of a fairly limited, unsophisticated DSS, which initially contained only the bare minimum of data to support basic marketing decisions and performed

little analysis. However, this matched the needs of the managers at this time and the provision of a more sophisticated system would have risked isolating inexperienced users during the early stages. The fact that the managers could easily understand the basis of the system and related it to their immediate needs, assisted in overcoming some of the existing barriers to the use of a DSS, and led to a build up of confidence in the accuracy and usefulness of the information.

The second constraint, the informal approach to planning and control within the Company, meant that there were no explicit marketing objectives in existence. Consequently, there had been no need to monitor or control progress. The only targets were sales turnover targets, so there was little incentive for managers to monitor sales through different types of sales outlets, or to different markets. This meant that there was no basis on which to decide what type of data should be collected, how often, or which factors should be controlled and for what reason. The launch of the Designer Labels was the first occasion when sales to pre-selected market segments, identified in a marketing research report, were monitored. The Nametapes sales and marketing budget was the first to contain objectives and targets for different market segments and different sales channels.

This absence of a planning culture also meant that assumptions about the future were not made explicit, with the result that no provision could be made to incorporate new activities into the internal information system. This was illustrated by the problems encountered in trying to assess the sales level of technical webbings

into a new market area, as no provision had been made to distinguish this high specification webbing from ordinary webbing. A further example of this occurred when the objectives and targets for the first Nametapes TV advertising campaign were not clearly set out before the campaign started, so the facilities offered by the DSS to analyse the results were not set-up, and at the end of the campaign it proved almost impossible to isolate the effects of the advertising.

Furthermore, there was no past experience from which mistakes could be anticipated. Virtually all the monitoring and control aspects implemented were new, and required a great deal of time to set up initially. For example, in order to monitor Nametape sales by market sector, all 4,000 accounts had to be individually classified; an exercise which took three weeks. Problems in recording volume sales of nametapes occurred because this had never been attempted using the computer system before, and devising a satisfactory and comprehensive coding structure took some time.

The final constraint, the lack of provision for communication between the Computer and Marketing departments, has been raised as a factor that must be given attention by many researchers. In this study it led not only to the development of an information system which was not used, but also set-up a vicious circle of distrust which had to be overcome before any progress could be made. The Marketing department had become frustrated at the amount of money they were contributing for information they could not use and felt that the Computer department did not understand their needs at all. The Computer department were equally frustrated because it seemed that all

their efforts had been wasted and they felt that the Marketing managers did not know what they really wanted. Once again, this difficulty was compounded by the lack of planning , which meant that the computer department did not have prior warning of changes of direction and never knew what was going on until after it had happened.

Despite its limitations, the DSS was successfully implemented and in conjunction with the work of the intermediary, made a significant contribution to a more effective use of marketing planning within the Company.

The lack of an internal information system to capture and process information was identified as one of the Company's problems at the beginning of the research. Empirical studies indicate that this is a common problem for small firms (81). Indeed, Hedburg's study (87) of how organisations learn and unlearn, suggests that organisational learning does not necessarily increase with additional information, but depends on the capacity of the organisation to handle it. In this case study, the development of the DSS provided the means to ensure that information was collected, sorted and distributed to the relevant people in the organisation. More importantly, this information was being used by all the marketing managers for new planning and control activities.

All the divisions had undertaken reviews of their distribution networks and had isolated particular problem areas; the Gift division had been able to isolate towns with no retail outlet at all and the

Nametapes division set up a full-scale telephone research operation to find the reason for their declining number of sales outlets.

The introduction of volume figures meant that a realistic basis was now available for assessing actual growth/decline in sales, eliminating the influence of price increases. This revealed a steep decline in sales of woven birds in the Gifts division which prompted a major market research project in this area. This led ultimately to the launch of a completely new range, whose progress could be easily monitored through the DSS. The DSS also facilitated the monitoring of sales agents and key customer performance on a monthly basis. All the divisions took advantage of this information, in particular the Nametape Division who were able to identify a probable shortfall in their summer peak sales, through a low order level for prepaid books in the spring. A telephone sales campaign to major accounts was able to remedy this.

The information provided by the DSS showed the divisions where their business was coming from and how it was spread over their customer base. This became an integral part of the planning process for budgets, and enabled the textile division for example, to estimate the effect of changes in production techniques and make a realistic assessment of how much business would be lost as a result as compared with the benefits of increased productivity.

The importance of alternative sales channels was now easily monitored, with the distribution report showing sales through mail order companies rising from 6% to 14% of turnover within 9 months.

During the whole of the DSS development period substantially increased attention was given to marketing. Not only was interest focused on the practical benefits being demonstrated, but the appointment of marketing trained MBA graduate as a marketing manager, under the guidance of the researcher's university tutors underlined a growing commitment to marketing within the Company. This was ultimately confirmed by the new, market orientated divisional structure.

7.2.2 THE ROLE OF THE INFORMATION CO-ORDINATOR

The analysis of current systems development methodologies in Chapter 3 came to the conclusion that none were able to address the specific problems faced by the Company satisfactorily, and that these were common problems for small firms in general. The discussion of the research achievements shows the systems development strategy used in this research to be a successful way of addressing the main constraints identified. In particular, it provides support for the initial hypothesis; that using an intermediary with functional, rather than technical, expertise is an effective way of achieving successful DSS implementation in a small company.

The research describes how the role of the Information Co-ordinator was used to bring the system development to a successful conclusion, showing how the boundaries of that role changed throughout the development process.

An analysis of the main problem areas addressed by the Information Co-ordinator shows clearly where the functional expertise proved essential and highlights the need to "create" a project champion whose main objective within the firm is to ensure that the system achieves its organisational, rather than departmental objectives. More importantly, it shows that this aspect of the role needs to be extended beyond the implementation stage to play a more directive part in ensuring that new information provided is actually used.

Although the Information Co-ordinator's role during the pre-design stage was similar to the integration or liaison role described by Galbraith (88), her expertise lay in the sales and marketing area and was limited in the computer field. Galbraith suggested an integrating or liaison role be used when a leader is required to solve a problem, where the leader's goals are consistent with the goals of the organisation for the decision in question, rather than representing the goals of one department. The power of this leader rests on expertise and preferential access to knowledge and information. The exercise of this power is most effective when it is exerted through the form of persuasion and information influences rather than rank or authority.

The researcher's functional knowledge proved essential in ensuring that the system would fulfil the ultimate goal of improving marketing support. Although some features for the new information system were requested by all the managers, each had a different approach to managing his section of the business, and consequently, his information needs were different. The functional knowledge of the

Information Co-ordinator was now required to assess to what extent these different needs could be attributed to the different market sectors in which each manager operated, which should be reflected in the DSS, and whether or not they were the result of the complex organisation structure and hence, could not be resolved by the development of the information system alone.

Furthermore, the requirements of the managers did not cover all the gaps identified by the Information Co-ordinator in the initial analysis of the marketing information available within the Company. Information on market sectors and distribution channels in particular, had not been mentioned and when the Information Co-ordinator raised these as possible areas where the new system could provide information, little interest was shown - one manager said it might be interesting but only occasionally. The Information Co-ordinator's monitoring of the formal and informal use of information within the Company confirmed that managers relied on their experience to give them a general idea of how much of their business came from different market sectors but did not seek out data to support this. The planning and control system in use did not require facts and figures to be produced, accepting the commonly held beliefs within the Company (for example, that the distribution network for Nametapes was 7,000 accounts). Consequently, the decision to include facilities for this type of information was left to the Information Co-ordinator, knowing that the managers had not requested it and it would not be used unless there was some change in the marketing planning and control process within the Company.

User involvement at this stage was not limited to discussions of their needs but included setting the specific objectives which defined the type of system which would be developed. Whilst this level of user involvement proved successful in persuading the sales and marketing managers that the new system would be designed to suit their requirements, it did not provide an adequate specification for the system, given that the overall objective was to improve marketing support. In this case, the concept of designing a system to suit the users' requirements could not be fully adhered to and the Information Co-ordinator had to provide additional functional input.

This suggests that the Information Co-ordinator role should have been established as more directive at this stage of the project, with emphasis on introducing new marketing planning ideas, rather than co-ordinating and liaising between the Computer and Sales and Marketing Departments. However, one of the main reasons for the communications barrier between the two departments was the way the existing sales analysis system had been developed. Using the Information Co-ordinator in a more directive role risked repeating the same mistake, and could have resulted in a system being imposed on the managers once again, and similarly rejected.

The main achievement of this role however, was to increase understanding in both departments. The co-ordination mechanisms described in the literature often appear to focus on increasing understanding on one side or the other. Placing computer experts in functional departments puts the emphasis on these people learning about the functional departments' problems. The use of the team

approach, although used successfully by some experts such as Mumford (67), has often become a medium for technical experts, such as operations researchers, to sell their ideas to managers. Argyris's(63) empirical research showed how group dynamics restricted creativity and understanding, with stress on both sides inhibiting problem solving. Client managers' feelings of mistrust and suspicion were rarely voiced, whilst operations research experts found it difficult to suppress disrespect for managers who failed to grasp simple concepts.

The sales and marketing background of the Information Co-ordinator meant that this difficulty did not arise. As she was also learning about computer systems, this meant managers were not inhibited during discussions by their lack of computer expertise. The Information Co-ordinator's main aim at the pre-design stage was to reassure the sales and marketing managers that the system was to be developed to meet their requirements, not to sell them the benefits of a system which had already been designed. The number of mistakes which occurred when the reports were first issued suggested that some of the main points the Information Co-ordinator had tried to convey to the Computer Department had not been fully appreciated, particularly with regard to the importance of accuracy. However, the approach of the Computer Department to the purchase of the new computer system underlined that considerable progress had been made towards increasing their understanding of the sales and marketing department's needs.

Once the DSS was designed and the implementation period began, the nature of the difficulties encountered meant that the priorities of

the Information Co-ordinator had to be adapted to ensure that the system was completed; keeping the project to schedule, ensuring that mistakes were amended and problems corrected. This suggested that the nature of the role should be similar to that of the Product Champion in innovation theory.

A well known British study called Project Sappho (89), conducted between 1968 and 1971, confirmed a correlation between the presence of a product champion and innovation success. The study compared successful and unsuccessful attempts to innovate in the scientific and chemical industries and found only a small number of the 200 measures considered differentiated between companies which had succeeded and those which had not. One of these was the role played by key managers and technicians. Four specific roles were identified:-

- 1) The Technical Innovator: The individual who made the major contribution on the technical side to the development of the innovation.
- 2) The Business Innovator: The individual within the management structure who was responsible for the overall progress of the project.
- 3) Product Champion: The individual who made a decisive contribution to the innovation by promoting its progress through the critical stages.

- 4) Chief Executive: The "head of the executive structure" of the innovating organisation but not necessarily the Managing Director or Chief Executive Officer.

The Information Co-ordinator's role covered both the Business Innovator and Product Champion roles. Although the Managing Director was the project supervisor, the Information Co-ordinator did not have a formal position in the organisation structure and she was careful to ensure that she was not seen as a top management surrogate. Furthermore, as a researcher, she had the added advantage of the back-up of functional experts at the University as project tutors. They provided guidance and support for the researcher at project meetings with the industrial supervisors at the Company. In this way, it proved possible to work on an equal level with the sales and marketing managers which meant that any new ideas or concepts were conveyed as suggestions rather than orders. Being effectively outside the organisation structure, also allowed the Information Co-ordinator to be perceived as objective and not subject to the influence of organisational politics.

However, although the Information Co-ordinator was able to achieve the majority of her aims through this informal communication network, the close relationship with the Managing Director meant that if this failed, access to top management support was easy.

Twiss (90) describes the Product Champion as a "highly committed individual who places the success of the project above all other

considerations". The Information Co-ordinator was highly motivated to bring the project to a successful conclusion, not only on a personal achievement level, but also because of the knowledge that this was the second attempt to provide a computer based information system for the sales and marketing managers. If this attempt was also unsuccessful, it could have serious consequences. Whilst it was easy enough to build up enthusiasm for the DSS in the pre-design stage, once the reports were completed and introduced to the managers, the Information Co-ordinator had to work hard to ensure that expectations were met. With development falling behind schedule, reports issued with mistakes, and the reluctance of the Computer Department to complete the amendments requested, the time spent informing managers how and why this had occurred was essential in maintaining confidence.

Curley & Gremillion (18) suggest the term "Systems Champion" to describe the individual who promotes the progress of the system through its critical stages. Whilst appropriate for this particular part of the implementation stage, it does not cover all the activities that the Information Co-ordinator's role had to include, particularly with regard to ensuring that the DSS was integrated into the decision-making process. This aspect of the role proved more akin to that of the change agent and it became the main focus of attention during the second half of the implementation phase.

The majority of recent implementation theory is based on the normative model of social change first expounded by Lewin and Schein (91,92). This model is divided into three stages. The first stage focuses on 'unfreezing', or making the individual ready to change.

This is followed by 'moving' or the presentation of change and the learning of new attitudes. Finally, 'refreezing' integrates the changed attitudes into day to day activities. The Information Co-ordinator provided the mechanism for achieving this process. During the pre-design stage, the removal of the barriers between the Computer and Sales and Marketing Department, made the managers ready for change. During the implementation stage, the Information Co-ordinator assisted the managers in developing new responses based on the new information they were receiving. Finally, by exploiting the opportunities created by the change in organisation structure, the Information Co-ordinator was able to ensure that these new responses were integrated into the managers decision-making process.

Previous studies of the system development process as an example of organisational change have tended to focus on the unfreezing stage and on the client-consultant relationship throughout the process. Kolb and Frohman (93) developed a model of the client-consultant relationship which elaborated on the Lewin and Schein model, identifying seven stages in the change process. Alter (19) developed a series of implementation risk factors, studying 56 systems, and when he put these against the stages of the Kolb-Frohman model, all eight factors arose for the first time at the early stages of the process. Alter and Ginzberg (19) both emphasise the importance of the pre-design stage in organisation change and the importance of the relationship developed by the user and designer at that early stage. Lucas and Plimpton (94) provided a case study of how careful management of the entry stage, proved the key to unfreezing the

attitudes of long-serving professionals who were not motivated towards the proposed system.

The results of this study serve to reinforce the critical nature of the pre-design or unfreezing stage, but it goes further, showing how the close control of this stage needs to be extended throughout the whole systems development process. Previous studies tend to suggest that the attention paid to setting up the necessary conditions for change will lead to successful implementation. This study showed how the confidence and enthusiasm created in the pre-design stage and the integration of the DSS into the decision-making process could have been lost without the increasing the boundaries and scope of the Information Co-ordinator's role.

Lucas has mentioned that many of the factors associated with systems implementation ignore significant parts of the design process and are too static (11). As support for his framework, Lucas includes a review of Gerrity's achievements in developing and implementing a Portfolio Management System in 1971 (79). In 1975, Stabell found that the system was not used as it was originally intended (95), and he concluded that it has been assumed that the managers would naturally adopt the new approach, when in fact, no incentives were provided to change the decision situation. This research augments Stabell's observation and found that the use of an Information Co-ordinator during the implementation phase can contribute significantly to the successful integration of the DSS into the decision making process, with the Information Co-ordinator's functional knowledge providing an essential resource.

However, the use of an intermediary has been criticised. Dearden (96) felt that it would be impossible to possess both the technical and functional skills necessary to undertake this role. Although the Information Co-ordinator's lack of technical knowledge did not hinder the successful implementation of the system, greater expertise in this area might have avoided some of the design problems. Olson and Ives (8) found using operating personnel to control the system development process unsuccessful as they did not have adequate authority over technical staff. This could prove an obstacle in larger companies where the organisational hierarchy is clearly defined. However, within a small company, where relationships were less formal, the Information Co-ordinator found the direct contact with the Computer Department Manager adequate until there was a need for allocating priorities, where work for the Finance Department tended to take precedence over the DSS.

Argyris (63) looked at the organisational factors relating to the effectiveness of management science groups in industry using a link person and reported a high level of strain on the individual occupying the role, with difficulties caused by not belonging to one group or the other. This kind of strain was not experienced by the Information Co-ordinator and she interpreted this as being due to the small company environment where organisational boundaries are more open, and to the substantial, continuing support from the Managing Director, who required regular reports on progress.

The research results are complementary to the findings of Bean and Radnor (97), who studied the effect of different linkages between management science staff and their clients. The study produced findings to support the hypothesis that a linkage system between these two groups involving intermediaries, is more effective than direct linkage. Whilst Bean and Radnor felt that the use of the intermediary, although beneficial in their studies in 1979, would become less necessary as operations research groups became well established in organisations, more recent literature suggests that this role will become the norm in information systems development and this research provides evidence to support this view. A recent paper by Stevens (98) discussing the challenge presented by the micro-computer for operations researchers and systems analysts, proposed that a new role might emerge in the future, which he termed Decision Engineer. As the need for functional skills increases, understanding of the decision-maker and the decision process will make the operations researcher or systems analyst's role too demanding for one person to hold. The Decision Engineer would be capable of working with management for extended periods, and would be backed up by technical specialists. He suggests that neither systems analysts nor operations researchers have all the skills required at present. Figure 25 shows how he proposes this role should emerge. Courbon and Bourgeois (99) present a similar point of view when they point out that a new breed of designers must emerge for managerially-orientated systems. They stress that the role will be more than that of a change agent and used the term "nurturing agents" whose role would be to support the management learning process.

FIGURE 25

THE DECISION ENGINEER



SOURCE: G R Stevens (96)

This study shows how this concept can be used effectively in a small firm, supporting the hypothesis that functional rather than technical expertise is needed. Indeed, the need for broader functional background appears to be reflected in the growth of new Information Technology MSc courses at universities, such as Aston, which include a wide range of specialist subject areas.

With this study being based on action research, these conclusions immediately raise the question of who should undertake this role? The implications of this study point to the benefits of using an Information Co-ordinator from outside the organisation, as the resources of a small company are unlikely to provide someone with adequate experience or sufficient time to allocate to the project. In addition, the achievements of the research were of a long term nature, partly due to the fact that the researcher was able to work with the system once it was implemented. The research shows how the concept of the IHD scheme can prove a valuable asset to small firms, providing low cost expertise backed-up by university resources, by providing a training role largely paid for from government funds. It illustrates the importance of introducing new technology at a rate that can be absorbed and digested by busy managers, with a wide range of responsibilities.

Employing a consultant for an extended time period would probably be too expensive for a small firm. The use of an intermediary employed by the suppliers of the software could provide a possible option. In general, small companies would probably purchase software packages rather than pay for custom-written systems - the 'PRESENT'

package was a standard package offered by the manufacturer - and the cost of providing some implementation support could be included in the price. The intermediary could undertake several projects at once, as the degree of involvement was shown to vary over the whole period, and could provide expertise over a period of time.

7.3 RESEARCH OVERVIEW

Whilst the research concentrated specifically on the nature and effectiveness of the intermediary's role, as an action research project taking place in a small firm, it was impossible to limit the boundaries of the research completely. The study therefore, not only provides support for the hypothesis, but also provides other useful insights into factors affecting the implementation and use of a DSS. Furthermore, as one of the main advantages of the case study approach is the ability to follow unexpected avenues identified during the course of the research, it would have been restrictive not to do so.

7.3.1 USER INVOLVEMENT

Although the effects of user involvement were not the main focus of the research, the results indicate that in a small company, although user involvement appears to improve attitudes towards the system, it does not necessarily have a positive effect on system quality or system use.

User involvement has been generally accepted as an important mechanism for ensuring successful system implementation. However.

the concept has been described by Olson & Ives (8) as poorly defined and poorly understood. They found that current theory gives very little indication of how and why user involvement improves the chances of success, finding that empirically based studies on these relationships gave mixed or inconclusive results.

User involvement in the pre-design stage of the DSS was perceived to be essential, not only to ensure that managers know what the system could offer them, but also to overcome the hostility to the existing sales analysis system; the fact that managers had not been involved in its development was identified as a major cause of its failure. The experience with the Company suggests that one of the advantages of working with a small company is that it is not necessary to select user representatives, as all the users can be involved in the development process. Alter (76), highlights the problems that can occur when a design team is set up. The members of the team can become very motivated but can lose contact with other users and not communicate the ideas.

In conjunction with some current theory, this study suggests that a positive attitude towards the system does not necessarily result in a high level of system use. The research results show that one of the main influences on system use was the informal approach to planning and control, a common feature of small companies. The main benefit offered by the DSS was as support for marketing planning and control, and whilst this was undertaken on an ad hoc basis without any formal objectives or explicit targets, the DSS was not essential and there was little motivation to use it.

It was also found that that user involvement did not necessarily ensure systems quality. In defining their requirements at the beginning of the systems design, the lack of marketing planning expertise meant that requirements specified by the managers did not cover all the information gaps identified by the theoretical analysis of basic marketing data requirements. Designing a system solely from users' requirements, would not have fulfilled the objective of improving marketing support. Furthermore, the previous ad hoc approach to monitoring and control meant that many of the problems encountered in trying to use the system were not foreseen. Many of the important variables to be monitored and the best ways of classifying sales data for marketing planning were not identified in the discussions with the managers, for example distribution analysis, market segments, profitability.

However, it was interesting to note the length of time and amount of help the managers required to become familiar with the DSS. One of the most significant factor influencing their understanding of how they could control the DSS and the data it contained, occurred as a result of an organisational change, rather than their participation in the design process. This raises the question whether the level and scope of involvement of the managers within the Company should have been greater. This research would suggest that the practical constraints of a small firm make this difficult. The lack of technical expertise of the sales and marketing managers meant their involvement was limited to planning layouts and report contents, and setting objectives. Given the resources of the Company, it is

difficult to see how this could have been extended. The main objectives of these managers were to ensure sales of the Company's products and the setting up of a DSS was merely a tool to help them. Even though top management had communicated their commitment to the DSS, naturally they did not expect to see the Company's sales efforts take second place. Consequently, it is difficult to see how the managers could have allocated any more time to the system development process.

The effect of increasing the level of user involvement in DSS development in small firms would provide an interesting area for further research. This study tends to suggest that it would be difficult to accelerate the familiarisation and adoption process, unless managers had more time to allocate to the DSS development, but with the increasing importance placed on the "user-friendly" aspect of new systems, technology changes may make user involvement easier as less and less knowledge of how computers work is required.

7.3.2. ORGANISATIONAL CHANGE

The evidence presented by the research shows that the successful implementation of the DSS was not only influenced by the system development methodology but also by the organisational changes which took place during the project period.

It became clear after the first year of the project when the first reports from the DSS had become available, and had been introduced, that the managers were merely using them to monitor sales and not

using the additional information to improve their marketing planning. It was at this stage the researcher learnt of the plans to reorganise the Company into four divisions with separate sales and profit responsibilities. The Board had decided that whilst the centralised management policy had been necessary to weather the storms of the late seventies, it was now constraining growth. A change was required to allow greater flexibility in responding to the opportunities and challenges the Company now faced.

This proved a valuable stimulus to the introduction of planning and control. Previously the sales and marketing managers had little incentive to change. With budgets orientated to small increases in sales turnover and no profit responsibility, managers were encouraged to do exactly the same as they had done the previous year and merely raise prices. There was little motivation to look for opportunities for expansion or greater profits.

Decentralisation meant that new co-ordination and communication mechanisms were now required to ensure that each division's activities were in line with the Company's objectives as a whole. To justify the allocation of resources, managers now had to produce evidence to show that their resources were being spent effectively and to show how they intended to respond to the opportunities and threats they had identified.

This added a further complexity to the main theme of the project, and raises several possible hypotheses which deserve further exploration. Without the organisation change it is unlikely that the

full potential of the DSS would have been used so it could be postulated that the organisational change was the main influence on the successful implementation of the DSS. However, a previous organisational change had had no influence on the use of the existing sales analysis system: it had merely made the system even more difficult to use as the changes in sales and marketing policies were not incorporated. A lack of continuity of data resulted, with no records being kept of the sales of some new products, leading to further difficulties. At this time no bridge between the provision of information and its use had been created, and it is the importance of this link that the research clearly demonstrates. The results of this study therefore, imply that increased formalisation of planning and control procedures is a prerequisite to the collection and interpretation of the data needed to improve marketing effectiveness. Whilst this may appear self-evident, many of the problems the Company was experiencing were as a direct result of its previous attempts to set up an information system without this.

This move towards increased formalisation is not without disadvantages. Earl & Hopwood (23) for example, suggest that underlying information systems concepts tend to encourage formalisation and standardisation, which neither fit nor suit the realities of organisational activity. They quote studies by Grinyer and Norburn (100) who found that both informal channels of communication and information decision-making was associated with success. This may be one of the reasons why MIS cannot be easily transferred from one organisation to another.

The research also illustrates an important linkage between organisational structure, and the successful implementation of an information system. It is unlikely that the DSS developed would have contributed towards improving marketing effectiveness if the constraints imposed by organisation structure had not been removed. This suggests that any assistance given to small firms to help them adapt to environmental changes, should not only cover organisational structure and style, but also, the structure and style of their internal information systems.

The importance of choosing an organisation structure which can respond effectively to the firm's environment has been well documented but the mechanisms for management to control changes in the corresponding information system needs further research. Bennis predicted in 1966 (101), that future changes will be so rapid that demand for adaptation will overload management. Emery and Trist also concluded that environments were becoming more turbulent and complex (102). As trading conditions become more competitive, the importance of an effective DSS will increase, making increased knowledge on the extent to which organisation structure can constrain system evolution, and ways to avoid this, essential. The Bolton report (84) found that small firms were much more at risk from changes in the environment, in contrast to large firms who could influence their environments to a certain extent.

An additional contrast between new, professionally trained marketing staff, and traditional small company management was also provided by the research. The move to divisionalisation allowed the

Company to employ a new manager with a marketing background and an MBA, and it was interesting to note that her division adopted the DSS quickly, had less teething problems than other divisions, and were the first to instigate changes and enhancements to the system. This suggests that introducing specialist management would improve implementation success. Whilst this appears to be common sense, it is not always a valid option for small firms whose resources, and therefore the rewards they can offer, are generally limited. The important question centres on what methods can be used to assist existing managers in small companies to adopt new information technology. Many researchers predict a future of computer literate, scientifically trained management professionals, without considering the current generation of managers. During the project period, the researcher was able to spend more time with the managers who needed assistance and work very closely with one division, becoming fully aware of the business problems and opportunities of this division. This research provides a realistic solution to the problem of introducing information systems today, and practical research with these objectives is still required.

7.4 RESEARCH LIMITATIONS

Given the qualitative nature of the case study analysis and the complexity of the subject area, it is important to appraise the research results from a critical point of view to identify the limitations of the methodology, and show the actions taken to overcome these.

7.4.1 METHODOLOGY

One of the main weaknesses in the action research approach is bias, due to the close involvement of the researcher and the difficulties of using quantitative or objective measurement techniques in this area. For example, the personal motivation of the researcher could easily have influenced the selection of the hypothesis to ensure its success.

The researcher was careful to guard against this possibility through the systematic collection and recording of the data. A diary was kept for the first two years of the project which recorded events on daily basis. Specific reports were prepared for project meetings held at monthly intervals during the first year, and three monthly intervals during the second and third year. The project team consisted of three academic supervisors and two industrial supervisors, who ensured that that events had been correctly interpreted and evidence presented for each specific part of the project.

During the first year, the researcher's work centered on the definition of the Company's problem, working initially on identifying difficulties with the existing information system and the reasons behind these. It was not until the end of the first year that the full effects of the lack of marketing expertise within the Company became clear. The focus of the project turned towards the Company's marketing problems and how the DSS could provide practical support to address these.

From this it became clear that the area being studied was under the influence of a range of inter-related factors. A questionnaire or structured interview at this stage would have captured the problems caused by the development of the existing information system, but would not have revealed the difficulties caused by the lack of marketing expertise and absence of formal planning. Furthermore, as the work of the researcher was exploratory, aiming to provide increased understanding of what actually happens in organisations during DSS implementation, it was inappropriate to limit the scope of the study by introducing a set classification system or isolate certain factors for study, at this stage.

The snap-shot nature of a questionnaire would not have been able to capture the influence of the Company's history, recording only a limited amount of information. Working in the Company for an extended period of time enabled the researcher to identify the informal information channels and organisational myths, and find out how and why they had been created. The attitudes of the managers towards their information systems is one where more rigorous data collection techniques, such as attitude scales may have been appropriate, to substantiate the finding that attitudes did change. However, these suffer from the the same limitations as questionnaires in that each individuals' interpretation of his attitude cannot be totally unbiased as it could easily be influenced by the events of the day or previous experiences. In practice, the changes in the organisation structure, management role and personnel meant that the measure could not have been repeated in the same set of circumstances at the end of the project- a common phenomenon in organisations. Furthermore, the most

important measure of success must be related to whether the DSS was used and in what way, even before the relationship between attitudes and use can be assessed.

Using a more structured technique might also have had the undesired effect of the Hawthorne dogma with the managers reacting to being studied (103). In this respect, the action research approach proved advantageous. Every attempt was made to orientate the interviews with the managers to a discussion on their information needs and they were presented as the method by which their requirements would be understood and used as a basis for future action. This close involvement however, probably precluded certain areas of research such as the influence of personalities or management style.

This leads to the question of whether the methods used to assess the success of the DSS implementation were valid. The evaluation criteria set up by the Information Co-ordinator attempted to extend beyond quantitative measurement in the knowledge that many of the benefits would be intangible. In this way a narrow focus on the data was presented to try and ensure that it was auditable, confirmable and creditable (104). The validity of the criteria chosen is difficult to assess, given the number of other factors which could have influenced the achievement of the objectives set for the DSS development. In his paper on the methodological problems associated with qualitative research in International marketing, McDonald underlines the difficulty of defining success in management activity, and suggests that no single indicator is an adequate test or measure of effectiveness (105). The improvement in marketing support could have

been assessed by sales growth for example, and indeed the sales of all three of the Company's divisions were higher during the second year of the DSS implementation. However, these sales were also influenced by changes in fashion, the introduction of new products, changes in the market place and the recruiting of new managers, and it would have been impossible to isolate the effect of any one of these factors.

Focusing on one main hypothesis however, brings its own dangers; other influences may be ignored and the reader is left with a subjective interpretation of events. In order to avoid this, the evaluation criteria were specifically chosen to ensure that all the influences on the DSS, how it was used and its effect on marketing support, were recorded, whether or not they were under the control of the researcher. The evaluation analysis showed that the Company's approach to marketing had changed considerably, resulting in the introduction of the divisional structure and the subsequent need for a more comprehensive marketing planning and control system. Many of the opportunities identified in Chapter 4 were now being exploited. Technical webbing sales were expanding rapidly and had gained a firm foothold in the military market. Three new product lines for different market sectors had been introduced by the Nametapes Division, using new sales methods. A new range of gifts had been launched and considerable attention was being given to improving distribution.

These achievements fall outside the scope of the original hypothesis, yet relate directly to the main aim of the project as a

whole, to provide improved marketing support using existing resources as effectively as possible.

One factor the researcher was not able to isolate or control was the effect of her own personality and good relationship with the Company and its staff. However, in any organisation one of the main influences on the success or failure of a project is the personality and commitment of the project manager and his ability to work successfully with other people. Consequently this variable would be present in the evaluation of any organisational project even if the researcher was merely recording and observing an anonymous subject undertaking the work.

7.4.2 LIMITATIONS OF THE DSS

At the end of the project period the DSS was still at a very elementary stage, covering only the provision of basic internal sales data with a limited analysis capability. It had not moved on to cover even simple calculations, such as forecasting, budget variances, cost of sales or profitability analysis. Nevertheless, compared with the marketing information system models described in the literature review, most of the basic data required to build a comprehensive marketing DSS were now being collected with two notable exceptions: profitability and marketing intelligence.

The amount of work required to set-up the internal information flows within the Company and subsequent efforts to ensure that this new information was used created an artificial boundary to the study.

However, the provision of marketing orientated, internal information system had a positive effect on the managers' use of marketing intelligence. For example, the Textile Division began to monitor its market share on a regular basis, using the Business Monitor reports. Several problem areas highlighted by the internal DSS led to fullscale research operations; such as the need to identify the causes of the decline in the retail network for Nametapes. It also showed clearly market segments where the Company was performing below potential, leading to further work to understand the requirements of these areas better and how best to satisfy them, such as the limited success of efforts to reduce dependance on the school market for nametapes and break into local authorities and health markets.

The DSS could also be criticised on the basis that its original objectives were limited and could have been more ambitious. However, the achievements of the systems need to be viewed in context. The DSS basically started from nothing and had to begin by setting up an internal infrastructure for an information system. Information on profitability was inadequate within the organisation as a whole. Overheads, including sales costs, were not allocated across products or production units making the real cost of a product and its associated expenses impossible to ascertain. The introduction of the divisional structure allowed the first allocation of costs on a realistic basis.

It was interesting to note that at the beginning of the project, the Computer Department had no plans to move towards an interactive, on-line system. The Computer Department Manager was not even

convinced that it was a sensible proposition for the Company, given the fact that the justification for the computer was the need to process the large number of nametape orders received each day and this would always require a batch system.

The Information Co-ordinator had to persuade the Computer Department Manager to design the new system so that it could be used interactively in the future, knowing that it was essential that the system should be able to evolve and that the data being collected could be used as a basis for a more sophisticated DSS.

Furthermore, during the system evaluation, the Company directors expressed the opinion that the DSS was too sophisticated and felt that the managers needed more time to become familiar with the DSS even at this elementary stage. This suggests that the organisational context and personnel were a major constraint on the scope of the DSS and subsequent extensions to the DSS have been at a pace dictated by the users.

If the researcher had tried to include more sophisticated analysis or introduce models into the DSS at this early stage, this would have meant imposing new techniques and would have taken the action research role to an extreme, with the researcher becoming too dominant and the Company not learning for itself.

The main achievement of the research in this area was in implementing a system which continued to evolve, and in establishing a

level of credibility for the DSS which allowed additional attention and resources to be devoted to it.

7.5 CHAPTER REVIEW

The contribution of the thesis is discussed by focusing on three main constraints to successful DSS implementation identified during the research:-

- The lack of functional expertise within the Company.
- The absence of a formal approach to marketing planning and control
- The lack of provision for communication between the Computer and Sales and Marketing departments.

The effect of these constraints on the DSS development are outlined and the role of the intermediary in overcoming them is analysed. The scope, responsibilities, and problems of this role are discussed, supporting the need for functional rather than technical expertise, and identifying a new and important role for the Information Co-ordinator, in bridging the gap between the provision of information and its use.

The additional areas of contribution of the research are also discussed, in particular, the link identified between organisation structure and how this can constrain or motivate use of a DSS. The limitations of the action research methodology and the DSS developed, are put into context, showing how traditional research methods and objectives would have missed valuable insights into the effects of the

Company's history and organisational myths, on its present day performance.

CHAPTER EIGHT

CONCLUSIONS AND AREAS FOR FURTHER RESEARCH

8.1 CONCLUSIONS

1. The main findings of the research centre on the fragile nature of the link between the provision of better information and improved decision-making. It shows that three main problem areas must be addressed in order to exploit the benefits of introducing a DSS into a small firm: a lack of functional expertise, the absence of a formalised planning and control system, and the provision for communication between the Computer and the user departments. Current systems development methodologies appeared to offer little practical assistance in addressing these problem areas.

With regard to the selection of an appropriate systems development methodology, several areas of difficulty were created, affecting the specification of requirements, systems quality, and communications between users and computer staff. Given the limitations of expertise and resources within a small firm, extensive user involvement was found to be impractical and insufficient to ensure that system objectives would be met. The users failed to identify many of the important variables a DSS should monitor. These included distribution analysis, sales by market segment and profitability, resulting from the previous lack of procedures to record or classify the basic data needed to monitor these factors. The basic data required to introduce even elementary marketing models were not available as there

had never been any need to collect and collate these in the past, making conventional DSS objectives premature. Organisational objectives were not explicit and planning horizons short making even evolutionary systems design difficult as it was impossible to tell in which direction the system might be required to evolve.

The two practical marketing planning exercises undertaken, demonstrate clearly the obstacles that must be overcome in providing an effective support system when there is no explicit planning process. First, frameworks need to be developed which set out clearly what should be monitored, how often, and why. Second, it is difficult to foresee possible problem areas, simply due to the fact that this is the first time formal gathering and interpretation of data is being performed. Finally, the first attempts to use the DSS for planning and control, are extremely time consuming and need to be seen as a trial and error process, whilst experience is built up.

2. A procedure is offered by which a self-learning evolution can be developed in small firms that overcomes the difficulties encountered in the Company. The research shows that the use of an intermediary with functional, rather than technical expertise, proved a successful strategy and provided a rich insight into the nature and scope of this role. Termed "Information Co-ordinator", the research analysis shows how the focus of the role changes throughout the various stages of system development. The main achievements of the Information Co-ordinator during the pre-design stage were in overcoming the communications gap between the

Computer department and the users, by providing the liaison and co-ordination between two departments with different styles and objectives. During the critical implementation stage, the role of a systems champion took priority to nurture the system through its teething troubles, and keep it on schedule. Once implemented, a new and important role for the Information Co-ordinator was highlighted. To remain effective, the intermediary had to take a more directive role, going beyond that of a change agent or catalyst to actually working with the managers to integrate new ways of using the improved information into their marketing planning and control activities.

Part of the Information Co-ordinator's responsibilities should be therefore, to provide both the bridge between the users and the computer specialists and the bridge between the users and their information.

3. A further insight gained by the research showed how the content of the DSS developed for the Company was constrained by the lack of past experience with formal planning and control mechanisms. The DSS in the case study was unsophisticated and was limited to internal information only in its early stages. However, as it was actually used and adopted by the sales and marketing managers and plans to expand its capabilities were underway before the researcher had left the Company, this indicates that the strategy could be of use to other small firms faced with the same challenges and constraints. When dealing with a small firm starting an information system from scratch, the main focus of

attention must be the basic and elementary sales data, which can initiate management interest by producing visible results easily. This then quickly leads to rapid evolution and new demands as the value of the information system is demonstrated.

System Designers need to recognise the time and effort required of managers to adapt to and exploit a DSS, and that there is a threshold of credibility to be reached before a DSS will receive the appropriate attention and resources.

4. Other important linkages identified by the research findings include the significant influences of organisational changes in motivating systems use. The research results clearly indicate that small firms may need to introduce more structured planning and control mechanisms in order to exploit the benefits offered by a DSS. The ability of a firm to change its management methods to incorporate the necessary formality appears to be essential to the use of the information. An additional facet to the relationship between a firm's information system and its environment was identified, showing how the informal approach to marketing planning had meant the Company's internal informal system had not adapted to meet the increasing complexity of its environment, making it impossible to record or reflect any relevant changes.

8.2 AREAS FOR FURTHER RESEARCH

1. Further research into the effectiveness of the intermediary, or Information Co-ordinator, as a mechanism for the transfer of knowledge into small firms is needed, to explore the findings of this research in greater depth. The practical constraints faced by the small firm suggest that the principles behind the IHD scheme offer an ideal solution to providing low cost expertise over a timescale which is acceptable to a small company, leading to the question of whether there should be an extension of the role of universities into this area.
2. The research also raises significant questions over the extent of user involvement and its effect, particularly whether increasing user involvement would reduce the implementation period. It seems likely that the process could be accelerated by the introduction of new technology using interactive systems, which would allow users a greater degree of control at an earlier stage. However, the problem of ensuring that the new information was used would still remain, but the role of the intermediary could now concentrate on this aspect and also on extending the boundaries of the DSS to include marketing intelligence for example.
3. The additional linkages which emerged from the research provide scope for study into the nature of the relationship between organisational factors and successful systems implementation in small firms; an area not usually given formal consideration yet whose importance cannot be dismissed. The research suggests that

organisation structure can constrain the effective use of a DSS and hinder its evolution. This aspect of the management of change still requires further work.

4. The research overview also suggests that more formal planning and control measures are a prerequisite for small companies to exploit the full benefits of a DSS. The effect of this on the flexibility and the informal information channels within small firms would provide a worthwhile extension to this study to identify areas where this could cause difficulty, for example in companies working in fast-moving environments such as the information technology industry itself.

POSTSCRIPT

The researcher visited the firm six months after the end of the project period and found that the DSS had already been extended. A standard costing model had been developed which calculated the cost of materials, design and finishing for labels, showing gross and net margins for each individual order. Each week an analysis sheet was produced which showed the profitability of each order taken, whether it was a new or repeat order, and gave a total value and profit for each product group. A summary report was also produced giving cumulative figures so profitability could be assessed at a glance for the year to date. Non-profitable orders could easily be identified

and were highlighted in the reports. This new analysis underlined the relationship between volume and profitability, revealing inconsistencies in the current pricing structure and highlighting some large contract orders which were unprofitable. The costing model was copied onto programmable calculators for the Company's external sales representatives, to ensure that in customer negotiations, quantity discounts were related to minimum profitability requirements.

The first stages of the on-line enquiry facilities for the sales and marketing managers was underway, with customer enquiry facilities ready. These gave details of customer contacts, the date of the last order, the value of business to date, credit status, and date when the account was opened. Selection criteria were now available to enable analysis on any of these criteria to be performed on-line.

These new facilities had been developed in close association with the users, and had made use of the increased flexibility of the new computer, which meant that the changes required by the users could be quickly and easily satisfied. The Managing Director and Financial Director were more than satisfied with the progress being made, and that the good relationship between the Computer department and the Marketing department, built up by the researcher, was continuing.

APPENDIX ONE

SUMMARY OF DISCUSSIONS

1.1 INITIAL DISCUSSIONS

1.2 INTERIM DISCUSSIONS

1.3 FINAL DISCUSSIONS

1.1 PRE-DESIGN DISCUSSION

INTERVIEW OUTLINE

1. RESPONSIBILITIES

Which products?

2. THE EXISTING SALES ANALYSIS SYSTEM

Which reports have you used?

SAL 6

SAO 2

SAO 3

SAO 4

SAO 5

3. HOW OFTEN?

Daily

Weekly

Monthly

When first issued

Only in answer to specific questions

End of Financial Year

4. WHAT DID YOU USE IT FOR AND WHAT KIND OF PROBLEMS DID YOU EXPERIENCE?

5. WHAT SORT OF INFORMATION WOULD YOU LIKE THE NEW SALES & MARKETING INFORMATION SYSTEM TO PROVIDE AND HOW WOULD YOU USE IT?

Customer Information

Product Information

What level of detail

This Year/Last Year Comparison

Area Sales

Type of Sales Outlets

Ranking

6. GENERAL COMMENTS

SUMMARY OF INTERVIEW RESULTS

1. SALES DIRECTOR

i) Responsibilities:

Overall responsibility for all products. Direct responsibility for Labels, Badges, Ribbon, Webbing.

ii) The Existing Sales Analysis System:

Which reports used?

Had attempted to use all of them.

iii) How Often?

Not used on a regular basis. Tried to use them to answer specific questions and for budgeting but not very successfully.

iv) Use and Problems:

Wanted to use it to monitor customer performance and identify sales patterns. However, had no idea where to find things, and the volume of information presented by the reports made them very difficult to use.

v) Information Requirements:

Summary information is essential, also some way of highlighting discrepancies. Need to be able to assess the business at a glance with only a few pieces of paper. This Year/Last Year comparisons would provide this particularly if customer sales patterns could be monitored. Product value information more important than volume. Customer ranking was also important to ensure that top customers were properly serviced. Customer sales should also be analysed by area.

vi) General Comments:

In general, felt that the computer could help a lot more, at present information was being produced and not used. No explanations as to what the system could do were provided so no progress had been made towards improving the situation. Not really understanding the system meant that reports arrived on his desk and he didn't really know what they were for or whether he had everything he should have.

2. EXPORT SALES MANAGER

i) Responsibility:

All Products but main area of responsibility gift products.

ii) The Existing Sales Analysis System:

Which Reports Used?

Had attempted to use SAL6 but had not seen any others.

iii) How Often?

Once, to produce budget figures.

iv) Use and Problems:

Basically did not trust the computer statistics as did not tie up with his own manual records of invoices dispatched, therefore preferred to use his own manual records. Also, as exports were incorporated in the main body of the report he had used, the information was difficult to extract.

v) Information Requirements:

Customer information essential as most sales undertaken through agents. Gift sales required both value and volume information essential as unit prices varied from country to country. Summary information not essential as customer base was reasonably small and easy to handle. Monthly sales information was also not essential as sales tended to be seasonal rather than cyclical. This Year/Last Year comparisons sales v budgeted sales might also be misleading due to this factor, and would only be relevant at a year end. Interested in the idea of exception reporting. Also, would like to see his staff using the Sales & Marketing information and answering his specific questions from it. Information on labels, badges, ribbons and webbings not essential as these dealt with by home sales executives.

vi) General Comments:

No training given on what computer could provide, at present it is not providing anything and would be happier to do without it and not pay towards it as uses his own manual records for everything anyway. Would like to be more involved though as well aware that computers will become more and more part of life in the future. He felt there was a problem in the Company with the status of exports with the Company, small department, with export sales second to home sales in terms of priority, for manufacturing as well as sales support.

3. SALES & MARKETING MANAGER: NAMETAPES & GIFTS

i) Responsibilities:

Fine Arts/Gifts, Bespoke and Stock Lines, Nametapes, P.L.S. (Personalised Luggage Strap), Bespoke Luggage Strap.

ii) Existing Sales Analysis System:

Which Reports used?

SAL6, SA02, SA05.

- (SAL6, was the only report to include Nametape sales).

iii) How Often?

SA02 used monthly

SAL6 used in answer to specific questions

SA05 used year end, and in answer to specific questions.

iv) Use and Problems:

SA02 was used to monitor sales agents performance, to see who was not working as expected. SAL6 was used to monitor customer sales when needed, and SA05 had been used to undertake a rationalisation exercise on the range of woven pictures. The main difficulties encountered were in trying to find things as the reports were so long and he was unsure how the information was organised. No information on P.L.S. or bespoke straps was available.

v) Information Requirements:

It was essential to have information by area and customer so that agents performance could be monitored. The sales of pre-paid books for nametapes were essential, also split into areas. Product information by area was desirable, be able to identify trends for future planning. This information was only needed in detailed form on an annual basis and should be available by product line every six months, and with the detail available on request. Customer information was needed monthly, split into areas with the customers ranked into order of importance. Volume and Value sales to customers were needed, but only at Product line level. This Year/Last Year comparisons were essential; account turnover would be desirable, showing new accounts opened on a monthly basis by area. Type of sales outlets for distribution analysis would be useful, it should only be available on request.

Sales & Marketing Manager: Nametapes & Gifts (continued)

vi) General Comments:

He felt that the accuracy of the data produced by the computer was not assured and had had his fears confirmed when he noticed some sales had not been credited to the division after a weeks shutdown, unless he had pointed this out, it would have gone unnoticed. In addition the relationship between the value of orders and volume of orders was never consistent. The Company's record for producing sales information was not a good one, when he had arrived five years ago, there had been no information at all. He had pioneered the introduction of a production progress system, which extended the computerised production system for the manufacturer of Nametapes. This allowed the date of dispatch to be accessed through a V.D.U. so that customer enquiries could be answered by telephone and did not require a trip round the factory to search for the order. When the existing sales analysis system had been set up, he had also introduced the concept of area analysis for the Nametapes Report, and had developed an area code structure. He felt that the new system should be constructed on a pyramid basis, with summary information forming the top of the period. Area information on products and customers forming the next layer, and detailed product and customer information available when required as the bottom layer. He also raised an organisational problem over who was credited with sales for P.L.S. and Webbing Products as these were actually classed as webbings for accounting purposes, with a webbing product code, although he actually sold them.

4. PRINTING MANAGER

i) Responsibilities:

Printed Labels, Badges, Swing Tickets, Printed Ribbons and Printed Stock Labels. In-house printing of some Company stationery and display material.

ii) The Existing Sales Analysis System:

Which Reports used?

None - had never seen any of the existing reports.

iii) How Often

N/A

v) Information Requirements:

Main need was to have Printed Sales separate from the other products. (In the existing sales analysis system they were incorporated with woven labels, badges, ribbons and webbings). Monthly sales value by customer was essential as was This Year/Last Year comparisons. Area Sales and customer ranking were not essential as there was a small customer base and only one representative selling Printed Labels. Volume information was meaningless without further detail, i.e. on width, type of material used, number of colours, length of label and number of size changes. If this information was available, he would then be able to assess material usage and profitability. Improving profitability, quality and service levels were his main area of concern and wanted to see the computer moving towards providing additional support in this area.

vi) General Comments:

At present felt the computer was not providing any kind of service except producing invoices and would be very interested in purchasing a micro-computer to undertake all the printing sections work if this was feasible. More up to date information was needed as the turnaround time for Printed orders was very quick, making it significantly different to monitor and control from woven labels and badges where lead times were from six weeks upwards. Also raised an area of concern over who was responsible for the sales of stock printed labels - these were mostly size marks and washcare labels, sold to woven label customers and were occasionally dealt with by the woven labels sales executives, or sometimes by this department.

1.2 DSS INTERIM DISCUSSIONS

INTERVIEW OUTLINE

1. Responsibilities:

Which Products?

2. The DSS - Which reports have you used and how often?

Monthly reports
Quarterly reports
Yearly reports

3. What have you been using the reports for?

4. Have you experienced any problems?

5. What kind of service are you receiving from the Computer Room?

6. General Comments:

SUMMARY OF INTERVIEW RESULTS

1. SALES DIRECTOR

i) Responsibilities:

Main responsibility - new Divisional Manager Textile Products, Ribbon, Webbing, Badges, Labels.

ii) The DSS - Which Reports used, how often and what for?

Monthly Reports and Quarterly Reports used so far. Monthly detailed report used more than monthly summary. Quarterly report excellent. Used in preparation of budgets and in sales meetings. Yearly reports not used as yet.

iii) Have you experienced any problems:

Some problems experienced with Monthly Report due to Area Code problem. Quarterly Report very good, although would be helpful if accounts were numbered. Final Total for Ribbons & Webbing report does not tally with Management Accounts.

iv) What kind of service are you receiving from the Computer Room:

Seem to be taking a long time to sort out problems. Accuracy appears to be improving but careless mistakes cause suspicion, i.e. month where carriage costs were included by mistake, also, when mistakes occur, generally no explanation is given. Distribution not very satisfactory as reports tended to appear on the desk, made worse by the absence of the description sheets which were requested months ago.

v) General Comments:

Generally pleased with progress overall and reports produced were becoming indispensable. Lack of progress on amending mistakes was annoying.

SUMMARY OF INTERVIEW RESULTS

2. SALES & MARKETING MANAGER: NAMETAPES

i) Responsibilities:

Sales and marketing of Nametapes, the Personalised Luggage Strap and Camera Strap.

ii) The DSS - Which Reports used, how often and what for:

Monthly summary, not used regularly, and Yearly reports not used as yet. Quarterly customer report used frequently - basically the only record of customer sales.

Used for sales journey planning and monitoring the performance of top customers - however, full customer name and address split of sales regions into counties required.

iii) Have you experienced any problems:

The accuracy of the reports was still in questions as three sets of figures were available, (computer reports, black book, management accounts). Black book still used for budget preparation. Volume figures on the computer reports were suspect as the relationship between volumes and values was not consistent. Description sheet for all the reports required.

iv) What kind of service are you receiving from the Computer Room:

Found the Department very willing to help but took a long time - still waiting for description sheets.

v) General Comments:

Although reports were moving some way towards his requirements, still felt that the missing layer of pyramid was missing, i.e. between detail and summary. Also, felt the Company were not prepared to allow its Managers to spend time on learning about computer technology - his request to attend a basic course had been turned down.

SUMMARY OF INTERVIEW RESULTS

3. EXPORT SALES MANAGER

i) Responsibilities:

Export sales for all the Company's products, in conjunction with the relevant Divisional Managers.

ii) The DSS - Which Reports used, how often and what for:

The Gifts report was used most often and had been increased in frequency from Quarterly to Monthly. It was used in planning future sales activity and in communicating with the Agents. The Nametapes reports was just used as a reference document and the Textile reports in monitoring progress vs. budgets. The Monthly and Quarterly reports for all the divisions were used in planning the budgets for the following year and the volume figures proved particularly useful for forecasting. Yearly reports not used yet.

iii) Have you experienced any problems:

Still not sure exactly what he was supposed to have and when - did not like the way the Computer Department just left copies of the print-outs on his desk - would prefer to have to sign for them.

Also felt that products by area would have been useful to enable him to compare how successful new products were in different countries.

iv) What kind of service are you receiving from the Computer Room:

Accuracy much improved, very pleased that the Computer Manager had taken the time to show him exactly how the figures were built up. Also, having exports separately enabled him to see at a glance how his sales were going. Particularly pleased with the Company Summary Sheet which showed exports clearly.

v) General Comments:

Pleased with progress so far - especially with export reports separate. Would like to have profits included on the reports for the future.

SUMMARY OF INTERVIEW RESULTS

4. PRINTING DIVISION MANAGER

i) Responsibilities:

Printing Division

ii) The DSS - Which Reports used, how often and what for:

Monthly reports had not been used very often, but Quarterly report was proving extremely useful, particularly for Telesales and making sure that enough attention was given to major customers. Yearly reports not yet used.

Had also used the Quarterly Report to group customers in "value" bands - would like to be able to have this information by volume also he would be able to work out average order values.

iii) Have you experienced any problems:

Product code structure meant that any further analysis on volumes, material usage etc. were not possible. Also, still felt that tighter control was needed over the day to day dispatch of orders e.g. analysis of late deliveries would be useful.

The limitations of the product code, meant that the detailed monthly report did not give enough details on customer sales, as it only revealed whether it was litho or rotary printed label.

iv) What kind of service are you receiving from the Computer Room:

Expressed a feeling of hopelessness that his requests would ever be met]

v) General Comments:

Felt that the reports were fine as far as they went but were not comprehensive enough. Would like to see more communication between the divisions.

Area codes were not really necessary for him as he only had one Representative. Would be happy to have had customers presented alphabetically. Also wanted to be able to split out stock label sales, particularly on quarterly reports. Some method of indicating whether an account was new would also have been useful.

SUMMARY OF INTERVIEW RESULTS

5. GIFTS DIVISION SALES EXECUTIVE

i) Responsibilities:

Assistant to the new Gifts Division Manager for all Fine Art and Gift products.

ii) The DSS - Which Reports used, how often and what for:

Monthly Product Sales report used each month to prepare reports on progress vs budget for the Board, particularly to monitor the sales of new lines. Quarterly customer report used frequently so had requested this on a monthly basis. Used to monitor telephone queries from the public asking where products could be purchased. Distribution of new lines also important.

Detailed Sales volume reports used each quarter to assess progress of new products. Also used to make decisions on product rationalisation and at the year end to build up volume budget for next year, (first time this exercise had been done).

iii) Have you experienced any problems:

Area codes on customers shared with other divisions created difficulties - sometimes meant that all the sales for one area were not under one code. Introducing and deleting sales agents also caused problems when accounts were transferred from one area to another as history stayed in the original area.

iv) What kind of service are you receiving from the Computer Room:

Had built up a very good relationship with the Computer Room and felt there were no problems in getting requests fulfilled quickly. Found the Computer Department were very flexible in their attitude and willing to help. Happy with accuracy although in fact she had no way of checking it]

v) General Comments:

Had found it easy to become familiar with the reports and generally pleased with the information available. Exercise undertaken to identify towns with no outlets proved very revealing and now needed to follow that up. Reports used by all members of the Gift staff to assist in preparing reports and undertaking specific exercises for the new Divisional Manager.

1.3 DSS FINAL DISCUSSIONS

INTERVIEW OUTLINE

Job Title and Responsibilities:

Product List:

SECTION 1: ACTUAL USE OF DSS

1. Reports used: How Often and what for

	Textiles	Gifts	Names
Monthly	SAA4	SAA6	SAA8
	SAA5	SA20	

Frequency:

Reason:

Quarterly	SAA9	SA11	SAA7
	SAA10		

Frequency:

Reason:

Yearly	SA11	SA12	SA11
	SA12	SA15	SA12
	SA15		SA16

Frequency:

Reason:

2. What level of detail do you require?

Products:

Customers:

This Year/Last Year:

Areas:

3. What kind of difficulties do you experience in using the reports?

SECTION 2: PROGRESS

1. What are the main advantages and disadvantages of the new DSS?

2. Does it enable you to do anything you couldn't do before?

3. What do you feel you have learnt if anything during the development of the new system?
4. Have your requirements changed and in what way?

SECTION 3: ATTITUDE TOWARDS THE NEW DSS

1. How would you define your main objectives and how should the DSS help you in achieving these?
2. How would you describe your relationship with the Computer Department?
3. What do you need to improve the DSS?

DSS FINAL DISCUSSIONS

SUMMARY OF INTERVIEW RESULTS

Job Title and Responsibilities:

Sales Director

Product List:

Labels and Badges, Ribbons and Webbing

SECTION 1: ACTUAL USE OF DSS

1. Reports used: How Often and what for

Textiles

Monthly

SAA4
SAA5

Frequency: Often, during the month. Also distributed to Sales Representatives.

Reason: Use in Sales meetings for discussion of customer and representative performance and for setting priorities.

Quarterly

SAA9
SAA10

Frequency: Often. Copy also given to Sales Representatives.

Reason: Monitoring by product. Preparation of budgets. Control of small accounts.

Yearly

SA11
SA12
SA15

Frequency: Only for budgets or specific exercise.

Reason: Changes in production facilities to assess possible effects.

2. What level of detail do you require?

Products: More detail needed on order intake.

Customers: Volume of sales by product and stock vs bespoke.

This Year/Last Year: Essential

Areas: Essential for monitoring of Sales Representatives.

3. What kind of difficulties do you experience in using the reports?

- Accuracy of SAll questioned initially as it was wrong in Quarter 3.
- Annoying to have to cut up report to distribute to Representatives, would be better to have each area on a separate page.
- Title page still missing - would help to identify reports more easily.

SECTION 2: PROGRESS

1. What are the main advantages and disadvantages of the new DSS?

Advantages:- more information available easily, particularly on customers and products.

Disadvantages:- doubt over accuracy due to careless errors means there has been a lack of confidence.

2. Does it enable you to do anything you couldn't do before?

Basically have now become dependant on these reports as problems if they are late] Particularly, monthly ones which are used to set principles in journey plans and give direction to the Sales Representatives.

3. What do you feel you have learnt if anything during the development of the new system?

The more the system has been used, the more gaps it has identified.

4. Have your requirements changed and in what way?

Did not feel his requirements had changed but had been refined.

SECTION 3: ATTITUDE TOWARDS THE NEW DSS

1. How would you define your main objectives and how should the DSS help you in achieving these?

Managing a production base and relating it to outside opportunities and potential.

2. How would you describe your relationship with the Computer Department?

Still felt the Computer Department lacked a professional approach to providing accurate information.

3. What do you need to improve the DSS?

- Draw together information on order intake and customer analysis.
- Include sales vs budgets.
- Move towards identifying profitability by product.
- Would like to set up his own colour coded filing system.

DSS FINAL DISCUSSIONS
SUMMARY OF INTERVIEW RESULTS

Job Title and Responsibilities:

Export Manager

Product List:

All Products

SECTION 1: ACTUAL USE OF DSS

1. Reports used: How Often and what for

	Textiles	Gifts	Names
Monthly	SAA4	SA20	SAA8

Frequency: Usually only consulted when first issued.

Reason: To spot trends and built a mental picture of what is going on.

Quarterly	SAA9	SAA6	SAA7
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Frequency: Used to produce reports and support specific decisions at this stage.

Reason: For example on action required to support agents.

Yearly	SA15	SA12 SA15	SA16
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Frequency: Yearly.

Reason: To prepare budgets and decide on the effects of price increases.

2. What level of detail do you require?

Products: Volumes and values for Gifts.

Customers: Volumes and values for Gifts.

This Year/Last Year: Essential.

Areas: Essential.

3. What kind of difficulties do you experience in using the reports?
 - Distribution appears haphazard, never quite sure if he's got everything he should have.
 - Names and numbers of reports difficult to remember.

SECTION 2: PROGRESS

1. What are the main advantages and disadvantages of the new DSS?

Comprehensive, exports clearly shown. Neat, short reports. Accuracy much improved and more reliable so manual system now being phased out.
2. Does it enable you to do anything you couldn't do before?

Has speeded up the whole process, could do most things before but it would have taken so long with so much manual effort it did not seem worth it.
3. What do you feel you have learnt if anything during the development of the new system?

Now able to confirm or reject his own mental picture, rather than working totally on intuition and "guesstimates".
4. Have your requirements changed and in what way?

Easier to define what information is required and what is missing.

SECTION 3: ATTITUDE TOWARDS THE NEW DSS

1. How would you define your main objectives and how should the DSS help you in achieving these?

Main objective is to increase sales turnover rather than volume. DSS should assist in showing who are the most important customers, how they buy, and who should be treated as a low priority.
2. How would you describe your relationship with the Computer Department?

Good, find them very helpful. However, they are slow to respond and are often late.
3. What do you need to improve the DSS?

Only minor points. Would like to sign to say he's received the reports.

DSS FINAL DISCUSSIONS
SUMMARY OF INTERVIEW RESULTS

Job Title and Responsibilities:

Sales and Marketing Manager-Nametapes Division

Product List:

Nametapes, Designer Labels, PLS, Personalised Webbing.

SECTION 1: ACTUAL USE OF DSS

1. Reports used: How Often and what for

	Nametapes
Monthly	SAA8
	Frequency: Each month
	Reason: This year/last year comparison of Prepaid order cards and normal orders. Can also relate this to school population by area.
Quarterly	SAA7
	Frequency: Often
	Reason: Monitoring of top accounts in each area. Also number of accounts per town important. Tries to pick up trends and area information.
Yearly	SA11 SA12 SA16
	Frequency: Hadn't really used these as yet. except SA16 once.
	Reason: Only just available. SA16 used to identify problem area in top 100 accounts.

2. What level of detail do you require?

Products: By area. Volumes and Values.

Customers: Ranked and by area.

This Year/Last Year: Very important.

Areas: Absolutely essential

3. What kind of difficulties do you experience in using the reports?
 - Flexibility to look at one town, without using the whole report.
 - Did not feel his three stage criteria had been fulfilled.
 - Accuracy still questionable

SECTION 2: PROGRESS

1. What are the main advantages and disadvantages of the new DSS?

Principles behind the reports are good, but inaccuracies put doubt on the validity of the information.
2. Does it enable you to do anything you couldn't do before?

To a limited extent. This year/last year comparison good.
3. What do you feel you have learnt if anything during the development of the new system?

Lack of commitment on the part of the Company to educating managers in computers very annoying. Felt this caused problems in defining information requirements.
4. Have your requirements changed and in what way?

Felt that the principles he'd expressed at the beginning were still the same.

SECTION 3: ATTITUDE TOWARDS THE NEW DSS

1. How would you define your main objectives and how should the DSS help you in achieving these?

Fast up-to-date monitoring of sales to save relying on informal sources of information.
2. How would you describe your relationship with the Computer Department?

Computer department are very willing to help, but sales requests dont take priority.

3. What do you need to improve the DSS?

- Profitability

- Forecasting

- Would like to see the percentage of accounts whose sales were down calculated

- Would like to see the system becoming more sophisticated, to support "what if" questions, once his confidence in the validity of the information had been won.

DSS FINAL DISCUSSIONS
SUMMARY OF INTERVIEW RESULTS

Job Title and Responsibilities:

Gift Division Sales Co-ordinator.

Product List:

Gift Products.

SECTION 1: ACTUAL USE OF DSS

1. Reports used: How Often and what for

Gifts

Monthly

SAA6
SA20

Frequency: Every Month

Reason: To produce report for the Board of Directors and to answer customer enquiries.

Quarterly

SA11

Frequency: Not on a regular basis

Reason: Monitoring of new products and to produce specific reports.

Yearly

SA12
SA15

Frequency: Occasionally

Reason: To prepare budgets or answer specific queries.

2. What level of detail do you require?

Products: Product range-value and volume

Customers: Full address would be useful. Also date of last order.

This Year/Last Year: Essential for customer detail

Areas: Essential

3. What kind of difficulties do you experience in using the reports?

Area codes shared with other divisions cause a problem. Also, difficulties experienced when transferring accounts from one area to another. Past history remains with old area.

SECTION 2: PROGRESS

1. What are the main advantages and disadvantages of the new DSS?

More aware of what is happening. Before, there was so little information this was impossible.

2. Does it enable you to do anything you couldn't do before?

Monitor new products. Have customer information to hand. Agents are now better informed.

3. What do you feel you have learnt if anything during the development of the new system?

Has become very interested in what the computer can do and would like to learn more. Felt that greater understanding now gave her more control.

4. Have your requirements changed and in what way?

Requirements growing all the time with new objectives, and also sees new uses for the DSS-particularly in helping with the donkey work.

SECTION 3: ATTITUDE TOWARDS THE NEW DSS

1. How would you define your main objectives and how should the DSS help you in achieving these?

Main objective is to support the sales effort and monitor agents. DSS helps spot the problem areas.

2. How would you describe your relationship with the Computer Department?

Very good, but felt that this was due to the fact that she had taken the trouble to understand the DSS.

3. What do you need to improve the DSS?

Sort out the area code problem. Would like to see the system becoming more flexible as there were some specific exercises they were starting in the department where the computer could help; for example, monitoring of new accounts and beginning a tele-sales operation. At present, they were setting up a customer profile on record cards but would like to do this on the new computer if possible.

DSS FINAL DISCUSSIONS
SUMMARY OF INTERVIEW RESULTS

Job Title and Responsibilities:

Divisional Manager-Gifts

Product List:

Gift Products.

SECTION 1: ACTUAL USE OF DSS

1. Reports used: How Often and what for

Gifts

Monthly

SAA6
SA20

Frequency: Every Month

Reason: To provide picture of sales, and
monitor agents.

Quarterly

SA11

Frequency: used on a regular basis

Reason: To monitor to sales growth of new
products.

Yearly

SA12
SA15

Frequency: To prepare budgets and ad hoc analysis.

Reason: To analyse exactly where sales are coming
from.

2. What level of detail do you require?

Products: Product by area and by agent-full detail.

Customers: Sales year to date plus full year sales of last year.

This Year/Last Year: Important for customers and agents only.

Areas: Agents copies need full customer address.

3. What kind of difficulties do you experience in using the reports?

Changing accounts from one area to another within a year is difficult. Would prefer a more formal way of obtaining reports. SA15 needs to include sales area with customer.

SECTION 2: PROGRESS

Not applicable as did not use the old Sales analysis system.

SECTION 3: ATTITUDE TOWARDS THE NEW DSS

1. How would you define your main objectives and how should the DSS help you in achieving these?

Control of products and agents. Monitoring of progress towards objectives.

2. How would you describe your relationship with the Computer Department?

Very obliging. If desperate good results but in general take a long time. Appear haphazard.

3. What do you need to improve the DSS?

Include date of last order and quantity. However, basic framework is good and additional information can be run in when needed. Looking forward to new computer and interactive facilities.

APPENDIX TWO

COMPUTER SALES ANALYSIS REPORTS MANUAL

COMPUTER SALES ANALYSIS REPORTS

1. TEXTILE DIVISION
2. GIFTS DIVISION
3. NAMETAPES DIVISION
4. GENERAL FACILITIES.

COMPUTER SALES ANALYSIS REPORTS

TEXTILE DIVISION

REPORT NO.	DESCRIPTION	DISTRIBUTION
1. <u>MONTHLY</u>		
SAA5	Summary of Sales by Area	ACA HWG
SAA4	Customer Sales by Area	ACA (2 copies)
2. <u>QUARTERLY</u>		
SA10	Summary of Product Sales by Quarter	ACA
SAA9	Detail of Quarterly Customer Sales	ACA
3. <u>YEARLY REPORTS</u>		
SA11 (Vol)	Product Quality Sales by Customer	ACA
SA12 (Vol)	Monthly Product Quality Sales	ACA
SA15 (Val)	Customer Sales Analysis	ACA

(Exports are included in all these reports)

REPORT NO: SAA4 MONTHLY AREA SALES - TEXTILES
 SAA5

SAA5 summarises sales value by area with SAA4 giving details of customer sales within each area. Sales value for the past month is shown plus sales value year to date, compared with the sales value for last year for the same period.

The report is split into two sections, one for Labels & Badges and one for Ribbons and Webbing.

Sales within each area are split firstly into products, and secondly into stock and bespoke sales for example:

AREA 01

LABELS

Stock
Bespoke
Total

BADGES

Stock
Bespoke
Total

The main aims of these reports are as follows:

- . To monitor Sales Executives performance
- . To monitor customer performance
- . To monitor stock vs bespoke sales.
- . To monitor the effects of any specific activity e.g. mailshot with any one group of customers.

AREAS COVERED

001 - Ray Edwards
002 - Carol Arthurton
004 - Ian Waterston
011 - Roy Kneath
013 - House Accounts
017 - Factored Sales
020 - Brian Croker

OPTIONS

1. The same reports are produced for the Export Department and will be attached to home sales reports unless specified.

REPORT NO: SAA9 QUARTERLY CUSTOMER SALES - TEXTILES
SA10

SA10 shows product sales (Labels, Badges etc). by quarter comparing this years quarterly sales pattern with last year.

		Q.1	Q.2	Q.3	Q.4	This Yr Total	Last Yr Total
LABELS	Last Yr This Yr						

SAA9 details the customer sales under each product heading and ranks them according to their sales performance year to date.

The main aim of this report is to monitor individual customer performance throughout the year against their sales pattern for last year. This report should be particularly useful for

- . Budget Preparation
- . Monitor Growth of Top Customers
- . Monitoring progress of new accounts.

OPTIONS

1. Exports can be included or analysed separately (to be included unless otherwise instructed).

REPORT NO: SA11 PRODUCT ANALYSIS BY CUSTOMER - TEXTILES

This report gives distribution details of the various products in a division, listing the products and the customers who have bought during the year.

Sales figures are given in volumes and compared with sales for the same period last year.

Sales Volumes are as follows:-

<u>Product</u>	<u>Unit</u>
Woven Badges	No. of Badges
Factored Goods	No. of Badges/Items
Woven Labels	No.of Labels
Printed Labels	As above
In Plant Tape	Metres
- Strapping (L=Lettered P=Plain)	Hundred Metres
Ribbons & Trimmings	Hundred Metres
Webbings	Hundred Metres
Commission Dyeing	Kilo/Hundred Metres

OPTIONS

1. Any product or product quality can be requested by specifying the first three letters of the product code for the product required.

i.e. All black satin Badge customers or all
Marks & Spencer T.49 customers.
2. Export customers can be included or analysed separately.

Frequency - To be issued - 3rd Quarter for Budgeting
Year End
On request

BESPOKE JACQUARD WEAVING

CODE FORMATION

FIRST DIGIT

PRODUCT GROUP

L = LABELS
B = BADGES
F = FINE ART PRODUCTS
N = NAME TAPES

SECOND DIGIT

PRODUCTION CAPACITY

B = BROAD LOOM TAFFETA
V = BROAD LOOM SATIN
M = MULLER JACQUARD TAFFETA
W = MULLER JACQUARD SATIN
C = CONVENTIONAL JACQUARD TAFFETA
X = CONVENTIONAL JACQUARD SATIN
P = PICTURE LOOM TAFFETA
Y = PICTURE LOOM SATIN
N = NAME LOOM TAFFETA
Z = PURCHASED

THIRD DIGIT

WIDTH & QUALITY GROUP

A 8mm WHITE
B 8mm BLACK
C 12mm WHITE
D 12mm BLACK
E 15mm WHITE
F 15mm BLACK
G 20mm WHITE
H 20mm BLACK
I 25mm WHITE
J 25mm BLACK
K 32mm WHITE
L 32mm BLACK
M 38mm WHITE
N 38mm BLACK
O 44mm WHITE
P 44mm BLACK
Q 50mm WHITE
R 50mm BLACK
S 73mm WHITE
T 73mm BLACK
U 158mm WHITE
V 158mm BLACK
W
X 9mm D.W. HANGER
Y 14mm D.W. HANGER
Z SPECIAL

REPORT NO: SA12 PRODUCT SALES ANALYSIS: BY MONTH - TEXTILES

This report gives monthly sales volumes summarised by Product Line. Stock & Bespoke sales are shown separately.

OPTIONS

1. The level of detail required can be specified.

i.e. 7 digits of the product code = Individual Products

3 digits " " " " = Product Line/Quality

(35mm Black Satin)

1 digit " " " " = Product

(Labels, Badges, Ribbons).

2. One product/product quality can be requested rather than the full report.

i.e. All badge codes or just Black satin 35mm only.

3. Exports can be included or analysed separately.

Frequency - To be issued 3rd Quarter for budgeting
Year End
On Request

REPORT NO: SA15 CUSTOMER SALES VALUE:(RANKED) TEXTILES, GIFTS.
SA16 NAMES

This report ranks customers according to their sales turnover during the last financial year and shows what percentage of the total division's business they have contributed.

OPTIONS

1. Any number of accounts can be printed out.
i.e. Top 10 customers, top 100 customers, All customers.
2. All products can be included or just one product group selected.
i.e. Fine Arts, Textiles and Printing altogether (to give all the products taken by one customer) or just Printing on its own.
3. Export accounts can be included in the analysis or printed out separately. . .
4. One customer can be requested and their sales from all product groups listed.

Frequency - 3rd Quarter for budgeting
Year End
On Request

COMPUTER SALES ANALYSIS REPORTS

GIFTS DIVISION

REPORT NO.	DESCRIPTION	DISTRIBUTION
1. <u>MONTHLY</u>		
SA02	Summary of Agents Sales	MJK JLM
SAA8	Summary of Area Sales	JLM ES HWG
SAA6	Monthly Customer Sales by Area	JLM ES
SA20	Product Sales Value & Volume	JLM ES HWG
2. <u>QUARTERLY</u>		
SAA6	Quarterly Customer Sales by Area	HWG/Archive
SA12	Monthly Product Sales Volume	MJK JLM
3. <u>YEARLY REPORTS</u>		
SA11	Distribution Analysis	JLM HWG
SA15	Customer Analysis	JLM HWG ACA

REPORT NO: SAA6 MONTHLY CUSTOMER SALES REPORT BY AREA - GIFTS

This report shows details of customer sales for the past month, and compares this with the same period last year.

Customer sales are broken down by product line.

This report can be used for the following:

- . Monitoring of customer performance, as compared with last year.
- . Distribution of new products
- . Identifying lapsed customers
- . Referring enquiries to their local stockist.

The main areas are broken down into counties as shown on the attached sheet.

OPTIONS

1. This report can either be issued quarterly or monthly.
(at present issued monthly).
2. Customer sales can either show details of product lines purchased or be summarised to show total sales only.
3. A similar report is produced for Exports which can be attached if required.

Frequency - Monthly.

REPORT NO: SAA8 MONTHLY SALES SUMMARY BY AREA - GIFTS

This report gives sales value for each area for the past month, split into stock and bespoke sales. Year to date sales value is also shown and compared with last year to date.

This report can be used to highlight the following information:

- . Monitoring of agents sales, compared with other agents and with sales for the same period last year.
- . Any bespoke sales.
- . Detailed sales information for each area is contained in SAA6.

AREAS COVERED

Area No. 51 : N. Ireland
52 : W. Mids
55 : S. East
67 : N. East
69 : Scotland
70 : London & Home Counties
78 : North West
79 : North Wales & Central England
80 : Eastern Counties
81 : Wiltshire
82 : S. Wales
64 : House Accounts (Industrial Sales)
63 : House Accounts (Retail Outlets)

OPTIONS

1. The same report is produced for the Export Department, with a final divisional total at the end, and is available on request.

Frequency - Monthly

REPORT NO: SA11 PRODUCT ANALYSIS BY CUSTOMER - FINE ARTS

This report gives distribution details by product line, listing the products and the customers who have bought throughout the year.

Sales figures are given in volumes and compared with sales for the same period last year.

This report can be used to obtain the following information:

- . Distribution: - i.e. How many outlets are stocking a new product.
- . Comparison of Stockists - i.e. Some outlets sell substantially more birds than other, demonstrating potential sales levels.
- . Rationalisation: - i.e. The reason behind low sales for a product could be a low number of stockists.

OPTIONS

1. Any product line on request

i.e. New Collector Series Birds and Traditional Birds only.
To be requested by specifying the first three digits of the product code.

2. Export accounts can be included or analysed separately.

Frequency : To be issued for: Budgets 3rd Quarter
Year End
On Request

REPORT NO: SA12 PRODUCT SALES ANALYSIS: BY MONTH - GIFTS

This report gives monthly sales volumes summarised by Product Line. Stock and Bespoke items are shown separately.

OPTIONS

1. The level of detail required can be specified.
 - i.e. 7 digits of the product code = Individual Product
(Robin, Wren, Pincushion Pink)
 - 3 digits of the product code = Product Line
(Country Life Series)
 - 1 digit of the product code = Product
(Gift product)
2. One product/product line can be requested rather than the full report.
 - i.e. Country Life Series (3 digits)
 - All Country Life Products (7 digits)
3. Exports can be included or analysed separately. Unless otherwise specified export sales will be included.

Frequency - To be issued 3rd Quarter for budgeting
Year End
On Request

REPORT NO: SA20 MONTHLY PRODUCT SALES
VALUE & VOLUME - GIFTS

This report gives sales by product line, (i.e. Country Life Series, Romantic) for the past month and sales year to date. Value and Volume sales are given with Export sales included on the same report.

This report is particularly useful for:

- . Monitoring sales of a new product line.
- . Monitoring sales of product lines vs budget forecasts.

FINE ARTS AREA CODES (HOME)

February 1983NORTHERN IRELAND - 51

Londonderry	51A	Antrim	51B
Tyrone	51C	Fermanagh	51D
Armagh	51E	Down	51F

WEST MIDLANDS - 52

Warwickshire	52A	West Midlands	52B
Hereford/Worcestershire	52C	Gloucestershire	52D
Northamptonshire	52E		

SOUTH EAST - 55

Sussex	55A	Surrey	55B
Kent	55C		

NORTH EAST - 67

Derbyshire	67A	North Yorkshire	67B
South Yorkshire	67C	West Yorkshire	67D
Lincolnshire	67E	Humberside	67F

SCOTLAND - 69

Western Isles	69A	Strathclyde	69B
Highlands	69C	Tayside	69D
Grampian	69E	Central	69F
Fife	69G	Lothian	69H
Borders	69I	Dumfries & Galloway	69J
Shetland & Orkney	69K		

LONDON & HOME COUNTIES - 70

Hampshire	70A	Berkshire	70B
Bucks.	70C	Hertfordshire	70D
Gtr. London	70E	Bedfordshire	70F
Oxfordshire	70G		

NORTH WEST - 78

Lancashire	78A	Gt. Manchester	78B
Merseyside	78C	Cumbria	78D
Cheshire	78E	Cleveland	78F
Durham	78G	Northumberland	78H
Tyne & Wear	78I	Isle of Man	78J

NORTH WALES & CENTRAL ENGLAND - 79

Anglesey	79A	Gwynedd	79B
Clwyd	79C	Shropshire	79D
Staffs.	79E	Leicestershire	79F
Nottinghamshire	79G		

AREA 80

Essex	80A	Cambridgeshire	80B
Suffolk	80C	Norfolk	80D

SOUTH WEST - 81

Wiltshire	81A	Avon	81B
Somerset	81C	Devon	81D
Cornwall	81E		

AREA 82

Dorset	82A	Dyfed	82B
Gwent	82C	S/M/W Glamorgan	82D
Powys	82E		

House Account Industrial	64I
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-House Retail	63R
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COMPUTER SALES ANALYSIS REPORTS

NAMES DIVISION

REPORT NO.	DESCRIPTION	DISTRIBUTION
1. <u>MONTHLY</u>		
SAA8 (£)	Summary of Sales by Area	ANL/LDK
SA20	Product Sales, Volume & Value	ANL/LDK
2. <u>QUARTERLY</u>		
SAA7 (£)	Customer Sales by Area (Ranked)	ANL/LDK HWG
3. <u>YEARLY</u>		
SA11 (Vol)	Distribution Analysis	ANL LDK HWG
SA12	Monthly Product Line Sales	ANL LDK
SA16	Customer Analysis	ANL LDK HWG

REPORT NO: SAA7 QUARTERLY CUSTOMER SALES REPORT BY AREA - NAMETAPES

This report shows details of customer sales for the past month, and compares this with the same period last year.

Customer sales are broken down by product line.

This report can be used for the following:

- . Monitoring of customer performance, as compared with last year.
- . Distribution of new products
- . Identifying lapsed customers
- . Referring enquiries to their local stockist.

The main areas are broken down into counties as shown on the attached sheet.

OPTIONS

1. This report can either be issued quarterly or monthly (at present issued quarterly).

Frequency - Quarterly

AREAS FOR NAMETAPES

A - S. West

1. Avon
2. Wilts
3. Dorset
4. Somerset
5. Devon
6. Cornwall

B - S. East

1. Kent
2. E. Sussex
3. W. Sussex
4. Surrey
5. Hants

C - London

D - N. London

1. Essex
2. Herts
3. Bucks
4. Berks

E - W. Midlands

1. Birmingham
2. Warwicks
3. Hereford & Worcs.
4. Gloucester
5. Oxford

F - East Midlands & E. Anglia

1. Leics
2. Herts
3. Beds
4. Cambs
5. Suffolk
6. Norfolk
7. Lincs
8. Notts
9. S. Humberside

G - Wales

1. Gwent
2. S. Glam
3. M. Glam
4. W. Glam
5. Dyfed
6. Powys
7. Gwynedd
8. Clwyd

H - North Mids

1. Salop
2. Staffs
3. Derbys
4. Cheshire
5. S. Yorks.

J - North

1. Merseyside
2. Gtr. Manchester
3. W. Yorks
4. Lancs
5. N. Humberside
6. N. Yorks
7. Cleveland
8. Durham
9. Cumbria
10. Tyne & Wear
11. I.O.M.

K - Lowlands

1. Strathclyde
2. Lothian
3. Borders
4. Dumfries

M - Highlands

1. Central
2. Fife
3. Tayside
4. Grampian
5. Highlands
6. Hibrides
7. Shetland

N - N. Ireland

1. County Down
2. " Antrim
3. " Londonderry
4. " Tyrone
5. " Fermanagh
6. " Armagh

REPORT NO: SAA8 MONTHLY SALES SUMMARY BY AREA - NAMES

This report gives sales value and volumes for each area for the past month, split in normal orders and sales of prepaid cards. (Sales volume = No. of books) Year to date sales value is also shown and compared with last year to date.

Strapping products are not analysed by area, but a total sales value and volume for all these products is shown separately, following the area analysis.

This report can be used to provide the following information:

- . Monitoring of area sales, highlight regional variations and compare performance with previous year.
- . To monitor sales of prepaid cards.
- . Detailed sales information for each area is contained in SAA7.

AREAS COVERED

A - South West	G - Wales
B - South East	H - North Midlands
C - London	J - North
D - North London	K - Lowlands
E - West Midlands	M - Highlands
F - East Midlands & East Anglia	N - N. Ireland.

OPTIONS

1. The same report is produced for the Export Department, with a final divisional total at the end, and is available on request.

Frequency - Monthly.

REPORT NO: SA11 PRODUCT ANALYSIS BY CUSTOMER - NAMETAPES

This report gives distribution details by product line, listing the products and the customers who have bought throughout the year.

Sales figures are given in volumes i.e. No. of orders, and compared with total sales for last year.

The report can be used to obtain the following information:

- . Distribution: - e.g. How many outlets are stocking Prepaid cards for Designer Labels.
- . Comparison of Stockists: - e.g. Are some department stores in the same chain selling substantially more than others.
- . Trends: - e.g. The number of outlets for each product line can be monitored each year.

OPTIONS

1. Any product line on request

i.e. Prepaid Cards Nametapes 5/16"

To be requested by specifying the first three digits of the product code.

2. Export accounts can be included or analysed separately.

Frequency:	To be issued for:	Budgets	3rd Quarter
			Year End
			On Request

NAMETAPES : SA11 & SA12

Due to the construction of the product code for Nametapes, details will appear in the following order:-

KAA	-	PLS	NORMAL ORDERS
KBO	-		
KCA	-	PLS	PREPAID CARDS
KDB	-	BAGSTRAPPER	
KLO	-	CAMERA STRAP	
KMO	-	PET LEAD	
NAO - 9	-	NAMETAPES 5/16"	NORMAL ORDERS
NBO - 9	-	SUPERTAPES	NORMAL ORDERS
NBA	-	BRAILLE	
NCO - 9	-	½"	ONE LINE TAPES
NCA	-	3 doz	PREPAID CARDS 5/16"
NCB	-	6 doz	" " "
NCC	-	12 doz	" " "
NCD	-	3 doz	PREPAID CARDS SUPERTAPES
NCE	-	6 doz	" " "
NCF	-	12 doz	" " "
NDO - 9	-	½"	TWO LINE TAPES
NEO - 9	-	1"	NAMETAPES
NGO - 9	-	DESIGNER LABELS	
NXO	-	LAUNDRY MARKS	
WZF	-	DESIGNER PREPAID CARDS 3 doz	
SSO	-	BESPOKE STRAPS	

REPORT NO: SA12 PRODUCT SALES BY MONTH : NAMETAPES

This report gives monthly sales volumes summarised by Product Line showing the number of normal orders received and sales of Prepaid Cards (Vol = No. of books).

OPTIONS

1. The level of detail required can be specified i.e.

7 digits of product code	=	Colour of Nametape
4 digits " " "	=	Order quantity i.e. split in $\frac{1}{4}$, $\frac{1}{2}$, 1 gross.
2 digits " " "	=	Total sales by Product Line i.e. 5/16", Supertapes, PLS.

2. One Product/Product Line can be requested rather than the full report.

e.g. 5/16" Prepaid Cards (3 digits).

3. Exports can be included or analysed separately. Unless otherwise specified export sales will be included.

Frequency - To be issued 3rd Quarter for budgeting.
Year End
On Request

REPORT NO: SA20 MONTHLY PRODUCT SALES
VALUE & VOLUME - NAMETAPES

This report gives sales by product line, (Camera Straps, 5/16" Normal orders, Designer Prepaid Cards), for the past month and sales year to date. Value and Volume sales are given with Export sales included on the same report. (Normal orders and sales of Prepaid Books only).

This report is particularly useful for:

- . Monitoring sales of a new product line
- . Monitoring sales of product lines vs budget forecasts.

EXPORTS

COMPUTER REPORTS : GIFTS

1. MONTHLY

REPORT NO.	DESCRIPTION	DISTRIBUTION
SAA8	Summary - Area Sales	JM/ES
SAA6	Detail - Customer Sales	ES/HWG
SA20	Summary - Product Sales (Vol & Val)	ES/HWG/JLM

(Exports Separate)

2. QUARTERLY

REPORT NO.	DESCRIPTION	DISTRIBUTION
SA11	Product Sales by Month (Vol)	JLM

(Exports included)

3. YEARLY

REPORT	DESCRIPTION	DISTRIBUTION
SA12	Distribution Analysis (Vol)	JLM/HWG
SA15	Customer Analysis (Val)	JLM/HWG

SA15 - Export included

For all reports exports can be issued separately.

EXPORTS

COMPUTER REPORTS : TEXTILE PRODUCTS

1. MONTHLY

REPORT NO.	DESCRIPTION	DISTRIBUTION
SAA5	Summary-Sales by Area	ACA/HWG
SAA4	Detail-Customer Sales by Area(Ranked)	ACA/HWG

Exports Separate

2. QUARTERLY

REPORT NO.	DESCRIPTION	DISTRIBUTION
SAA10	Summary - Product Sales	ACA
SAA9	Detail - Product Sales by Customer	ACA

Exports are included in the report at present
but can be issued separately on request.

3. YEARLY

REPORT NO.	DESCRIPTION	DISTRIBUTION
SA11	Distribution Analysis	ACA/HWG
SA12	Product Sales by Month (Volume) (Exports included)	ACA
SA15	Customer Analysis (Value) (Exports included)	ACA/HWG

SA12 + SA15 : Exports can be issued separately

EXPORTS

COMPUTER REPORTS : NAMETAPES

1. MONTHLY

REPORT NO.	DESCRIPTION	DISTRIBUTION
SAA8	Summary - Area Sales	LDK/ANL
SA20	Summary - Product Sales (Val + Vol)	LDK/ANL

(Exports separate)

2. QUARTERLY

REPORT NO.	DESCRIPTION	DISTRIBUTION
SAA7	Detail - Customer Sales by area (Val)	LDK/ANL HWG

(Exportsseparate)

3. YEARLY

REPORT NO.	DESCRIPTION	DISTRIBUTION
SA11	Product Sales by Month (Val)	LDK/ANL
(Exports included)		
SA12	Distribution Analysis (Val)	LDK/ANL
(Exports separate)		
SA16	Customer Analysis (Val)	LDK/ANL/HWG

For all reports - Exports can be issued separately.

<u>A</u>	AREA CODE -	EXPORTS	<u>K</u>
AUSTRALIA	01A	MALTA	23E
NORFOLK IS.	02A	NETHERLAND	24E
FIJI	03A	NORWAY	25E
		SPAIN	26E
		(Switzer- land)	27E
<u>B</u>			
SOUTH AFRICA	06B		
<u>C</u>		<u>F</u>	<u>L</u>
CANADA	07C	HONG KONG	35F
		JAPAN	36F
			BAHAMAS
			67L
			BARBADOS
			68L
			TRINIDAD
			69L
<u>D</u>		<u>G</u>	VIRGIN IS.
U.S.A.	08D	SRI LANKA	70L
		MALAYSIA	41G
		SINGAPORE	42G
			BERMUDA
			71L
<u>E</u>		<u>H</u>	<u>M</u>
AUSTRIA	09E	VENEZUELA	45H
BELGIUM	10E	URAGUAY	46H
CHANNEL IS.	11E	CHILE	47H
CYPRUS	12E	GUYANA	48H
DENMARK	13E		999
FINLAND	14E	<u>J</u>	LONDON BUYING
FRANCE	15E		OFFICES
W. GERMANY	16E	KENYA	51J
CANARY IS.	17E	NIGERIA	52J
GIBRALTAR	18E	SIERRE LEONE	53J
ICELAND	19E	SWAZILAND	54J
EIRE	20E	ZAMBIA	55J
ITALY	21E		
SWEDEN	22E		

OTHER FACILITIES

1. MONTHLY SALES

<u>REPORT NO</u>	<u>DESCRIPTION</u>	<u>DISTRIBUTION</u>
SAAB	Total Sales by Division showing Home & Exports	Board + Divisional Managers

2. NAME & ADDRESS FILE

Print Outs on request

Customer lists by - Product
- Area
- Town
- Postcode

3. YEARLY REPORTS

- a) SA11 - Any section available on request
SA12 (i.e. any product/product line)
- b) SA11 - Exports can be included in the analysis
SA12 or printed out separately at the end of
SA15 the report.
SA16
- c) SA15 - Any number of customers can be printed out
SA16 (i.e. top 10, top 100, All, Top 20%)

4. ARCHIVE

A copy of all reports is placed in the Archive Room.

APPENDIX THREE

DSS REPORTS EXAMPLES

3.1 TITLE PAGES

3.2 LAYOUT AMENDMENTS

3.3 ERRORS

3.4 COMPANY SUMMARY SHEET

MONTHLY AREA SALES HOME & EXPORT

MONTH	ANALYSIS NUMBER	PRODUCT GROUP
NOVEMBER 1983	SAAA	OVEN LABELS & BADGES

APPENDIX 3-1: TITLE PAGE

2ND QUARTER TO SEPTEMBER 1983

PRODUCT GROUP : RIBBONS & WEBBINGS

QUARTERLY SALES ANALYSIS (VALUE) SUMMARY

DATE 07/10/83

LINE NO	PRODUCT DELETED	Q1		Q2		Q3		Q4		YEAR TO DATE	LAST YEAR TOTAL	DATE
		LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0			
10	PRODUCT DELETED	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	0	0	10
12			0		0		0		0	0	0	12
14	K STRAPPING	LAST YEAR THIS YEAR	3032	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	3032	3302	14
16			135		0		0		0	135		16
18	R PIBBON	LAST YEAR THIS YEAR	126451	LAST YEAR THIS YEAR	109238	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	235089	508647	18
20			73679		108373		0		0	182052		20
22	S WEBBING	LAST YEAR THIS YEAR	6984	LAST YEAR THIS YEAR	3502	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	10486	27773	22
24			8923		9083		0		0	18006		24
26	T TRIMMING	LAST YEAR THIS YEAR	2135	LAST YEAR THIS YEAR	779	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	2914	4782	26
28			26		109		0		0	135		28
30	X TECH WEBBING	LAST YEAR THIS YEAR	7055	LAST YEAR THIS YEAR	9869	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	10924	44433	30
32			19726		14680		0		0	36406		32
34	Z COMM. DYING	LAST YEAR THIS YEAR	9553	LAST YEAR THIS YEAR	4460	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	13993	21193	34
36			5826		3989		0		0	9817		36
38												38
40	STOCK STRAPPING (PLS)	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	0	0	40
42			327		654		0		0	981		42
44												44
46												46
48	PRODUCT GROUP TOTAL:-											48
50		LAST YEAR THIS YEAR	155210	LAST YEAR THIS YEAR	127828	LAST YEAR THIS YEAR	0	LAST YEAR THIS YEAR	0	283038	675530	50
52			108644		156888		0		0	245532		52
54												54
56												56
58												58
60												60

APPENDIX 3-1: TITLE PAGE

CHEN NIAH 10/10/83 2 0000-57

AREA	PRODUCT DESCRIPTION	A/C NO.	CUSTOMER NAME	SALES VALUE		LAST YEAR TO DATE
				THIS MONTH	YEAR TO DATE	
001	B WOVEN BADGES	1361610	COMMERCIAL LABEL PRINTER	1569.80	10477.81	0.00
		8250500	TRUNKLITE LTD	51.00	8322.41	0.00
		5151610	SEAL MAKING CORPORATION	0.00	3413.91	0.00
		8400400	VISTA SPORTS	0.00	2290.26	0.00
		0230500	RABA TRIMMINGS LTD	0.00	1765.44	0.00
		6111200	P K ARTS LTD	0.00	1658.00	0.00
		0065100	BROWNSEA ISLAND	0.00	1656.05	0.00
		0522000	BANNER BADGES	0.00	1499.81	0.00
		7662700	SUNCKIDGE TACKLE LTD	0.00	924.81	0.00
		1025700	WONCESTER & HEREFORD DIS	66.00	881.44	0.00
		0001200	A ONE HEADWEAR	0.00	862.41	0.00
		0791800	BRITISH SUB AQUA CLUB	0.00	732.41	0.00
		0267200	CHAS H BAKER & SON	0.00	730.01	0.00
		4821000	THE LYKE MAKE CLUP	0.00	659.81	0.00
		0110900	ANGLERS MASTERLINE LTD	0.00	613.60	0.00
		1207500	CITY UNIFORM MFG CO LTD	0.00	562.65	0.00
		9353000	WHITBY LIT & PHILUSO SOC	0.00	555.61	0.00
		0561300	MRS B BASS	0.00	587.15	0.00
		5866400	NORMARA SPORTS LTD	0.00	584.20	0.00
		7112800	PRACTICAL UNIFORM CO LTD	0.00	157.96	0.00
		7570300	STEPHENS BIRMINGHAM LTD	0.00	125.00	0.00
		2080500	ELGATE PRODUCT LTD	0.00	26.00	0.00
		1777100	I J DEWHIRST LTD	0.00	26.20	0.00
		5873200	RICHARD E NORTH & CO LTD	26.00	26.01	0.00
PRODUCT TOTALS :				1615.80	59172.85	0.00
RESPONSE				26.00	26.00	0.00
STOCK				1641.80	59198.85	0.00
TOTALS						

001	E FACTORED GOODS	0570500	JAMES BLACKMORE LTD	0.00	997.52	0.00	0.00
		1207500	CITY UNIFORM MFG CO LTD	0.00	216.96	0.00	0.00
		0374700	R J BARWICK & SONS LTD	0.00	55.12	0.00	0.00
		1777100	I J DEWHIRST LTD	0.00	50.76	0.00	0.00
		4188100	JONES STRUUD TEXTILES	0.00	48.61	0.00	0.00

PRODUCT TOTALS :
RESPONSE
TOTALS

0.00
0.00

0.00
0.00

001	L WOVEN LABELS	0570500	JAMES BLACKMORE LTD	0.00	21643.89	0.00	0.00
		1207500	CITY UNIFORM MFG CO LTD	0.00	9553.18	0.00	0.00
		0374700	R J BARWICK & SONS LTD	0.00	44.81	0.00	0.00
		1777100	I J DEWHIRST LTD	0.00	6418.37	0.00	0.00
		4188100	JONES STRUUD TEXTILES	0.00	5941.65	0.00	0.00

APPENDIX 3-2: LAYOUT AMENDMENT (BEFORE)

HOME FEBRUARY 1984

AREA	PRODUCT DESCRIPTION	A/C NO.	CUSTOMER NAME	SALES VALUE			
				THIS MONTH	YEAR TO DATE	LAST YEAR TO DATE	
	BESPOKE STOCK	2080500	ELGATE PRODUCT LTD	0.00	0.00	28.00	D
	BESPOKE STOCK	2080500	ELGATE PRODUCT LTD	0.00	50.00	0.00	
	BESPOKE STOCK	7570300	STEPHENS BIRMINGHAM LTD	0.00	0.00	125.00	D
	BESPOKE STOCK	7570300	STEPHENS BIRMINGHAM LTD	0.00	1.40	0.00	
	BESPOKE	0287200	CHAS H BAKER & SON	0.00	0.00	700.00	D
	BESPOKE	0381300	MRS B BASS	0.00	0.00	387.15	D
	BESPOKE	0791800	BRITISH SUB AQUA CLUB	0.00	0.00	782.40	D
	BESPOKE	0863100	BROWNSEA ISLAND	0.00	0.00	1036.05	D
	BESPOKE	1199200	BOB CHURCH & CO	0.00	0.00	300.00	D
	BESPOKE	1207500	CITY UNIFORM MFG CO LTD	0.00	0.00	562.65	D
	BESPOKE	5151600	SEAL MARINE CORPORATION	0.00	0.00	5415.90	D
	BESPOKE	7682700	SUNDRIDGE TACKLE LTD	0.00	0.00	924.80	D
	BESPOKE	8250500	ADDRESS DELETED	0.00	0.00	8822.40	D
	BESPOKE	8350700	V.C.L. VIDEO	0.00	0.00	312.00	D
	BESPOKE	9333500	WHITBY LIT & PHILOSO SUC	0.00	0.00	535.60	D
	BESPOKE	0119900	ANGLERS MASTERLINE LTD	0.00	23.80CR	615.60	D

PRODUCT TOTALS :

BESPOKE	2694.37	30737.44	38169.05
STOCK	1.40	202.24	0.00
TOTALS	2695.77	30939.68	38169.05

001 E FACTURED WOODS

BESPOKE	1207500	CITY UNIFORM MFG CO LTD	0.00	523.72	210.96	
BESPOKE	1777100	I J DEWHIKST LTD	0.00	0.00	50.76	D
BESPOKE	0351600	WARNSTAPLE SHOTOKAN	0.00	86.86	0.00	
BESPOKE	0287200	CHAS H BAKER & SON	0.00	59.85	0.00	
BESPOKE	0374700	R J BARWICK & SONS LTD	0.00	0.00	55.12	D
BESPOKE	0570500	ADDRESS DELETED	0.00	0.00	997.52	D
BESPOKE	4188100	JUNES STROUD TEXTILES	0.00	0.00	68.60	D
BESPOKE	5907207	MILLER RAYNER DANCO LTD	0.00	0.00	273.64	D

PRODUCT TOTALS :

BESPOKE	0.00	670.43	1642.60
TOTALS	0.00	670.43	1642.60

001 L WOVEN LABELS

BESPOKE	1134000	BRITISH VAN HEUSEN CO	3309.75	19374.18	17500.97	
BESPOKE	2587029	GIEVES & HAWKES LTD	0.00	211.97	4716.61	D
STOCK	2587029	GIEVES & HAWKES LTD	0.00	35.00	0.00	
BESPOKE	1361600	COMMERCIAL LABEL PRITERS	460.06	8348.21	3525.15	
STOCK	1361600	COMMERCIAL LABEL PRITERS	0.00	0.00	118.00	D
BESPOKE	3383000	MILDITCH & KEY	0.00	1571.84	5895.14	
BESPOKE	4057000	SABRE INT TEXTILES LTD	0.00	1577.18	4096.26	
BESPOKE	611200	P K ARTS LTD	0.00	0.00	0.01CR	
BESPOKE	5110100	MALTY KNITWEAR LTD	0.00	6613.08	9216.31	D
STOCK				183.00	35.60	
BESPOKE				5324.56	5615.63	D
BESPOKE				5085.21	3708.12	D
BESPOKE				5429.44	1609.86	
BESPOKE				5385.07	2625.39	
STOCK				0.00	140.15	D

APPENDIX 3-2: LAYOUT AMENDMENT (AFTER)

EXPORT OCTOBER 1983

AREA PRODUCT DESCRIPTION SALES THIS MONTH
VALUE-----VOLUME

SALES VALUE
YEAR TO-----LAST YR
DATE TO DATE

NAME'S TOTAL ALL AREAS :

NORMAL 3637.44 1456 24272.43 27918.28
PRE-PAID 1372.33 86 5150.77 6658.03

P.L.S. TOTAL ALL AREAS:

NORMAL 69.41 40 3717.52 0.00
PRE-PAID 19.50 2 14.50 0.00

TOTAL FOR PRODUCT GROUP: 5098.08 1572 53160.22 34570.31

BSAA4

PRODUCT GROUP : WOVEN LABELS & BADGES

MONTHLY AREA SALES: RANKED BY CUSTOMER VALUE

RUN DATE 12/10/82

PAGE NO 1

SEPTEMBER 1982

CUSTOMER NAME

A/C NO.

PRODUCT DESCRIPTION

SALES VALUE

THIS YEAR TO DATE LAST YEAR TO DATE

00 E FACTORED WOODS
BESPOKE

SUNDRY SALES

0701500

17502.54

PRODUCT TOTALS #
BESPOKE
TOTALS

0.00 14.07CR 0.00 0.00 0.00 0.00

00 L WOVEN LABELS
STOCK

ANDREW BAKON LIMITED

0359700

175.90

PRODUCT TOTALS #
STOCK
TOTALS

0.00 94.00 0.00 0.00 0.00 0.00

AREA TOTALS:
BESPOKE
STOCK
TOTALS

0.00 14.07CR 0.00 0.00 0.00 0.00

01 DESCRIPTION MISSING
BESPOKE
BESPOKE
STOCK
STOCK
STOCK

PETER LURD LTD
NORMARK SPORTS LTD
MESSRS GEORGE MICHULS
THE SCOUT & GUIDE
WEBSTER BMOS LTD

4700600
5806400
5844400
7095200
9208400

11.00 11.00 4.25 4.25 1.20 1.20 1.20 1.20 0.52 0.52

PRODUCT TOTALS #
BESPOKE
STOCK
TOTALS

15.25 15.25 2.72 2.72 17.97 17.97

01 B WOVEN BADGES
BESPOKE
BESPOKE
BESPOKE
BESPOKE
BESPOKE
BESPOKE
BESPOKE

SEAL MARINE CORPORATION
SUNDRY SALES
MUNDASEA ISLAND

5151600
0701500
086310
587050
611120
201120
580640
259010

0.00 3500.40 30.00 30.00 0.00 0.00 0.00 0.00 0.00 0.00 584.20 584.20 68.00 68.00

PRODUCT TOTALS #
BESPOKE
TOTALS

414.20 414.20 6496.17 6496.17

APPENDIX 3-3: ERRORS

#SAAB		SALES TOTALS BY PRODUCT GROUP FOR SEPTEMBER 1983		DATE: 04/10/83	
PRODUCT GROUP	PRODUCT DESCRIPTION	HOME VALUE	EXPORT VALUE	PRODUCT VALUE	
C	CERAMIC FIBRES	0.00	0.00	0.00	
F	GIFTS & FINE ARTS	36960.17	7878.43	44838.60	
G	GENERAL	3812.87	1133.53	4946.40	
L	WOVEN LABELS & BADGES	71990.37	9547.30	81537.67	
N	NAME TAPES	92057.38	6233.24	98290.62	
P	PRINTING	498.08CR	0.00	498.08CR	
R	RIBBONS & WEBBINGS	52178.65	0.00	52178.65	
TOTAL SALES VALUES:-		256501.56	24812.50	281314.06	

APPENDIX 3-4: COMPANY SUMMARY SHEET

APPENDIX FOUR

DESIGNER LABELS

4.1 MARKET RESEARCH

4.2 PRODUCT INFORMATION

4.1 MARKET RESEARCH

1. MARKET RESEARCH OBJECTIVES AND METHODOLOGY

1.1 OBJECTIVES

Identify potential in home craft and small business market.
Establish market size and possible order quantities.
Identify methods of sales to the above markets.

1.2 METHODOLOGY

Desk research to establish market sizes and structure.

Field research to

- assess product appeal in various market sectors.
- rank market sectors in order of priority.
- assess potential price levels, promotion and distribution channels.

Consumer Survey of 77 women interested in crafts.

Telephone Survey of 20 Craft Associations

Trade Survey of 12 Retail Buyers

Visit to Birmingham Polytechnic to discuss product with Design and Fashion students

2. SUMMARY OF RESULTS

2.1 MARKET STRUCTURE

Although the market research brief outlined two main areas for investigation, desk research quickly showed that the Homecrafts Market and Small Business Market could not be viewed as totally separate. Both areas could be broken down into sectors which overlapped; for example, many women extending hobby or leisure interests into a small business. These however, could also be considered outside the mainstream of small craft industries, which includes the promotion of traditional crafts such as spinning, weaving and does not generally include knitting and dressmaking.

This complicated market structure offered both advantages and disadvantages. It meant that advertising and promotion could be easily targeted to specific market sectors, making it more cost-effective. However, as the different market sectors had different characteristics, it also meant that it would be impossible to set up one distribution and promotion policy as this would not fulfil the needs of all potential customers.

2.2 MARKET SIZE AND TRENDS

Figure 21 shows the potential number of customers in each selected market sector. Published reports suggested that all sectors of the market were growing, many with government encouragement, such as the small business sector. The Homecrafts market had benefited from the increased spending on home and leisure activities with home knitting becoming particularly popular. Of particular interest was the growing number of knitting machine owners. The field research identified this group as a key sector, and 27% of those interviewed had turned their hobby into a business venture. The Craft market proved a small, specialist market sector, once again with interest growing and membership of the various associations and guilds rising.

2.3 COMPETITION

Two main firms advertised on a regular basis who were printed label suppliers.

Diverse Marketing - Berwickshire
R & H King - Edinburgh

Details and samples of their products are available. Their basic prices are \$4.25 per 100 plus an origination cost of \$9.50 on the first order. Minimum quantity is 100 and special prices are quoted for orders over 2,000. Delivery times quoted are 3-4 weeks. Additional costs are incurred if different type face or symbols are requested.

Comprehensive literature with an order form and samples is sent on request and all orders must be accompanied by a cheque.

Small quantities of embroidered labels can be ordered from Eve Bull of Chichester. These contain a picture of a spiders web and the words "Handmade By" as standard with the name requested printed on. Prices quoted were \$1.25 for 10.

2.4 POTENTIAL SALES

Although the product was generally well received by all market sectors, each revealed its own individual requirements. For the home hobbies market, labels or tapes were essential but would be an added luxury. The volume of garments would be small so orders would be for the smaller quantity of 36 labels. The field research indicated that even smaller quantities would be more acceptable, suggesting that this should be seriously considered if technically possible. Although appealing to only a small percentage of the market sector, the overall size of the market meant that this could result in a large number of small orders.

The craft industries and knitting machine owners had a specific requirement for labels and in this sector, there was no competition except from printed labels which were seen as inferior in quality. Knitting machine owners were particularly keen to have a specialised motif and both groups requested a new colour combination: brown lettering on a cream tape. Although market sizes were smaller for these groups, the number of

potential customers and order quantity were higher, with the added bonus of repeat orders.

Small textile industries were more interested in custom produced labels and found the idea of the motifs too limiting, preferring the labels without them. This was particularly true of the home-based textile and knitwear designers interviewed. However, the quality of the new labels was seen as superior to the printed labels already on the market so a high market share with high order quantities looked feasible.

At this stage, potential sales levels in terms of numbers of orders were extremely difficult to estimate as the product was new and unknown. Different market sectors looked likely to order in different quantities and although in some cases it was possible to identify the number of potential customers, it was impossible to identify their requirements, i.e. how many garments would they be producing and over what time scale.

2.5 POTENTIAL ADVERTISING AND PROMOTION METHODS

2.5.1 HOME HOBBIES AND CRAFTS

FASHION TOURS

Two of the main womens' crafts magazines organise fashion shows in the Spring and Autumn every year which tour major cities. With audiences of 1,000 at each venue, they reach 25,000-30,000 women during a 6 week tour. Manufacturers tour with the show and exhibit and sell during the evening. Pins and Needles show this year is sponsored by Littlewoods.

DIRECT RESPONSE

The main magazines appealing to the home hobbies market are as follows:-

- Fashioncraft
- Pins and Needles
- Home and County
- Stitchcraft
- Vogue Pattern Books
- Family Circle
- Living
- Popular Crafts

RETAIL OUTLETS

Department stores have large haberdashery, fabrics, and arts and crafts sections and as the survey shows, people expect to be able to buy most of their craft items from their local department store. In general, the department stores visited felt the idea of the Designer Labels was a good one although it would be difficult to sell without advertising or editorial support as it was new and difficult to display effectively.

60% of all wool is still sold through specialist outlets. Only 2% is sold through mail order, and 6% through Littlewoods.

DIRECT MAIL

With a total of 360,000 separate orders for school nametapes received each year, direct mail to these customers could prove a cost-effective method and could easily be set-up.

2.5.2 MACHINE KNITTERS

KNITTING CLUBS

Although the majority of these have teaching and social function, even the small local club visited sold yarn purchased direct from a mill, magazines, and other supplies. The clubs organised by the knitting machine distributors were more commercial ventures; the main one in Birmingham had 3 staff serving during the break and at least half the yarn on display was sold during the evening. These would be an excellent sales outlet and the commercial club visited was very interested in this possibility.

MAIL ORDER

The main mail order companies are:-

Bedford Sewing and Knitting Machines Company
To and Fro Postal Knitting Club

KNITTING CONVENTIONS

These are exhibitions of knitting machines, yarns, fashion shows of knitwear, and demonstrations. Tickers are sold through the main mail order firms and places are limited to 1,500 per show. These shows appear to be extremely successful with many exhibitors selling out of lines quickly.

DIRECT RESPONSE

There are three main magazines which appeal directly to machine knitters and in the survey, at least 75% of those questioned had bought one or more recently.

Worldwide Knitting
Knitting Machine Digest
Stitch in Time

RETAIL SALES

There are about 150 knitting machine distributors selling both machines and yarns. Most offer tuition to new purchasers and many organise clubs.

2.5.3 CRAFT INDUSTRIES

DIRECT RESPONSE

The main magazine in this area is Crafts, the magazine published by the Crafts Council. Although circulation is small they claim on average, a 3% response rate for their direct response advertisements. They carry about 450 classified advertisements per issue, with one printed label firm advertising regularly.

EXHIBITIONS

With many small craft exhibitions all over the country it is difficult to assess which are the most important as far as selling to the craftsman is concerned. However, the largest is the British Craft Trade Fair organised by P.D.K. Exhibitions in Harrogate, with 450 exhibitors. The exhibitors list would also be a useful basis for building up a direct mail list.

RETAIL STORES

There are about 60 shops specialising in craft equipment and supplies. Most of these are listed in the "Crafts Buyers Guide", and about 40 of these would be suitable retail outlets. Many of them also have their own mail order catalogues. The Education Institute of Design, Craft and Technology publishes an Annual Buyers Guide, and trial advertisements in these publications are recommended.

2.5.4 HOME DESIGNERS

FASHION AND DESIGN COURSES

There are approximately 34 colleges, polytechnics and universities offering courses in Fashion and Design, with a total student population of 4500-5000. With up to 1000 students graduating each year, working through the colleges would provide a cost-effective way of reaching a small but worthwhile market.

2.6 COLOUR AND PRICE

The most popular colours requested in the research were; Brown on Cream, Black on White, White on Black and White on Navy. Although this means introducing a new colour, Brown on Cream, it is recommended that these four colours only are offered in the market trial.

For the smaller quantities, a retail price of £5 for 36 labels seems acceptable, as there is no real competition, and people purchasing these quantities are more likely to be buying as a luxury rather than as a necessity for a small business.

Once labels are bought in larger quantities for business purposes competition from printed labels can not be ignored. At trade prices the labels would be extremely competitive but this would not allow any margin for advertising and promotion costs. It is recommended that if labels are sold direct to the public, retail prices are charged on quantities of up to 1000. Above this quantity, a discount structure is required.

2.7 RECOMMENDATIONS

The potential sales volumes for Designer Labels are significant. However, as the product is new and unknown, sales growth will depend on the promotion and advertising.

At this stage, it is difficult to assess how these potential markets can best be tackled. A Trial Market plan has been drawn up to test out various sales methods to various markets. Most of these are self financing, and at the end of the period, the effectiveness of alternative methods can be measured, and a realistic plan developed for the future.

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APPENDIX FIVE

PAPER PRESENTED AT E.I.A.S.M. SEMINAR

EUROPEAN INSTITUTE FOR ADVANCED STUDIES IN MANAGEMENT

WORKSHOP ON

"MICRO-DECISION SYSTEMS FOR MARKETING MANAGEMENT"

NOVEMBER 1983

"IMPLEMENTING A DECISION SUPPORT SYSTEM AT J & J CASH LTD"

by

Claire Forrest

Claire Forrest: Research Student, IHD Dept., Aston University,
Birmingham and J & J Cash Ltd, Coventry.

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APPENDIX 6

J AND J CASH LTD

PRODUCT LITERATURE - GIFT RANGE

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