

UNIVERSITY OF STIRLING

B T J CARLISLE

ABSTRACT OF THESIS ENTITLED:

AN EVALUATION OF THE EFFECT OF LACK OF AVAILABILITY
AND POOR DISTRIBUTION OF INFORMATION ON SUCCESSFUL
JOB AND ORGANISATION DESIGN IN WORKERS' CO-OPERATIVES.

SUBMITTED FOR THE DEGREE OF PHD

DATE: JUNE 1988

This Thesis documents an exploratory investigation into the effect of poor information management on successful job and organisation design in workers' co-operatives.

It was hypothesised that lack of availability and poor distribution of information militate against successful job and organisation design.

Since sound information management is imperative for decision making and successful job and organisation design ensures workers satisfaction this study is fully justified. It is important that workers' co-operatives are economically successful and that people enjoy working in them.

The topic is particularly important for the workers' co-operative movement because little research has been conducted on the links between information management and job and organisation design.

The Thesis summarises the main issues and concepts relevant to the research topic and describes the implications of information management for job and organisation design in workers' co-operatives.

The purchasing processes in four workers' co-operatives in Scotland were chosen as the information systems to be studied. Research field work, in the form of a Job Diagnosis Survey was also carried out to establish the links between information management and job and organisation design.

Research results have been examined in relation to the participative arrangements one associates with workers' co-operatives. It was found that in addition to information management, other issues have an effect on successful job and organisation design. These include: objectives of each business; Argyris's Theory in Action; Lack of management skills; and poor systems design. This led to a comparison of the four co-operatives studied with the very successful Mondragon Group.

Finally the implications of the research results have been discussed in relation to the workers' co-operative movement and to future research by those interested or involved in the movement.

ACKNOWLEDGEMENTS

The co-operation of many people in the four workers' co-operatives researched is gratefully acknowledged. Had they been unwilling to open their doors to possible criticism by the researcher, essential information required for this thesis could not have been collected and presented.

Particular thanks to Professor Tom Cannon for supervising my research. His patience and time spent with various drafts and suggestions made were important factors in this project.

Thanks also to Rob Paton from the Open University's Co-operative Research Unit who was willing to advise me on the many problems I raised with him.

Special thanks goes to my wife Jan without whose understanding and encouragement this project might well have been abandoned at one particular stage.

Last but by no means least I thank Elaine Poli, Liz Colvin and Christine Hill who laboured diligently and cheerfully over atrociously handwritten drafts. Despite this they produced a thesis in a very short period of time and taught me something about co-ordination and scheduling.

SECTION 1

ISSUES AND CONCEPTS

(CHAPTERS 1 - 7)

SECTION 2

RESEARCH DESIGN AND METHODS

(CHAPTERS 8 - 10)

SECTION 3

RESEARCH RESULTS

(CHAPTER 11)

SECTION 4

DISCUSSION, CONCLUSIONS AND
FURTHER RESEARCH

(CHAPTER 12)

LIST OF TABLES

- 3.1 NUMBER OF UK WORKERS' CO-OPERATIVES, 1874-1986
- 11.1 TRIGGERS LEADING TO ORDER PLACEMENT
- 11.2 METHODS USED TO DECIDE ORDER QUANTITIES
- 11.3 FORECASTING DATABANK
- 11.4 AMOUNT OF FORECASTING DONE BY INDIVIDUALS (WITHOUT ASSISTANCE)
- 11.5 FREQUENCY OF REFERENCE TO SUPPLIERS' PRICELISTS
- 11.6 USE OF RECORDS OF PREVIOUS PRICES PAID
- 11.7 FREQUENCY OF PRICE NEGOTIATION
- 11.8 FREQUENCY WITH WHICH QUALITY REQUIREMENTS ARE SPECIFIED
- 11.9 NEGOTIATION OF DELIVERY DATES
- 11.10 METHOD USED FOR PLACING AN ORDER
- 11.11 PROPORTION OF SUPPLIERS WHO RECEIVE A PURCHASE ORDER
- 11.12 RESPONSIBILITY FOR RECEIVING INCOMING GOODS
- 11.13 INCOMING GOODS INSPECTION FACTORS
- 11.14 DOCUMENTS USED TO CHECK INCOMING GOODS
- 11.15 SUPPLIERS EVALUATED FOR SERVICE PROVIDED
- 11.16 REASONS FOR CHOOSING SUPPLIERS FOR EVALUATION
- 11.17 FACTORS USED IN ASSESSING SUPPLIERS
- 11.18 COMMUNICATIONS WITH SUPPLIERS
- 11.19 COMPARISON OF TWO JDS SURVEYS
- 11.20 JOB DIAGNOSIS SURVEY MEAN AVERAGES AND STANDARD DEVIATIONS FOR FOUR WORKERS' CO-OPERATIVES
- 11.21 COMPOSITE DEFICITS

LIST OF FIGURES

- 2.1 EFFECTS OF POOR INFORMATION FLOW
- 2.2 SUMMARY OF MAIN INFLUENCES ON JOB DESIGN
- 3.1 CLASSIFICATION OF WORKERS' CO-OPERATIVES (WILSON)
- 3.2 CLASSIFICATION OF WORKERS' CO-OPERATIVES (CORNFORTH)
- 3.3 PROPOSED CLASSIFICATION OF WORKERS' CO-OPERATIVES
- 3.4 MONDRAGON GROUP: AN OVERVIEW
- 4.1 DECISION MAKING AND UNCERTAINTY
- 4.2 FORMS OF INFORMATION PROCESSING
- 4.3 TYPICAL ORGANISATION STRUCTURE FOR A MANUFACTURING COMPANY
- 4.4 INFORMATION REQUIREMENTS BY DECISION CATEGORY
- 4.5 CONTROL DIAGRAM
- 4.6 (a) SINGLE LOOP LEARNING
- 4.6 (b) DOUBLE LOOP LEARNING
- 4.7 WITHDRAWAL OF INITIATING LEADERS
- 5.1 ACTIVITY CHAINS
- 5.2 (a) TYPICAL MANUFACTURING PROCESS STRUCTURE
- 5.2 (b) TYPICAL RETAIL/WHOLESALE PROCESS STRUCTURE
- 5.3 RANGE OF INTERNAL INTERFACES OF THE PURCHASING FUNCTION
- 5.4 FLOW CHART OF INTERNAL INFORMATION SYSTEM
- 5.5 A CLASSIFICATION OF THE ACTIVITIES IN THE CHEMICAL INDUSTRY
- 5.6 CATEGORIES OF INDUSTRIAL PURCHASES: FROM THE CUSTOMERS' VIEWPOINT
- 5.7 THE CONSTITUENT ELEMENTS OF THE ANATOMY OF THE PURCHASE
- 5.8 REASONS FOR PURCHASING
- 5.9 A HYPOTHETICAL EXAMPLE OF THE RANGE OF BUYING SITUATIONS FOR A FINISHED GOOD SUCH AS A SMALL ELECTRIC MOTOR

- 5.10 THE WIND-PROPOSED FRAMEWORK FOR THE ANALYSIS OF THE VARIOUS DETERMINANTS OF THE BUYERS' BEHAVIOUR
- 5.11 THE WEBSTER AND WIND MODEL FOR UNDERSTANDING ORGANISATIONAL BUYING BEHAVIOUR
- 5.12 THE SHETH INTEGRATIVE MODEL OF INDUSTRIAL-BUYING BEHAVIOUR
- 6.1 THE GOVERNMENT RECORD
- 6.2 EMPLOYEES' PERCEIVED INFLUENCE IN DECISION MAKING
- 6.3 EMPLOYEES' DESIRED INFLUENCE IN DECISION MAKING
- 6.4 EMPLOYEES' PERCEIVED INFLUENCE IN DECISION MAKING PRE-BUY OUT
- 6.5 SUMMARY OF MAIN INFLUENCES ON JOB DESIGN
- 6.6 MODEL OF JOB DESIGN
- 6.7 TYPICAL JOB DESIGN PROFILES
- 7.1 EFFECTS OF DIFFERENT LEVELS OF JOB DESIGN CHANCES
- 7.2 INFORMATION SYSTEMS AT VOLVO-KALMAR
- 7.3 PARTICIPATIVE MANAGEMENT INFORMATION SYSTEM
- 7.4 MAIN INFORMATION FLOWS IN A CO-OPERATIVE'S WIS
- 7.5 BROAD ORGANISATIONAL ARRANGEMENTS IN A WORKERS' CO-OPERATIVE
- 7.6 JOB AND ORGANISATION DESIGN DIMENSIONS AND RELATED INFORMATION
- 8.1 DEVELOPMENT OF RESEARCH TOPIC AND ANALYSIS
- 8.2 THE RESEARCH PROCESS
- 8.3 BUSINESS INFORMATION SYSTEMS
- 8.4 INTEGRATED OPERATING SYSTEM
- 8.5 LEVEL OF PURCHASING IN OPERATING SYSTEMS
- 8.6 THE FOUR CO-OPERATIVES STUDIED
- 8.7 SYSTEMS STUDIED
- 8.8 HOW RESEARCH TECHNIQUES SUPPORT AND COMPLEMENT EACH OTHER
- 8.9 THE RESEARCH PROCESS

- 8.10 PEOPLE DIRECTLY INVOLVED IN PLACING ORDERS
- 8.11 BROAD CATEGORIES OF INFORMATION SOUGHT
- 8.12 PURCHASING SYSTEM ELEMENTS
- 8.13 PURCHASING SYSTEM PROCEDURE IN CONVENTIONAL SMALL BUSINESS
- 8.14 SAMPLE QUESTIONS FOR FIRST PILOT STUDY
- 10.1 BASIC PURCHASING ARRANGEMENTS
- 11.1 RANKING OF VARIABLES (IN DESCENDING ORDER)
- 11.2 AUTONOMY GAPS RANKED IN DESCENDING ORDER
- 11.3 COMPETENCE HIERARCHY AND RANGE
- 11.4 MATRIX STRUCTURE
- 12.1 PARTICIPATION IN DECISION MAKING IN FOUR CO-OPERATIVES
- 12.2 CO-OPERATIVE INTERACTIVE MODEL

APPENDICES

- I PURCHASING PROCESS QUESTIONNAIRE

- II JOB DIAGNOSIS SURVEY

- III PURCHASING PROCESS SURVEY DATA

- IV FLOW PROCESS CHART OF PURCHASING PROCESS - CO-OPERATIVE AYE

- V FLOW PROCESS CHART OF PURCHASING PROCESS - CO-OPERATIVE BEE

- VI FLOW PROCESS CHART OF PURCHASING PROCESS - CO-OPERATIVE CEE

- VII FLOW PROCESS CHART OF PURCHASING PROCESS - CO-OPERATIVE DEE

CONTENTS

	PAGE
ABSTRACT OF THESIS	i
ACKNOWLEDGEMENTS	iv
MAIN SECTIONS	v
LIST OF TABLES	vi
LIST OF FIGURES	vii
APPENDICES	x
1 INTRODUCTION	1
2 WHY THE STUDY?	3
2.1 INTRODUCTION	
2.1.1 Background	8
2.1.2 UK Initiatives	9
2.1.3 Types of Workers' Co-operative	11
2.1.4 Why Co-ops are Attracting Attention	12
2.1.5 Summary of the Importance of Co-operatives	16
2.2 INFORMATION MANAGEMENT IN WORKERS' CO-OPERATIVES	18
2.2.1 Information Management in Business	18
2.2.2 The Management Tasks	22
2.2.3 Particular Problems in Workers' Co-operatives	24
2.2.4 Job and Organisation Design	28
2.2.5 Job and Organisation Design and Information Management in Workers' Co-operatives	31
3 HISTORY AND DEVELOPMENT	43
3.1 HISTORY AND DEVELOPMENT OF WORKERS' CO-OPERATIVES	44
3.1.1 Reasons for Early Growth	44
3.1.2 Contributions by Philanthropists	45
3.1.3 Owenism and Trade Unionism	47
3.1.4 The Chartists	49

3.2	TYPES OF WORKERS' CO-OPERATIVES	51
3.2.1	The Co-operative Movement	51
3.2.2	Workers' Co-operatives Described and Classified	55
3.3	INTERNATIONAL PERSPECTIVE	68
3.3.1	Introduction	68
3.3.2	Spain - The Mondragon Group of Co-operatives	68
3.3.3	The United Kingdom	77
3.3.4	Conclusion	89
3.4	THE CONTEMPORARY SCHEME	90
3.4.1	Introduction	90
3.4.2	Co-operative Support Agencies	92
3.4.3	Conclusions	98
3.5	SUCCESS, PROBLEMS AND FAILURE	99
3.6	THE DEGENERATION THESIS	103
3.6.1	Introduction	103
3.6.2	The Webbs	103
3.6.3	Jones Challenges the Webbs	106
3.6.4	Fairclough's Contemporary Views	109
3.6.5	Democratic Degeneration vis a vis Job and Organisation Design and Information Management	118
4	INFORMATION MANAGEMENT IN WORKERS' CO-OPERATIVES	120
4.1	MANAGEMENT THEORY AND INFORMATION	121
4.1.1	Scientific Management	121
4.1.2	Classical Management	124
4.1.3	Human Relations School	125
4.1.4	Behaviourists	126
4.1.5	Systems Management	127
4.2	INFORMATION MANAGEMENT	129
4.2.1	Importance of Information Management and Information Systems	129
4.2.2	Information and Decision Making	133
4.2.3	Forms of Information Processing in Organisations	142
4.2.4	Information Management in a Typical Workers' Co-operative	147

4.3	PROBLEMS ENCOUNTERED WITH INFORMATION SYSTEMS	155
4.3.1	General Problems and Conflicts	155
4.3.2	System Designers' Views of Organisations	165
4.3.3	Socio-technical Systems Approach	169
4.3.4	Organisational Learning	172
4.3.5	Particular Problems in Workers' Co-operatives	188
5	PURCHASING INFORMATION SYSTEMS	198
5.1	INTRODUCTION	198
5.2	PURCHASING RELATIONSHIPS WITH OTHER FUNCTIONS	205
5.2.1	Background	205
5.2.2	Purchasing and Production	207
5.2.3	Purchasing and Marketing/Sales	209
5.2.4	Purchasing and Finance	210
5.3	PURCHASING OBJECTIVES AND RESPONSIBILITY	212
5.3.1	Objectives	212
5.3.2	The Purchasing Process as an Information System	214
5.4	IMPORTANT PROCEDURES	218
5.4.1	Buying Agreements	218
5.4.2	Price Agreements	221
5.5	THE BUYING PROCESS AND ORGANISATIONAL BUYING BEHAVIOUR	223
5.5.1	Introduction	223
5.5.2	The Buying Process	224
5.5.3	Summary of the Buying Process	230
5.5.4	Organisational Buying Behaviour	232
5.5.5	Models of Organisational Buying Behaviour	244
6	JOB AND ORGANISATION DESIGN IN WORKERS' CO-OPERATIVES	258
6.1	INTRODUCTION	258
6.2	OWNERSHIP/POWER/CONTROL IN WORKERS' CO-OPERATIVES	263
6.2.1	Government Record and Main Policy Approaches	263
6.2.2	Power in Organisations	266
6.2.3	Control in Organisations	269

6.3	THE EXPERIENCE OF CO-OPERATIVE WORKING	272
6.4	PARTICIPATION THROUGH JOB DESIGN IN WORKERS' CO-OPERATIVES	276
6.4.1	Forms of Participation	276
6.4.2	Job Design Overview	282
6.4.3	Advantage of Co-operatives in Matters of job and Organisation Design	295
6.4.4	Barriers to Successful Job and Organisation Design	301
6.4.5	Conclusions	311
7	IMPLICATIONS OF INFORMATION MANAGEMENT FOR JOB AND ORGANISATION DESIGN IN WORKERS' CO-OPERATIVES	312
7.1	INFLUENCES FROM THE TRADITIONAL PAST	312
7.2	INFORMATION AND WORKER PARTICIPATION	314
7.3	WORKER INFORMATION SYSTEMS (WIS)	317
7.4	JOB DESIGN AND INFORMATION MANAGEMENT IN WORKERS' CO-OPERATIVES	320
7.4.1	Job Design and Information Management with Work Groups	322
7.4.2	Job Design and Information in Workers' Co-operatives	330
7.5	SUMMARY	339
8	RESEARCH METHODOLOGY	345
8.1	INTRODUCTION	345
8.2	DEVELOPMENT OF HYPOTHESIS FOR RESEARCH	348
8.2.1	The Starting Point	348
8.2.2	Development of Research Topic	349
8.2.3	Development of Hypothesis	351

8.3	CHOICE OF INFORMATION SUB-SYSTEM	357
8.3.1	Information Needs, Sources and Locations	357
8.3.2	The Purchasing Process as a Choice	363
8.4	CHOICE OF WORKERS' CO-OPERATIVES	365
8.5	CHOICE OF RESEARCH METHODS	369
8.5.1	The Composite Picture	369
8.5.2	The Purchasing Process	373
8.5.3	The People Involved in Purchasing	374
8.5.4	Organisational Mapping	377
8.5.5	Analysis of Purchasing Records	378
8.5.6	Flow Process Charts	378
8.5.7	Job Diagnosis Survey (JDS)	379
8.6	QUESTIONNAIRE DESIGN	383
8.6.1	Introduction	383
8.6.2	Questionnaire for Structured Interviews Concerning Purchasing Process	384
8.6.3	Questionnaire for Job Diagnosis Survey	390
9	PILOT STUDIES AND FINAL RESEARCH APPROACH	396
9.1	THE PURPOSE OF PILOT STUDIES	396
9.2	FIRST PILOT STUDY OF PURCHASING PROCESS	397
9.3	SECOND PILOT STUDY OF PURCHASING PROCESS	399
9.4	THE PURCHASING PROCESS QUESTIONNAIRE IN ITS FINAL FORM	401
9.5	FIRST PILOT STUDY OF JOB DIAGNOSIS SURVEY	402
9.6	SECOND PILOT STUDY OF JOB DIAGNOSIS SURVEY	402
9.7	LESSONS FROM THE PILOT STUDY	403

10	IMPLEMENT OF RESEARCH METHODS	404
10.1	INTRODUCTION	404
10.2	CO-OPERATIVE AYE	404
10.3	CO-OPERATIVE BEE	406
10.4	CO-OPERATIVE CEE	408
10.5	CO-OPERATIVE DEE	409
10.6	RESEARCH TECHNIQUES	411
11	RESEARCH RESULTS	412
11.1	INTRODUCTION	407
11.2	PURCHASING PROCESS SURVEY	412
11.2.1	Background	412
11.2.2	Variables Probed	413
11.2.3	Summarised Results with Comments	414
11.2.4	Amplified Results with Comments	435
11.3	JOB DIAGNOSIS SURVEY (JDS)	438
11.3.1	Introduction	438
11.3.2	Summarised Results	438
11.3.3	Comments on Results	445
11.4	ORGANISATIONAL MAPPING	449
11.4.1	Introduction	449
11.4.2	Co-operative Aye	452
11.4.3	Co-operative Bee	455
11.4.4	Co-operative Cee	456
11.4.5	Co-operative Dee	457

This study is concerned with workers' co-operatives: their background and growth; the problems they face internally and from external influences; and steps required to be taken to eradicate or reduce the effect of some of these influences.

The issue pursued in this research project concerns the effect lack of availability and poor distribution of information had on successful job and organisation design in four workers' co-operatives in Scotland.

For reasons fully explained in Chapter 8, the purchasing process was chosen as the information system to be studied.

Workers' co-operatives were selected for investigation because they are becoming an important part of the small business sector in the UK. Small business has been attracting increasing attention from policy makers, development agencies, educational establishments, researchers and the public at large. It is highly relevant to issues concerning urban renewal and the economy generally with particular reference to job creation.

Job and organisation design in workers' co-operatives tends to be different to that encountered in conventional business. Flexible working practices, and high levels of participation in decision making are often observed in workers' co-operatives. However, in this thesis, attention is drawn to job re-design projects in conventional businesses which results in these firms having organisational arrangements similar to that

This study is concerned with workers' co-operatives: their background and growth; the problems they face internally and from external influences; and steps required to be taken to eradicate or reduce the effect of some of these influences.

The issue pursued in this research project concerns the effect lack of availability and poor distribution of information had on successful job and organisation design in four workers' co-operatives in Scotland.

For reasons fully explained in Chapter 8, the purchasing process was chosen as the information system to be studied.

Workers' co-operatives were selected for investigation because they are becoming an important part of the small business sector in the UK. Small business has been attracting increasing attention from policy makers, development agencies, educational establishments, researchers and the public at large. It is highly relevant to issues concerning urban renewal and the economy generally with particular reference to job creation.

Job and organisation design in workers' co-operatives tends to be different to that encountered in conventional business. Flexible working practices, and high levels of participation in decision making are often observed in workers' co-operatives. However, in this thesis, attention is drawn to job re-design projects in conventional businesses which results in these firms having organisational arrangements similar to that

final chapter when it is suggested that workers' co-operatives are in some ways similar to firms in Japan and, therefore, have the potential to incorporate some of the practices currently being imported by 'leading edge' companies in Europe and USA.

Any developments and actions likely to ensure the economic future of the workers' co-operative movement and able to increase peoples' enjoyment from working in these firms is fully justified. This particular study meets these requirements since it has been hypothesised that lack of availability and poor distribution of information militate against successful job and organisation design in workers' co-operatives.

Research findings from this type of study add to the body of knowledge which if applied will assist in safeguarding peoples' hopes and dreams in the workers' co-operative movement.

WHY THE STUDY?

AIM OF THE CHAPTER

This chapter aims to identify an area of enquiry for specific research in workers' co-operatives. Currently workers' co-operatives are undergoing a period of sustained growth in numbers in the UK and Europe. According to Cockerton and Whyatt (1985) one new Co-op is being formed every day in Britain in areas ranging from typesetting to office cleaning, from interior design to precision engineering.

This research is seen as being important because it deals with problems relevant to the future economic viability of such businesses and to the degeneration arguments which contend that co-operatives will often be unable to maintain democratic control structures in existing capitalist societies.

These issues are worthy of research because if workers' co-operatives are to be successful they must first of all be able to survive in a competitive market and, secondly, because the general expectation is that people should enjoy working in them.

The failure of co-operatives to meet these two expectations is usually explained in terms of under capitalisation; redundant products; poor management and labour skills and decision making. See, for example, Wilson (1982, p72).

Wilson also found that co-operatives face other problems: in combination with the above, co-operatives carry considerable other problems as they attempt, firstly, to introduce major innovations in organisational structure, working relationships and the internal decision-making process in an often sceptical, if not hostile, environment; or, alternatively, to maintain or create jobs in markets where conventional businesses have failed (Wilson, op cit, p71).

Wilson's, op cit, results are broadly supported by Chaplin and Cowe (1977, p43) in a smaller, but similar survey.

Taking Wilson's, op cit, two points concerning organisational structure and its associated decision-making process, and the viability of a co-operative in a harsh market, it is contended that information management and flow are both the critical issues in and the linking points between organisational design, decision making and economic performance.

Poor organisational design invariably affects the job satisfaction of people involved in the enterprise. Conversely, good or appropriate organisational design will have a positive effect on the motivation of those people most affected by the particular design. This is usually reflected in increased productivity, reduced costs, improved quality of output, enhanced worker attendance and reduced labour turnover.

NEED FOR GOOD FLOW
OF APPROPRIATE INFO.



DESIRE FOR PARTICIPATION
IN DECISION MAKING

BREAK-
POINT



POOR INFO
FLOW



COSTLY OPERATIONAL
DECISIONS



REDUCED OPERATIONAL
EFFICIENCY

DEGENERATION OF
PARTICIPATION IN DECISION
MAKING



FIG 2.1. EFFECTS OF POOR INFORMATION FLOW

It would be reasonable to expect workers' co-operatives to have advantages over conventional organisations in this matter. The general belief is that workers in a co-operative demonstrate greater commitment to the organisation and actively seek job flexibility and participation in decision making.

Unfortunately, few writers and researchers have considered the importance of information systems when jobs and organisations are being designed. Birchall (1975), in writing about job design, comments that "information systems must make available all the data required for execution of decision making duties".

Therefore, poor information management and flow will have two destructive effects in a workers' co-operative. First, it will militate against meaningful participation in decision making by the workers. Secondly, without appropriate information, decision makers, whether managers or workers, are eventually going to make costly mistakes which have an accumulating effect on the economic performance and viability of the enterprise. At this point degeneration of democratic decision making may set in as the co-operative adopts narrower job specialisation in the fight for survival.

For these reasons, information management is seen as the crucial factor regarding good resource productivity and the job satisfaction of people engaged in the tasks and roles found in a typical workers' co-operative. Figure 2.1 summarises this cycle of events resulting from poor information management and flow.

This chapter summarises why workers' co-operatives are currently attracting so much attention in the UK. Some of the bodies encouraging this growth are discussed and the importance of growth and success in this particular part of the small business section is considered.

The importance of information management in business is reviewed with particular reference to co-operatives. The link between good information management and successful job and organisation design is explored and some of the main problems are identified. As stated above, this link has been neglected in the literature but research findings, later in this thesis, will show that this is a critical issue for job satisfaction and operational performance.

2.1 INTRODUCTION

2.1.1 BACKGROUND

Although the Bolton Report (1981) on small businesses did not mention workers' co-operatives, there were in existence in the UK at that time almost 30 co-operatives employing around 3,500 people. These were mostly older co-operatives that had been trading for about 60 years.

Today it is difficult not to notice the presence of this particular segment of the small business section. New co-operative businesses, owned and controlled by the people working in them, are being formed on a regular basis, training programmes are being developed, and national and local development agencies are becoming very active in the formation and support of co-operative organisations.

Although the current attention attracted by workers' co-operatives is relatively recent, co-operatives are not a new phenomenon. They have been a (minor) part of economic life in Britain for over a century and have their roots in the latter part of the 18th century when groups of people established co-operatives to breach the monopoly of the millers. Early in the 19th century a number of philanthropists became active in the field. This theme is amplified in the following chapter.

2.1.2 UK INITIATIVES

The Wales TUC, for example, initiated an excellent study (1981) to test the feasibility of a Co-operative Resources Centre and an independent Investment Fund, both to be established in Wales. The EEC backed this initiative with a £1 million loan from the European Investment Bank in Luxembourg (The Guardian, 13 Jan 1984). (Vines, 1981)

In Scotland the Scottish Co-operative Development Committee (SCDC) (Sept 1986) announced a Venture Capital Fund with a target total of £500,000 to be used in a revolving loan fund for workers' co-operatives in Scotland. This is in addition to a 'share' of the finance available from other funds, such as Industrial Common Ownership Finance (ICOF) to co-operatives in Scotland. SCDC also received funding from Strathclyde Regional Council for a European Social Fund Programme to train members of existing workers' co-operatives (reported in SCDC Annual Report, 1986).

The Greater London Enterprise Board has a special interest in encouraging the development of the co-operative movement. London is one of the most fertile growth areas, unemployment is high, especially among the young, and co-operatives open up opportunities to meet social need, maximise personal talents and experiment in less oppressive work methods and management structures. For a full discussion of these activities, see the Greater London Enterprise Board's 'A Strategy for Co-operation: Workers' Co-ops in London', (undated).

Further North, the West Midlands County Council has instituted a range of economic initiatives in their Campaign For Jobs. The development of workers' co-operatives is a major component of this campaign. The County Council believes that workers' co-operatives can provide the opportunity for people to use their skills and talents to successfully create and control their own jobs.

Three local Co-operative Development Agencies have been set up in Coventry, Birmingham and the Black Country to provide support and advice to co-operatives and a revolving loan fund is operated in conjunction with Industrial Common Ownership Finance. The formation of West Midlands Co-operative Finance Ltd. to handle all financial support for workers' co-operatives should boost further the effectiveness of the system.

The range of goods and services provided by workers' co-operatives in the West Midlands is described in the 'Directory of Workers' Co-operatives in the West Midlands' (undated) which is published by West Midlands County Council.

Woodcock gives details of an initiative aimed at developing workers' co-operatives along the lines of the highly successful Mondragon model to help create jobs in the North East of England. The £200,000 provided by the government will be used to achieve a significant increase in co-operative jobs and to provide additional skills and people to the Cleveland Co-operative Agency (reported in The Guardian, May 6, 1987).

2.1.3 TYPES OF WORKERS' CO-OPERATIVE

Workers' Co-operatives, which differ from conventional business in that they are owned and controlled by the people working in them, take three broad forms:

a CONVERSION/PATERNALISTIC/COMMON OWNERSHIP CO-OPERATIVE

(To be referred to as Conversion Co-operatives)

These are given or sold to the work force either individually (each employee owning shares), or collectively (usually a holding company controlled by employees).

b RESCUE/DEFENSIVE/PHOENIX CO-OPERATIVES

(To be referred to as Rescue Co-operatives).

This type of co-operative has attracted most attention by the media, e.g. Benn Co-operatives. They are usually formed by workers taking over the firm following threats of redundancy.

c CONSTRUCTIVE OR START-UP CO-OPERATIVES

(To be referred to as Constructive Co-operatives)

These are set up as co-operative or common ownership companies from their inception. In the present economic climate in the UK this development is also taking place under the title of community business or community co-operative.

2.1.4 WHY CO-OPS ARE ATTRACTING ATTENTION

These alternative forms of business are attracting a lot of attention for three main reasons:

- i In a period of high unemployment they provide a means of job creation and of saving jobs in organisations going out of business. At the micro level, local councils (for example, Strathclyde Regional Council, the Greater London Enterprise Board, West Midlands County Council and the Wales TUC) have been very active in seeking solutions to problems of rebuilding decaying inner urban areas and encouraging job creation and protection.

- ii They have attractions as a democratic way of organising business. The democratising of business has been the subject of much research in the UK over the last couple of decades. Several European countries have introduced legislation requiring organisations to participate in decision making and at various time EEC bodies have urged the UK to speed up implementation of worker participation in management.

This pressure from Europe and the claims of better industrial relations and higher productivity in these countries has influenced policy makers and senior executives in Britain to regard increasing participation as a wise and probably inevitable course to take (see Gyllenhammar, 1977).

The high level of interest and anxiety following publication of the Report of the Bullock Committee on Participation (1977), which came out in favour of the election of workers to company boards, resulted in many companies considering, very much more seriously than they had done before, the ways in which they could increase participation in their own organisations.

As a result of the pressure and the anxious attempts to move towards greater participation in 1976-1977, followed by a relaxation as it was realised that the Labour Government was not pushing ahead with legislation in its last term of office, there followed an excessively hostile reaction from many people in managerial positions in Britain to the idea of increased participation. Phrases such as "we already have too much participation in our organisation" and "if they would cut out all this participation and let us get on with the job, things would be better" became common. This reaction no doubt slowed down the trend towards increased employee participation in decision making in the UK.

However, "workers on the board" is only one form of participation and although it may enrich the working lives of those elected to the board, it is hardly likely to increase job satisfaction for those who elect them. This is an important point because research studies have indicated that workers who seek greater participation in decision making do so in relation to their own jobs and the factors surrounding them. (See, for example, Ramsay, 1976; Weaver, 1976)

A more usual practice for increasing participation at shop-floor level has been to attempt to set up or give new life to existing consultative machinery, such as works committees. This has serious drawbacks as a form of participation, and will be discussed in more detail in Chapter 3.

Some British and European companies have given employees an increased part to play in decision making by delegating some management/supervisory tasks to employees in their work groups. This process of delegating managerial responsibilities to employees is usually referred to as vertical job enrichment. Wild (1976) has drawn together a summary of studies where vertical job enrichment and other allied approaches to job and organisation design have been implemented.

It seems from research that has been carried out that this is the type of participation which employees are most interested in having opportunities for; it is certainly more popular with most managers and executives than the "worker-director" type of participation. Ramsay's, op cit, detailed survey on the shop floor view of participation, carried out in the UK, supports this view.

Thus, conventional businesses attempting to increase participation by shop-floor workers will use one or more of the above approaches. Each of these is based on different beliefs and expected outcomes by those who choose a particular approach.

"The three types of participation:

- * worker directors
- * consultative machinery
- * vertically enriched jobs

are so completely different in their procedures as to scarcely warrant classification under the same heading. But they are all three attempts to respond to the same complex of pressures described above." (Bowey and Carlisle (1979)

Because workers' co-operatives are owned and controlled by those who work in them, the process of job and organisation design has important implications for business in desiring to find a participative approach which will meet the social needs of workers and ensure competitive operational performance.

However, participation is a term more easily quoted than defined or implemented. The term 'participation', like 'freedom' and 'democracy', defies clear definition. Foy (1974) distinguishes between participation in capital and participation in management. Participation in capital includes appointing workers' representatives to the company board. Participation in management involves giving workers the opportunity to help decide their own responsibilities. Straus (1974), refers to participation in capital and participation in management as distant and immediate participation respectively. An international comparison (Foy and

Gadon (1976)) concluded that differences in social and political outlooks results in different views on participation. In Sweden participation is classless co-operation; in the UK it is viewed as a new labour intrusion; and in the USA it is form of McGregor's Theory Y (Foy and Gadon, op cit.)

iii In the last 30 years or more a relatively committed, though by no means large, counter culture has developed, especially among those people under 40 years of age. This culture embraces the co-operative principles in an attempt to isolate itself from the existing capitalist system and experiments with alternative forms of social organisation and appropriate technology. Although the tangible extent of the counter culture may be small, there are a substantial number of people who are sympathetic towards a vague, but nevertheless visible, movement that can be described as "green" because of its concern for ecology and community. It could be argued that co-operative principles are compatible with such aspirations and concerns. This will be amplified when discussing the co-operatives researched as part of this project.

Relevant aspects of this alternative culture are well described by Schumacher (1974, 1976), as well as McRobie (1982).

2.1.5 SUMMARY OF THE IMPORTANCE OF CO-OPERATIVES

Workers' co-operatives are important for the following reasons, which are related to the three main issues of (un)employment; democracy/participation at the workplace; and social change.

- i they are growing in numbers in the UK and are thus becoming an important part of the small business sector.
- ii Co-operatives are a broad-based vehicle for a wide range of views and movements seeking particular objectives, for example:
- * an alternative to capitalism and state socialism;
 - * a means of job creation and protection of jobs about to be lost;
 - * they enable people to have a say about work-related aspects of their lives;
 - * they provide an opportunity for 'alternative' groups to produce and market socially attractive products, e.g. diverting skills from national defence products to those with greater domestic use and value, and promotion of additive-free foods and general health products;
 - * provision of the opportunity for more participative working practices;
 - * the design of jobs and organisational arrangements which are more personally satisfying.

Thus, for any one of the reasons presented above, it is important that factors relevant to the survival of workers' co-operatives and to the job satisfaction of people involved in them are thoroughly researched. This covers a wide range of activity, but this research project is particularly concerned with information management and its effect on job and organisation design. Reasons for pursuit of this particular theme will be clarified in the following sub-sections.

2.2 INFORMATION MANAGEMENT IN WORKERS' CO-OPERATIVES

2.2.1 INFORMATION MANAGEMENT IN BUSINESS

It is generally accepted that management involves the use of information and, indeed, information is a vital aspect of management decision making. Unfortunately, texts and journal articles on information systems and information management have tended to concentrate on large organisations. There is a general lack of material on information management in small businesses, including workers' co-operatives.

In the economic system, large organisations have an important role in producing a wide range of goods and services that require substantial inputs of capital, technology, labour and specialist management skills, coupled with product sales in sufficient quantities to justify high volume output at low cost. Typical examples are steel making, motor car mass production and chemicals. To return to small scale production in these cases would result in prohibitive costs.

However, within the same economic system, small business or small scale production is more appropriate for the production of particular goods and services. Among these would be found small units producing reproduction furniture, specialist machine shops, clothing manufacturers, cabinet makers, bakeries, ice-cream plants, jobbing printers and some forms of transportation.

In both large scale and small scale operations information management is a critical issue. In large scale organisations employing a wide range of specialist 'advisors' supportive of operations management, there will be particular problems of integrating these specialists' information needs and the data they generate. In the current age of computerised information systems this will inevitably entail the recruitment of information specialists - systems designers, operational researchers, systems analysts, programmers and data processors. Because these information specialists do not always fully understand the operating system and the managerial problems involved, organisations sometimes finish up with what Ackoff (1967) refers to as a management misinformation system.

The problem of appropriate information at economic cost is no less serious in small businesses. Here such systems may be piece-meal without any clear development strategy. They will almost certainly be in part informal, much essential information existing in inaccessible 'black books' or in someone's head. As in the case of large scale organisations, it cannot always be claimed that the information system has been designed to conform with a realistic model of the nature of managerial work. This topic will be discussed further below.

In an interesting article Franklin and Franklin (1982) drew attention to the following five mistakes a small business owner must avoid if he wishes to survive:

- i Not achieving market uniqueness
- ii Not developing and preserving market-centred strategies
- iii Not setting specific goals and designing relevant plans
- iv Not effectively managing daily operations
- v Not developing effective controls and management information systems.

In addition to point (v) above, the other four items are also part of an effective information system. They will be concerned with the following issues:

- i Information concerning customer problems and needs and other gaps in the market.
- ii Documented information on how the organisation intends implementing policies at the operational level through sound strategic management. This information will be concerned with the market to be served, identifying particular markets in which the firm has done well, being able to render superior value, as opposed to those in which it has been less successful.
- iii To be effective in managing a firm's day to day operations, short term plans and goals must be specifically related to the work of individuals and groups within the firm. The plan itself must be measurable so that progress towards achievement (or lack of it) can be reported and acted on promptly. Often, when small business owners and managers attempt to plan the operations for the year, they find that much of the essential information is not available.

iv Effective management of the operating system requires up to date, relevant information (monitoring) to enable comparisons to be made between current performance and operational plans. Relevant information here will enable appropriate action to be taken (control) on such things as quality, cost and output.

In situations of severe operational pressure, the firm may decentralise responsibility. Keeping central control will be even more difficult with decentralised decision making and stringent effort must be exerted to maintain these decentralised groupings as a unified whole.

v The issues raised in points (i) to (iv) above will suggest the need for an integrated information system which generates information for managers attempting to make short term planning adjustments, redefining goals and spotlighting changes in output and quality. Such an information system must be economically justified, its running costs being lower than the economic benefits gained from its use.

Like all other businesses, workers' co-operatives require accurate information to co-ordinate and control their resource inputs which are people, facilities, money and materials.

However, co-operatives will have particular information problems in cases where they 'employ' a manager accountable to the members who will be expected to participate in policy decisions; and in those co-operatives which do not have a manager as such, policy making being conducted by all the members and operational decisions being distributed amongst these members, often in a situation of job rotation. The links between organisational management will be discussed in considerable detail in this thesis.

However, if managers are to manage effectively, it is necessary to identify the main management tasks because each of these tasks will require particular types of information, presented in appropriate forms and in different time scales. The following sub-section identifies these tasks which will be referred to at various times in later parts of the thesis.

2.2.2 THE MANAGEMENT TASKS

Management writers and theorists from the time of Fayol (1916) have attempted to analyse the manager's job and identify and describe the main tasks involved. For example, Gulick (1937) broke the management function into seven tasks, viz. planning, organising, staffing, directing, co-ordinating, reporting and budgeting.

Various writers have proposed shorter classifications of main tasks since Gulick, op cit. One classification which has appeal on the grounds that it is brief yet comprehensive is that developed by Stewart (1979). Four functions are proposed:

- i PLANNING which involves setting objectives, forecasting, analysing problems and decision making i.e. policy formation.
- ii ORGANISING by deciding what activities are necessary to achieve the objectives. This entails classifying the work and allocating portions of it to groups and individuals.
- iii MOTIVATING, whereby subordinates are encouraged to work meaningfully towards achievement of the purpose of the organisation, to be faithful to its aims and to exercise commitment in achieving them.
- iv CONTROLLING through monitoring of performance and comparing actual achievements against what was planned.

(Stewart's, op cit, classification will be used in any further discussion in this thesis.)

However, it is clear that appropriate information is required when making plans; organising to achieve these plans; motivating the work force in these endeavours; and for control purposes.

Lack of availability of any of these stages will in time affect the operational efficiency of the organisation. In situations where decision making has been decentralised or where more participative arrangements have developed within the organisation, there may be a return to more fragmented and tightly controlled tasks and jobs, i.e. a process of degeneration of participation in decision making will have been adopted.

Since co-operatives are not organised on the same lines as conventional companies, their information needs will be different. The following sub-section identifies the particular information management needs encountered in workers' co-operatives.

2.2.3 PARTICULAR PROBLEMS IN WORKERS' CO-OPERATIVES

There is a general lack of material on information management in small businesses, including workers' co-operatives.

Like all other businesses, workers' co-operatives require accurate information to co-ordinate and control their resource inputs which are people, facilities, money and materials.

Although there is little documentation of information systems in workers' co-operatives, their form, main problems and the conflict they cause, there is evidence in some case studies to suggest that the information systems are not always appropriate to the needs of the users (see Paton, 1978, for example).

Earl and Hopwood (1980) contend that information tends to be viewed as a technical phenomenon. They stress the need to see management information as more of a substantive organisational phenomenon and less as a technical situation. In their discussion Earl and Hopwood stress the need for information management to explain and develop a broader framework for the consideration of information processing in organisations and an understanding of its implications for its analysis and design.

"With such a broader organisational perspective, tasks and responsibilities of information management will take on a very different form.

With the technical so explicitly linked to the organisational, no one management function can be, or should be, responsible for the whole of information processing. The role of the information specialist therefore will need to become that of a catalyst for change. The user, in contrast, will need to have the confidence to explicate and describe his own information environment processing and problems. In such a context, progress in information management therefore will depend on us, as managers and users as much as, if not more than, on them as specialists."

Earl and Hopwood, Op Cit.

Anderson (1986), commenting on the same broad theme, states that organisation structure can be seen as a means of providing for information flow for decision making. To step from decision to action involves a flow of information up and down the organisation structure, but particularly to the decision points to enable these decisions to be taken.

Anderson, op cit, continues his discussion, warning us that those responsible for making decisions must be provided with information and with the means of acquiring, processing and distributing this information.

In conclusion, Anderson, op cit, stresses that provision of information without regard to its use serves no purpose. Information is not useful for its own sake; it must be relevant to the needs of the business and must answer the right questions.

If conventional business with internal and external access to information specialists have the types of organisational and information flow problems described above, the situation in workers' co-operatives is likely to be more acute.

First of all, workers' co-operatives are unlikely to have a 'resident' information specialist and will not normally have funds for a consultant. In addition, they will be unlikely to receive specialist support from their local Co-operative Development Agency on such matters.

Secondly, because of the particular organisational arrangements normally found in a workers' co-operative, involving worker participation in policy decisions and, invariably, operational decisions, the problems of designing an information system which matches the organisational arrangements, is cost effective and enhances operational performance is a tall order for the majority of workers' co-operatives.

The problems posed by unorthodox working arrangements found in many co-operatives, particularly the constructive variety, cannot be understated. Flexible working arrangements and job rotation mean that traditional (management) information systems may not provide the required information in an understandable form to those who need it. This has two main consequences:

- (i) lack of availability of information; inappropriate presentation of available information; a poor flow of required information to decision makers will hamper sound decision making.

These factors will manifest themselves in such things as:

- * stockouts/excess stock
- * poor quality and high scrap levels
- * reduced productivity
- * extended delivery dates
- * increasing costs.

(ii) Situations such as these will culminate in co-operative businesses being unable to perform commercially. As described above, co-operatives faced with this dilemma will exploit themselves in the market. In addition, participative organisational arrangements may be dispensed with in favour of more rigid division of labour. This development adds strength to supporters of the degeneration thesis.

Thus good information management is essential if co-operatives are to be commercially viable to meet the social needs of those working in them.

Since many of the social needs of workers can be met through appropriate job and organisation design, this topic is discussed in more detail below. This is a particularly important area because of the interaction between information management and job and organisation design.

2.2.4 JOB AND ORGANISATION DESIGN

In most organisations of reasonable size, many specialists are concerned with job design: production engineers who design the machinery and sometimes the factory layout; work study officers and industrial engineers who determine the way a job should be done; personnel and organisation design specialists who wish to improve worker satisfaction by changing their jobs; direct production management who are primarily interested in efficient production. Each of these has a different set of principles which they apply to the design of jobs. Figure 2.1 summarises the main alternative approaches to the design of jobs and these are discussed further below.

Work Study	Engineering	Social Science	Social Policy
emphasis on maximising the efficient use of effort ↓	emphasis on reducing labour costs and dependence on labour ↓	emphasis on motivation and satisfaction ↓	emphasis on the quality of work-life ↓
Rationalisation	mechanisation and automation	Enrichment	Enrichment
Specify precisely how a job should be done, and enforce that method	replace men by machines	allow scope for initiative, interest in the product, fulfilment etc.	allow scope for fulfilment, interest, satisfaction etc.

Figure 2.1 Summary of Main Influences on Job Design.

SOURCE: Bowey & Carlisle (1979) "Group Working"

Management Decision Monograph, p25

As a result of these activities, there are many jobs in industry which are extremely monotonous and have virtually no intrinsic job interest. Social scientists studying workers in such jobs have found very high levels of alienation and dissatisfaction.

Many companies have become concerned about what they take to be the symptoms of dissatisfaction - alienation and poor performance, high rates of labour turnover and absenteeism and frequent strikes.

The third alternative approach to job design is that of the social sciences (industrial psychology and industrial sociology in particular) which have made a major impact on management thinking regarding ways of working in recent years. This has led to the introduction of job rotation, job enlargement, job enrichment and increased worker autonomy, as well as various kinds of group working.

Yet another group of people who are interested in job design are the policy makers of government, and the trades unions and employees' associations who wish to influence those policies. During the past 25 years, a great deal of interest has been shown in the "quality of working life". The governments of Britain, the USA, France, W. Germany, Norway, Sweden and others have at various times commissioned studies of the conditions (interpreted broadly) of the employees in these countries - discussed in Delamottle and Walker (1974). The impact of this interest has been, and seems likely to continue to be, to add further impetus to the enthusiasm of managers and their advisors for the enrichment of working peoples' jobs. (For further discussion of these issues see Bowey and Carlisle, op cit)

The topic of job and organisation design has important implications for workers' co-operatives. Although the workers in a co-operative own and control their company, this does not guarantee satisfaction with their jobs, and the factors surrounding them. A worker in a co-operative, participating in policy decisions and other operational issues, but doing a narrow fragmented manual job might well feel dissatisfied. Bearing in mind the commitment of co-operators to their firm, this dissatisfaction may not manifest itself in quite the same way as observed in conventional businesses. Nevertheless, allowing for personal adjustments in outlook and attitude because of this commitment, their latent dissatisfaction is unlikely to enhance performance and inter-worker relationships. It also clashes with the general expectation of co-operatives with highly committed, satisfied workers.

Regarding the level of job satisfaction in workers' co-operatives, much of the early work at the Open University's Co-operative Research Unit focussed on this issue. Their findings suggested that satisfaction is no higher in co-operatives than in conventional businesses. However, it is possible that this was so because co-operative workers had gained more job satisfaction and they had higher expectations just because it was a co-operative (Beishon et al, 1978).

The perplexing problem of job satisfaction in workers' co-operatives resulting from appropriate job and organisation design will be discussed in depth in this thesis. But in the following sub-section initial discussion will take place concerning the main thrust of this research ie job and organisation design and information management in workers' co-operatives.

2.2.5 JOB AND ORGANISATION DESIGN AND INFORMATION MANAGEMENT IN WORKERS' CO-OPERATIVES

In common with any other business, workers' co-operatives will have organisational and operational strengths and weaknesses. Among the weaknesses in co-operatives will be found undercapitalisation; difficulty in finding premises; lack of management skills' and poor manual skills; absence of education and training inputs; poor organisation design; discrimination through legislation; lack of tangible government support; very little meaningful research. These items have been well described and discussed by Chaplin and Cowe (op cit), Boggis (1973), Chaplin (1982), T Eccles (1979) and in Volume 1 of 'Prospects for Workers' Co-operatives in Europe', commissioned by the Commission of the European Communities (1981).

It is important for the purpose of this research project that Boggis, op cit, is one of the very few writers on workers' co-operatives to stress the need for sound business information systems.

Among the strengths, Paton, op cit, has noted the claims of a number of commentators that the area of work organisation is one in which co-operatives will possess an advantage over their conventional competitors. Two reasons are given:

- i less supervision will be required in a co-operative because employees will be more committed to the goals of the organisation and will be better informed regarding what is required to achieve them.

ii job enrichment experiments in conventional businesses demonstrate that there is often considerable scope for socially and economically more efficient use to be made of the available human and technical resources. Since co-operatives often express a desire to make work more satisfying, they should be quicker to take advantage of these opportunities.

Thus co-operative forms of organisation would appear to have certain attractions. First, one could expect improved productivity; second, the work would be more varied and interesting. Thus, progress in job design is a necessary condition for the development of co-operative working relationships. However, there are certain limiting factors to this view:

i Workers' co-operatives are generally small in terms of number employed. Conventional companies undertaking job and organisation projects are, by the same measure, large. In these large organisations capital intensity and scale of operation usually results in highly fragmented and repetitive tasks much in need of revision.

ii Job enrichment programmes require considerable investment in training and time for development. It is unlikely that workers' co-operatives will be able to afford these costs.

iii In many cases the 'improved' jobs fall short of the hopes of idealists who promote co-operatives. Job design exercises in the UK in conventional businesses have tended in some cases to be developed for technical and economic benefits, the social aspects being of secondary importance (Edwards, 1974). The scope of job enrichment in conventional businesses appears to be restricted by the desire of managers to retain managerial control.

iv The basic argument that less supervision will be required, assumes that the members of a co-operative are strongly committed to it. This issue will be returned to later.

Thus successful job and organisation design will be hampered through lack of scope on account of small scale operations in a typical workers' co-operative. Conversely, in a workers' co-operative it is possible for flexible roles rather than re-designed jobs to emerge on an informal basis. This being so, the problem of developing an appropriate information system becomes of critical importance. Without information co-operative workers with autonomous decision making responsibilities will be unable to make these decisions with any degree of confidence. This situation could easily lead to a return to more scientific management practices with the separation of, for example, planning work and the performing of it.

The design of an appropriate information system for a workers' co-operative employing autonomous working arrangements will pose different problems for the design. The overall task is likely to be more difficult than if a traditional management information system was being developed. This is because so little work has been reported on information systems used by workers to whom some supervisory decision making duties have been devolved; an 'open access' information system will have to cater for the needs and abilities of a range of people in contrast to a 'graduate or equivalent use' information system.

The link between successful job and organisation design and information management is one that has been neglected by researchers. Apart from offering a fresh field for investigation, it is a topic which is of fundamental importance regarding survival of co-operatives and the job satisfaction of those who work in them.

This topic will be discussed in more detail below.

Paton, op cit, concludes that although there may be scope for improved work organisation in co-operatives, it is not yet clear that this is the case to any significant degree. Indeed Paton, op cit, goes on to claim that the failure rate of co-operatives in the past cannot be adequately explained simply in terms of :

- * initial under capitalisation
- * technological change
- * recession

According to Paton , op cit, the greatest reason for collapse was probably failure to develop forms of organisation that reconciled the requirements of commercially sound management with an acceptable degree of employee participation.

Contrary to popular belief in the media, co-operation does not mean 'no management'. This apart, there is no overwhelming evidence to indicate that job and organisation design in workers' co-operatives (like job satisfaction) is generally more successful than in conventional business. And there is a prime target for research - what are the reasons for conservatism in job and organisation design in workers co-operatives? Why does design work stop at profit sharing, a weak supervisory board and a participative management style? - features which could be found in any enlightened conventional business. Apart from probable lack of job design skills in co-operatives, this research project will investigate the effect of poor or inappropriate information management in these organisations.

According to Lockett (1978), management information systems (MIS) are a key concept in organisation design and change, and it is widely accepted that deliberate efforts must be made to ensure adequate management information for decision making.

In the area of information management, job and organisation design, and workers' co-operatives there is a lack of discussion on two main issues:

1 little work has been done on the role of information for workers and others who are expected to provide rather than receive information for the MIS. This is particularly important when jobs and organisation design involves the introduction of semi-autonomous work groups.

2 although there is an abundance of literature concerning information systems in organisation, only occasionally is there any discussion of issues relating to job design.

Few writers have considered the importance of information systems when designing jobs. However the following authors stress the importance of this issue:

Wilkinson (1970) ' a careful analysis and some redesign of the information system seems to be one of the most important aspects of redesigning jobs.'

Birchall (1975) 'information systems must make available all the data required for execution of decision-making duties'.

Sime and Fitter (1978) have discussed the information needs of those responsible for making decisions, commenting that those needs are likely to change if decision-making is devolved by job redesign exercises.

If we accept that workers have a legitimate interest in the activities of the organisations which employ them, and that these interests are at least partially in conflict with those of the organisation's management then this view has greater relevance in co-operative organisations.

Lockett, op cit, points out that the pursuit of these interests may be either through participation in decision-making or through oppositional means, or a combination of these approaches. Continuing this argument

Lockett, op cit, states that effective worker participation (or opposition) is enhanced by adequate information: 'Adequate' or 'appropriate' information is related to the structure of the organisations concerned and to the objectives and strategies of those involved.

Therefore what has been said so far is that 'appropriate' information systems are necessary if workers are to pursue their interests effectively within organisations. We shall refer to these information systems as worker information systems (WIS). Lockett defines a WIS as 'The range of processes by which information relevant to workers in an organisation is gathered, monitored, analysed, stored and disseminated.

For the purposes of this research we are interested in the relevance of information systems at two distinct levels:

i sub-system ie job redesign with work groups

ii organisation ie worker co-operatives

A third level, although interesting, may be referred to but will not be discussed in detail.

iii multi-organisation ie multi-plant corporations from the point of view of trade unions, particularly shop stewards.

Although there has been a resurgence of interest recently in the formation of business enterprises that are partly or completely owned by their employees, little research has been conducted about the effects of information systems on successful job and organisation design. This is an important issue because employee ownership has been advocated on the basis that it will enhance worker satisfaction and motivation; that it will possibly increase productivity; and that it will promote industrial democracy. Vanek (1975) Derrick and Phipps (1969); and Long (1978) found that although individual share ownership does have positive effects on some key job attitudes, worker participation in decision-making apparently has much stronger effects. However accurate and up to date information suitably presented is essential for any form of decision-making. Fakenham Enterprises, pp 88-90 provides an example and illustrates the point that availability of information must be accompanied by training of operators to understand it, interpret it and use it. Reported by Lockett (June 1978).

Clegg and Fitter, op cit, in an interesting article stress the point that much has been written on the use of information systems in organisations. However only occasionally is there any discussion of issues relating to job redesign. Wilkinson, Birchall and Sime and Fitter are notable exceptions.

Based on their findings from a case study, Clegg and Fitter, op cit, conclude that:

- i reorganising work to introduce semi-autonomous work groups necessitates changes both in the information system and the uses to which it is put.
- ii the new system should provide information in a form suitable for operational decision-making ie. it should match the decision-makers conceptual model of the work process.
- iii these necessary changes are difficult to design and probably even harder to implement.

Clegg and Fitter, op cit, found that the information systems were designed by management for management. When control of the work process was passed to the operators the information systems had to be changed to meet the needs of the operators; to be consistent with their conceptual model of how the department worked; and to provide support for decisions they were now responsible for making.

This resulted in a change in relationship between line managers and operators because although management maintained overall control of the department, information was no longer a management prerogative. The temptation to withhold information and use it to control must be resisted. For a discussion on the problems posed for managers, supervisors and their subordinates when jobs are being re-designed refer to Carlisle (1983). In Clegg and Fitter's, op cit, study it was pointed out that management may not see the need for changes to the information system when job and organisation design is taking place. They may point out that most operators do not ask to 'participate' in them.

If such systems are not changed, the new method of departmental working remains incongruent with its support systems and work organisation resorts to its old form. This is a particularly important point because if the job and organisation design is 'correct' but the information system does not match it, then the whole exercise is liable to fail.

On the other hand as pointed out by Clegg and Fitter, op cit, changing the information system can provide an opportunity to promote organisational change, for example between production department and the maintenance function.

Nevertheless the relevance of information systems to job redesign has not been widely recognised. Wilkinson (1970) argued that analysis and possible redesign of information systems was a key aspect of job design, as have Hedberg (1977) and of course Clegg and Fitter, op cit, Hedberg in his analysis of job redesign at Volvo's Kalmar plant concluded that the information system for each work group had been designed as part of the overall MIS which included several packages of computer systems. From the point of view of the work group these include:

- i a process control system, controlling and directing workflow as well as feeding forward potential work load to the work group.
- ii a production control system, giving specifications for each car.
- iii a quality control system, feeding back quality control results to the work group.

Again control of the worker information system is important for as Hedberg op cit argues,

"The apparent decentralisation of responsibility to the work group will be matched by a corresponding centralisation of the ultimate control The new information technology undoubtedly strengthens management overall control. At the same time it is clear that the new technology offers a potential for increased autonomy in each group of workers".

Although the level of job and organisation design will be limited by such things as product structure; technology; ability; training and development, the interaction and interdependence of the physical conversion process and the information system is so close that unless the information system provides appropriate information in an understandable form then the scope for innovative work reorganisation projects in conventional organisations and envisaged organisational arrangements in workers' co-operatives will be severely limited. The expectation is that members of a co-operative will generally want to perform challenging jobs. In addition the labour flexibility from such arrangements will often result in more economic operating costs. Thus it is of great

importance to the workers' co-operative movement that all obstacles to successful job and organisation design are removed. Thus if workers' co-operatives wish to preserve their structures and working arrangements and attain the acceptable level of operating efficiency, the effect of lack of sound information management must be investigated.

3 WORKERS' CO-OPERATIVES

AIM OF THE CHAPTER

This chapter traces the development of workers' co-operatives within the co-operative movement and shows the main reasons for early growth. The main people involved in this movement are identified and their social and political motivations are described.

Workers' co-operatives are discussed and their main features are described and because workers' co-operatives do not form a homogeneous group of organisations a classification of types is proposed.

Since the workers' co-operative movement is an international issue a review of Mondragon, the co-operative 'standard', is included. This contrasts the way co-operatives have developed in Spain and Britain and provides a useful guide to how the past has influenced the present situation.

The issues surrounding success, problems and failure are reviewed because they have particular reference to the hypothesis researched in this project. These issues lead logically to the discussion concerning degeneration of workers' co-operatives.

Subsequent discussion of degeneration touches on the main thrust of this thesis viz how information management influences job and organisation design.

3.1 HISTORY AND DEVELOPMENT OF WORKERS' CO-OPERATIVES

3.1.1 Reasons for Early Growth

Workers' co-operatives first emerged in the early 19th century at a time when Europe was undergoing fundamental change associated with the Industrial Revolution. During this period a massive separation of people from the land took place through enclosure. Poverty and pauperism were rife and conditions in the towns and factories were dreadful. Unions, combinations or any form of association by workers were seen as conspiracies against the State and were outlawed. Social unrest was rife the French Revolution having generated a ground swell of radical thinking and debate.

"Historically worker's co-operatives have grown out of dissatisfaction with the ability of private enterprise and government to provide full employment. They have also been motivated by a desire on the part of the workers to have more control over the conditions of their work and a more equitable share in the fruits of their labour" Linehan & Tucker (1983), p 12.

According to Thornley (1981), workers' co-operatives are a sophisticated type of organisation designed to enable ordinary people to help themselves and each other in the struggle for economic survival and for some control over their working lives.. Notable attempts emerged again and again, particularly during the 19th century. A very early example was in 1760 when corn mills were built and run co-operatively in Woolwich by the dockyard workers. This action was to combat local monopolies and high prices charged by corn millers.

Thus the Co-operative Movement arose as one of the defensive reactions of the working class to the great social and economic upheaval abroad during this period in history.

According to Tucker (1983), new institutions and a new vocabulary became part of society and of language during this period. Words such as "industry", "industrialist", "factory", "working class", "middle class", "capitalism", "socialism", "crisis" (economic) and "strike" were all coined during this period. The word "co-operative", in the context of workers' co-operative also appeared for the first time.

The co-operatives which were formed during this period of social and economic change were a response to the severe hardships and human degradation generated not so much by "industry" but by "capitalist industry". They provided an opportunity for workers to have a greater say in the decisions affecting their lives at a time when industry and the state was controlled by the wealthy and powerful.

3.1.2 Contributions by Philanthropists

A number of philanthropists were moved to combat this worsening situation. They believed that healthier and happier workers would improve productivity. For example, Robert Owen (1771-1858) believed that if workers were better educated, worked shorter hours and had improved living conditions they would become a more satisfied and stable workforce. Although Owen did not invent co-operation he did much to make it into a national indeed international movement. At his mill in New Lanark he improved the conditions of the workers; he built new houses;

erected schools; and established a shop which sold unadulterated goods to the workers at low prices. Working hours were reduced and the minimum working age raised. Although wages were slightly lower than in other factories, working and living conditions were incomparably better.

Tucker, *op cit*, reports that Owen's reforming ideas spread to Indiana in the USA, to Hampshire in England and Ralahine in Ireland.

Owen was followed by the Lever Brothers who built Port Sunlight (1887), Sir Titus Salt of Saltaire (1851) and Ebenezer Howard who founded the Garden City Association (1899). With the exception of Owen, these men were interested primarily in increasing profits and only as a secondary aim were they keen to improve the conditions of factory workers.

Owenism was succeeded by Chartism from which emerged worker initiated co-operative experiments.

Of particular interest to students of the origins of workers' co-operatives are the writings and influence of William Thompson, born in Cork City in 1775. According to Tucker, *op cit*, Thompson did much to make co-operation a working class movement and played a significant role in forging an alliance between Owenism and Trade Unionism.

"While Owen was the originator and propagandist for experiments in co-operation Thompson was the first systematic writer on the subject. He is, therefore, an important founder figure of the co-operative movement and of socialism. Unlike his contemporary Owen, he put little faith in appeals to the rich to set up-operatives. He saw Owen's schemes of

industrial reform as little more than "an improved system of pauper management". Thompson believed that a new co-operative system which would re-structure society would only be brought about by the working classes themselves". Tucker, op cit, pp 30-31. This issue will be raised again later in this chapter.

3.1.3 Owenism and Trade Unionism

History tends to suggest that Owen had little influence on the establishment. Although he appealed vigorously on issues related to Factory Acts and Education Acts, he did not attempt to embrace the strength of political power. He acted more on argument and example. Unfortunately, he made little contact with labour movement leaders and his views on co-operation were not based on the articulated needs of the working class. However, his teachings had a more permanent appeal which inspired Owenism, or socialism, as it became called.

This new movement - Owenism - developed alongside Chartism among the skilled workers at that time who were becoming aware that their skills were being replaced by unskilled factory processes. The Owenites, according to Thornley, op cit, challenged these new forms of production organisation.

They disregarded capitalism as the natural order, and sought ways of controlling capital for social goals. The Owenites tried many forms of alternative organisation, among them co-operative workshops.

By the mid-1820's, the new working class enterprises had become involved in the ideals of some of the early social thinkers in addition to considerations of the obvious economic benefits. A co-operative movement grew quickly with the repeal of the Combination Acts in 1824. However, their Owenite initiatives were not backed by a political movement and then innovations were not widely applied and sometimes were unrealistic.

The repeal of the Combination Acts which allowed co-operation to grow also gave rise to a growth in trade unionism. Often the same people were involved in both movements. But the law still did not permit the enforcement of long term determinants of better wages, for example, the closed shop, apprenticeships, high ratios of skilled workers to unskilled and shorter working hours. Without the backing of a large proportion of the community trade unions could achieve little. When they did make progress it was in isolated localities, like the radical cotton towns of Lancashire.

Early attempts by trade unionists, to organise workers on a national basis failed. Eg the National Association for the Protection of Labour formed by John Doherty in 1830 which became the Grand National Consolidated Trade Union (GNCTU) in 1834. This union was very much influenced by Robert Owen, then at the height of his fame.

The GNCTU collapsed in the same year it was formed, through internal disputes. It seems the moral values of Owen and the more radical objectives were incompatible. Trade unions went through a lean period and it was not until the 1850's that attempts were made to build towards national organisation.

With the demise of Owenism, Chartism became the main influence on working class thought. This new movement was formed in 1836 as an educational and political body. Thornley, op cit, writes that it was radical and Owenite, and its members, mainly artisans, were more used to political discussion and action. They drew up a People's Charter in 1836, demanding the vote.

The Chartist ideas became firmly established in the major industrial areas of the North of England where there was a growing proletariat. Encouraged by the writings of Cobbett, about the conditions of the working class, a radical intellectual culture development. This was aided by the existence of a cheap press. Reported in Thompson (1978).

The issues concerning Cobbett were further developed by Samuel Smiles, a doctor and journalist and his book "Self Help", published in 1859 was a big seller among the middle and working classes. See Smiles (1986).

It is interesting to note in the context of events at national level at the present time, that Smiles, op cit, was a strong believer in the benefit of individual savings as a national accumulation of capital. He contended that the sum of individual effort was sufficient to create a major social change. This philosophy neither then nor now could be interpreted as a form of socialism which, of course, is more concerned with emancipation of workers in a political sense. However, the self-help philosophy appeared socialist in many people's view.

The Chartists were politically active but were strongly opposed by Parliament. There was much violence and bloodshed, and prison sentences for the Chartist leaders. On release from gaol in 1840, Chartists regained some of the lost ground and a National Chartist Association was formed. It was illegal but lasted until 1853, and was the first political party representing the working class. Unfortunately they disregarded capitalism as the natural order, and sought ways of controlling capital for social goals. The Owenites tried many forms of alternative organisation, among them co-operative workshops.

For an interesting treatment of many of the above issues see Thornley, op cit.

3.2 TYPES OF WORKERS' CO-OPERATIVE

3.2.1 The Co-operative Movement

This research project is concerned with workers' co-operatives, which is only one part of the co-operative movement. This movement embraces:

- * Agricultural co-operatives
- * Credit co-operatives (usually referred to as credit unions in Great Britain and Ireland.)
- * Consumer co-operatives
- * Housing co-operatives.

A brief note of the activities and importance of these 'other' co-operatives is included below to enable us to identify the precise position of workers' co-operatives in the co-operative movement.

i Agricultural co-operatives.

In a European context, agricultural co-operatives are of greater importance than other kinds of co-operative. Indeed they are very much involved in the Common Agricultural Policy.

Young and Rigge (1981) point out that in France and West Germany almost 53% of all sales of agricultural products and purchases by farmers are handled by co-operatives. Between 90% and 100% of the milk market is handled by co-operatives in Denmark, Ireland and Holland.

In Greece, where relatively more people are involved in agriculture than elsewhere, PASEGES, the organisation for agricultural co-operatives, has strong influence over the national affairs. So do its counterparts in Ireland and Denmark.

ii Credit Co-operatives

These have developed alongside and to a large extent as a consequence of the success of agricultural co-operatives. Agricultural co-operatives needed credit as urgently as they needed an agency which would obtain a better price for their products. Because of the relatively long lead time between sowing and harvesting/distribution, farmers had to survive without visible income. As a result, agricultural banks were set up to ease this cash flow situation for farmers.

Young and Rigge (1981) make the important point that few credit co-operatives have restricted themselves to the farming community but invite the public at large to become customers.

Credit unions have been a flourishing form of banking in many countries and are usually found in large towns and cities. They usually consist of people with a common interest who save regularly with the union. Based on their knowledge of each other's creditworthiness they decide who shall get a loan and for how much.

Successful credit unions are a common feature of Irish life and are a growing force in Scotland. They enable people from economically deprived areas to borrow money at interest rates they are likely to afford. Perhaps too they open up the process of bank savings to people who would not normally open an account at a conventional bank. No doubt Smiles, op cit, would approve of credit unions.

It is important to note that the credit union function is provided for the famous workers' co-operatives in the Basque Region of Spain by the Caja Laboral Popular (workers' bank).

iii Consumer Co-operatives

These were until about twenty five years or so ago, a very successful part of retailing in the UK.

After the virtual downfall of Chartism, Owenism and trade unionism in the 1840's, there followed a period of depression, in employment and wage reductions. Strikes, particularly involving textile workers and coal miners, were frequent. Thornley, op cit, reminds us that progress in production technology did little to improve the quality of life at work. For the working classes suffering and poverty grew. Many drifted into the poor house or starved to death.

Against this background the Rochdale Pioneers emerged with their unique form of counter action which sparked off the consumer co-operative and workers' co-operatives movements as we know them. More importantly the Pioneers, all skilled workers, developed a system of co-operation more in sympathy with their own conditions and needs. Unlike earlier attempts discussed in section 3.1, these did not derive from middle class philanthropy.

In 1844 the Rochdale Pioneers opened their original store in Toad Lane. This co-operative retail outlet was subsequently replicated in almost every industrial country and some non-industrial countries. Until recently, retail stores owned by their member, electing their own directors, responding to the members' needs could more than compete with conventional profit-seeking stores in selling staple products.

It should be remembered, however, that the Rochdale Pioneers also established the Rochdale Co-operative Manufacturing Society to manufacture cotton. Because of its need for capital, a number of outside non-working shareholder were brought in and the Society became the same as a conventional joint stock company.

iv Housing Co-operatives

Just as workers' co-operatives are concerned with the democratic ownership of work so housing co-operatives are involved in issues concerning the class division of property. Ward (1974) makes the telling point that they inject social justice into the housing situation by reducing the gap between owner occupiers and council tenants.

In the provision of social services, housing co-operatives have been prominent in many countries, notably West Germany and Denmark.

"They have proved themselves the means by which houses and flats can be built for rent without surrendering the rights of tenants to control their own housing and their immediate environment."

In Britain, particularly Scotland, where local authorities have been almost solely responsible for non-owner occupier housing there has been a change of mood in recent years. Housing co-operatives and their cousins, housing associations, are necessary main support now and there is growing scepticism about local authority housing. In the more recent past, council tenants have been able to buy their council houses.

3.2.2 Workers' Co-operatives Described and Classified

It is not possible to adequately define a workers' co-operative which would be universally acceptable. See Abell (1987) and Chaplin (1982). Indeed, as Chaplin and Cowe (1977) p 3, have said, "It is often easier to be clear about what is not a co-operative than what is." However, Chaplin and Cowe, op cit, go on to identify the factors which help them recognise a co-operative.

i It is financially autonomous when loans and other funding does not compromise the enterprise.

- ii It is controlled and directed by those working in it, and only those working in it.
- iii Management is accountable to the workers, to the extent that managers are subject to dismissal by them and by a representative body elected directly by them.

According to the International Co-operative Alliance, a co-operative is a group of people who join together in common undertaking in accord with the following six principles. These principles are based upon the original Rochdale Principles.

- i Membership is open and voluntary.
- ii There is democratic control, usually on the basis of one person, one vote.
- iii Interest on share capital is limited.
- iv There is equitable distribution of any surplus, usually in proportion to transactions with a work done in the society.
- v Co-operatives devote some part of their surpluses to education.
- vi Co-operatives co-operate among themselves.

Reported by Young and Rigge, op cit.

Boggis (1973) stresses two main distinguishing characteristics of workers' co-operatives:

- i Wage-earners forming an association which undertakes the entrepreneurial function.
- ii The democratic conduct of the affairs of the business.

"So in this workers' co-operative the risk-bearing, the mobilisation of capital and other factors of production is undertaken by workers who agree amongst themselves as to how their affairs shall be conducted and by whom" Boggis, *op cit*, p 42.

For the purposes of this research project, it is sufficient to say that a workers' co-operative is an enterprise which is owned and controlled by the people who work in it. The control aspect will be discussed in detail later in this thesis.

Perusal of research findings will show that workers' co-operatives do not form a homogeneous group of organisations. They differ with respect to reasons for formation, objectives they pursue, organisational arrangements and their economic circumstances (Jones 1978; Paton 1978). Nevertheless, some form of classification of workers' co-operatives is useful for reasonable analyses of such things as performance and organisational arrangements/effectiveness.

Some writers have opted for a fairly elaborate classification of workers' co-operatives. For example, Wilson's (1982) typology is summarised in Fig 3.1.

TYPE

FEATURES

OLD ESTABLISHED
PRODUCER CO-OPS

- * IN EXISTENCE A LONG TIME
 - * FEW IN NUMBER BUT SIGNIFICANT IN TERMS OF NUMBERS EMPLOYED & TURNOVER
 - * LABOUR INTENSIVE MANUFACTURING
-

NEW SET-UPS

- * INSTIGATED BY OUTSIDE GROUPS, INDIVIDUALS, AND OTHER CO-OPS, CO-OP DEVELOPMENT GROUPS OR TRADE UNIONS
- * VERY SMALL, USUALLY IN SERVICE SECTOR

(a) ALTERNATIVES

- * MEMBERS SHARE A STRONG COMMITMENT TO DEMOCRATIC DECISION-MAKING OR ALTERNATIVE LIFESTYLES
- * USUALLY FORMED BY WELL QUALIFIED AND PROFESSIONAL PEOPLE
- * OFTEN KEEN TO FURTHER POLITICAL AIMS TO PROMOTE ECOLOGICAL VENTURES
- * A NUMBER FORMED BY 'FEMINISTS' OR WOMENS GROUPS, PARTICULARLY IN LABOUR MARKET CHARACTERISED BY NON-UNIONISATION, LOW PAY, POOR CONDITIONS, HIGH LABOUR TURNOVER & CYCLICAL OR FREQUENT LAY-OFFS

(b) MULTI-
FUNCTIONAL

- * ESSENTIALLY ESTABLISHED BY GROUPS COMMITTED TO IDEOLOGICAL OR SOCIO-POLITICAL GOALS AND NOT PARTICULARLY TO BUSINESS/COMMERCIAL ISSUES

(c) NEW STARTS

- * PRIMARILY MEMBERS ARE SEEKING JOB SECURITY, BETTER WORKING RELATIONSHIPS, TRAINING, PROFIT-SHARING, OR MORE WORKER PARTICIPATION
-

DEFENSIVE:
REDUNDANCY/
CLOSURE

FORMED BY EMPLOYEES TO PRESERVE JOBS ON CLOSURE OR THREATENED CLOSURE OF FACTORY

(a) SIT-IN

- * EMPLOYEES RESIST CLOSURE/LIQUIDATION, FORM A CO-OP & WORK FROM SAME PREMISES

(b) RESCUE

- * USING SAME SKILLS, BEGIN TRADING IN THE SAME MARKET ON A MUCH REDUCED SCALE AS A NEW BUSINESS
-

JOB CREATION/
SELF-HELP CO-OPS

- * ESTABLISHED PRIMARILY TO CREATE EMPLOYMENT RATHER THAN EMBRACE CO-OP PRINCIPLES
 - * OFTEN FORMED AS RESULT OF GOVERNMENT SCHEMES, LOCAL AUTHORITY INITIATIVES, ETC.
 - * OFTEN MORE DEPENDENT ON STATE FUNDING COMPARED TO OTHER TYPES OF CO-OP (MANPOWER SERVICES COMMISSION'S JOB CREATION PROGRAMME & ITS SUCCESSOR THE SPECIAL EMPLOYMENT PROGRAMME, COMMUNITY ENTERPRISE NEW ENTERPRISE PROGRAMMES)
-

CONVERSIONS

(a) HANDOVERS

- * EXISTING COMPANY CONVERTED INTO WORKERS' CO-OPERATIVE
- * CURRENT OWNERS/MANAGERS MAY JOIN CO-OP OR MAY RETIRE

(b) BUY-OUTS/
SPIN-OFFS

- * MANAGEMENT BUY-OUTS HAVE BEEN ON THE INCREASE IN G.B. AS RESULT OF STRUCTURAL CHANGE IN INDUSTRY - MAJORITY INVOLVE SOME MEASURE OF WORKER BUY-OUT
 - * LITTLE WORKER PARTICIPATION IN BOUGHT-OUT COMPANIES
 - * CO-OP BUY OUTS RARE
-

FIG 3.1 CLASSIFICATION OF WORKERS
CO-OPERATIVES BASED ON WILSON (1982)

Cornforth (1983) has proposed a less detailed but nevertheless comprehensive classification of workers' co-operatives.

TYPE	FEATURES
"ENDOWED CO-OPERATIVES"	* "GIVEN" TO THE WORKERS BY THE OWNER * OFTEN CO-OPS FIND THEMSELVES WELL ESTABLISHED IN FINANCIAL & MARKET TERMS
"WORKER BUY OUT" CO-OPERATIVES	* THESE ARE MORE A POSSIBILITY THAN A REALITY. DIFFICULT TO IDENTIFY AN ACTUAL EXAMPLE
DEFENSIVE CO-OPERATIVES	* FORMED BY EMPLOYEES IN ORDER TO PRESERVE JOBS ON THE CLOSURE OF A BUSINESS * USUALLY INHERIT DIFFICULT COMMERCIAL SITUATION
"ALTERNATIVE" CO-OPERATIVES	* AROSE FROM THE ALTERNATIVE MOVEMENT OF THE 1960'S AND 1970'S * USUALLY MIDDLE-CLASS, WELL EDUCATED, & SHARE A STRONG COMMITMENT TO DEMOCRATIC IDEALS & SOCIALLY USEFUL PRODUCTS * MOST NUMEROUS TYPE OF CO-OP IN UK
"JOB CREATION" CO-OPERATIVES	* A REACTION TO HIGH UNEMPLOYMENT * ENCOURAGED BY MONEY FROM GOVT. JOB CREATION IN THE PAST * MORE RECENTLY THE CO-OPERATIVE DEVELOPMENT AGENCIES (CDA'S) HAVE GIVEN GREATEST ENCOURAGEMENT TO POTENTIAL CO-OPERATIVES

FIG 3.2 CLASSIFICATION OF WORKERS'
CO-OPERATIVES
BASED ON CORNFORTH (1983)

For the purposes of this thesis it is proposed to classify workers' co-operatives into three main types. This has been touched upon in Chapter 2. These three types of co-operative are:

- i Conversion
- ii Defensive
- iii Constructive

Fig 3.3 summarises how this classification meets the requirements of Wilson's, op cit, and Cornforth's, op cit, typologies.

Following Fig 3.3 is an amplification of the proposed typology.

PROPOSED	WILSON (1982)	CORNFORTH (1983)
CONVERSION	CONVERSION * HANDOVER * BUY-OUT	CONVERSION * ENDOWED * WORKER BUY-OUT
DEFENSIVE	DEFENSIVE * REDUNDANCY * CLOSURE	DEFENSIVE
CONSTRUCTIVE	OLD ESTABLISHED CO-OPS NEW SET-UPS * ALTERNATIVES * MULTI-FUNCTIONAL * NEW STARTS * JOB CREATION/ SELF HELP	CONSTRUCTIVE ALTERNATIVE

FIG 3.3 PROPOSED CLASSIFICATION OF WORKERS' CO-OPERATIVES

To summarise, the three types of workers' co-operative proposed are amplified below.

a CONVERSION/PATERNALISTIC/COMMON OWNERSHIP CO-OPERATIVE
(TO BE REFERRED TO AS CONVERSION CO-OPERATIVES)

These are give or sold to the work force either individually (each employee owning shares) or collectively (usually a holding company controlled by employees).

Act of transfer of ownership is usually based on religious belief rather than political motivation. A well known case is the Scott-Baden organisation of which 90% was handed over to the community of the work force by Ernest Bader in 1953. Reported by Oakeshott (1978).

An alternative means of formation of a conversion co-operative is through a workers' buy-out of a company about to close. For example, the Readheads ship repair yard at South Shields when about to be closed by Britoil Shipbuilders in October, 1982 was bought by about 100 of the original 300 workers for £110,000 and continued business as a workers' co-operative. Reported in The Guardian (7 Oct 1983).

Normally there are few changes in the way the company is run. The existing management situation is largely preserved but workers' powers of veto are extended.

The main differences after conversion to a common ownership company are:-

- firm cannot be taken over without employees' consent (no outside shareholders)
- management forced to adopt a "participative management style" (ie not trying to develop self-management, but trying to make 'capitalist' style management more acceptable and tolerable through consultation, etc.) But a well run and enlightened capitalist firm could achieve the above two points. The question remains, whether the workers could exert enough pressure to change the way the firm is run. Also if "conversions" are the result of economic failure than they may face some of the complications found in Rescue co-operatives, described below.

b RESCUE/DEFENSIVE/PHOENIX CO-OPERATIVES
(TO BE REFERRED TO AS RESCUE CO-OPERATIVES)

This type of co-operative has attracted most attention by the media eg Wedgwood Benn Co-operatives. They are usually formed by workers taking over the firm following threats of redundancy. This situation becomes more common in times of economic recession and crisis when more firms are declared bankrupt and there is less chance of alternative employment. In essence it is a case of maintaining jobs in a company in a poor economic climate where capitalists cannot run the enterprise at a profit.

Well known examples of Benn Co-operatives are Meriden Motorcycle Enterprise, the Scottish Daily News, and the conglomerate, Kirkby Manufacturing and Engineering (KME). It is not unusual for some of these Rescue Co-operatives to start proceedings towards formation of a co-operative with a workers' sit-in. In some cases, for example, the Benn co-operatives, funds may be made available by Central Government. Bradley and Gelb (1983), Oakeshott; op cit, Benn (1976); Fleet (1976); Mackie (1976); Eccles (1976).

The problems encountered in a Rescue Co-operative are immense. For example, it is often deprived of management skills associated with marketing, operations and accounting which are essential for most organisations.

In addition, this type of co-operative will usually be under capitalised. Not infrequently this is the reason why a factory is closing down.

Generally it will be in a poor market position and may have products which are economically and socially redundant.

The only viable way to overcome the situation described above is to develop new products which can be produced efficiently. But to do this, product design and development skills, management ability, capital and market opportunity are essential - features the lack of which led to the setting-up of the co-operative in the first place.

This type of co-operative, caught in these conditions, usually reduces wages to survive. By so doing the workers exploit themselves in the market to an extent which would be intolerable in a conventional company. Or they may resort to more fragmented and less satisfying job designs adding support to the degeneration thesis which will be discussed in detail later.

c CONSTRUCTIVE OR "START-UP" CO-OPERATIVES

(TO BE REFERRED TO AS CONSTRUCTIVE CO-OPERATIVES)

Set up as co-operative or common ownership companies from their inception. This is not a new idea but interest is growing (in Europe) once more.

In the present economic climate in the UK this development is also taking place under the title of community business/community co-operative.

Constructive co-operatives have three basic needs in common with any production organisation:

- i A market, especially those with easy entry such as some plastic products and printing which do not require high levels of capital investment.
- ii Capital to finance the new firm. Members may not have any money to invest and the co-operative cannot issue shares.

iii A production system combining equipment and people with skills to manufacture and manage.

In addition, constructive co-operatives face their own set of problems, such as:-

- banks may wish to deal with one or two people, eg, works manager and accountant. But a co-operative may not have these positions established to the same degree as in conventional businesses.
- if the co-operative is successful it may wish to expand, which raises questions concerning commitment and orientations of new members. Also attitudes of "old" members to new co-operators can leave much to be desired, ie, will established members of a co-operative view recent recruits as their "employees"?
- the ability of the work force to manage a large scale operation may be called into question. That is, will economic success and security be sought and obtained at the expense of co-operation?

It is possible that community businesses/co-operatives could overcome many of the above problems provided members of this form of enterprise are educated regarding the concepts, principles and practices of co-operative working and of the democratic ownership of work.

(Community businesses/co-operatives, in common with co-operatives have the primary objective of job creation, but in addition community businesses pursue the personal and social development of its members. For this reason, community businesses possibly have considerable potential for the operation of viable businesses under co-operative principles and practices.)

3.3 INTERNATIONAL PERSPECTIVE

3.3.1 Introduction

Britain's experience in the area of workers' co-operatives is very similar to that in many Western European countries. All have experienced major developments in worker participation in management but none has entertained genuine workers' control found in the Yugoslav experience. In this chapter experiences with workers' co-operatives in Britain and the Basque provinces of Spain will be reviewed and discussed. This will set the British experience in its European context - an important issue since the Commission of the European Communities (CEC) is very active in its Programme of Research and Actions on the Development of the Labour Market. The choice of these particular countries is not meant to imply that there are no similar experiences elsewhere in Europe. Rather it is contended that together they provide a clear and accurate summary of the European experience, and enables the British situation to be placed in its European context.

3.3.2 Spain - The Mondragon Group of Co-operatives

Since its inception in 1956, the Mondragon group of linked co-operative enterprises has grown from nothing to the point where it now employs about 19,000 people.

The first reference in Spanish was made in 1967 as quoted by Thomas and Logan (1982). However, it was not until 1973 that Oakeshott introduced the Mondragon experiment to the English-speaking public - reported by Bradley and Gelb (1983). Further information was provided by Campbell, et al, (1977). Oakeshott, op cit, Eaton (1978) and Johnson & Whyte (1977). The most extensive treatment so far is that of Thomas & Logan (1982).

The story of how "Mondragon" came about is well known and it is not intended to describe it in intimate detail. Instead a brief summary follows, providing the necessary background to later text.

Mondragon and its surrounding area were well known before the comparatively recent developments in co-operative organisation. Iron and coal had been mined there since antiquity and by the Middle Ages, the town itself was already a centre for iron and steel making (see Garcia 1970). The cosy picture of the Basque peasant who attained riches through forming a series of workers' co-operatives in totally misleading. The people from the Mondragon area have a long tradition of metal-working of an extremely high quality.

This metal working tradition continued throughout the the 19th century and in the early 20th century the Union Carrajera was formed. This, the most important employer in the town at that time, made locks to begin with but for the last 60 or more years has produced steel and other metal products. The Union Carrajera will be mentioned again below.

During the Civil War, the Basques had supported the Spanish government against General Franco. Defeat of the government resulted in devastation of the Basque provinces. Many Basques fled the country, others became prisoners. One of these prisoners was a student priest, Jose Maria Arizmendi, who had worked on Eguna, an anti-Franco trade union paper. Following the war he returned to his studies at the theological college in Vitoria. Apart from theology he studied economics, sociology and Catholic social doctrine which differed from the laissez-faire capitalism of Adam Smith and the state collectivism of Karl Marx. Arizmendi desired to find a way to reconcile social justice with individual freedom and ownership of property. With the German occupation he was, however, prevented from finishing his studies in Belgium but instead his bishop sent him to the parish of Mondragon.

It should be noted that apart from its commitment to a separate Basque identity, the Catholic church is fundamental in any account of the background to the Mondragon enterprises because of its alignment with the Church's programme social teaching associated particularly with Pope Leo XIII. Important factors are first the intensity of nationalist feeling and pride; and second the elements in Basque social and cultural traditions which support the values of strong self-reliance and mutual small group solidarity.

"Social anthropologists stress the mutual aid and labour exchange which traditionally goes on between Basque mountain small holders. They stress the traditional habits of high personal saving. And they point to those small age-group social and drinking clubs (the Chiquitoes) which seem to foster high trust relationships between members, as well as being highly convivial". Stephen (1982), p 124.

It seems reasonable to assume that all these factors are important in explaining the subsequent success of the Mondragon enterprises. Another important factor was the absence of independent trade unions which were banned by Franco. It is likely that an active trade union movement would probably have attracted and absorbed the energies of the majority of the most industrious Basques. This would have diverted their attention from small business formation and development. Lack of an active trade union movement allied to a dissatisfaction with capitalist structures allowed the people of Mondragon to establish enterprises of an alternative kind. Because there was no welfare state their resolve can only have been strengthened based on a belief in the importance and good sense of these efforts. Discussed in detail by Stephen, op cit.

When Arizmendi (full name Arizmendi Arretta) was sent by his bishop to Mondragon, he was given a specific mission: to concern himself with the needs of the younger generation. Arizmendi interpreted this to mean that first he should promote technical education and second, he should encourage the propagation of progressive Catholic teaching. He tried to persuade the Union Carrajera to expand its small apprentice school without success. Arizmendi then mobilised community support and established a new one instead which opened with an initial enrolment of 20 students in October 1944.

This technical school is the ancestor of the subsequent Mondragon enterprises, both directly and indirectly. Five of its students were encouraged, by Arizmendi, to study part-time for engineering degrees at Aragoza University. These graduates attempted to introduce worker participation within the Union Carrajera without success. They left and formed their own company ULGOR in 1956, producing paraffin heaters and

cookers. During the next four years there was a search for a suitable enterprise statute within the framework of co-operative law. Other co-operatives were developing at this time and establishing close ties with Ulgor. However, they faced three major problems:

- a Lack of adequate capital and managerial expertise.
- b Exclusion from the Spanish Social Security system.
- c A limited technological base.

Bradley and Gelb, op cit, p 13.

The first two problems were solved by the formation of a co-operative bank, the Caja Laboral Popular in 1959. For Arizmendi discovered that a banking-type operation could be set up as a credit co-operative under Spanish law. He also discovered that, if registered as a 'workers' credit co-operative, such a bank could pay an extra 1 per cent over the going legal maximum on its interest rates.

Later discussion on this thesis will show that the most pressing problem faced by workers' co-operatives is in finding capital, particularly at start-up. Since co-operatives rarely have collateral, the commercial banks are not eager to provide the short, medium or long-term credits which are necessary for the development and smooth operation of any small business. In addition, legal restrictions often make it impossible for co-operatives to obtain credit; for example, access to a stock exchange is seldom possible. Also co-operatives tend to be wary about applying for extensive credit, fearing that their independence might be put in jeopardy.

Therefore formations of the Caja Laboral Popular (the Caja) overcame the problem of finance for the co-operatives at key points in their life cycles. By 1980 the Caja had 300,000 deposit accounts and as a result formation of workers' co-operatives were formed in increasing numbers. Bradley and Gelb, op cit, (1983).

The Caja's mobilisation of financial resources also meets a major theoretical problem. The cornerstone of Vanek's (1975) theory on the economics of labour-managed economies states that labour managed enterprises are dependent on self-financing through generating their own financial resources, major inefficiencies will be unavoidable in the development of a labour-managed sector of the economy. One of Vanek's, op cit, postulates for the design of such an economy is the existence of a "perfectly competitive loanable-funds market". (Vanek, op cit, pp 33 - 36).

In addition to making capital available for first degree co-operatives at the various stages in their development, the Caja initially took responsibility for social security needs. This function was taken over by Lagun Aro - like the Caja, a second degree co-operative - in 1970. Bradley and Gelb, (1983), op cit.

To these three roles, overall direction, banking services and provision of a broad based social security system, a fourth was added in 1960 - management consultancy and promotion. This involved advising existing co-operatives on the whole range of management problems and helping to launch new enterprises.

The Caja believes that financial support, however, critical, is not enough to ensure the health and continuity of the expanding co-operative sector. Technical assistance, promotional and organisational advice must be always available. It is good business sense to seek the optimum use of input resources and to ensure that the Caja's objectives of creating new jobs, are not over looked. "Further, since risks cannot be spread (the Caja having only a small number of active clients) members have to be carefully watched, their informal guarantee to operate on a profitable basis is the only security against which loans are made". de Cajella (undated).

In 1970, responsibility for social security was taken over by Lagun Aro, another second degree co-operative. It, along with Centro Assistencial, an associate, second degree co-operative, provides a full range of welfare benefits, from child allowances to old age pensions covering all the workers and their families - in excess of 45,000 people. It also provides health care and monitors industrial safety conditions, but has had limited success in providing major medical services because of the problem of retaining doctors willing to work with the main pay differential of the Group. By 1980 Lagun Aro was studying the possibility of introducing unemployment insurance.

Bradley and Gelb (1983), op cit; Oakeshott (1981), op cit; Campbell (1980).

Development of the technological base requires research and development, and training. Actividad Laboral Escolar Cooperativa (Alecoop), a co-operative factory cum training school was founded for this purpose in 1966. By 1980 it had 1,200 students who worked part-time in Alecoop,

their earnings paying for tuition. In addition to providing the required numbers Alecoop also equipped them with appropriate technical skills.

A common research and development co-operative, Ikerlan, was established in 1977 at a cost of around 12 million ^{pesetas} to achieve scale economics in manufacturing operations. Its mandate was to upgrade the technical capability of the co-operatives in the light of increasing foreign competition, particularly from Japan, for many of its product lines. One of Ikerlan's achievement has been to design its own industrial Robot, Gizamot.

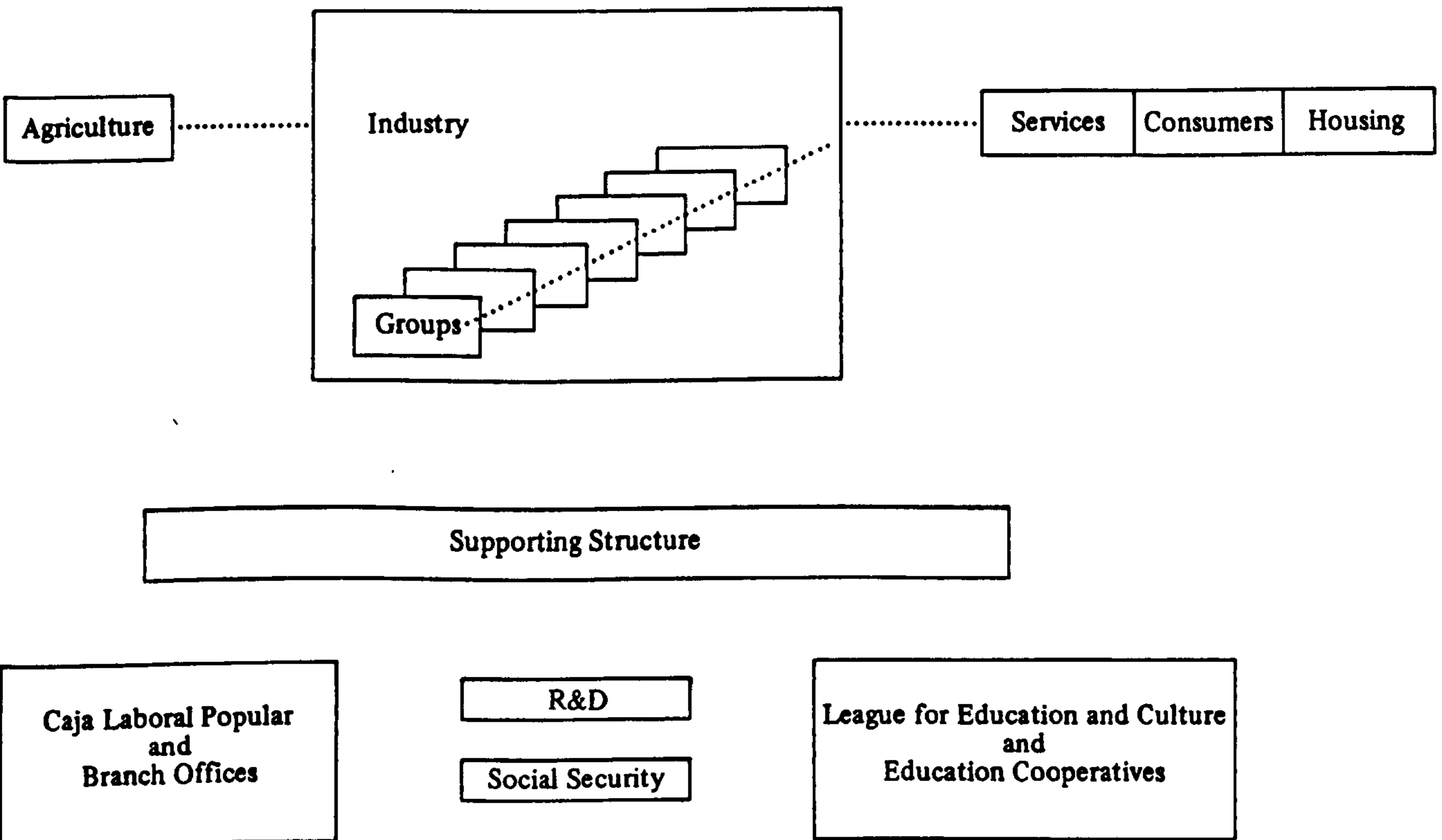
Ikerlan's concentration in robotics has and will continue to raise questions about job satisfaction in manufacturing processes. The group's managers are inclined towards the view that scope for humanising the repetitive tasks of manufacture is rather limited. They are seriously looking to the replacement by robots of human labour - an engineering approach to Job Design (see Fig 2.1). This topic will be discussed further in various parts of this thesis.

Ikerlan is the most recent of the group's supporting organisations. The oldest is the Escuela Profesional Politecnica (EPP) which developed out of Fa, Arozemendi's original technical school for apprentices formed in 1943. Its courses range from craft apprenticeships programmes to engineering degrees.

Alecoop was alongside the EPP although since the early 1970's it has been run as a separate entity.

All these supporting organisations, the CLP, Legan Aro, Ikerlan and the EPP are second degree co-operatives. Fig 3.4 outlines the Mondragon Group. [Thomas and Logan, (1982) p180.]

FIG 3.4 MONDRAGON GROUP: AN OVERVIEW
(SOURCE : LOGAN, 1982, P180)



3.3.3 The United Kingdom (UK) - Roots of the Movement

It is generally accepted that workers' co-operatives, in their modern form, developed in the UK. Derrick (1981); Chaplin and Cowe, op cit. Although the name of Robert Owen and possibly others are inextricably linked to the co-operative movement, there is a strong case for giving most of the credit for the early, and subsequent, development of co-operatives in the UK to the working men who formed the Rochdale co-operatives in the UK to the working men who formed the Rochdale co-operatives (that they influenced the Mondragon Group to any great degree in its early days is perhaps open to question as this will be discussed later.

Nevertheless the Rochdale Pioneers have been honoured far beyond the shores of Britain, particularly since they set up both a consumers' co-operative and, in their textile factory, a workers' co-operative.

The Rochdale Pioneers opened their store in 1844 and a textile mill a few years later. It should be noted that in their mutual vision, consumer co-operation was secondary, and essentially a means by which co-operative manufacturing could be financed. Oakeshott (1978) op cit.

Unfortunately, the pioneers made a vital mistake when they allowed outsiders to buy shares. This led to degeneration into a joint stock company suggesting that commitment is rarely achieved when the initiative comes from outside the main working group. Welfare commitment is a vital ingredient in a co-operative venture. Although the Rochdale Pioneers insisted that no shareholder, however many shares he owned, should be entitled to more than one vote. They did not exclude non-workers from the body of shareholders and did not insist that all workers own shares. Oakeshott (1978) op cit.

From the early beginnings in Rochdale, the consumer co-operative movement expanded steadily for over a century. It is outside the remit of this thesis to deal in detail with consumer co-operatives but because the consumer aspects were so closely linked with early workers' co-operation a few brief points will be made.

CONSUMER CO-OPERATIVES

During its century of growth the consumer co-operatives operated on a much larger scale than most other retailers. Its market share was and is less than some of the Scandinavian co-operatives but the consumer movement itself was larger absolutely than that of any other country in Western Europe and it demanded the co-operative movement at large mind more than in any other country. It is not surprising that co-operation was strongly identified with retailing. Derrick, op cit.

As stated above, the Rochdale retail store was formed as a first step towards the more difficult manufacturing co-operation. As well as financing the workers' (manufacturing) co-operatives it was envisaged that the working people would learn the skills of shopkeeping but very much with a view to running factory processes eventually. (This is broadly in keeping with contemporary Operations Management teaching which takes a conceptual approach to the management of operating systems whether manufacturing, transport (distribution), supply (retailing) or service based). See for example Wild (1984).

One outcome of the growth in consumer co-operation was that it started to influence the original thinking about the link between consumer co-operatives and workers' co-operatives. At the point when there was a choice between the two there was a tendency to expand the retail stores because they had been successful in the immediate past. Despite this, the movement remained committed to supporting both forms of co-operation in a fairly equitable way. Oakeshott (1978), op cit.

Jones (1976) has suggested that the movement's commitment to equality of treatment remained formally in force till the Co-operative Congress in 1888, when the split became more obvious. The gap between the two co-operative groups had been widening before this in any case, when the wholesale co-operation, in effect federations of consumer societies, decided to set up their own manufacturing facilities in 1873. (These have been and continue to be run as conventional companies and are co-operative in name only). The producer co-operators clearly read the signs and in 1882 formed their own, semi-autonomous Co-operative Production Federation (CPF).

There is no reason to disagree with Jones's, op cit, account but its implications suggest a conscious coincidence in time. The marked diversion from its even handed policy by the movement to one biased towards consumer co-operation was paralleled by rapid expansion in producer co-operatives in the second half of the 1880's. Both were preceded by the establishment of the CPF in 1882. The conclusion could be drawn that the benefit of having an agency specific to its needs exceeded the loss of support from the main movement. The truth of this view is supported by the presence of Thomas Blandford, a highly dynamic

individual, as a key figure at the CFP during this period. He was keen to further the cause of workers' co-operatives. Oakeshott (1978), op cit.

The further growth and decline particularly over the past twenty years is a story not specifically related to the main thrust of this thesis.

However, it is noted that the number of retail consumer co-operatives in Britain declined from 918 in 1958 to 170 in 1981. It is the policy of the Co-operative Union to encourage a further reduction in the number of retail societies until there are only 25 large regional retail societies. The consumer movement had 1.75 million members in 1901, 6.5 million in 1931, nearly 13 million in 1961 and 10.2 million at the end of 1980. By 1980, its market share had declined to 6.4%. The movement has been fighting a defensive battle but with supermarket takeovers and the growth in hypermarkets it is difficult to envisage where its future lies. Derrick, op cit.

CO-OPERATIVE PRODUCTION FEDERATION CO-OPERATIVES

Returning to workers' co-operatives, history shows that 'degeneration' occurred, as described by the Webbs (1897) in the businesses formed after the establishment of the CPF in 1882. Oakeshott (1978, op cit, provides an excellent summary of events in six of these, what he calls 'cloth cap' co-operatives.

i Northamptonshire Productive Society (NPS) founded in 1881 by a group of boot and shoe workers who were dissatisfied with prevailing wage rates. They secured a government order for army boots sufficient to ensure production. Jones (1894) p402.

- ii Finedon Productive Society formed because they disfavoured work at NPS. Finedon is only a few miles from Woolarton (site of NPS factory) and the Woolarton men hired the Finedon men to work for wages in their co-operative businesses. The Finedon men were not permitted to join the NPS. The NPS men had succeeded in becoming what Beatrice Webb, *op cit*, called 'small masters' and introducing the 'degeneration' process into the co-operative venture. The Finedon workers took the practical steps of forming their own co-operative.
- iii Equity Shoes, one of the best known workers' co-operatives which achieved success by continuously paying attention to the needs of the business. It was formed in 1886 following a strike at a Co-operative Wholesale Society (CWS) factory and produced high quality shoes. Good management and the commitment of the workers and others were important factors in its business success. Shareholders were attracted from outside the firm. By 1973 there were 2,356 shareholders who owned £24,714 shares; loans from workers amounted to £39,806 that year and reserves stood at £233,001. In 1977 the number of shareholders had fallen to 1,300 and share capital had dropped slightly to £22,952; member loans, however, rose to £41,647 and reserves increased to £667,105. Profits in 1977 totalled £371,676. Thornley, *op cit*.
- iv Leicester Co-op Printers was formed in 1892 for reasons quite different to the other 'cloth cap' co-operatives. The initiative to form this business was not generated by the ordinary people, but by local working class institutions, namely local trade unions and

the successful (mainly consumer) co-operatives. In an excellent case study Kirkham (1971) identifies the deliberate and semi-ideological character of the initiative. One of the objectives in forming this co-operative was to bring closer together the co-operative and trade union movements in Leicester. At one meeting a speaker expressed the view that formation of workers' co-operatives in this was was the best means with which co-operatives and trade unions could be brought into closer union - businesses in which both parties could assume equal rights in management. Wider ideological objectives were also involved. One participant in early developments contended that: "The continued disputes between employers and employed, between capitalists and workers (of which trade unions can produce much evidence) show that some different mode of solving the problem of capital versus labour must be applied. Co-operative production under the opinion of the most eminent economists promises the best solutions to these difficulties. Under this class of association the Leicester Co-operative Printing Society was established." Reported by Oakeshott (1978), op cit.

Leicester Co-operative Printing Society could hardly be classified as a genuine bottom-upwards form of industrial democracy. Oakeshott (1978) suggests that it resembles, on a local level, a German 'Commonwealth' enterprise, for example, the Ban fin Gemmeinwiatschaft which is owned and controlled by working-class institutions and, therefore, laying claim to being an example of industrial democracy. Doubts about the level of democracy is also voiced when it is realised that under the enterprises' constitution only a minority of its nine directors - 'a minimum of one and a

maximum of three' - were to be elected by its workforce. Thus the majority were to be elected by outside institutions, the trade unions and the consumer co-operatives. Kirkham, op cit, also brings out the point that within this framework the management practice in the firm was strictly conventional.

v Kettering Boot and Shoe Co-op formed in 1888 with the support, in the form of money and co-operation advice, of a profitable consumer store. It had a receptive market for its products in the prosperous network of co-operative retail stores. An important feature was that democratic control was firmly exercised by the workforce, a part conceded by Beatrice Webb.

vi Kettering Clothing Co-op founded in 1893 for reasons different to those prevailing in the case of the boot and shoe co-op. Lloyd (1898) gives a very good account of its background.

"This new enterprise had its immediate suggestion in a boycott of the co-op store by a firm of manufacturers in Kettering. The store had added a clothing branch to its other departments and sought to purchase its supplies from local manufacturers. But they would not sell, because the co-op store was the rival of one of their principal customers in Kettering. Some of the employees of this firm were members of the co-op store; and upon this refusal they said to their fellow members that if assisted they would organise a co-operative manufactory to supply the clothing needed ... The start was made with 12 workers, 7 of them men who had been

discharged by the local firm. They were drilled in co-operative ideas and methods by Mr W Ballard of the store for 12 months before beginning." Lloyd, op cit, p139.

Like the boot and shoe co-op, this enterprise had no difficulty in selling its output to the consumer societies. Although Lloyd, op cit, feared that control of the clothing co-op might be taken over by outsiders in view of the fact that its stores were above par value in the 1890's, this did not happen. It survived as a genuine co-operative and continued trading until after the Second World War.

The main points which emerge from this brief summary of six of the producer co-operatives in the 1880's and 1890's are:

- a The early initiative to form them emerged from the working class and/or working class institutions. For instance, the Christian Socialists were not involved.
- b Excepting the Woolarton boot makers, who secured an army contract on commencement, all the co-ops were reliant on institutional working class markets. In the case of Leicester's printers, the trade union and co-operation movements accounted for the bulk of their order in the early stages.
- c They were not particularly interested in ousting or even seriously challenging the capitalists system. Rather they desired to live in peace alongside it.

d The strong working class character of these co-ops was in a sense 'degenerative' in that they were reluctant to hire middle-class professional managers - Oakeshott's, op cit, reason for calling them 'cloth cap' co-ops. Equity were only interested in appointing 'practical men' to its board. When Equity did appoint professional managers, the first four left under a cloud of acrimony. This attitude curtailed achievement of the potential for all six co-ops and probably limited growth - a form of economic degeneration.

Oakeshott (1978), makes the observation that the same situation existed in France until the post 1945 period.

The number of 'cloth-cap' co-operatives in England and Wales declined gradually in the 1900's. Jones, op cit, pp36 and 41, estimates the numbers to be 112 in 1905; seventy-one in 1913; sixty-four in 1924; fifty in 1936; forty-four in 1950; thirty-seven in 1960; twenty-six in 1970 and as estimated by Oakeshott, (1978) sixteen in 1973.

It must be stated that although these old producer co-operatives were working-class in origin and character, they were not truly democratic because ownership and control was not vested in the workforce. No efforts were made to create an identity between the workers on one hand those who owned and controlled the business on the other.

Characteristically they have been amalgams both of inside and outside ownership and inside and outside control. Likewise the workforces have included both shareholder members and workers with no shares - and thus no membership. The outsiders involved have included institutions, like trade unions and retail co-op societies, as in the case of Leicester

Printers, and individuals: typically local sympathisers and retired members of the workforce/" Oakeshott (1958), pp67-68.

No new Producer Co-operatives have been formed since 1850 and it is generally acknowledged that they are a dying breed, with many making a loss. Chaplin and Cowe, op cit. On the surface it would appear that Beatrice Potter's (later Beatrice Webb) views (1891) had been fulfilled because she believed that productive societies were inherently unstable. This, however, will be examined in detail in the next sub-section of this chapter.

In 1980 the Co-operative Productive Federation merged with the Co-operative Union, a sign of its demise in the co-operative sector.

GUILD SOCIALISM

From the turn of this century to the fairly recent past little development took place in the system of workers' co-operatives, the exception being between 1920-21. At the end of the First World War there was a feeling of economic optimism and a need for a rapid expansion in house building. The Liberal Government introduced new payment arrangements for local authority housing in 1920 whereby local authorities (town halls) made a fixed contribution and the National Exchequer made up the difference to meet the final price. This cost plus a form of tendering obviously attracted firms in the building industry.

It was an exceptional opportunity for building tradesmen to establish guilds throughout the country. Cole (1944) pp286 and 287, however, points out that one of the main objectives of building workers in forming these guilds was to keep prices down; in contrast with the capitalist forms which invariably sought windfall profits.

With the presence of realistic interim payments (stage payments) the cash-in-hand requirements of the guilds were not great and because contractors working on a cost-plus basis were unlikely to lose money, loans were easily obtained. In 1930, a National Building Guild was formed as an outcome of the Guild Socialist movement. Guild Socialism was basically a means for transferring industries and services to public ownership and vesting responsibility for their management into guilds to include all workers. Cole (1944) pp284-292.

"Industry was to be seen as a service to the community, not for profit. The idea was popular. However, the state had no desire to nationalise industry, and another way had to be found to realise this ideal. Co-operatives were formed, closely tied to trade unions, but without profit sharing." Thornley, op cit, p28.

The Building Guilds had a lightning start and a rapid finish with little happening in between over a short life of about two years. In the summer of 1921 the Lloyd George government discontinued the subsidised cost plus contracts and reduced the levels of interim payments. The Building Guilds as part of their policy had not earned relatively high profits. When the contract agreements were changed by government they suddenly found their money at risk. Consequently organisations like the

Co-operative Wholesale Society wisely called in its loan to the National Building Guild. Disaster was averted for a short time through standing credits with Barclays Bank.

Inevitably the end came when the situation worsened and Barclays Bank sent in a receiver. The National Building Guild was wound up in 1923 involving as many as sixty-three affiliated local guilds - working on 200 separate contracts. A considerable number of workers lost their savings. Cole (1944)

Like the earlier co-operatives of the 19th century, those of the Guild Socialists were formed with a fervent and pioneering spirit. They built houses of a higher quality than those constructed by the private sector. They operated under more democratic practices involving the people working in them. However, history repeated itself and they were, from the start, unrealistic in their aims. They attempted to change the capitalist system by forming companies with social objective and without a corresponding political movement. Apart from these macro issues, management of the National Building Guilds and of the guilds themselves was extremely poor.

CONCLUSIONS

So far in sub-section 3.3.5 we have summarised the ebb and flow of enthusiasm for the formation of co-operation businesses in the 19th century. Rates of failure and times in history have been noted and the main reasons for these series of declines have been identified. During this time co-operatives carved their own particular niche in the labour movement. Although they constantly struggled for their co-operative ideals within a capitalist economy more faith was put in trade unionism and the ability of the state to democratise industry through public ownership.

Growth in trade unionism and formation of the Labour Party tended to divert efforts away from co-operativism particularly since co-operatives in the past had not established a worthwhile alliance with the labour movement. During the first half of the 20th century the working class put their faith in trade unions and the Labour Party in the belief that their dissatisfaction would be translated into a determined resolve to change the status quo; this to be achieved by changing the private enterprise sector of the present mixed economy.

This summary of early co-operative developments is important as a back-cloth as we progress, to a summary of 'new-wave' co-operatives and as a chronicle of the workers' co-operative movement in the UK. It may shed light on how what happened in the past affects developments today. However, it is worth noting in conclusion that after the mid-19th century the co-operative movement was set to become dominated by societies of consumers in contrast to societies of producers. This development was influenced in the early 20th century by the writing of the Fabians,

especially Beatrice Webb (1930). These writers contended that the interests of the working-class were best served by a combination of consumer co-operation and trade union activity. Thus the working-class interests would be protected in manufacturing by the trade unions and in consumer affairs by the retail co-operative movement.

Consequently, there was a barren period in workers' co-operative development until the early recent past. These recent developments are described in the following section.

3.4 THE CONTEMPORARY SCENE

3.4.1 Introduction

Since the 1960's, workers' co-operatives have been attracting a lot of attention and have evoked a sympathetic response across political boundaries. Supporters are to be found in all the main political parties, trade unions and to a greater degree amongst people who consider themselves as politically non-aligned.

Table 3.1 NUMBER OF UK WORKERS' CO-OPERATIVES 1874-1986

YEAR ENDING	TOTAL NUMBER
1874	15
1905	109
1945	89
1977	75
1978	140
1979	162
1980	250
1982	500
1984	900
1986	1300

SOURCE: National Co-operative Development Agency Directory of Co-operatives (1980, 1982, 1984, 1986)

Activists are showing enthusiasm not seen since the days of Owen, Marcuse, Ludlow and Neale.

A point for concern emerges, however, when it is realised that there is still, as in the last century, a widely diverse ideology among the new co-operatives ideologies promoted by these leaders. It still begs the question whether there is yet a co-operative movement.

Until 1958 the Co-operative Production Federation (CPF) alone exerted effort in the area of assisting in the process of forming new co-operatives. In the same year Democratic Integration in Industry (DEMINITRY) was formed to be succeeded by the most important body currently. Industrial Common Ownership Movement (ICOM). Between 1975 and 1980 Job Ownership Ltd (JOL), Commonwork, the Mutual Aid Centre, local co-operative development groups, the Centre for Alternative Industrial and Technological Systems, and the Socialist Environment and Resources Association (SERA).

Apart from these voluntary bodies, local councils have become active in supporting co-operation development in their areas. At national level the Co-operation Development Agency (CDA) was set up by an Act of Parliament in 1978 as a 'quango'.

Because there are so many agencies supporting co-operative development in the UK, it is important to review their ideologies to ascertain whether a common thread runs through this plethora of advice. With so many participating bodies there is a danger that the relationship between co-operatives and a capitalist system has become more difficult since the activities of the last century.

3.4.2 Co-operative Support Agencies

The main support agencies active in the UK include the following:

BEECHWOOD COLLEGE

CO-OPERATIVE BANK

CO-OPERATIVE DEVELOPMENT AGENCY

CO-OPERATIVE DEVELOPMENT GROUPS

CO-OPERATIVE PARTY

CO-OPERATIVE UNION (subsuming the co-operative productive federation and
including co-operative college)

COUNCIL FOR SMALL INDUSTRIES IN RURAL AREAS (COSIRA)

HIGHLAND AND ISLAND DEVELOPMENT BOARD (HIDB)

INDUSTRIAL COMMON OWNERSHIP MOVEMENT (ICOM)

LABOUR PARTY

LOCAL AUTHORITIES

LOCAL ENTERPRISE DEVELOPMENT UNITS

JOB OWNERSHIP LTD (JOL)

MANPOWER SERVICES COMMISSION (MSC)

PLUNKETT FOUNDATION

SCOTTISH CO-OPERATIVE DEVELOPMENT COMMITTEE (SCDC)

TRADE UNION MOVEMENT

The main bodies will be described briefly below:

INDUSTRIAL COMMON OWNERSHIP MOVEMENT (ICOM)

ICOM, which was founded in 1958 is based on the principles of Christian Socialism. It was formed by Ernest Bader, a Quaker and christian Socialist who handed over his successful chemical company (an endowed co-operative) to his workforce. Cayne and Wilson (1974) ICOM endeavours to promote common ownership, a particular form of co-operation with very pure principles based on equality and the furtherance of the co-operation from the movement. Unlike JOB OWNERSHIP LTD, (to be discussed below) ICOM does not emphasise improvement of the economy. It concerns itself with developing a society based on personal fulfilment and satisfied human needs. Its members are opposed to the profit motive of capitalism, just as the co-op movement in the 19th century.

Since ICOM believes that 'labour should hire capital' they are aware of the daunting task of forming co-operatives in capital intensive industries. But more of this later when ICOF is being discussed.

The rules of ICOM differ radically from the old CPF. For example, 43 of the first 76 CPF rules are concerned with management and administration of the co-operative. The ICOM model rules, in contrast, have only one rule out of twenty-one about management. Some of the smaller ICOM co-operatives dispense with formal management altogether and instead have frequent meetings of all members. Thornley, op cit. Derrick, op cit.

ICOM has one distinct advantage over the former CPF in that ICOM is more than a federation of co-operatives; it is a movement, an association of individuals convinced of the importance of promoting co-operation production on a common ownership basis. In contrast the Federation was a grouping of established co-operatives primarily concerned with what it could do to help existing enterprises than with developing new ones. The successful co-operatives did not need the assistance of the Federation but on the other hand the Federation was not equipped to help those in need of it.

INDUSTRIAL COMMON OWNERSHIP FINANCE (ICOF)

ICOF which is a subsidiary of ICOM was established as a non-profit source for loans.

ICOF lends on the short to medium term (six months to six years) and interest rates lower than could be otherwise obtained.

Before a loan is granted to a co-operative, the firm is examined carefully on such issues as likely success of the project, financial history of the firm, predicted cash flow; product development, management ability; financial commitment by its members; its industrial relations record; and proof of assets against which a debenture could be secured.

On some issues ICOF is even more searching. Co-operators are required to prepare a prospective of market opportunities. If the applicant is a new-start, a demonstration of sound links with a sponsor common-ownership firm is required. They must also show that they have access to acceptable financial and management advisers.

Although ICOF takes a sound commercial approach to its task, it does not lend money for the interest it could accrue. It is there to encourage and help existing and potential co-operatives. For a service of this nature to continue subsidies are essential apart from relatively small grants made under the Industrial Common Ownership Acts (1976) (£250,000 made available over four years for on-lending to any registered co-operative in manufacturing meeting certain requirements).

CO-OPERATIVE DEVELOPMENT AGENCY (CDA)

CDA was proposed initially by the Co-operative Party and was included in the Labour Party Manifesto for the 1974 General Election. The Parliamentary Bill was supported by all political parties and the Agency commenced work in September 1978.

Although the CDA was established with a mandate which covered all co-operative sectors, it has from the beginning concerned itself more with the growing sector of industrial service co-operatives (workers' co-operatives).

The CDA has been interested in the formation of supply and marketing co-operatives by small producers. It has worked closely with various local authorities, for example, Lambeth and Lewisham on the problems of unemployment. It has been involved with the Runnymede Trust and the Commission for Racial Equality on the role of co-operatives in rehabilitation.

With EEC funding it established a pilot co-operative Training and Enterprise Workshop to train unemployed young people in trade skills and as members of a co-operative with the intention that the co-operatives will continue after funding ends.

JOB OWNERSHIP LTD (JOL)

JOL was formed in 1978 as a company limited by guarantee, with no share capital. The Rowntree Social Services Trust gave it a grant for two years after which it was expected to be self financing. JOL claims not to be aligned to any political party but a number of its founder members are closely associated with the Labour Party.

JOL pursue a policy of 'enlightened self interest' attained through groups of individuals working co-operatively. This has been described as 'granulated capitalism' because each member is maximising his or her personal financial gain within the constraints of co-operation organisation.

Developments in Mondragon have influenced JOL and the Mondragon arrangements were adopted by them.

Since JOL has not been recognised by the Registrar of Friendly Societies, JOL has to present each individual case for examination by the Registrar and Department of Industry.

JOL has endeavoured to influence private companies to convert into co-operatives.

There has not been a great response to JOL's efforts although British Steel has been partly sympathetic.

The consumer movement and ICOM have looked on JOL with some suspicion and ICOM has been accepted as a legitimate organisation by CDA.

SCOTTISH CO-OPERATIVE DEVELOPMENT COMMITTEE (SCDC)

SCDC was formed in 1976 with the objective to encourage the growth of workers' co-operatives.

Scottish co-operatives felt that ICOM, the only body actively promoting co-operatives at that time, was grossly understaffed and as a result Scotland would receive little attention.

The initiative was taken by the Co-operative Union, the Scottish Council of Social Services, the Scottish TUC, local authorities, universities and others.

Initially SCDC was faced with the daunting task of convincing ordinary people that they could form their own businesses employing co-operative organisation. This barrier existed because the movement had become so closely identified with the 'alternative scene' and because of the need for finance and for entrepreneurial and business skills.

SCDC is typical of groups in other parts of the UK in that it does much to convince people that there is much satisfaction to be gained in forming and running their own businesses not to mention the creation of jobs in the present economic climate.

CONCLUSIONS

The co-operative movement in Britain differs from that in the Basque Region of Spain. In Britain co-operation resembles variations on a broad theme and even these variations have been re-shaped to meet individual needs.

"In Britain, the principles of co-operation have been embraced by diverse groups across the political spectrum and this interest has endured despite the small number of co-operatives actually created. Currently, the term "workers' co-operative" represents a far wider concept than issues relating solely to ownership and control; even casual observation reveals that a multitude of organisations, social movements and forms of production enterprise - varying in objectives, values, activities and purpose - have not come together under that common heading". Wilson, op cit, p36.

In Spain the co-operative movement presents a much more concerted and business-like approach to establishing and running successful small businesses. As will be shown later in this thesis, training, business systems development and the opportunities offered by new technology are high on the agenda of the Mondragon policy makers.

Returning to the theme of 'success', the next section considers briefly the record of workers co-operatives within the small business scene.

3.5. Success, Problems and Failure

One of the key issues concerning workers' co-operatives is that of survival. Chaplin, op cit, Abel, op cit, Cayne and Wilson, op cit, Thomas (1986). There are, however, a number of important factors surrounding the issue of survival. The most important ones appear to be:

- * How does the survival rate of workers' co-operatives compare with that of small private firms?
- * What is the rate of profitability in co-operatives compared with conventional firms?
- * How successful are workers' co-operatives at protecting their internal democratic arrangements?

Speakers at conferences and writers of journal articles often state that co-operatives out perform conventional small businesses. Seldom are these statements backed with any form of statistical or financial data. For example, in the summer 1986 issue of New Co-operation, Anna Whyatt wrote that the co-operative sector "... has already proved its worth over and over again in cost effectiveness and durability, with a staying power demonstrably better than that of small businesses in the private sector ...". Whyatt, A (Summer 1986) Reported in thomas, op cit.

Unsubstantiated statements of this type are to be found also in the small business scene generally except that small business writers are more likely to acknowledge that the chances of failure are high.

In an interesting study, Michael Scott quoted seven examples concerning the failure rate of new, small businesses. One particular example, a BBC TV programme "Can We Make Jobs?" of 6 August 1980, stated categorically "Three-quarters of new businesses don't survive the first two years". In his study of all Scottish companies registered in 1969, Scott found that more than 60% traded for more than 5 years, and most of these for the whole 8 year period never traded and only 16% began trading and then failed within 5 years. In fact, the largest percentage of liquidations was only 6% of the total trading in any one year. If we also note that takeovers of successful companies form a fair proportion of deregistrations and liquidations and that many are formed with little intention of trading seriously. The actual failure rate of small businesses is probably quite low. It seems that co-operatives would need to perform extremely well to secure a superior survival rate than that in the private sector. Reported in Thomas, op cit.

Reliable figures on co-operative performance and survival are hard to find. First of all, existing on the brink of business failure is hardly the main objective of co-operation, is a shabby form of survival, and could hardly be termed a success. In addition it may be found that participation by all the workers in a co-operative is conspicuous by its absence; or the jobs may be part-time, badly paid; or may entail the working of unpaid overtime. This may be a form of survival but it is not a business success - indeed it begs the question whether it is a proper workers' co-operative.

As far as Abel, op cit, is concerned there is no detailed study comparing the mortality of workers' co-operatives with matched capitalist firms. Global comparisons across all industries do not, however, seem to indicate a markedly higher failure rate for workers' co-operatives.

Jones (1976) commenting on a study he carried out in the leather and footwear industry said that workers' co-operatives have a better survival rate than similar conventional businesses.

One of the few comprehensive studies, carried out by Aston (1980) suggested that about 30 per cent of all new start co-operatives ceased trading, for various reasons within their first few years. Comparing this to data collected by Scott (1980) on conventional businesses which indicated that of those firms which failed in 1978, 53.2% were less than five years old, it seems in general terms, that, co-operatives appear to survive at least as well, possibly better, than conventional companies.

However, it is important to look beyond these figures to ascertain the cost of survival of the co-operatives. We return to the points raised above - degeneration of participation arrangements to a more structured form of organisation, self exploitation regarding rates of pay and number of hours of unpaid labour. The degeneration process or thesis will be discussed in more detail below.

Aston's, op cit, excellent study shows that in the co-operatives she studied, wages tended to be lower than in conventional businesses. Also out of a sample of eighty-eight co-operatives fifty-four (62.5%) were making a profit. Most looked financially weak with an Acid Test ratio ranging from an average of 0.42 (bookshops) to 0.995 (printers), largely

resulting from their relatively high dependence on loan finance, much of which was raised from their own work forces in the form of deferred wage payments. In some sectors the average co-operative depended on such loans to the value of up to four times the average annual wage.

It must be remembered, however, that statistics on survival of workers' co-operatives tend to be crude and should be treated and used with caution. Some co-operatives are financially sound, make healthy profits and pay good wages. Others present the opposite picture, but the same co-operatives do not seek high wages. However, it does appear that the survival rate of many workers' co-operatives is due largely in part to the willingness of their members, for various reasons, to accept lower than average wages and to work unpaid overtime.

This may explain a certain ambivalence shown towards workers' co-operatives by some trade unions and union members. It certainly influenced Thornley, when she concluded:

"There can be no doubt about the fact that the co-operatives sector is tiny, weak, unbusinesslike and middle class, and it characterised by sweatshops". Thornley, op cit, p173.

A rigorous comparative study of survival rates of conventional small business and workers' co-operatives - based on growth (or decline) in jobs; between employment sectors; between regions; and between regions with and without local CDA's etc - is worthy of attention. However at this point it is more important for us to turn our attention to the controversial problem of degeneration of aims within workers' co-operatives.

3.6 THE DEGENERATION THESIS

3.6.1 Introduction

The number of workers' co-operatives in the UK has been growing at an increasing rate since the later 1960's and particularly in the last decade which has been a period of particularly high unemployment.

This expansion in co-operative activity has been accompanied by a more marked debate concerning this form of enterprise. One of the central issues of the academic involvement in co-operatives in a capitalist society has been concerned with the 'classic degeneration theses'.

3.6.2 The Webbs

Dating back to 1921, workers' co-operatives have been viewed with scepticism as unable to survive in a sea of capitalism. It is popularly believed that the Webbs (1921) were strongly opposed to workers' co-operatives based on their belief that these enterprises were incapable of effectively organising production. They predicted that workers' co-operatives would either fail as businesses or degenerate into conventional forms of organisation with more highly structured jobs and little opportunity for participation in decision making.

"The most enthusiastic believer in this form of democracy would be hard put to find, in all the range of industry and commerce, a single lasting success. In the relatively few cases in which such enterprises have not eventually succumbed as business concerns they have ceased to be

democracies of producers, themselves managing their own work; and have become, in effect associations of capitalists on a small scale ..."

(Webbs, op cit 1921, pp463-4).

Thus the Webbs, op cit, envisaged three alternative 'fates' for workers' co-operatives. They would either fail, economically, as a result of their inefficiency and inability to be competitive; survive in a 'marginal' way by practicing 'self exploitation' through low wages and unpaid overtime working etc; or else 'degenerate', becoming more or just like a conventional company. According to the Webbs degeneration was inevitable because the organisation design found in workers' co-operatives gave free rein to 'human fallibility'. New comers to a co-operative would be treated as employees responsible to the found co-operators and might even be prevented from becoming members.

" ... whenever the original members find themselves in possession of a growing and financially successful business the temptation to take on additional workers merely as wage earners and not partners, has nearly always proved irresistible". Webbs (1914), p30.

The Webbs (1914) also made the assertion that non-workers shareholders would eventually obtain control over the business, and through the same, capital seeking logic, degenerate into "associations of small masters":

" ... the ideal ... of a self governing co-operative workshop ... vanishes into an indescribable industrial phantom ... in all cases and without exception (in the studied organisations) outside shareholders hold the balance of power. Nor is this all: the minority of working shareholders are practically disenfranchised by the disqualification to

action on the committee of management ... so called associations of producers are constantly resolving themselves into associations of small masters."

Potter (1891) pp147-8 (Beatrice Potter became, of course, Beatrice Webb).

Another reason why co-operatives found it hard to survive in a competitive environment, according to the Webbs (1914) was because of the poor quality of management, and their lack of adaptability.

"... the manual working producers have no intimate or accurate knowledge of the market for which they have to produce ... they are unable to see what he (the customer) will prefer - hence they are always finding themselves unable to dispose of their wares." S and B Webb (1914) p30.

Regarding adaptability:

"Self governing workshops have all been noticeable, more or less, for the slowness and reluctance with which they have reacted to any industrial change: the workers are biased in favour of a continuance of that to which their hands have become adapted" S and B Webb (1914), p30.

The Webbs have had considerable influence in the labour movement in the 20th century, particularly their critique of the "weaknesses of workers' co-operatives". Their assessment of workers' co-operatives as liable to economic failure; 'marginalisation' because of inefficiency resulting from poor management; lack of adaptability; or degeneration due to inappropriate organisation design which allowed the exploitation of worker by worker survived for over fifty years.

Not everyone at the time of the Webbs agreed with their conclusions. Catherine Webb (not related) for example suggested that they were too pessimistic. In a book prepared by the Southern Co-operative Educational Association in 1904 and edited by Catherine Webb, she stated that:

"An exaggerated view has often been taken of the number of failures of co-partnership societies. The early days of any new form of organisation show many failures. It was so with the early trade unions and the early stores ... The same is true of co-operative production, and perhaps more true in proportion as the work of organisation is, therefore, more difficult." (Webb, C, 1928, p138).

3.6.3 Jones Challenges the Webbs

More recent research, however, has cast doubt upon the inevitability and universality of the Webbs' predictions. Jones, op cit, has contended that the 'survival' rates of workers' co-operatives compares favourably with those of comparable capitalist firms. Woolham (1986) points out that although Jones, op cit, does not consider the internal organisational arrangements of the co-operatives to which he refers and is, therefore, not in a position to show how many of these co-operatives retained a democratic and participating structure, his research does demonstrate the ability of workers' co-operatives to compete effectively, and over long periods of time, in a capitalist market economy without experiencing economic failure.

In summary, Jones, op cit, contended that the Webbs (1914, 1920, 1921):

- * Had misunderstood the situation that existed when they did their research

Average participation (according to Jones) had increased between 1890 and 1913.

- * Regarding efficiency of workers' co-operatives, this did not compare unfavourably with equivalent conventional firms

- * Concerning the ability of co-operatives to undertake technical innovation, Jones found variations between co-operatives in different industrial sectors, with footwear manufacturers doing well, and printing firms doing less well compared with capitalist companies. Jones (1978)

The problem now becomes one of drawing conclusions from the contradictory views of the Webbs and Jones. It seems safe to say that the Webbs' were pessimists regarding the inevitable failure of workers' co-operatives. From his research Jones has claimed that some co-operatives can survive for long periods of time and perform as well as capitalist companies. Jones (1976, 1978). He has also produced evidence which suggests that survival was not necessarily achieved at the expense of degeneration, as predicted by the Webbs. However, it has to be conceded that many workers' co-operatives did not fail or degenerate.

Considering reasons for failures, often researchers (for example, Webb, C, 1928, Thornley, 1981) have tended to agree with Beatrice Webbs' early analysis (Potter, 1891) rather than the less comprehensive analysis she prepared with her husband (Webb 1920, 1921). Potter, Webb, C, and thornley, op cit, present four main reasons for failure of workers' co-operatives:

i Undercapitalisation

Many of the workers' co-operatives had to rely on the savings of their members and support from consumer co-operatives and trade unions. Consequently, they were often under-capitalised and not surprisingly vulnerable to the effects of a frequently fluctuating market (Thornley, op cit, 10).

ii Lack of Management and Business Skills

Many co-operatives were formed by tradesmen who lacked management experience and, therefore, were unable to bring business and management skills to their enterprise. (Thornley, op cit, 10)

iii Lack of Discipline

It was found that democratic arrangements impaired discipline amongst the workforce.

"Discipline must be maintained in every organisation, and it has proved not easy to maintain discipline where every man has felt himself to be one of the owners of the place, relieved (as he may have foolishly thought) from the obedience of a wage servant".

(Catherine Webb (1928, 138)

iv Poor Relationships between Management and Workers

The Webbs, op cit, stressed the difficulties in a situation where the workers, as share holders, could over-rule the manager. They also stated that it would be difficult for manual workers to see the necessity of paying an adequate salary for a manager of quality.

Despite the large amount of debate which has taken place concerning degeneration of workers' co-operatives, it is still not possible to assume or conclude that the views of the Webbs, op cit, have been laid to rest by Jones, op cit.

3.6.4 Fairclough's Contemporary Views

More recent research (Fairclough 1986) suggests that the socialist tradition has been subsumed too easily into the deterministic 'orthodox view' that co-operatives must degenerate or fail. According to Fairclough, op cit, the problem has been compounded by a further methodological and definitional one. The Webbs, op cit and prominent Marxists (eg Mandel 1975) have studied co-operatives from a perspective which inextricably linked politics and economics in social reality. A problem arises because the economics aspects of their political economy has been neglected in expanding their works into contemporary debate where degeneration is defined in almost exclusively political terms, ie it is concerned with which participating forms will best ensure democratic control.

Fairclough, op cit, goes as far as to say that the Webbs, op cit, economic analysis is especially neglected - largely because empirically-based economics is a barren area of co-operative research. In contrast to the neo-classical economic models of the Ward-Vanek-Meade school which draws abstract economic models of workers' co-operatives, in abstract market economies, the Webbs identified the market problems faced by co-operatives in the small business sectors where workers' co-operatives predominate. Their analysis indicated that, under certain conditions, the harsh market pressures in small business sectors which usually lead to degeneration can be avoided.

Considering the current expansion of the workers' co-operatives and the small business sector in general, this is a highly relevant issue not just for academics but for those creatively involved in small business.

Referring to the Webbs, op cit, Fairclough, op cit, goes on to state that " ... far from being partly a new reaction to old socialist arguments, the 'new tradition' which asserts that degeneration is conditional rather than inevitable is exactly what some of the socialists concerned were arguing in the first place." Fairclough, op cit, p2.

He also makes the distinction that orthodox discussion is centred on control, participation and democracy (see, eg Paton; 1985, Cornforth, 1985) and contrasts with that of the Webbs, op cit. As mentioned above, the Webbs, op cit, saw degeneration in terms of the emerging class divisions in the co-operative via the operation of market forces. Their views of degeneration emerged from their identification of workers' co-operatives in the market sectors in which small businesses predominated at the turn of the century. The Webbs, op cit, saw these

sectors as the 'sweated trades' working under harsh market pressures which reflected varying levels of dependence by small firms or outside capitalists. Also the Webbs, *op cit*, regarding the emergence of class divisions in workers' co-operatives in these sectors saw their characteristic conditions of work as a further issue in degeneration from a socialist stance.

Publications on workers' co-operatives by Potter (1891) and the Webbs (1914, 1921) have been accepted as the most influential British political argument that workers' co-operatives will either fail or become undemocratic (eg Jones, 1975, 24, Batsonte, 1983, 140, Bradley, 1980, 156). The most vigorous refutation of the Webbs, *et al*, view has been undertaken by Jones (1975), a modern opponent in the 'new tradition'.

However, a shadow has crossed the work of Jones, *op cit*, in the form of an assertion by Fairclough (1986) that his work represents less of an in-depth study of the Webbs' analysis on co-operatives than a summary and critique of their most deterministic conclusions. Certainly Jones makes a strong attack on the Webbs' work despite the brevity of his textual analysis. (See Jones 1975, pp23-4, 43). Jones does not comment on the analysis which preceded the Webbs' conclusions except to question their discussion of three particular societies and their view of degeneration which was concerned with participation. Fairclough, *op cit*, contends that this lack of a thorough appraisal of the Webbs' work and of their political context results in Jones providing a formalistic version of their views thereby observing key features of their understanding of degeneration. The indicator of participation which Jones argues is one such example. In Fairclough's view, *op cit*, this seriously undermines all of the major claims that Jones makes for his work.

In attempting to refute the work of the Webbs on survival rates and formal indicators of participation in British co-operatives after 1869, Jones uses the Webbs' data which was based on much international research. In contrast his own data is rather more limited, being derived from records of the Co-operative Productive Federation and their Congress Records. By his own admission these (data) are fraught with problems of definitional incommensurability and other inaccuracies. Jones (1975), p23.

From this data Jones went on to draw a formal definition of a workers' co-operative and used this to show that contrary to the Webbs' views, some co-operatives have survived for long periods of time. It must be realised, however, that the Webbs were willing to admit the survival of some workers' co-operatives but did make the point that these tended to be degenerate already. Reported in Fairclough, op cit.

Fairclough, op cit, goes on to question Jones' assertion a propos the Webbs, the following being the points made:

- * Jones' conclusions regarding the longevity of workers' co-operatives and conventional small businesses, is insupportable. This is because Jones did not consider industrial sectors. Until recently, co-operatives predominated in what were for a long time relatively stable and ^{now -}technologically changing industries, ie clothing, footwear and printing. (Oakeshott, 1979, 59). However, the market faces in emergent industries like motor vehicles will have important and different implications regarding the survival rates of small firms compared with workers' co-operatives in a

static situation. Factors such as differing competitive forces, levels of capital intensity, long versus short product runs are very important when examining small firm survival rates.

- * On the issue of participation and its degeneration, the Webbs dealt with particular co-operatives and chose the most democratic ones for further study. Jones, op cit, was more concerned with overall averages and thus his comparisons were invalid.
- * In addition to measuring average participation rates rather than individual life cycles of the most democratic types of workers' co-operative, there are other questionable factors concerning Jones' statistical critique of the Webbs' opinion on participation. Jones' data are obtained from various sources at different times, and this data not only concerned different co-operatives, but was based on different definitions of workers' co-operatives. This is suspect as a guide to average levels of participation and to the life cycles of individual co-operatives.
- * Jones, op cit, did not acknowledge the fact that the political interests of the Webbs led them to be particularly concerned with those workers' co-operatives which had been seen by a number of socialists and others as a challenge to capitalism. They wrote in the context of rival socialist programmes to their emerging Fabian programme in which co-operation was to be organised on a consumer rather than producer basis.

* Jones' criteria for questioning the Webbs' views on participation arise from quite different criteria. Jones' definition of workers' co-operatives was based on data obtained from the Co-operative Union and Co-operative Productive Federation in contrast to the Webbs' politically informed classification. An examination of Jones' evidence used to disprove the Webbs' degeneration theses shows that he ignores the tendency for non-member employees to decrease, although this event is suggested by the sources for the Webbs' degeneration arguments used by Jones.

* Most of the workers' co-operatives in Jones' appraisal of the Webbs' views on participation could hardly be considered 'Democracies of Producers' at all. Therefore, they do not match the small master vs democracy categories used in the Webbs' degeneration arguments. All of the co-operative in Jones' investigation were already degenerate in the Webbs' views. Reported by Fairclough, op cit.

In conclusion, there is strong evidence to cast serious doubt on the critique of the Webbs by Jones. He appears to have neglected the political dimension of the Webbs' work and his definitions of workers' co-operatives were dictated by statistical data used. As a result, categories for beginning degeneration were constructed by Jones which have been very misleading as far as evaluating the Webbs' theses is concerned. The Webbs were careful to refer to the most democratic forms of worker co-operative in their discussion - those which meet the ideals of such as the Christian Socialists in mid 19th century Britain, and which appeared to challenge most effectively "The Capitalist System".

"Their argument that the most democratic forms of pc (producer co-operative) tend to degenerate into class-divided associations of 'small masters' and second-class workers is consistent with their own evidence with that of the most democratic form of co-op offered by D C Jones in his statistical tables." Fairclough, op cit, p11.

Having cast serious doubts on Jones' critique of the Webbs' analysis, Fairclough, op cit, goes on to offer an alternative appreciation of their work which acknowledges the importance of the market and sectoral distribution. These factors underlie degeneration.

Although class divisions in workers' co-operatives is central to the degeneration debate, the different forms that the internal stratification of these businesses can take and under what circumstances can be further exposed by referring to this economic analysis of the Webbs - an economic analysis which, according to Fairclough, op cit, "has been ignored to date".

In their 1914 supplement to *The New Statesman*, the Webbs drew on Potters', op cit, analysis of the UK experience of workers' co-operatives, but also on a range of international research. In this work, the Webbs (1914) classified Individual Producers in which they referred to small capitalists external to large scale factories, p2. In this sector the workers' co-operatives predominated internationally. The Webbs further divided this sector into three sub-sectors based on their degree of dependence on outside capitalists - for capital, raw materials, machinery, premises and for markets, ie on wholesalers for the distribution of their products. In this classification, the Webbs

considered the degree to which they tended to be 'small masters', ie to reproduce the wage earner class.

i CRAFTSMEN

ii INDEPENDENT PRODUCERS

iii CRAFTSMEN "FOR THE TRADE"

Since categories (ii) and (iii) depend on outside capital under particular circumstances, they reproduce the worst elements of capitalism in the 'sweating system' Webbs (1914) p2. In these last two categories (above) the Webbs located the desire of groups, mainly craftsmen, to form workers' co-operatives. Their motivation to do so was based on a desire to escape the very market dependence which made these sectors of the economy sweated ones (p3). Here, not only did the wage workers toil in intolerable conditions, but the 'masters' themselves were only marginally better off.

The Webbs were very aware of the economic dependency of small firms, particularly co-operatives, on outside capitalists as a problem in its own right. They were more concerned, however, with the sometimes dire effects of impersonal market forces rather than managerial arrangements on the functioning of democratic processes within co-operatives. The Webbs' degeneration thesis suggested that workers' co-operatives would tend to reflect the market pressures which characterised the sweated sector. Thus, if co-operators view other co-operators as competitors rather than fellow 'Brotherhoods of Workers' there is a clear indication

of degeneration of the political ideal of class-based solidarity a propos equality. This situation has developed by virtue of the co-operative being in the market, irrespective of whether its particular market is prone to sweat-shops.

Thus the Webbs' economic analysis of degeneration in workers' co-operatives revolves around the interaction between market and producer relations. This leads to questions concerning how the role of management fits in to Webbs' analysis of degeneration and internal labour market segmentation. For the purpose of this thesis the 'role of management' question is of particular importance.

The Webbs' discussion of management on workers' co-operatives is strongly influenced by their elitist conceptions of managerial socialism. They believed that skilled management and market expertise could only be satisfied by the recruitment of 'qualified' managers and the construction of an organisation based on hierarchical division of labour (1914, 28-30). This created an additional segment of the labour market in response to the market pressures on the industrial sectors containing workers' co-operatives. Because managers would expect salaries based on industry norms the egalitarianism of co-operatives would be undermined. Not surprisingly, the Webbs' concluded that the pure workers' co-operative was imperative if workers' co-operatives were to compete successfully with conventional firms in the market. The Webbs saw clearly the dichotomy between efficient operation with its suggested hierarchies and job and organisational design which would enable co-operators to participate in the business; fulfil their social needs; and meet the popular conception of co-operative working arrangements.

3.6.5 Democratic Degeneration vis a vis Job and Organisation Design and Information Management

An important factor for this thesis is the size of co-operatives. Later discussion will show that the four firms studied in this project were small. It would not be controversial to state that whereas small co-operatives generally have not great problem in ensuring a widespread involvement of members, the same cannot be said of large co-operatives.

Indeed large co-operatives: " ... have had the greatest difficulty in developing forms of organisation that involve more than just profit-sharing, a weak supervisory board, and a participative management style." Paton (1978).

However, these factors are not found in every organisation but it is also true that some large co-operatives fall short on these issues, too, displaying organisational practices not found in enlightened conventional firms. (See for example, Eaton's (1983) comments on unrestrained Taylorism at Ulgar, in the Mondragon group.

Discussion in this sub-section has indicated that degeneration in workers' co-operatives can occur in three ways:

- i Economic
- ii Political
- iii Democratic

As has been touched upon earlier these forms of degeneration are not mutually exclusive but are interactive.

Later in this thesis, democratic degeneration will be discussed in greater detail in the wider context of job and organisation design and information management.

4 INFORMATION MANAGEMENT IN WORKERS' CO-OPERATIVES

AIM OF THE CHAPTER

This chapter traces the development of the concept of information management within the development stages of management theory.

The importance of information management is discussed particularly in relation to decision making and information processing. Workers' co-operatives are reviewed from the stance of information systems, their development and management.

The main problem encountered with and as a result of information systems are discussed and some possible reasons for these events are considered.

Finally, some of the more realistic themes and approaches to developing and implementing information systems in organisations, particularly workers' co-operatives, are described and discussed.

4.1 MANAGEMENT THEORY & INFORMATION MANAGEMENT

The concept of information management does not seem to have attracted the attention of the early management writers. The information and data they used was applied to specific problems and narrow situations.

4.1.1 Scientific Management

The earliest writers who developed the principles and methods of scientific management, emphasised task variables, production shop activities and worked on the assumption that economic incentives could motivate and regulate peoples' behaviour.

F. W. Taylor (1911) for example was very concerned with what constituted a 'fair day's work'. Prior to Taylor's contribution, the assessment, by management, of what a person could reasonably be expected to do in a given time was based on general impressions. Using time study data, Taylor was able to plan and organise work more effectively, reduce slowdowns; and increase output per person. He also changed the role of the supervisor by separating planning from doing and by developing functional foremanship. Thus the foreman became an information 'filter', receiving/seeking information, disseminating/selecting/analysing it; using this information to organise his workforce and set production schedules; monitoring on-going situations and comparing this with what had been planned and subsequently using this information to rectify the situation. Information management was done on an ad hoc basis depending on the skills and style of the particular supervisor.

At about the same time, Frank and Lillian Gilbreth (1912) were perfecting motion economy studies and methods of investigation leading to improved job methods. The Gilbreths are particularly well known for their work on motion economy associated with the basic human motions performed by bricklayers. Therefore the Gilbreths studies were associated with the development of more effective working methods, systems and procedures.

Henri Fayol (1949) concentrated his efforts less on work measurement and methods improvement and more on developing a theoretical analysis of what managers did and the principles they used to do it. His principles of authority and responsibility, unity of command, good order, esprit de corps, etc. are still common currency in management language.

"Therefore the rules and principles laid down by the scientific writers.... covered such issues as the requirement for clear, written definitions of responsibility; clear, unambiguous lines of authority (one man, one boss); written job descriptions; no span of control greater than seven employees; specialisation of employees to a small sub-section of the work, at which each becomes dexterous and skilled; management responsibility for co-ordinating employ activities; remove 'thinking' from manual jobs and make it part of management's responsibilities; etc, etc". (Bowey and Carlisle, 1979, p20)

All this has serious implications for information management. For example, although the improvements developed by Taylor and the Gilbreths were quantified and compared with current practice before being implemented; and despite the fact that work measured times were used to schedule work more effectively; and to facilitate better job costing, there was no evidence that time based and other forms of information were used on other than operational projects and problems.

The work of the Scientific School has important implications, also, for job and organisation design and this will be considered in detail in a later chapter.

However, it is worth adding that Drucker (1969) when writing about the 'knowledge economy' said: 'knowledge, during the last few decades, has become the central capital, the cost centre and the crucial resource of the economy' and 'productivity of knowledge has already become the key to productivity, competitive strength and economic achievement'. Similar views have been repeated since Drucker, op cit, aired his views, but, significantly, Drucker, op cit, went on to say that 'the most important step towards the "knowledge economy" was Scientific Management' and that this activity, which he described as being 'the most effective idea of this century' understood that 'the key to productivity was knowledge, not sweat'.

Since Taylor regarded workmen as mechanistic systems whose actions were predetermined like a clockwork mechanism (Checkland 1969) perhaps his famous text Scientific Management would have been more correctly titled Scientific Methods for Managers. He was after all more concerned with developing effective job methods, setting appropriate time standards for jobs, and optimum tool design.

The Scientific School was followed by the classical writers who were more concerned with 'Bureaucracy and Structure' in organisations than with information management itself.

4.1.2 Classical Management

The later classical writers who complemented the work of the scientific managers, focussed attention on the bureaucratic and structural aspects of organisations. They sought universal principles of management which could be applied in all situations.

For instance, Weber (1947) identified and analysed three general types of organisation stemming from the bases of wielding authority. He also pointed out that in modern society the bureaucratic type dominated because of its superior technical efficiency. Weber's, op cit, studies led to a series of sociological studies designed to examine the nature and functioning of bureaucracy, and especially to focus on the disfunctions of this kind of structure which had been excluded from the original studies (see for example, March and Simon (1958)).

As with the Scientific Management movement, there was little or no consideration of information management. The functions of management like planning, controlling, co-ordinating and organising were the important issues.

The next school of theorists reacted to the mechanistic approach of the classical school by pursuing a democratic and participative line of enquiry.

4.1.3 Human Relations School

The Classical School was followed by the Human Relations view led by Mayo and his associates (1933, 1946, 1947).

This was a reaction to the excessively structured classical approach and originated in studies conducted in the Hawthorne Plant of the Western Electric Company near Chicago, between 1927 and 1932. For a comprehensive treatment of the Hawthorne studies see Roethlisberger and Dickson (1939).

One of the most notable outcomes of these studies concerned first-line supervision and the effectiveness of democratic leadership and groups participation in decision-making. This work was reinforced by Lewin and his associates (1939).

Mayo's work, *op cit*, ensured the first major impact of the social sciences on management thinking. He stressed that workers must first be understood as people if they are to be understood as members of an organisation.

Subsequent studies concerning such issues as the social processes which interact with the formal management system; and the informal organisation which is to be found in every organisations' infrastructure; were carried out. Lewis, *op cit*. concentrated on group dynamics, attitude change and leadership style.

But still there was no serious treatment of the generation, storage, accessing and use of information. With the advantage of hind-sight one would expect to see reference to the importance of information flow particularly when dealing with group decision making. If people are expected to participate in group decision making then possession of appropriate information is imperative. This will be dealt with in a later chapter but it is now appropriate to consider the work of the behaviourists.

4.1.4 The Behaviourists

The general theme of organisations was taken up by others including Argyris (1957), Maslow (1954), McGregor (1960) and Herzberg (1966). Mayo, op cit, had stressed that workers and managers must first of all be understood as human beings. Argyris, op cit, was more concerned with investigating the inevitable conflict between the needs of the individual and the needs of the organisation. Herzberg, op cit, endeavoured to discover how the characteristically human needs of people for growth and development may be satisfied in work.

McGregor, op cit, challenged the underlying assumptions about human behaviour on which formal organisations have been built. He developed new approach to management of people based on a more adequate understanding of human motivation.

Nevertheless none of these writers gave evidence of much thought to the implications of appropriate information management. They saw that good communication is essential if results are to be achieved through people, the idea of information management lay largely dormant during this period of time.

It was not until the arrival of the systems writers who focussed their attention on the process of decision making that the importance of good information management became clear.

4.1.5 Systems Management

It is only in fairly recent years with the development of the systems approach to management that attention has focussed on the broad implications of information in an organisation. This contrasts with the generation of data for planning, manning and estimating in the pursuit of greater efficiency as pursued by the Scientific Writers and some from the Classical School.

The work of Chester Barnard (1938) was very important in the development of system theory. In analysing the functions of managers, Bernard identified their major tasks. In his opinion the task of managers was to maintain a system of cooperative effort within a formal organisational framework. He had fundamental points to make on decision making and leadership. Information began to take on a broader meaning - appropriate information is necessary for sound decision making and leadership is often founded on access to and use of information.

Barnard was followed by others like Von Bertalanffy (1950), Boulding (1956), Katz and Kahn (1966) on social systems and Forrester (1973) on industrial systems. Other contributions came from Stafford Beer (1953), Churchman (1957), Hertz and Rubenstein and Trefethem (1953), McCloskey (1954) and Morse and Kimball (1951) in the field of operational research. Wiener (1948) emphasised feedback theory which had a strong influence on systems theory. Then Johnson, Kant and Rosenzweig (1963) successfully related systems theory to management and the concept of information flows; information as a decision support system; and problems of information management grew in significance, particularly as organisations grew in complexity.

In conclusion it can be said that the systems writers recognised the classical emphasis on the functions of management (what the manager does) and accepted the behaviourists view that management involves people (individuals and groups). However, the systems writers focussed on management as the process of making and taking decisions. Since effective decision making depends largely on a reliable flow of appropriate information, information is a vital aspect of management.

Checkland, op cit, went as far as to say that 'the most significant development in Management Sciences have been the increasing influence of Behavioural Science' which he saw as a recognition of the fact that even the sub-systems of a management situation are social systems.

This short summary of management theory illustrates how long it took before management recognised that information as an input resource to any operating system, has to be managed. Later discussion will show, however, that with the current and growing use of computers in this field, insufficient attention is being paid to the role of information management. Rather the technological aspects of information are attracting more attention and absorbing vast amounts of money often without any real benefit to the organisations involved.

4.2 INFORMATION MANAGEMENT

4.2.2 Importance of Information Management and Information Systems

'Information is that which alters understanding' (Daft & MacIntosh, 1981, pp 207-224)

It is generally accepted that management decision making involves the use of information. Bentley (1982), Tricker (1982), Lucey (1987), Anderson (1986). Indeed information is a vital aspect of management.

Unfortunately texts and formal articles on information systems and information management have tended to concentrate on large organisations. There is a great lack of material on information management in small business, including workers' co-operatives. Management accounting publications are more numerous than those from production/operations, marketing and personnel fields. But then accountants along with systems analysts and management scientists are professional information providers.

On this note, Morgan (1978) p 7, sounds a warning note reminding us that a management information system is much broader in scope than an accounting system. Typical components of a wider information system might include:

- * Ongoing planning and sales forecasting
- * Cost analysis and cost control
- * Stock Control
- * Capital expenditure planning and control, and
- * Accounting control and planning

There also appears to be a convention that writings on information systems and information management involve computerisation.

To summarise, it was quickly realised that successful research of this topic was faced with two main problems:

- a A general lack of published material relevant to small business, and particularly workers' co-operatives.
- b Much of the available material concentrated on computerised information systems which bring in their wake an additional set of problems. These will be referred to below.

The first point is in its own way challenging to this researcher in that he has considerable latitude to produce written material of relevance to small business generally.

Since most workers' co-operatives have not yet computerised their information systems - indeed few appear to have effective manual systems judging by the research findings in this thesis - the published material tends to deal with the problems associated with computerised systems not totally relevant to this study. For instance, Dickson and Simmonds (1970) refer to computer-based information systems '... failing to fulfil the purpose for which they were intended, or failing to live up to the expectations of potential users'.

Markus and Robey (1983) stress the need to ensure organisational validity (the 'fit' between an information system and its organisational context of use).

Van Hee (1985) observes that management information systems designed to control all information flows of a company in an integrated way rarely become operational. Gradually many managers lose their faith in the possibilities offered by computers.

Thus it appears that in many cases computerised information systems do not meet the requirements of the organisation and conflict exists between the organisational system (people) and the information system (resource). Argyris (1977). This is usually caused by lack of management support and involvement at both the development and implementation stages. Earl and Hopwood (1980). In situations where the information system may be appropriate to the organisation, it is sometimes found that implementation is less than satisfactory. Gorry and Morton (1971).

Some of the problems of information management in workers' co-operatives may be different to those found in conventional organisations but they are just as perplexing. These will be discussed in section 4.3.5. The general problems associated with information systems will be elaborated in section 4.3.1.

Nevertheless, without appropriate business information systems, any organisation is sooner or later going to make costly mistakes. Business systems act as an aid to a manager's thinking when he/she is planning, organising, motivating or exerting control over an operating system.

Basically data is fed into the system and useful information comes out. Sometimes this information is in the form of warnings that, for instance:

- * stocks are dangerously low
- * batches are not being completed on time
- * sales are not as predicted

Information such as this is vital to management if a business is to be successful in a competitive market.

Since profit is essential for survival, it heads the list as a primary objective - this is what any firm (should) want to accomplish. (Anthony 1965, p 16). To achieve the desired or necessary profit level, all the functions in the business have to be co-ordinated. This will require an appropriate organisation structure particularly since the small business manager will be pressed for time and therefore must build an organisation which is supportive to his decision making activities, Sommer (1958), p 35.

The next two most important objectives of the small business are planning and controlling. Planning helps the manager decide what to do in given circumstances, while controlling facilitates the attainment of these plans, Anthony, op cit, p 6. Research has shown that the small business owner is remiss about planning. He tends not to take the necessary time to do it and, 'allows himself to be pressurised into hasty "ad hoc" decisions' Schabacker (1960) p 1..

All of the management functions require decision making and to make these decisions requires knowledge of the facts. To gain this knowledge the manager requires information. Therefore he should have access to sound and appropriate information and know how to use it, Row (1968) p 69.

'Accurate, complete information - effectively communicated - is the lifeblood of any organisation, the basis on which management must make decisions'. Staats (1968), p 11.

4.2.2 Information and Decision Making

Many writers perceive MIS as the basis of sound decision making, indeed some have developed decision oriented strategies for MIS design (Ackoff 1967, Zani 1970; Mason 1969). The accepted relationship between information and decision making has attracted much attention, resulting in normative MIS 'solutions' for various problems and situations. Some writers have gone as far as referring to MIS as Decision Support Systems (Gorry and Scott-Morton, op cit).

Earl and Hopwood, op cit, issue a cautionary warning, however, when they claim that the relationship between information and decision making has rarely been critically examined. They contend that the link has been presumed rather than described and analysed. There has been an uncritical adoption of the link between human rationality and the link between information and decision making. It is generally accepted, for instance that specification and analysis of information precedes decision making and that information does not vary across a wide range of decision situations.

'Information is there to facilitate and ease rather than more actively influence, if indeed not frustrate, the decision making process' (Earl and Hopwood, op cit, p 7).

In reality information processing in organisations is much more complex. Although the assumptions discussed above might simplify the information system design process, their relationship to the realities of organisational life is another matter.

The relationship between information and decision making has been looked at in more detail by Earl and Hopwood, op cit, by basing it on the analysis of Thompson and Tuden (1959). This adds to the traditional view of the link between decision making and uncertainty by classifying degrees of uncertainty and different types of decision making processes.

As shown in Fig 4.1, Thompson and Tuden distinguish between uncertainty (a disagreement at the organisational level) over organisational objectives and the uncertainty over cause and effect relationships, which are incorporated in particular organisational actions.

		UNCERTAINTY of OBJECTIVES	
		Low	High
UNCERTAINTY OF CAUSE & EFFECT	Low	DECISION BY COMPUTATION	DECISION BY COMPROMISE
	High	DECISION BY JUDGEMENT	DECISION BY INSPIRATION

Fig 4.1.

DECISION MAKING & UNCERTAINTY

(SOURCE: EARL & HOPWOOD 1980)

In a situation where objectives are clear and there is general agreement, and cause and effect are well known, Thompson and Tuden, op cit, stressed the potential for decision making by computation. As cause and effect relationships become less certain, that potential is eroded and decisions are made in a judgemental fashion. If the specification of objectives becomes uncertain, decisions tend to result from compromise, when cause and effect relationships are sure, and of a more 'inspirational' form when even that certainty disappears.

By presenting the ways in which uncertainties are viewed and located in organisations in this way, the range of decision options is of real significance in coming to understand the emergence and functioning of information systems in organisations (Earl and Hopwood, op cit, p 7).

In addition the framework is related to the perceptions of writers who have seen information processing as a means of reducing uncertainty (Galbraith, 1973) and the value of information as the degree to which it is capable of reducing uncertainty.

At this point it becomes tempting to investigate the presumed link between information and uncertainty, but this topic is too far removed from the main thrust of this reserved project. Thus this question remains to be investigated by others.

It is generally accepted that sound decision making will result in improved operating system performance. Again a note of caution must be recorded because the existence of any a priori relationship between formal MIS and organisational performance is not as clear cut as one might assume. For example, Grinyer and Norburn (1975) were unable to find a significant positive correlation between formal information systems and financial performance. Rather they found both formal information channels and informal decision making processes was associated with success. In their study Lorsch and Allen (1973) found that complexity of management control information systems facilitated upward information flows, but not downward flows. Both downward and upward flows were found to be associated with positive financial performance and alternatives to formal MIS, appeared to be essential.

Wildavsky (1983) also writes about formal and informal systems pointing out that formal information systems exist side by side with an informal personal network. A formal system is unlikely to advise the user where he can obtain additional data on what would be relevant to current concerns. 'What to believe often depends on whom you can trust' (Wildavsky, op cit, p 30).

Generally speaking, formal systems should be more reliable and information systems should be faster. But with the advent of automated MIS there is much more data about a wider range of subjects. Thus the number and range of decisions increase; but the time available to think about anyone of their decreases.

'As the number of levels (in the organisation) times the number of decisions at each level increases arithmetically, the number of data reduction summary inferences throughout the organisation increases geometrically.' (Wildavsky, op cit, p 30) (Parantheses are mine).

In a situation where the number of decisions to be made increases; where there is more data surrounding each problem; but there is less time for consideration, the people making decisions worry that they may have missed out inadvertently or been deliberately excluded from the MIS. In this situation of doubt and uncertainty, managers are liable to request more data which they hope will clarify things in the end. In fact each new set of data will probably raise a new set of questions about other data.

If each set were accurate they would be almost identical. Faced with a position where he is inundated with data and is extremely pressed for time, managers seek means of interpretation that are faster and more specific. They seek answers to the questions concerning what is right and reliable. Not surprisingly they consult colleagues and associates. It seems (according to Wildavsky, op cit, p 70) that the increase in computing capacity in the formal system has the paradoxical effect of encouraging greater use of informal means.

Although information is the key to decision making, it has to be taken in its proper perspective. It is only one of many tools which management can use. Indeed, information is of little value unless through its use better decisions can be made (Caspary, 1968, p 10). Final decisions are taken by managers, and information no matter how good, cannot substitute for the manager. (Roewe, op cit, p 64).

Regardless of a managers innate ability or insight, it is becoming more apparent that he needs all the support he can get in making decisions. Change in the competitive environment is accelerating and pressures are increasing. So too is the need for information (Staats, op cit, p 13).
It is a:

'Logical assumption if top management can be supplied with more "objective" and accurate "quantified" information they will make better judgements about the performance of their operating units'
Greiner, et al (1970) p 59.

Small businesses contain a wealth of information which can be available for use in decision making. But the manager must know how to use it; he has to know where it is; and which items he should use in making decisions. He must be familiar with every stage in the operating system and be able to integrate information usage, so that its use improves overall performance (Smith 1969, p 92).

It is also important to note that if the form of management adopted is dependent on the situation the firm is trying to cope with then there is no single set of principles for 'good organisation'. There is no ideal type of management system which can serve as a model on which every organisation should set its sights. (Burns and Stalker, 1961) This is particularly relevant to workers' cooperatives where some will work best under organismic arrangements and others less so depending on the technological level of their production systems and on the market situation. The form of organisation adopted (job and organisation design) will have important implications regarding information management, an issue to be discussed in detail in later chapters.

Information is not a cure-all for every ill. The burden for decision making rests with the manager. If he uses his information as an aid in decision making, his chances of success are greatly improved (Porche, 1909, p 92).

The importance of information in organisations is highlighted by Mintzberg (1972) p 39, whose research suggests that managers spend 80% of their time actively exchanging information. Nearly every activity involves information processing.

It is important however to differentiate between the major purposes of information - information for task accomplishment and information for control. According to Daft (1983), p 299, task information conveys knowledge and techniques for accomplishing a task. Task information is used to perform work, solve problems, and make decisions. This could be done through memos and in meetings of managers. Control information describes the performance of other people, departments, or the organisation itself. This form of information concerns target setting, activity monitoring, and feedback. This often takes place through reports.

Control information broadly describes Argyris' (1980) concept of organisation learning.

'Most management information systems are designed to use information that is objective, precise, generalizable, trendable and comparable. These very features generate conditions of distancing and injustice which, in turn, may lead individuals to distort the information in order to protect themselves. Hence a contradiction: the conditions required for useful valid information lead to conditions that may distort the information' Argyris, op cit, p 15.

This concept is discussed in greater detail in section 4.3.4.

An interesting study by Olofson and Svalander (1975) suggested that the 'newly poor' tended to invest heavily in additional equipment for internal visibility and control. In so doing they sometimes distanced themselves further from their external environment, as they sought more insight on internal situations. Although companies may be financially efficient they may be heading for economic disaster (Hopwood, 1979). Other studies have suggested that financially successful organisations, tend to avoid the rigours of ever more sophisticated information and control systems (Child, 1973, 1974, 1975; Turcotte, 1974). It seems they were very successful using informal planning and assessment systems (Child, 1974), multiple and overlapping flows of information (Granger and Norburn, 1975) and by continually renegotiated exchanges between members of the organisation (Georgiou, 1973). Earl and Hopwood, op cit, suggest that many managers use information in critical decisions that does not come from the formal MIS. Mintzberg's (1972) study found that senior managers select and prefer informal information processing most of the time.

To summarise what has been said so far, there appear to be a number of fundamental problems concerning information systems. These include a failure to meet the requirements of the management process; and high and increasing expenditure on information processing and emerging technological innovations. Pressures on MIS designers and users are there and are increasing.

As will be revealed in detail later in this thesis the information systems studies in the four co-operatives chosen were not computerised, nor formalised in the accepted sense. However, it will be demonstrated later that although an information system need not be computerised, there are serious risks in using a system which is informal to the extreme.

Nevertheless it must be recognised that even in a situation of a highly formalised information system, a great deal of informal information exists, is sought exchanged and used in decision making by all people in the organisation.

Informal information systems are discussed further in the following sub-section.

4.2.3 Forms of Information Processing in Organisations

Although texts, journal articles and discussion emphasise MIS, organisations process information in a wide variety of ways. Basically this information processing can be classified as routine or non-routine and official and unofficial. The resulting array is illustrated in Fig 4.2.

	ROUTINE	NON-ROUTINE
OFFICIAL	MIS MANAGEMENT ACCOUNTING SYSTEMS PRODUCTION CONTROL SYSTEMS PURCHASING SYSTEMS	ACCESS FACILITIES TASK FORCES LIAISON ROLES
UNOFFICIAL	BLACK BOOKS JUST IN CASE FILES	THE GRAPEVINE LUNCHTABLE CHATS

FIG 4.2 FORMS OF INFORMATION PROCESSING
(BASED ON EARL & HOPWOOD 1980)

The official, routine information processing base contains the MIS which are so much in vogue today. Many organisations depend on these operational systems on a day-to-day basis. With the application of computerised systems in so many business areas, they are an extremely important aspect of the business itself; for example theatre booking systems, scheduling and inventory control systems in manufacturing and transactions systems in the financial institutions.

The unofficial, routine types of information processing contain systems which meet local needs. On occasions these are used where the routine systems are inadequate; they may even maintain a defence against probing and queries from superiors and peers. Research by Hopwood (1973) and Simon et al (1954) suggests that such informal, routine information approaches to information processing are ubiquitous. Hedberg and Johnson (1978) perceived them as having value in developing and maintaining sub-cultures to question and challenge the status quo and stability. They also suggested that these systems offer more flexibility and discretion to managers than the official systems. In Argyris' view the unofficial, routine systems often represent actuality, provide concrete descriptions of unique situations, indicate time causality and provide private and tacit views. (Argyris, 1977) Earl (1978) suggest that they may have appeal because they are simple and may serve as unofficial prototypes to be built into an official routine format at some time in the future.

In addition another important information design variable is information richness - richness relating to the information carrying capacity of data. Information richness is influenced by the medium through which it is communicated. Face to face is the richest medium and it also provides immediate feedback. (Meherabiam, 1971, p44)

Telephone conversations are somewhat less rich - immediate feedback is possible, but the vital cues from facial expression and body language are absent. Written communications are less rich still, because feedback is slow and only the information that is written down is transmitted. The least rich information is conveyed through numerical reports. Numbers tend to be used to describe (often simple), quantifiable aspects of organisations. (Daft, 1983)

The differences between formal and informal information has important relevance for workers' cooperatives because much informal and face-to-face discussion will take place in a typical co-operative. However, the danger exists that this informal approach will be adopted in place of sound business information systems requiring accurate documentation and quantitative analysis.

The unofficial, routine forms of information processing are particularly important for the findings in this research project. This topic will be related to the purchasing information systems studied in the project.

The non-routine, official category includes specifically directed approaches to enabling the processing of information such as the building of the capability to produce ad hoc information and means for facilitating access to information. Included here are structural approaches to the processing of information which are effective. These are based on managerial actions and interpersonal activities which lead to things being achieved. Such structural mechanisms provide opportunities for cutting across internal organisation boundaries, for transcending hierarchical levels of authority and influencing others by discussion and persuasion. According to Earl and Hopwood, op cit, meetings, conferences and task forces enable information to flow downward and laterally in contrast to traditional MIS where it flows upward. Because there is less formality and structure, non-routine and unofficial information systems tend to offer management the opportunity to keep 'in touch' especially when the formal MIS drifts away from reality.

Unofficial, non-routine systems comprise many of the systems upon which realistic managers depend. Through them current information travels quickly, nuances are conveyed and the qualitative qualities of information are presented. It is common practice in management circles to tap the grape vine to discover what is imminent and important. Also to lobby someone on an important issue or to circumvent the official system managers sit at the appropriate lunch table. Organisational systems are often so complex that it is felt necessary to discuss critical issues informally with others and thereby re-construct the organisation in a more meaningful way.

In reality, information processing in organisations is a dynamic activity utilising and incorporating the four classifications of information illustrated in Fig 4.2. Organisations possess and indeed have a balance of the various information processing forms described, including informal and structured varieties. Perusal of literature suggests that the unofficial information systems are usually excluded from discussions concerning MIS. If the official MIS, usually computerised these days, does not meet the informational needs of the organisation, then the members of the organisation will develop parallel informal systems which are effective. This begs the question to what extent the imposition of an official MIS affects the organisation design and the jobs of those people in it. This question is directly relevant to this particular research project. However, the objective is not to decry the value and importance of soundly constructed MIS. Rather concerning the four workers' co-operatives studied, the absence of formal MIS, computerised and manual, will be probed.

The issue of information processing will be discussed later in relation to the information systems studied. It will be demonstrated that the four co-operatives tended to use unofficial means of processing information possibly because the routine/official system was extremely informal.

4.2.4 Information Management - In a Typical Workers' Co-operative

Organisation structure is based on definition of tasks (job design) and allocation of responsibilities (organisation design) to facilitate decision making. This requires an effective communication system to provide a flow of information between the points where decisions are made and action takes place.

The organisation structure will of course be affected by its purpose and objectives and by external factors related to legislation, social conditions and conventions and its relationship with other businesses - customers, suppliers and competitors.

Organisations with few employees will have fairly flexible working arrangements based more on expediency and less on the principles of job satisfaction. Large businesses will generally have further sub-division of the organisation structure to exploit the benefits of specialisation. As an organisation grows it tends to develop a hierarchical structure as each main function sub-divides at successively lower management levels into smaller units. Fig 4.3 illustrates this principle

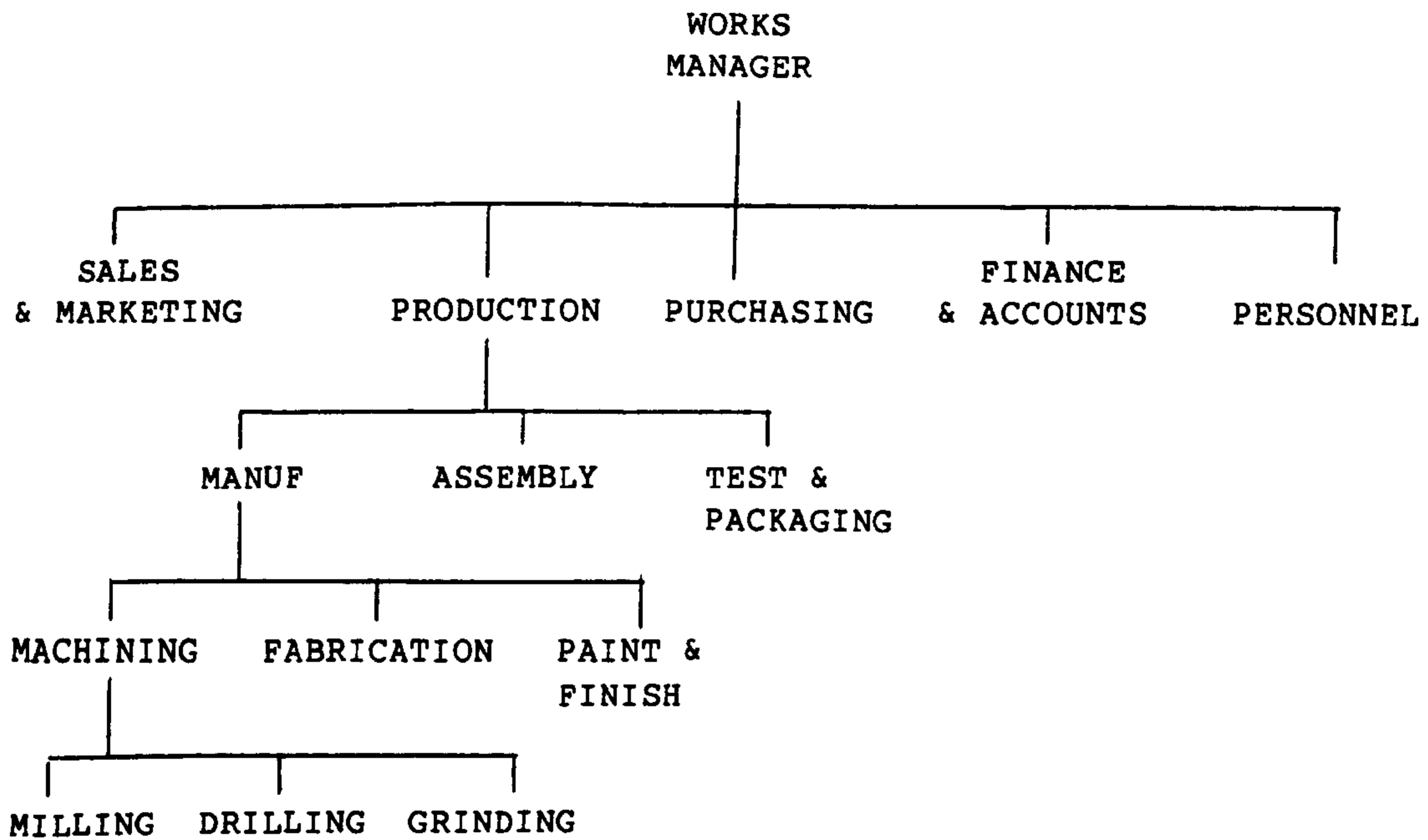


Fig 4.3 TYPICAL ORGANISATION STRUCTURE FOR A MANUFACTURING COMPANY

As mentioned above, organisation structure must be seen as a system for providing a flow of information for decision making. This information percolates down the structure and feedback of information takes place up through the same structure; from external sources, and laterally from other operating sub-units. Ideally it should be possible to identify an effective flow of information from one point to another in the organisation structure. In reality this does not always happen for reasons of system breakdown, personal misunderstandings and shortcomings, lack of co-operation, and for reasons of personality or lack of ability.

Since businesses organised on co-operatives principles implies participation by workers in decision making (or at least disclosure of information), the implications for information system design and information management is particularly important.

However, it is important to distinguish between categories of managerial activity concerning decision making. Since information systems exist to support decision making it is necessary to identify the types of decision made within particular categories of managerial activity. Two writers in particular have produced useful work on this topic. Anthony, op cit, and Simon (1960).

Anthony, op cit, developed a taxonomy for managerial activity consisting of three categories. He also points out that these three categories represent activities sufficiently different as to require the design of different information systems.

i STRATEGIC PLANNING

'Strategic planning is the process of deciding on objectives of the organisation, on changes in these objectives, on the resources used to attain their objectives, and on the policies that are to govern the acquisition, use, and disposition of these resources' Anthony, op cit, p 24.

It is important to note that strategic planning focuses on the choice of objectives for the organisation and on the activities and means required to achieve these objectives. Therefore a major problem in this area is predicting the future of the organisation and its environment. In addition, strategic planning normally involves a small number of high level people who operate in a non-repetitive and sometimes creative way. Clearly if all those involved in a workers' co-operative expect to participate in strategic planning decisions serious problems may ensue. If work is not to stop to facilitate the necessary 'mass' meetings then arrangements will have to be made to

meet outside normal working hours. An even more serious problem is that concerning the ability of the total workforce to come to a rational decision on strategic matters, particularly when most of their time, thoughts, and energy is absorbed by problems more closely related to the production process. This situation raises the crucial issue of the dichotomy of sound business practice and the democratic ownership of work.

At what level is it effective (and sensible) to involve the total membership in decision making. Job and organisation designs which seek high levels of participation by the members of the co-operative may result in poor decisions. These points will be further considered in the conclusions to this thesis.

ii MANAGEMENT CONTROL

Anthony's, op cit, second category is management control '.... the process by which managers assume that resources are obtained and used effectively and efficiently in the accomplishment of the organisation's objectives.' Anthony, op cit, p 27.

Three key aspects are stressed. First, the activity involves interpersonal interaction. Second, it takes place within the context of the policies and objectives developed in the strategic planning process. Third, the primary goal of management control is the achievement of effective and efficient performance.

This creates serious problems in a highly participative workers' co-operative and indeed in a conventional company in the process of re-designing jobs - arrangement in some co-operatives are very similar to semi-autonomous group working arrangements in conventional companies. This topic will be discussed in more detail in the chapter concerned with job and organisation design.

Anthony, op cit, made the point that different types of information system would be required for the three levels of planning and control. The problem is exacerbated if workers in a co-operative (or in an enlightened conventional company) are to participate in managerial decision making. It is unlikely that a conventional information system designed for managers will be entirely suitable in situations when workers are to make managerial decisions. This feature will be returned to below.

iii OPERATIONAL CONTROL

Anthony, op cit, p 69 defines this as 'the process of assuring that specific tasks are carried out effectively and efficiently.'

Whereas management control is usually concerned with people, operational control is involved with tasks such as manufacturing a particular part. 'There is much less judgement to be exercised in the operational control area because the tasks, goals and resources have been carefully delineated through the management control activity'. Gorry and Morton, op cit.

An analysis of these three categories of management activity shows that their information requirements are very different from one another. This difference is not just a matter of aggregation, but one of fundamental character of the information required by managers in these areas of activity.

Since strategic planning is concerned with setting broad policies and goals for the organisation, the relationship of the organisation to its environment is a central issue of concern. Also predictions about the future are particularly important. Thus it can be concluded that information need for strategic planning is aggregate information which is obtained mainly from sources outside the organisation. The variety of this information is quite large, but it does not have to be particularly accurate. Since strategic planning is a non-routine activity, the demands for this information occur infrequently.

In contrast to the information needs of strategic planning, the task oriented nature of operational control requires information of a well-defined and narrow scope. This information tends to be detailed and is gathered from sources within the organisation. Because frequent use is made of this information it must be accurate.

The information requirements for management control fall between the extremes for operational control and strategic planning. It is also important to note that much of the information related to management control is obtained through the process of interpersonal interaction.

It should be recognised that Anthony, op cit, has commented that the boundaries between his three categories are often not clear. Given the uncertainties and limitations, the categories are useful when analysing information system activities.

Gorry and Scott-Morton, op cit have summarised these general observations about the categories of management activity in

Fig 4.4

Characteristics of information	Operational Control	Management Control	Strategic Planning
Source	Largely internal	→	External
Scope	Well defined, narrow	→	Very Wide
Level of Aggregation	Detailed	→	Aggregate
Time Horizon	Historical	→	Future
Currency	Highly current	→	Quite Old
Required Accuracy	High	→	Low
Frequency of Use	Very frequent	→	Infrequent

Fig 4.4 Information Requirements by Decision Category

(From Gorry and Scott-Morton, 1971)

Since participation in decision making exists, or is expected to exist in workers' co-operatives the categories of management activity in relation to information become more acute than would be encountered in a traditional organisation. Because co-operatives tend to have too many objectives, it is extremely difficult to find policies that will satisfy them all. At worst, every decision becomes a policy decision concerning the ideals of the co-operative. As a result there is enormous opportunity for disagreement and conflict especially since the performance of a co-operative regarding many of the social objectives will be extremely difficult to assess. Paton (1978) suggests that these problems may be most acute in constructive co-operatives, started with high ideals.

The problem of organisational objectives is less serious in 'endowed' co-operatives when there is a degree of continuity with times when the firm was privately owned and there is usually an established pattern of management.

'Defensive' co-operatives are not entirely free of these problems because although their members may claim that the preservation of jobs is their main objective, many expect to be highly involved in decision making and they often pursue a number of egalitarian policies as well. Paton (1978), p 20, cites the example of one co-operative holding three mass meetings (in company time) in two weeks on the subject of its flat rate wages policy. A very costly exercise.

Much of the trouble on this issue emerges from the two systems of control existing in co-operatives. Whereas a conventional company is directed through a managerial hierarchy with individual responsibilities reasonably well specified, the situation in co-operatives is rather different. Here there are two systems of control. The conventional management hierarchy, on the one hand, and the representation procedures on the other. But this form of organisation raises the questions as to who decides what and how much actual say do they have? If a particular co-operative has a manager, what is he expected to manage and how, for example, are commercial decisions that directly concern members, to be handled? In co-operatives without managers as such, the picture becomes less clear if everyone makes or is involved in the making of decisions covering operational, management and strategic issues.

This obviously leads us into the subject of job and organisation design - an issue to be discussed in some detail later, particularly concerning its interaction with information management. Meantime the main problems encountered with information systems are discussed in the following sub-section.

4.3 PROBLEMS ENCOUNTERED WITH INFORMATION SYSTEMS

4.3.1 General Problems and Conflicts

It is generally accepted by both managers and researchers that MIS have been disappointing in that they have failed to meet expectations (Argyris, 1977) pp 113 -123. It is not uncommon on management courses to witness lively discussion, heated debate and general concern about the shortcomings of information systems.

'Managers frequently complain of information overload on the one hand and an information gap on the other' (Earl and Hopwood, 1980).

Those associated most closely with information provision - systems analysts; accountants, and operations researchers - continue to describe and explain their plans ... however those who have to use these systems often express feelings of scepticism, antagonism, hope and incomprehension.

In common with any input resource to an operating system, information costs money - often a considerable amount of money. According to Earl and Hopwood, op cit, companies often claim that their data processing budgets about 2% of sales turnover.

One major multinational company has estimated that 10% of its world wide corporate turnover is spent on information processing. Ten per cent of net assets on world wide balance sheets are believed to be spent on hardware investment and one particular UK multinational's data processing budget is claimed to be growing by 30% per year compound. It is not surprising that management is becoming very concerned with value for money regarding management information systems.

At the same time information processing technology continues to advance at a seemingly accelerating rate. Computers at the various capacity ranges continue to offer more power for less money and mini and micro computers threaten to change the face of data processing and possible of MIS.

This situation reminds the author of his boyhood. When he complained of a headache, a sore stomach or looked off colour he was liberally dosed with castor oil in the belief that 'if it did not do him any good at least it would not do him any harm'. The Castor Oil Theory seems to apply in organisations concerning their information systems, except that the 'no harm' costs can in fact be considerable.

'The law of diminishing returns comes into effect all too quickly in the search for the 'right' information - a search which is encouraged by the existence of increasingly sophisticated and comprehensive information retrieval and knowledge based management systems. It can easily happen that the search for information, or a fascination for information qua information, can become and end in itself' (Cronin, 1985, p 1).

What then are the main factors which constrain information management in organisations? Woodman (1985) makes the point that if information is developed from the associations between logic and raw data, the biggest constraints on information management are the limitations of computer software in representing these associations. Woodman, op cit, expects the 'fifth generation' to be better than the fourth. However, the problem of representing these associations may call for entirely new concepts of programming and may not be practically available for many more generations of software.

As has been stated earlier information management, once again, becomes bogged down with discussions about technology and its associated software. White (1985) clearly presents the seriousness of this bias when he comments on the Conservative Government's attempts to stimulate the UK information technology industry, largely through the designation of 1982 (and part of 1983) as Information Technology Year (IT '82). During this campaign any 'information' content was swamped by 'technology'. 'The Government seemed unaware that it was developing conduits but not content. To reinforce the analogy, the interest was in building the pipeline before the reservoir was enlarged, or users had taps'. (White, op cit, p 31).

Placing the information technology, information management debate aside, there are often important factors which constrain organisations from progressing to a more realistic position concerning information management:

* PEOPLE NOT KNOWING WHAT INFORMATION THEY NEED

The higher up the hierarchy a person is, the less predictable will be his/her information needs. Often managers do not know what information they need until a particular situation arises - and then invariably they want specific information extremely quickly.

Not surprisingly every conceivable piece of information relevant to the organisation, is stored just in case it is needed. Since collection and storage of information costs money there is a need to synthesise business strategy with the capabilities of information technology enabling realistic decisions, to be taken regarding the probable information requirements.

Failure to take action of this type will result in prohibitive costs, and possibly 'information overload' by those having to access it.

* INFORMATION INACCESSIBLE

Information can be held in different degrees of updatedness; at different levels of aggregation; with variable levels of accuracy; with different degrees of secrecy; in different ways (eg paper, microfilm, loose leaf files, 'black-books', in people's heads); in different locations (eg desk drawers, in filing cabinets or taped to the sides, on the back of doors, in people's homes); in different forms (eg graphs, tables, words, etc; and so on.

This lack of order or 'system' entails people having to depend on human memory and initiative to draw together all the relevant components of raw data to provide the information required.

In such a situation there is a need for an appropriate business system - manual or computerised.

This particular factor is highly relevant to the information systems studied in this research project and will be discussed in detail at the appropriate time as will the need for business (information) systems.

* INFORMATION "OVERLOAD"

This occurs mainly in large organisations where the skills and benefits of Organisation and Methods appear to have been abandoned. Many organisations suffer from a proliferation of paperwork particularly in an age of massive computer reports. It has never been discovered how much notion managers take of these tomes? Experience suggests it is seldom easy to uncover the information needed amidst so much other information. It is not easy to keep afloat in a sea of meaningless numbers.

In addition the costs of not only generating, filing, storing and retrieving information but the costs of manager's time involved are largely unknown or possibly undisclosed.

Evidence suggests that computerised information 'overload' is not yet a problem for workers' co-operatives. However, there is no cause for complacency because this problem existed before the comprehensive introduction of computerised information systems in the business area.

'There is a regrettable tendency to define the bulk of information management as being the day on which the Paperwork Reduction Act was entered upon the statute book of the United States of America. In reality information management is at least two thousand years old and has been masquerading under the name "military intelligence"'. White, M (1985)

* INFORMATION'S ASSOCIATION WITH POLITICS & POWER

It is possible for people to gain status or recognition within an organisation as a result of 'ownership' of information. This information may be closely guarded, seldom shared with others and often presented in an aura of mystery. The objective of the 'owner' being to create a feeling of dependence in the listeners.

As information flows in an organisation, people are entitled to certain 'bits' of this body of knowledge. In this way the 'pecking order' is established.

Workers' participation in decision making in a co-operative is an important issue and it is relevant to note that workers' propensity to participate in decision making has three aspects. First their willingness to participate will determine the amount of effort they are prepared to invest in participation in management and indeed the character of their contribution. Second the amount of effort exerted in participating will depend on their attitudes to participation

and their assessment of their power to participate. A worker willing to participate, may consider that there is little opportunity to do so, or that he cannot affect managerial decisions to any meaningful extent. Willing workers will exert their greatest effort when they believe they have the power to do so. Third workers capability to participate will be influenced by their knowledge of management and their ability to operate effectively in the organisation structure. They need to understand the issues being discussed and be able to express themselves effectively and persuasively. (Legrendre, 1969)

IN a workers' co-operative the workers' opportunity to participate in decision making will require a flow of appropriate information - a topic dealt with in chapter 7.

Co-operatives with a management structure may have an inherent problem in that managers may not accept the concept of workers' participation. One way to control workers' participation and retain control is to restrict the flow of information. It would be naive to believe that all managers, and for that matter key personnel in workers' co-operatives exercise the maintenance and distribution of power.

Paton put it very succinctly in a private communication to a group of co-operators:

"To be blunt about it: even if everyone below managerial level was given ten votes, the manager and directors would still be the most powerful group. Why? Because they have lots of other resources at their disposal to ensure that their proposals are accepted, and their ideas of what is best for the company will be acted upon. Votes and constitutions deal with formal power and that is only half the story. The other half is influence, an informal power. The most important sources of influence are information and expertise; a person who could persuade people that "If we do that, this will happen" would be powerful, even if he had no votes at all!" Reported in Robinson and Paton (1983)

The main thrust of this research project is to identify and assess how restrictions in flow of information changes or affects the design and working arrangements of the organisation and the jobs of constituted members.

* ORGANISATIONAL INERTIA

People in an information system context naturally resist change, largely because they are being asked to recognise that their skills are becoming outdated and they may have a fear of inadequacy to learn new ones. They have to have a 'felt need' if they are to support effective information management.

* INFORMATION "FLOAT"

This is the time-lag between an event occurring and the information confirming that it has occurred reaching the person who should know about it.

In some of the co-operatives studied in this project, poor information system design ensured that this was a common occurrence - the required information reaching the person needing it through informal channels long after the event had taken place - and sometimes it did not reach them at all. For a more detailed discussion of these factors, and others, please refer to Woodman, op cit.

In conclusion, it appears that many organisations are not obtaining the benefits they envisaged from information systems, particularly those that have been computerised. Apart from the capital costs associated with such systems there are the real time costs of living with a system which confuses already complex issues requiring clear decision making. However, the four cases in this research project will deal with the costs of having an information system which is informal to the extreme.

The need for management is to develop an information system which aids decision making by providing required amounts of appropriate information which is easily accessed and understood. In addition such a system should synchronise with the social/organisational system as opposed to the not uncommon practice of 'amending' organisational arrangement to accommodate the information system.

In the next two sub-sections of this thesis, factors related to these issues will be described.

4.3.2 System Designers' Views of Organisations

A number of writers have suggested that the major reason MIS have failed on so many occasions and have left in their wake a multitude of problems is as a result of the way system designers view organisations, their members and the function of a MIS within them. (Bostrom and Heinen, September 1977).

Many of these failures and problems have been attributed to organisational behavioural problems and despite the spending of increasing amounts of money by organisations, little benefit has resulted and systems continue to fail.

MIS is in essence an intervention strategy. To intervene is to penetrate an ongoing worksystem with the objective to improve its operation.

Similarly an organisation designer is a interventionist who sets out to change the organisation design set and by implication, individual jobs, roles and relationships. Thus the MIS designer and the organisation designer develop and implement their own planned change efforts. Thus when one intervenes in a work system two potential improvements are possible. First an improvement in task accomplishment, ie productivity improvement, enhanced quality of product, reduced operating costs, lower inventory costs etc. The second is an improvement in the quality of working life (QWL) of the people involved in the work system. QWL includes more than the basic issues concerning wages, hours and the physical environment - it now embraces factors leading to more meaningful and satisfying work, participation in decision making and opportunities

for learning. Thus a high quality worklife is one that contains an interesting, challenging and responsible job as perceived by the job holder.

From the above it will be seen that an organisation or an organisational work system eg. a department, can be described as a socio-technical system (STS). This STS comprises two systems which interact with each other - the social and the technical. The technical system is concerned with conversion processes, tasks and levels of technology used to transform a collection of system inputs to desired and planned outputs. The social system is concerned with the attributes of the people involved in the technical conversion process (eg. attitudes, skills, values) the relationships among people, reward systems and authority structures. The output from the work system will be related to the effectiveness, efficiency and suitability of these two individual systems.

They should not be designed independently of each other but in a unified integrated form. Furthermore alterations to either MIS or the social system in an organisation will upset or change the overall balance of the STS. This might well result in internal conflict and inefficiency manifesting itself in undesirable outputs from the system.

Lucas (1975) summarised the results of his empirical research involving over 2000 information system users in 16 organisations as follows:

'It is our contention that the major reason most information systems have failed is that we have ignored organisational behaviour problems in the design and operation of computer based information systems' (Lucas, op cit, p6).

The reality of the behavioural problem has been stated by many researchers in the field of MIS. (Argyris: 1970, Guthrie 1974, Hedberg, Mumford, Anderson et al, 1977, Kling 1973, Mumford and Banks, 1968, Mumford, Mercer, Mills and Weir, 1972, Pettigrew and Mumford 1975, Pollock et al 1976, Torreski, 1975, Whisler, 1970). It is also worth noting that similar views are being expressed in relation to Management Science and Operational Research (Rubenstein, Redman, Buker, Heinen and McCalley, 1967, Schultz and Slavin 1975).

The message is fairly clear - if action is not taken to understand and resolve these organisational and social system problems the large sums of money being spent by organisations on the development of information systems will give little benefit and many systems will fail.

From what has been said so far on this topic, it appears that in many cases, behavioural/social problems in organisations are the result of inadequate designs. It would not be presumptuous to attribute these bad designs to the way MIS systems designers view organisations, their members, and the function of an MIS within them ie system designers frames of reference. Such frames of reference cause faulty design choices and lost opportunities to develop better design alternatives.

Returning to the theme of current practice in MIS, Earl and Hopwood, op cit, are of the opinion that a major constraint on both current practice and the development of alternatives is that information processing is seen in too narrow and technical a manner. Information is viewed as a technical phenomenon, which has a problematic relationship with the complications of organisational arrangements and practices. Consequently our basic information concepts and language tend to support formalised, bureaucratic, standardised and mechanical information processes. Unfortunately these factors neither fit nor suit the realities of organisational activity - see studies quoted above.

This situation has particular relevance for this research project. If the information systems do not match and integrate with ongoing organisational arrangements and practices, then it is likely that the latter will be modified to suit the technologically aimed information system. This will have important implications for job design, organisational arrangement and relationships particularly vis a vis worker participations in decision making in workers' co-operatives.

Earl and Hopwood, op cit, make a very important point when they claim that there has to be less concern with management information as a technical phenomenon and increased concentration on information management as a substantive organisational phenomenon. Earl and Hopwood, op cit, point out that their theme is not just a cry from the roof tops to put management back into information systems. Rather they seek a perspective which is concerned with a broader appreciation of information processing in organisations.

Findings from this project will stress the need for workers' co-operatives to give more serious thought to the need for and development of appropriate information systems. Literature tends to suggest that in many cases too much energy is expended in pursuing social goals to the exclusion or detriment of operational issues in workers' co-operatives.

4.3.3 Socio-technical Systems Approach

Faced with the dilemmas and problems described above, the Socio-Technical Systems (STS) approach has certain attractions in that it views the organisation as a work system with two interrelated sub-systems, the technical system and the social system. This contrasts with the traditional MIS approach which views the organisation as an information processing system. Emery and Thorsand (1974); London (1976); Lucas (1975); Mumford (1971); Strassman (1976).

STS tends towards a Theory Y or human resource set of assumptions when considering the people within the work system (McGregor, 1960).

From a Theory Y perspective the worker is seen as one who wants to contribute to organisational goals, desires to use his/her skills and abilities and wants to influence his/her job and the conditions surrounding it. Theory Y assumptions about people influence not only what the design should include, but how the design is derived.

Taking its assumptions about people and its view of organisations the objective of STS design is to blend the uniqueness of the organisations technical demands in conjunction with the social needs and values of its members into an effective organisation with a high quality of working life. This contrast with the usual MIS approach which invariably attempts to adapt the social system to the technical system requirements.

An additional and important goal of the STS approach is to establish a flexible 'learning system' enabling the organisation to adapt and adjust within a constantly changing environment.

It is normally expected that implementation of an MIS will improve communication and control within an organisation. However, it is often overlooked that changes in one area of an organisation will have implications for other aspects or parts. For instance, the MIS usually creates the need for new job design and existing job re-design. The STS approach enables organisations to examine and consider the interactive effects when developing alternative arrangements and systems.

Boston and Heinen (December 1977) outline the phases in the STS approach.

PHASE I: STRATEGIC DESIGN PROCESS

The objective is to make the goals and responsibility for the project explicit. The problems of user participation and responsibility can be resolved by inviting users to focus on this stage. The users formulate and reformulate the goals and policies which guide system design activity over time. Invariably MIS design misses these points.

PHASE II: SOCIO-TECHNICAL SYSTEM DECISION PROCESS

Although this phase has received most attention in the past, its main focus has been on technical problems only. In practice analysis of the problem and the formulation of the design includes simultaneous consideration of the technical system requirements and those of the social system. This design process emphasises the change process in addition to the procedural aspects of design.

PHASE III: ONGOING MANAGEMENT PROCESS

This is an action research process through which the new system is constantly monitored to check if it is achieving its goals. When required, adjustments are made using the STS approach. This phase recognises that as soon as a new design is adopted, the consequences it produces require perpetual re-design. The implementation process should be seen as an iterative process.

If it is true that many of the failures of MIS projects can be attributed to organisational behaviour problems resulting from inadequate design, then the STS approach is an exciting way of changing systems designers' perspectives. Because it blends the technical and social systems, STS provides a much more realistic view of organisations and points the way to change them.

STS has particular attractions for workers' co-operatives attractions because it is generally believed that they have a dynamic social system. As the findings from this research project will show there is a need to develop appropriate business (information) systems in co-operative organisations. The STS approach possibly offers a way of doing this without violating the social expectations of co-operative members.

4.3.4 Organisational Learning

All organisations, whether private, public or co-operative wish to accomplish their objectives. Most are organised in a pyramidal form with specialised tasks and where power and decision making are centralised in a hierarchy. In such arrangements, information flows to ensure the co-ordination of activities and accomplishing the tasks.

However, Argyris (1976) draws attention to the process whereby organisations, even when designed and managed utilising the best in management theories and practices, will probably slowly deteriorate to a point where they will fulfil Gardners (1968) prediction that they will come to a grinding halt.

Management information systems (MIS) are a key strategy developed by management to improve the effectiveness of organisations. However, according to Argyris (1976) organisations are programmed for self-reflective learning in ways that maintain inner contradictions, that fortify organisational defences which hide these contradictions and that encourage management to make changes that produce, at best, immediate short-term improvements at the cost of long-term effectiveness.

MIS can be of benefit to the stage where they are used to solve problems whose solution requires confronting the inner contradictions and the dysfunctional learning processes embedded (and usually obscured) in organisations. Some problems MIS will resolve but these will be relatively superficial compared with those requiring a solution if organisations are to remain manageable. Argyris (1976).

This concept of organisational learning (Argyris 1976) is so important to the field of MIS and organisational effectiveness that the next few paragraphs will be devoted to it.

Organisations of every type are concerned with accomplishing their objectives. Most are organised in a pyramidal form where the tasks are specialised, where power and control are centralised in a hierarchy, and where information flows to support the co-ordination of activities and accomplishing the tasks. Prior to the 1960's, management was particularly concerned with making these organisational structures as efficient as possible.

Unfortunately with time, some counter productive forces designed into these organisations began to surface. For example, in order to co-ordinate the activities and efforts of employees, power is made resident in an hierarchy. This arrangement places subordinates in a dependent, submissive relationship with their superiors and they are not expected to use all their abilities. Employees who desire semi-autonomous working arrangements, and opportunities to use their initiative feel a sense of dissatisfaction and even failure McGregor (1960). Consequently they may become less committed to the organisation

and its objectives. On the other hand, employees who prefer a dependent and passive role are satisfied, but they also tend to be minimally productive. Argyris (1970).

These outcomes lead to impaired organisational performance subsequently leading to inquiry by management why their management principles are not achieving expected results. Argyris (1976) suggests that this inquiry has tended to focus on how to make the existing designs and principles more effective. The foundation of the designs, within which the inner contradictions lay, has not been questioned to the same degree. Argyris (1976) refers to the former approach as single-loop learning (making the existing principles and activities more effective). Inquiry that deals with the foundations and seeks out inner contradictions with a view to removing them he calls double-loop learning. Argyris (1976).

It is his belief that organisations require much more effective double-loop learning if they are going to halt and reverse the trend to gradual deterioration. This is because the major causes of ineffectiveness are related to the very foundations of organisational design and management.

Of particular relevance to this chapter are the hypotheses regarding:

- a the conditions that will tend to inhibit the effectiveness of the activities that are necessary to design and implement MIS.

b the production of valid information as a result of the conditions created if MIS were implemented in ways that presently are considered to be effective. Argyris (1976).

One of the purposes of MIS is to construct patterns of information from the history of the organisation and to impose those patterns upon the future. This facilitates the development of maps that reduce ambiguity, improve predictability, and consequently make the future more manageable by the agents of the organisation.

'The purpose of MIS as one corporate MIS specialist put it, is to reduce to a minimum surprises in the management of the organisation' Argyris (1976) p 11.

Construction of patterns of the past can only be produced from valid information resulting from reflection upon and inquiry into the past. The question follows, to what extent do systems inhibit or facilitate such reflection and inquiry, in order to produce valid information?

Argyris (1976) proposes that reflection and inquiry to construct maps called MIS will tend to produce valid information under the conditions described in the model as 'when errors are correctable'.

- i Information known and available to relevant agents.
- ii Discovery and correction pose minimal threat.
- iii When surfacing of information is threatening, but the surfacing of the camouflage would be even more threatening.

If condition (iii) exists, then information that poses a threat will tend to be given but responsibility for giving information will be placed upon sources external to the giver of the information and/or the givers of the information will tend to protect themselves by assigning responsibility for subsequent suppressed or camouflaged information to characteristics of the system that inhibit double-loop learning. Argyris (1976) pp 11-12.

Regarding the hypothesis concerning the likelihood of not producing valid information for MIS design and implementation as a result of reflection and inquiry, Argyris (1976) states:

'Reflection and inquiry will not tend to produce valid information when the information to be produced is not correctable, when it is being camouflaged and covered up, and when it is involved with activities that camouflage the camouflage, or with win-lose and cover-up games.'

If an information giver is pressed or forced to give information that involves the violation of these conditions, the tendency will be to cover up, camouflage the camouflage and invoke the win-lose games.

The point is reached where the conditions hypothesised to exist within the learning system of the organisation to inhibit the production of valid information that is threatening are now also hypothesised to exist in the relationship between informants and MIS staff specialists, and among MIS staff specialists when they endeavour to design, produce and implement an MIS.

But what is meant by organisational learning? and how can organisation be encouraged to learn?

At first glance, when we call for learning or change, we appear to be calling for something good or an improvement. Further consideration leads us to the conclusion that there are kinds of change that are not good and do not make things better. For example, deterioration, regression and stagnation. And there are kinds of learning, such as management's learning to deceive and manipulate the work force, which are not to be praised. Thus it is necessary to specify the kinds of change we seek when we talk of learning, and the kinds of learning we have in mind when we call for more of it. (Argyris and Schon, 1978).

It should be noted that organisational learning is not the same thing as individual learning despite the fact that the individuals are members of the organisation. Too often organisations know less than their members. In some situations the organisation seems unable to learn what every member knows. Also it is wrong to envisage organisational learning as the prerogative of a boss at the top who learns for the organisation.

'In large and complex organisations bosses succeed one another while the organisation remains very much itself, and learns or fails to learn in ways that often have very little to do with the boss' Argyris and Schon, op cit, p 9.

This is a paradoxical situation to say the least. Organisations are not merely collections of individuals, yet there are no organisations without collections of people. Further, organisational learning is not merely individual learning, yet organisations learn only through the experience and actions of individuals.

Two important questions are posed here:

- a What do we mean by organisational learning.

- b What is an organisation that it may learn?

"ESPOUSED THEORY" AND "THEORY IN USE"

The theories that an individual holds influence the way he behaves and relates to others. Many of these themes can be self-fulfilling or self-sealing in that actions based on the theory tend to elicit behaviour in others that reinforces, or provides evidence for the initial theory. This is a central part of the theory by Argyris (1964).

He states that each individual has a theory of action which need not be fully articulate, self-consistent or even consciously known by the individual; however it is the platform from which the individual acts. When an individual achieves the effect he desires he will attribute the success to some of the factors which preceded it. If at a future date, the individual wishes to create the same effect, he will try to do so by utilising the factors which he believes brought about his previous

success. If he has a number of successes his belief in the theory (or way of behaving) will be strongly reinforced. It will be difficult to change his views (or behaviour) on the issues once this theory is established.

Unfortunately, most of our ideas about cause and effect, particularly in complex situations involving other people, are hopelessly inadequate. The basic theories about human motivation and successful leadership were broadly attempts to formalize the sorts of theories that many people have about those issues, and they were found to be severely lacking.

Argyris (1984) initiates his theory from the observation that people usually have two theories of action, one which actually guides their behaviour, and another which they claim they believe. The theory of action which guides behaviour is called the theory-in-use. The theory which is communicated to others, Argyris (1984) refers to as the espoused theory. These two theories may or may not be compatible and individuals are usually unaware of any incompatibility between them.

Argyris' work has important implications for this research project.

Immediately two questions come to mind:

- * How do the two theories of action compare regarding a typical member's approach to participation in decision making in a workers' co-operative?

* How do the two theories compare and contrast regarding the flow and use of information in the information systems studied in this project?

No doubt there are other fundamental questions surrounding this issue and some of these will emerge in subsequent discussion.

Argyris (1964) goes on to point out that most people are unaware of the discrepancies between their theory-in-use and their espoused theory, because they have a theory-in-use which prevents this kind of learning. He uses a systems approach to explain that there are two kinds of learning.

First there is single-loop learning which is analogous to a sample control model - example below.

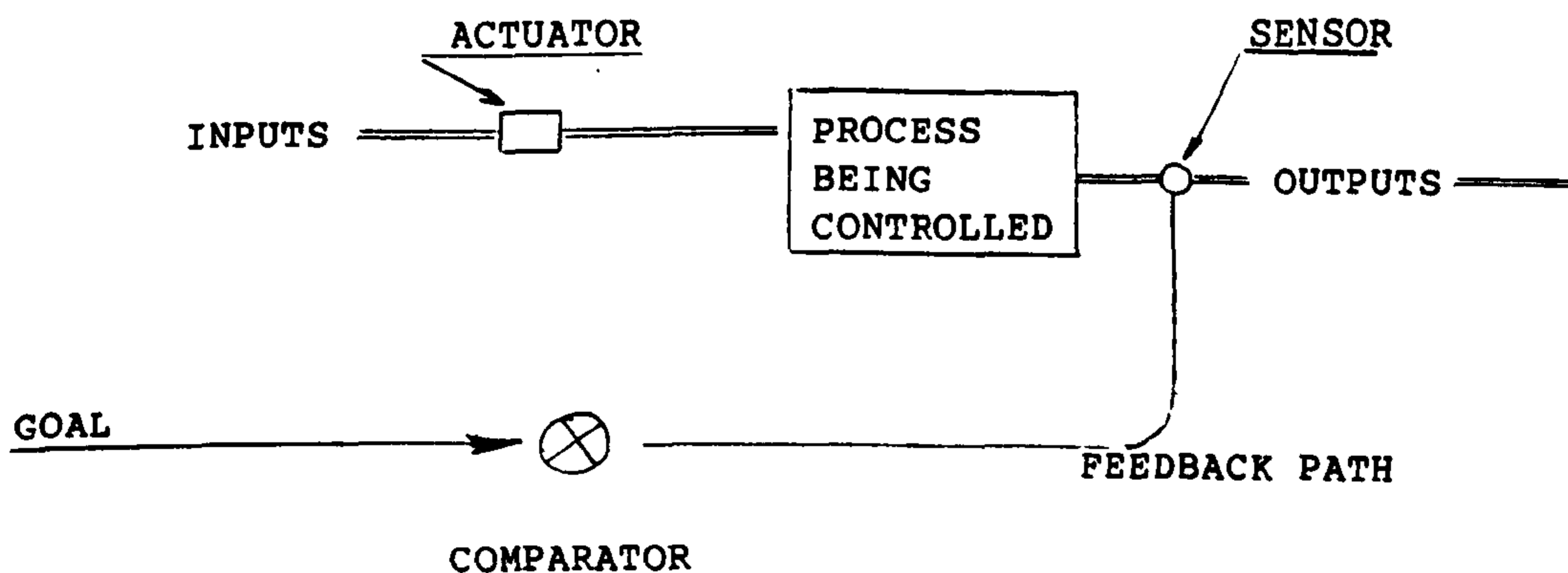


Fig 4.5 CONTROL DIAGRAM

T244 Technology: Managing in Organisations Unit 6, Open University (1975)

Using single-loop learning the individual adopts a certain goal, such as being able to motivate another person, and then tests various strategies for achieving the goal. Those seen to be successful are retained for future use, others are discarded. The setting of the initial goal is not questioned in this system. Although the individual may experiment with a wide range of strategies to achieve the goal, the theory he operates from does not raise the question of whether this is a worthwhile goal; just as a thermostat controls the temperature but does not question whether the temperature setting is correct. If it is found that the thermostatically controlled heating system still leaves people uncomfortable various improvements can be made. For example, the 'on-off' range of the thermostat can be reduced; a higher capacity boiler can be installed; bigger radiators can be fitted; and an increased capacity pump can be used. With all these modifications it may be found that the space is still uncomfortable. Obviously there are other variables which determine whether a space is comfortable (eg, level of insulation, radiant temperature, humidity, and air movement). Thus although the overall goal was correct (desire to make the space comfortable) the subsidiary goal adopted (controlling the temperature) was inadequate. In an organisational setting - a manager may have a well-founded overall goal of improving staff relations, but adopts inappropriate subsidiary goals in the process of trying to achieve the overall goal.

Although the manager may not question his subsidiary goals he may in effect frustrate himself in the process of achieving his overall goal. No amount of training in inter-personal skills will enable the manager to achieve his overall goals if persuading others is an inappropriate goal. For further discussion of this topic refer to Block II, Unit 6 of the Open University Course; T244, Managing in Organisations.

The second type of organisational learning referred to by Argyris (1976) is called double-loop learning. In this type of learning the goals are not taken as given but are in fact subject to examination. The two types of learning are illustrated in Fig 4.6

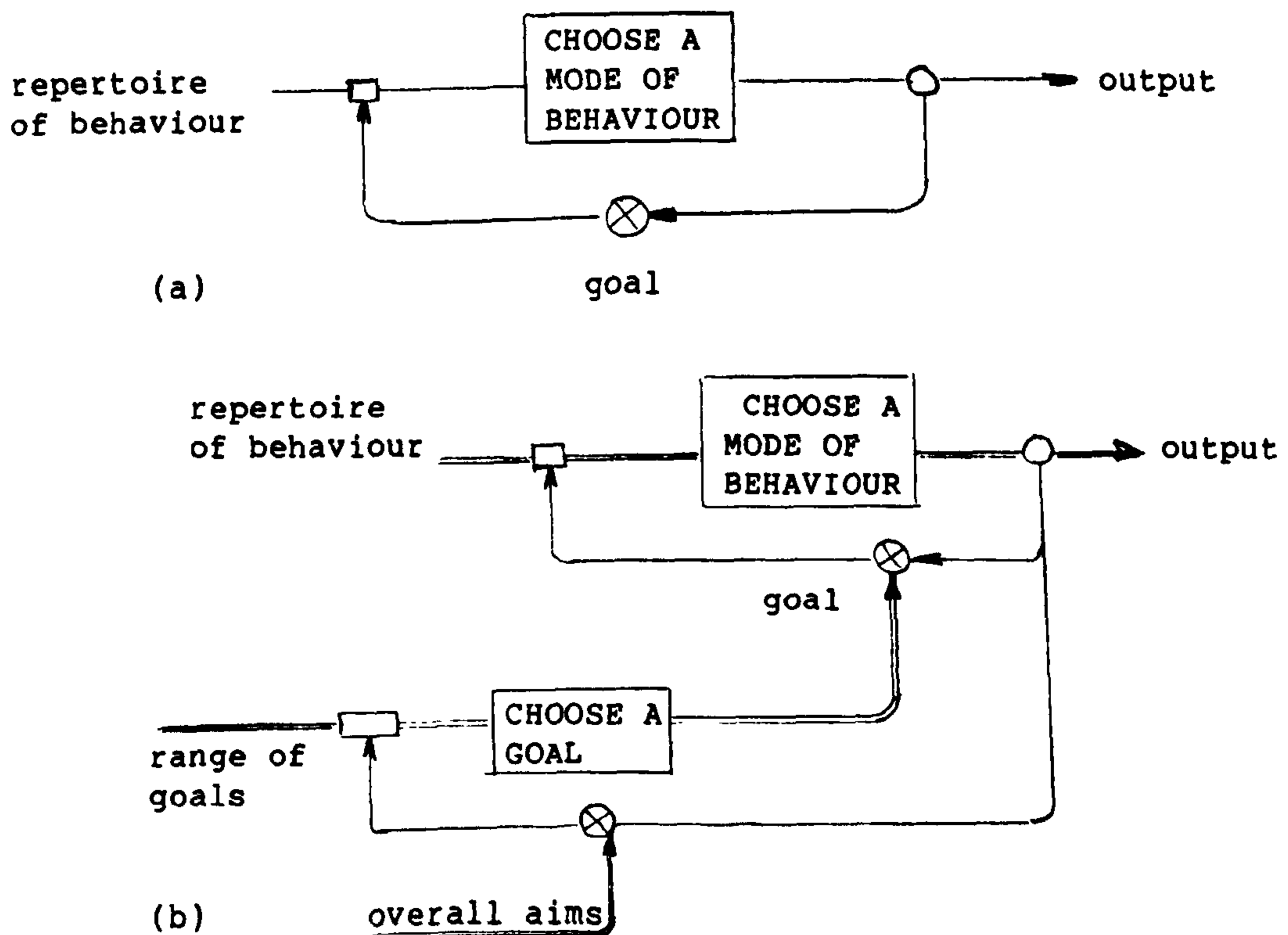


Fig 4.6 (a) Single-loop learning (b) Double-loop learning
T244. Technology: Managing in Organisations. Unit 6, P 95.
Open University (1975).

In the case of double-loop learning the output information is fed back to first of all the process for choosing an action and secondly to the process for choosing a goal. In the example of space heating given earlier the fact that the space was not comfortable even following better temperature control would result in a new evaluation of the goal of controlling temperature. In the example concerning the manager, if he concluded that persuasion was not improving his relationship with his staff, he would, according to double-loop learning theory, question whether persuasion was the proper goal to pursue.

The point made by Argyris (1976) is that most organisations are run in ways that produce a state of psychological immaturity in most of their members. There is an absence of opportunities for individuals to enhance their self-esteem and most bosses threat their subordinates in ways which curb their creativity, intelligence and the full use of their abilities. Argyris' (1976) research indicates that none of the managers of the organisations studied were aware that they were doing this. Generally their 'espoused theories' were liberal and participative in nature and adopted a person-oriented style.

Therefore, it would be wrong to say that managers are unaware of the theories related to self-esteem and participation; nor would it be acceptable to accuse them of malevolence. Rather they were well aware of the theories and could espouse them on demand. The problem was the dichotomy between intentions and practice, between the theory-in-use and the espoused theory. Argyris (1976) was well aware that in order to tackle this difference it is necessary to enable the individuals concerned to compare their two theories of action. This is very difficult. To highlight the distinction it is imperative that the

participants are enabled to adopt double-loop learning - however the problem is that the concealed theory-in-use is a rigidly single loop theory. Thus every attempt to teach a new approach is seen as another strategy with which to pursue one of the existing goals - the attempt to teach was not seen in terms of changing the goals.

When Argyris (1978) was developing his theory he arranged a series of seminars for the presidents of some US companies. In these early seminars the basis of the theory was described and the presidents were shown how it could be used to achieve changes of a beneficial kind. The sequel is described by Argyris in the following extract:

'The men became so involved that they asked if a special session could be held to include their wives. The session was scheduled subject to the condition that the wives would be free to decline to attend. The men assured the faculty members that they would be careful not to coerce their wives into attending. Two sessions were held, and in both cases all the wives but one said that they had attended because they had been coerced. "Are you kidding?" asked one wife with mixed feelings of amazement and anger. "I'm here because he wants me to be here!" Some of the men protested. They had struggled hard, they insisted, to make it a free choice for their wives. Some wives countered with actual quotations attributed to their husbands. The evidence was overwhelming. The wives had been coerced. At the end of the week the presidents requested another seminar. The writer agreed to design a seminar that would be based on two major learnings to date. The first was that there was a consistent discrepancy between the way the presidents described their leadership behaviour and how their leadership behaviour was seen by peers when they gave actual examples. Also there was the discrepancy between

what the presidents said and how they actually behaved in the seminar (both towards each other and toward their wives).' (Argyris, 1976, p 37).

Because of the conventional assumptions about leadership and management, and the difficulty in facilitating double-loop learning, managers who attend training courses on, for example, participation and situational leadership, find that their subordinates do not respond to their new approaches. This happens because the managers may have only changed his or her espoused theory and not the theory in use (actual behaviour). It could be concluded from this that managers are culturally unable to learn how to be more participative, they have deep seated assumptions which will use any new theory to further their own ends.

The topics discussed in this sub-section are highly relevant to information management and job and organisation design in workers' co-operatives.

This style of leadership has a strong influence on the group processes and the interaction of each group member. If the leadership style is conventionally authoritarian then the relationship between the leader and the subordinate or group members will give those members little scope for achieving job satisfaction and motivation is likely to be poor. The leader may then be tempted to pursue with renewed vigour his belief in the 'scientific management' approach - thus reinforcing the basic assumption behind the style of leadership.

This sequence of connective acts in a 'vicious circle', reinforcing itself. The beliefs that the manager sets out with will generally be reinforced by the responses which he elicits by acting in accordance with those beliefs.

Also there is the notion that at all levels behaviour is conditioned not only by the consciously known factors but also by unconscious factors. At the personal level this corresponds to the distinction between one's espoused theory and theory-in-use. At the group level there are often unconscious components to the group norms (taboo areas) as well as hidden agendas. At the organisational level there are both formal and informal groups.

Organisation learning theory has important implications for workers' co-operatives especially when one considers a typical managerial view of co-operative organisation. This view would appear to state that the achievements of co-operatives have been considerable but that it would be unrealistic to expect further developments. Thus co-operatives who foresaw co-operative arrangements as a means of changing industrial working through the elimination of drudgery and boredom and an erosion of the distinction between salaried and waged work and an awakening of the aspirations of employees are likely to be disappointed.

According to this view the main contribution by the co-operative movement has been its promotion of the link between the worker and his or her company. It also makes workers more aware of the problems faced by management, thereby reducing conflict between the two parties. Where management is accountable to the workers (in a co-operative), management is encouraged to adopt a more open participatory style.

'Common Ownership makes a good manager's job easier and a bad manager's job more difficult' (Paton 1979)

It seems from this viewpoint that the main problem facing co-operatives concerns the manual workers becoming fired by basic co-operative ideals to make an unwarranted challenge on the integrity of conventional management practice. Although the espoused theory of many managers may claim their wholehearted belief in open management which calls for disclosure of information to the labour force and encourages their participation in decision making, their theory in use will invariably differ. It is likely that the workers in such a situation will be faced with the 'realities of business' and the pressures imposed by a competitive market.

Here managers are adopting single loop learning by implying the only way to deal with the critical business problems and ward off the market pressures is to leave things in their hands. Irrespective of whether hierarchical management exists or one of a more enlightened and participatory nature, the realities of business practice within its market have to be faced. In a situation of double loop learning the manager would question whether his preferred management practice was the best and correct one in seeking success in a competitive market.

However, the foregoing comments do not imply a rejection of management in workers' co-operatives. Rather a workers' co-operative in common with any organisation has to be managed. This raises questions regarding job and organisation design, management style, competence to manage and state of business systems. These issues will be dealt with in detail later.

Sufficient to say at the moment that the managerial view in common with any theory or ideology by those in possession of power, is likely to be self-justifying.

In the following pages we move away from a general treatment concerning problems related to information management to one specifically related to workers' co-operatives.

4.3.5 Particular Problems in Workers' Co-operatives

As described in section 4.1 the concept of information management does not seem to have attracted the attention of the early management writers. The classical school focused on the functions of organising, controlling, directing, coordinating. Information is seldom mentioned either in its own right or as an essential element in fulfilling the functions.

Successors to the classical writers were very much concerned with the behavioural and human relations aspects of management. They saw that good communication is essential if results are to be achieved through people. However, the idea of information management lay dormant.

It is only in fairly recent years with the systems approach to management that attention has focused on information itself. The systems writers recognise the classical emphasis on the functions of management (what the manager does) and accept the behaviourists view that management involves people (individuals and groups). However systems writers focus on management as the process of making and taking decisions. Thus management involves decision making and consequently information is a vital aspect of management.

Worker co-operatives in common with all other businesses require accurate information to co-ordinate and control their resource inputs which are in addition to information itself, people and materials. This information may be quantitative in the form of statistical data or it may be qualitative based on subjective judgement or assessment.

Quantitative data would include such things as units of output per machine per day or the number of components requested or the standard cost per unit produced. Qualitative data might comment on the level of job satisfaction in a particular department or on the potential for management development.

In both cases information only exists when data means something to those receiving it. Also what is received must correspond to what the transmitter intended it to mean.

Although there is little documentation of information systems in worker co-operatives, their main problems and the conflict they cause, there is evidence in some case studies which suggests that the information systems are not always appropriate to the needs of the users.

Paton (1978) feels that the collapse of so many worker co-operatives over the years has been reflected in a failure to develop forms of organisation that reconciled:

- a the requirements of commercially sound management, with
- b an acceptable degree of employee participation.

Forms of organisation do not generally go beyond profit sharing, a weak supervising board, and a participative management style.

Here one would question whether managers who wish to oppose or restrict the influence of employees on commercially significant decisions that affect them, would do so by restricting the flow of information.

Since co-operatives have two systems of control:

- i a conventional management hierarchy; and
- ii representative procedures

Many of the problems emerging can be summarised in the question, 'who has how much say on what sorts of decisions?', which itself causes some important topics such as:

What is to be included in management? What are collective issues?, ie what role does information play in including or restricting participation and influence of non-management members. In a small co-operative of less than 8 people it would probably be a collective decision. In a larger co-operative of 20 people or more it might be an elite group who restrict the influence of others by restricting the flow of information.

Returning to the 'community' versus 'commercial' decisions, in times of prosperity the manager may encourage community meetings to deal with commercial issues that directly affect members ie, a desire to generate confidence in the structure (and to legitimate their own positions). Such actions will involve the provision of information. In contrast in a more difficult economic situation, commercial considerations may be critical. Here managers may use their powers as managers to keep effective control of similar issues, arguing, if need be, that it is their responsibility as managers to do so. What better way to achieve this than by restricting the flow of information. In any case management will usually decide whether a decision is a commercial one or a community one.

Robey (1982) makes the point that their control of information is a strong source of power, giving managers the ability to influence others. This is done through an ability to absorb uncertainty when others depend on information not obtainable elsewhere. The location and 'ownership' of information is of vital importance. For example disclosure of information to some groups and not others affects the power distribution.

Paton (1978) goes on to stress the importance of closing the competence gap between senior and ordinary members of a co-operative on matters of knowledge and experience. Beyond a certain point formal involvement in policy making is largely ineffective and possibly counter productive. Knowledge is gained by disclosure of information and its application to decision making and thus accumulates in the amount of experience gained by a person. Thus if employees are to be involved in decision making at a high level they need to have a broad basic awareness of the freedoms and constraints for the company and environment.

Employees are usually allowed to raise any matters they wish in general meetings of a co-operative. This is similar to collective bargaining in a conventional business but is not done in an oppositional framework. This has advantages and disadvantages. Advantages include a degree of flexibility on matters of direct concern to employees. On the other hand employees' concerns are promoted in a fragmented and negative way in opposing particular decisions. There is the danger that employees gain the impression of being 'listened to, lectured, and ignored'. There is, therefore, no focusing on particular classes of decisions over a period of time to allow a build-up of knowledge and the confident and competent use of information.

A major part of the problem is the characteristic of general meetings that stress social skills and information that are the basis of a manager's work. Thus managers nearly always 'win the argument'.

But of course not all information is formalised. For instance some writers suggest that once 'defensive' co-operatives are established and trading, the original leaders must accept that a primary requirement is now sound commercial judgement. If they are unable to provide this then they must either leave or play a less permanent role. The situation in four particular co-operatives is summarised in Table 4.7

Withdrew (with/with conflict)	Did Not Withdraw
Meridan Motorcycles Fashion Cooperative	Fakenham Enterprises Kirby Manufacturing and Engineering

Table 4.7 Withdrawal of initiating leaders
(Based on Paton, 1978)

An important question not usually asked concerns how much information goes with these people when they leave or is withheld if they stay.

Although management information systems are designed to ensure adequate control can be exercised over a company's operations, the information needs of co-operative members are not just related to decision making. Changes are required in the ways information is collected and the way it is presented. Such changes would:

- a allow groups to manage themselves
- b provide basic, up to date data that would inform workers about the commercial position of the company.

The level of detail of management accounts and forecasts often overwhelm employees. Perhaps mini and micro computers will change this by reducing the competence gap discussed above. If there is a lack of information and deferential workers are mesmerised by data one wonders whether managers attempt to educate or mystify. Facts, figures, explanations, elaborations, possible pitfalls and possible advantages are possibly presented not so that members can increase their comprehension of the issues, but in order to demonstrate the overwhelming complexity of the problem - and thus the importance of giving managers full distinction.

Co-operative working may require changes in management attitudes and behaviour.

In an interesting study of Fakenham Enterprises, Lockett (1978) found that under operating conditions Fakenham suffered from lack of sound operational information such as:

- matching types of orders accepted with production capacity
- market forecasts on which to base inventory and scheduling policies and practices
- costing data
- financial control data

Indeed it was not possible to itemise Fakenham's losses because there were no records. It is likely that the same situation existed in purchasing and cutting of materials.

Mr P who joined Fakenham as a part time manager endeavoured to introduce time sheets. However, at the same time Alice, the managing director, had a chaotically run office without proper paperwork and no financial control system. Book keeping was done by outsiders.

Martin Lockett of the Open University's Systems Group prepared costings and tried to show Alice the importance of costing and how to do it simply. As a result information sheets on the firm's finances were prepared for all members of the firm.

This brief summary of these two cases by Paton, op cit, and Lockett, op cit suggests that information is essential in a worker co-operative:

i in relation to the environment

- * market demands

- * informal contacts with the 'right' people

ii for successful internal operations

- * capacity planning and management

- * monitoring and scheduling policies

iii for the development of democratic and participative principles
'expected' in a worker co-operative

It seems that information of this type is generally lacking:

- a either it does not exist
- b it exists but in an inappropriate form
- c it exists but it is not distributed to those who need it.

In addition, co-operatives are faced with the following
problems particularly related to information management:

- a Because co-operatives endeavour to have some form of democratic organisation including participation by members in operational decision making, a traditional management information systems is unlikely to meet their requirements.
- b Lack of access to a competent information systems developer usually results in the organisation having no information system; a piecemeal and sometimes misleading system; or a system which restricts participation in decision making by members.

c Unlike those in the Mandragon Group, co-operatives in the UK appear to lack an aggressive approach to business. One outcome is that information systems which aid sound decision making are not available. Citing part (b) above is not sufficient defence in this matter because co-operatives can often have free, consultancy from the local polytechnic.

Undergraduates and post-graduate business students are available during placement and project periods in their courses. Such students are supervised by academic staff competent in business systems development. Co-operatives have been known to refuse such offers of help. This will be returned to towards the end of this thesis.

In sub-section 4.3.1, attention was drawn to the practice of managers (and others), as 'owners' of information, guarding and seldom sharing their information with others. This practice was perceived to increase their personal status in degree of power within the organisation.

This is just as likely to happen in a workers' co-operative as in a conventional organisation. However, as the findings from this project will show, much of the information storage and flow in the four co-operatives made use of 'black-books', unofficial files, and storage in peoples memories. This occurred in these particular cases because there was not available a formal information system. In the majority of instnaces, because formal systems had not been developed, the users took the obvious steps to develop their own personal systems to enable them to record useful data concerning their operations. Personal gain or enhancement was not the root cause of their activities.

5 (PURCHASING) INFORMATION SYSTEMS

5.1 INTRODUCTION

The previous chapter was concerned with the broad issues of information management and information systems. Some of the information management issues concerned with strategic, management and operational issues were highlighted.

Because the purchasing process was chosen for in depth study in this research project it is now proposed to first of all locate the purchasing process in its setting with other specific information systems.

Secondly, the purchasing procedure will be examined in manufacturing and wholesale/retail situations because the firms researched were engaged in these activities.

MANUFACTURING SYSTEMS

The basic operations in a production system for the conversion of raw materials into saleable finished products follows the following general sequence:

- 1 Product design
- 2 Purchase raw materials and components
- 3 Maintain a stock of materials and parts
- 4 Produce the product
- 5 Sell the product
- 6 Invoice the customers
- 7 Credit customer accounts
- 9 Pay suppliers

A similar sequence of activities can be identified in a wide range of operating systems:

See for example Fig 5.1

PROCESS	TYPICAL ORGANISATIONS
Design a service - provide the service	Not for profit and government agencies
Design - sell - provide the service	Service companies and some not-for-profit organisations
Purchase-store - sell	Retail and wholesale firms, some not-for-profit organisations
Sell - design - purchase - store - manufacture - store	Custom manufacturers, shop builders, military defence components, manufacturers, machine tool manufacturers
Design - purchase - store - manufacture - store - sell	Mass production and batch production; manufactures of consumer goods

Figure 5.1 Activity Chains
(Source: Murdock, 1966, p115)

Figures 5.2 (a) and 5.2 (b) show more clearly the sequence of events and the position of purchasing in relation to other activities in the processes concerned with manufacturing and retailing/wholesaleing. In addition it will be seen that purchasing and stock control are inextricably linked. This fact alone establishes purchasing as a key activity in any business, but there are other important factors related to this activity. Failure to perform well in these areas can be extremely costly. The areas concerned are summarised below:

- . Stock-outs will disrupt the production plan and will be wasteful of available production capacity in a manufacturing environment. In a retail/wholesale situation stock-outs will result in lost customers and reduced revenue.
- . Poor purchasing practices which do not seek out the best cash and quantity discounts and advantageous credit terms will lead to excessive material input costs in manufacturing and high prices and/a reduced profit margin in retail/distribution outlets.
- . Excessively high stock levels result in capital being tied up, unnecessarily leading to higher operating costs. Items which become obsolete in storage will also incur a cost.
- . Incoming items not subject to stringent checks for quality (and quantity) will mean substandard or out of specification items entering the production process. This situation may not be noticed until after value is added at a number of stages of production. The total loss then becomes much more than the purchase costs of incoming material.

In retailing/wholesaling, sub-standard goods will be sold to the customer at prices normally associated with a much higher quality product. It is not surprising that Marks and Spencer who do not have any manufacturing units, but are noted for product quality, become involved in quality control techniques and procedures at their suppliers' plants.

In addition the Census of Production confirms the importance of the purchasing function when it reveals that in 1981 the cost of purchases made by all UK manufacturing companies was 4.2 times greater than the wages paid to operatives, and 3.7 times greater than the wages and salaries paid to employees. (Business Monitor Report, 1981)

It is logical, therefore, that successful attempts to reduce this large cost item will have a dramatic effect on business results. The three main approaches to achieving this are:

- 1 Value analysis and value engineering to reduce and avoid costs and at the same time improve quality, value and reliability. GAGE (1967)
- 2 Improvement of quality of products in the conversion process.
Purchasing can contribute to this objective through improved procurement:
 - * by establishing authorised suppliers
 - * by providing clear product specifications to suppliers.

It follows that sound inspection of incoming materials to ensure that they conform to specifications agreed will further enhance business results.

- 3 Effective purchasing which calls for a professional approach to the subject. Purchasing has gained increased recognition from top management in the last couple of decades. It is now becoming clear that purchasing is much more than a clerical operation. It is a vital part of any organisation that buys materials, equipment, general supplies or services. (DOWST, 1973)

However, the most inhibiting factor which influences business, particularly small business, is there approach to purchasing. Too many people in too many places still consider the purchasing function to be one that can be mastered by almost anyone with a little experience. This belief is possibly based on the misconception that since we continually purchase things for personal use (as consumers) then we are equipped to purchase on a larger scale for an organisation.

Bearing in mind the amount of money spent on purchased items, to leave this responsibility in the hands of gifted amateurs, and not so gifted amateurs does not always make economic sense. (PARSONS, 1982, LYSOMS, 1981, BAILY AND FARMER, 1983, HILL 1987)

The following definition of a purchasing agent is commonly attributed to Elbert Hubbard.

"The typical purchasing agent is a man past middle life, spare, wrinkled, bald, intelligent, passive, cold, non-committal; with eyes like a codfish, polite in contact, but at the same time unresponsive, cool, calm and damnably composed as a concrete post on plaster of Paris cast; a human petrification with a heart of feldspar and without charm or the friendly germ; minus bowels, passions, or a sense of humour. Happily they never reproduce, and all of them finally go to Hell." (Quoted in Dunst, op cit p200)

Apart from being repellant, this definition is obviously grossly inaccurate. Nevertheless defining the qualities that make a good purchasing agent is a difficult proposition. The job of purchasing is diverse and demands many skills and attributes, making it difficult to develop an absolute checklist.

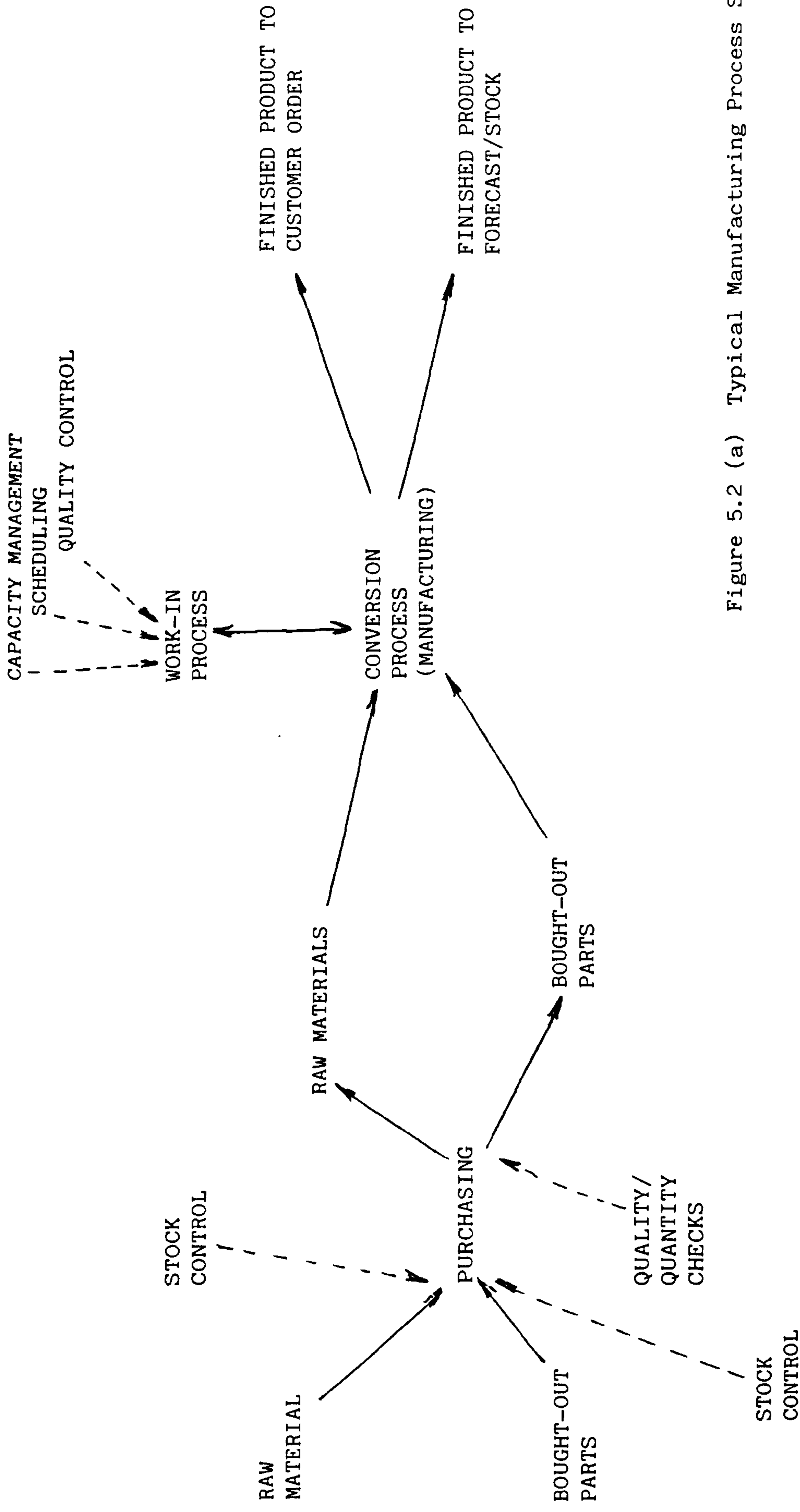
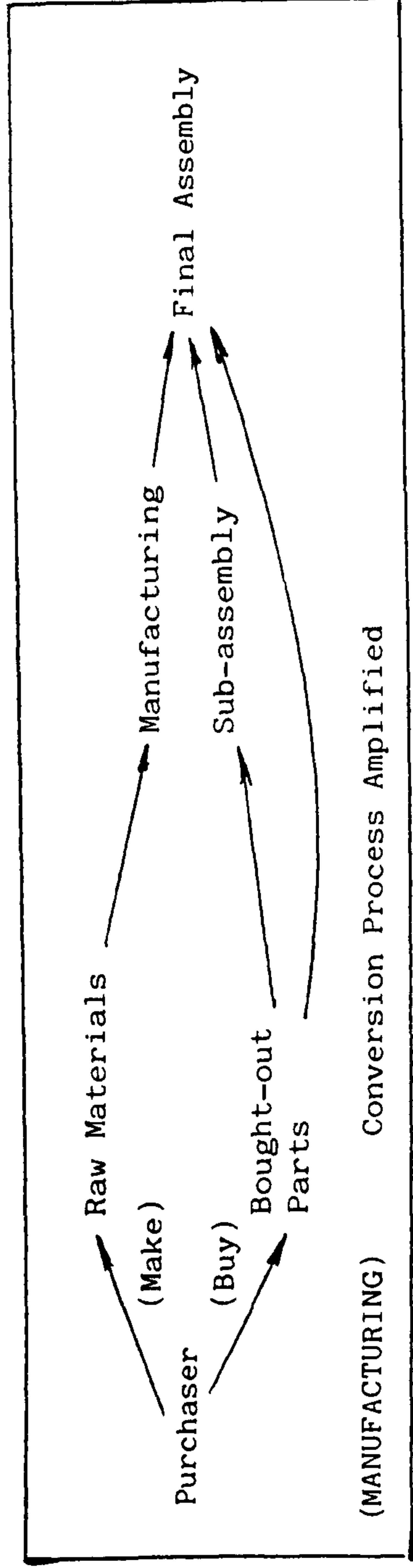


Figure 5.2 (a) Typical Manufacturing Process Structure



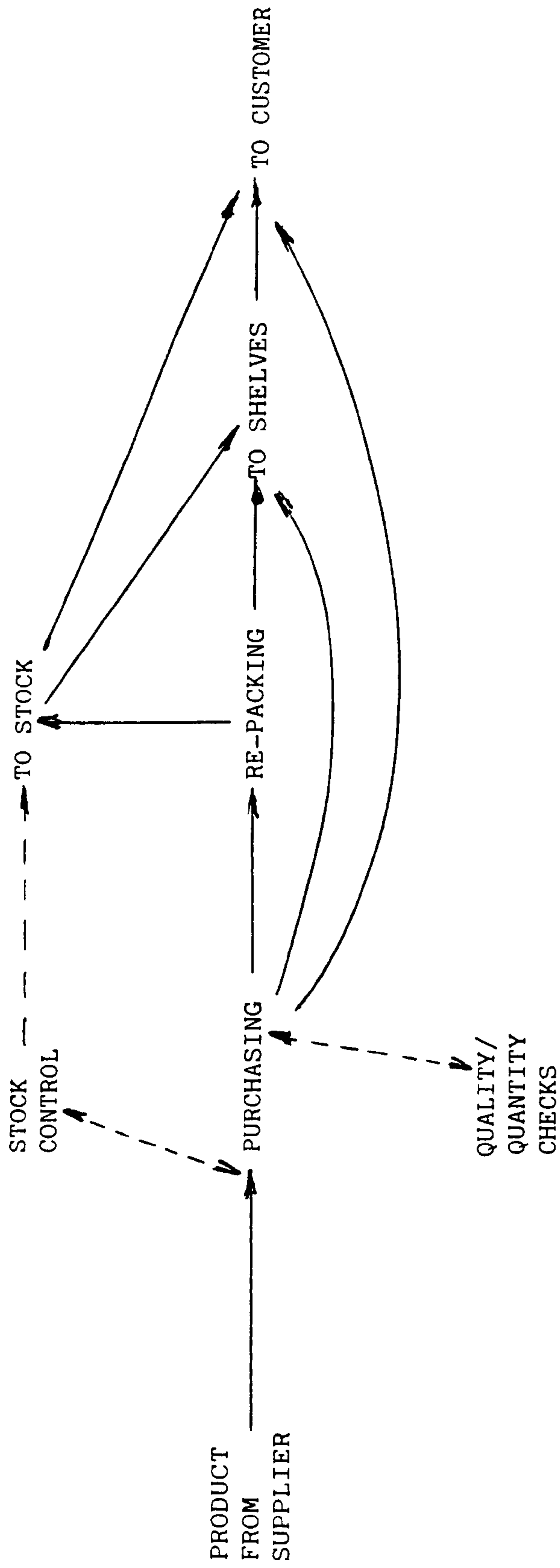


Figure 5.2 (b) Typical Retail/Wholesale Process Structure

5.2 PURCHASING RELATIONSHIPS WITH OTHER FUNCTIONS

5.2.1 Background

Taking a broader view of purchasing by placing it at the centre of a manufacturing firm's operation it becomes clear that purchasing has continuing relationships with all other departments in the firm as well as with the firm's suppliers.

Purchasing and other departments such as production, engineering, marketing and finance may view common problems differently. This is acceptable provided the departmental objectives are held objectively. Wind (1968) in applying the behavioural theory of the firm (as developed by Cyert and March, 1963) to the source selection decision draws attention to the quasi-resolution of conflict. Each group in the buying process has different goals. Engineering is concerned with performance; buyers endeavour to minimise cost; production seeks reliable delivery of all needed parts. The organisation "lives" with this conflict through delegation and specialisation in the various decisions that form the purchasing process.

Figure 5.3 provides a clear illustration of purchasing's range of interfaces within the organisation.

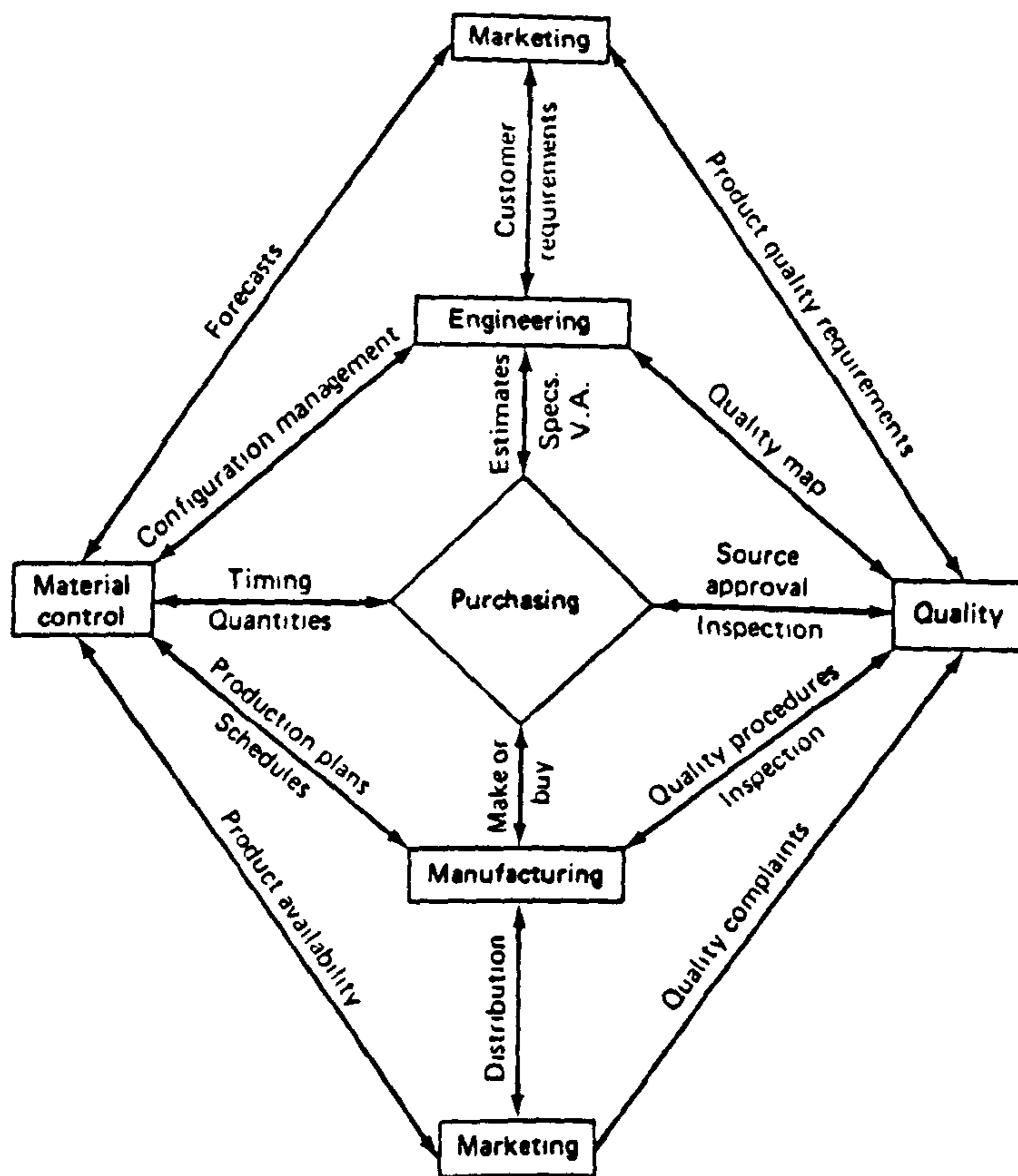


Fig 5.3: RANGE OF INTERNAL INTERFACES OF THE PURCHASING FUNCTION
 (Source: Dobler et al, 1984, p18)

Two of the four worker's co-operatives researched in this project were involved in manufacturing and had, in addition to production, marketing and finance functions in operation. Therefore, it would be fruitful to briefly summarise purchasing's relationship with these three major business functions.

5.2.2 Purchasing and Production

This relationship begins when the production department submits its manufacturing schedule and/or a material requisition to the purchasing department. Purchasing proceeds to translate these documents into a procurement schedule. It is essential that production allows purchasing sufficient time to purchase prudently. Failure to do so may result in higher than necessary prices being paid for materials; poor quality; and late deliveries. It may also lead to costly special production runs and premium transportation costs being incurred.

A situation of insufficient lead time for procurement can have catastrophic consequences in process type production processes (chemicals, cement, paint, flour etc) when equipment either runs at nearly full capacity or does not run at all. In particularly highly capital intensive continuous production plants, revenue and profit losses may be crippling in such an event and plant start-up costs can be considerable. Losses resulting from material shortages in mass and batch production units are not always so disastrous or apparent. The effects of a production shutdown at one particular part of the process can be reduced by astute capacity management. The indirect costs of such

shortages will however, be hidden in total production costs. If only a couple of machines in a section, of say fifty, are standing idle because of material shortage, it is unlikely that conventional accounting records will reveal the financial impact of this kind of slow profit-draining inefficiency.

Co-ordination between production and purchasing has many other beneficial effects. For example, alternative materials may save money on the grounds that they are as functional as current purchases but lower in cost; or they may be more expensive to buy but more economical to machine in the factory. For example, bronze is more expensive than steel, but savings in machinery time may more than offset the increase in material cost. Also the motor vehicle manufacturers are making increasing use of modern plastics in place of less durable, higher cost metals. (GAGE, 1967) In addition, there is an increase in capacity for highly skilled operators to perform other important work.

Another important task sometimes performed by a purchasing department is that of keeping raw material and bought-out-parts inventory levels at a level where the production process is not impeded through shortages. Conversely it is important that stocks greatly in excess of needs is not retained. Failure to keep stock levels as low as possible will incur storage costs and opportunity costs from committing capital to excess stocks. This point will be returned to in a later chapter when the Japanese approach to stock levels and deliveries will be discussed in the context of workers' co-operatives.

5.2.3 Purchasing and Marketing/Sales

The contribution to profit by marketing is well known. However, in the quest for sales, many companies do not notice the reductions in profit that can occur when the marketing/sales efforts are not effectively linked with the purchasing and production functions.

In a make to stock situation, the purchasing - production - sales cycle starts with a sales forecast. This forecast will normally comprise an estimate of sales based on historical information concerning a company's products, territories, and markets, plus amendments to their estimate to include changes the company envisages in future sales. These changes are reflected in alterations in marketing programmes and shifts in economic and competitive factors. The sales forecast is used to compile a production schedule, which in turn determines the purchasing schedule.

It is essential that changes in the sales forecast are transmitted to production and purchasing quickly. This enables them to change their schedules as painlessly and as economically as possible.

Conversely production should inform sales of change in the production schedules to enable them to alter their distribution schedule with minimum inconvenience to customers. Details of any increases in material prices should be passed by purchasing to sales, finance and other functional groups. Thereby sales and finance are able to evaluate the effect of such price rises in estimates for future sales quotations; on current selling prices; and on plans for future product lines.

Purchasing and sales must together take a balanced view of reciprocity (buying from customers). The true costs of reciprocity must be considered carefully. Buying from friends can have many advantages but not when such practices are at the expense of company profit or product quality. In two of the co-operatives researched in this project, the buying of materials from other co-operatives was pursued enthusiastically in the belief that it 'kept the money in the family'. This can be a delicate situation but a balance should be sought between the philanthropic buying and buying with the objective of reducing buying and material costs.

A purchasing department can be a mine of information for its sales force. By analysing the sales literature, policies and promotion policies of its suppliers, it is sometimes possible to improve the effectiveness of its own sales policies and procedures.

5.2.4 Purchasing and Finance

The relationship purchasing has with finance is different to its relationships with production and marketing/sales. This is because cost determinations cannot be hidden in the purchasing-finance relationship as they often can in the other relationships. Much of financial success of a company depends on good financial planning which is based, among other data, on data for accurate planning of working-capital and cash flow demands. Therefore, sound sales forecasts and accurate purchasing schedules are imperative. In addition to informing production and sales of changes in its schedule, purchasing should notify finance of these changes.

A favourable buying opportunity as a result of, for example, a cancelled export order should be carefully appraised financially. The opportunity cost of buying this stock must be weighed against the potential income from alternative uses of the firm's capital eg buying updated equipment on additional machining capacity or increasing sales and promotional activities.

In one of the co-operatives studied as part of this project, opportunities for advantageous bulk buying and specially reduced prices were carefully considered in conjunction with the 'accountant' before a decision was taken. (HEINRITZ et al 1986, DOBLER, op cit)

5.3 PURCHASING OBJECTIVES AND RESPONSIBILITY

5.3.1 Objectives

A well know definition of purchasing's objectives is 'to procure materials and services of the right quality, in the right quantity, at the right price from the right source'.

In common with many definitions this is an oversimplification and is a broad generalisation indicating the scope of the purchasing function. In reality it involves policy decisions and trade-offs which have to be resolved and agreed by the business as a whole.

The basic objectives of a purchasing department may be summarised as follows:

- 1 To maintain continuity of supply of materials, components and services to support the operating system.
- 2 To procure materials at lowest cost consistent with quality and delivery performance.
- 3 To minimise inventory costs within a framework of material internal availability and investment losses due to deterioration, obsolescence and theft.
- 4 To develop reliable alternative sources of supply.

- 5 To identify and locate new and alternative ideas, products and materials.
- 6 To develop and support good relationships with suppliers.
- 7 To encourage sound integration with other departments by ensuring information and advice is provided for them. .
- 8 Develop policies and procedures which permit accomplishment of objectives (1) to (7) above.

(Based on Dobler, op cit, Heinritz, op cit, Hill, op cit)

The purchasing process itself comprises the following stages:

- a Initiating the purchase
- b Selecting the supplier
- c Placing the order
- d Progressing the order
- e Receiving the goods
- f Paying for the goods

(Bailey 1976)

This process illustrates the degree of interaction the purchasing department has with other departments:

- a Will entail interaction with most other departments in the organisation
- b May involve discussions with department requesting the purchase
- c Involves stores personnel
- d Requires the services of the accounts department
- e Involves stores personnel
- f Requires the services of the accounts department

5.3.2 The Purchasing Process as an Information System

Anyone purchasing goods, equipment materials or services for an organisation has the responsibility to ensure that items ordered are delivered on time, are of appropriate quality and are at a suitable and agreed price. This implies interaction and communication with the person requesting the purchase (the requisitioner); the producer who uses the material or equipment procured; or the customer who will buy the goods offered or requested.

If these transactions are to take place efficiently within a reasonable cost framework, accurate information will be required. Basic information such as past consumption, technical specifications, costs, prices paid, delivery lead times etc will be used. Thus such information must be generated; stored; be capable of being accessed quickly; and be used effectively in making the various decisions associated with the procurement of any item.

Three basic requirements must be met:

- a Information generation must take place using such things as requisitions, purchase orders, and incoming goods reports.
- b Type of information must be defined. For example, quantity order and received, defects and deficiencies in order received, price agreed, how payment is to be made and quality required.
- c Information must flow to those who need it and it must be in a form suitable for further application. This pre-supposes that the receivers of the information (or those who access it) are capable of using it through competence at their job and skill in using appropriate business techniques.

Examples of the type of information being discussed includes that concerning accounts to be paid and stock records (quantity, grades and prices). (BAILY, 1983)

Operating a purchasing department to meet these requirements involves a variety of detailed assignments of both an administrative and a routine nature. Basic information of even the simplest purchasing system includes maintaining:

- . purchase records
- . price records
- . stock and consumption records
- . supplier records
- . specification files
- . catalogue files

(Heinritz, op cit, p12)

It is important, therefore, for any small business to develop and maintain appropriate procedures and paperwork systems to facilitate this task.

Figure 5.4 Summarises the flow of internal information in a typical purchasing process.

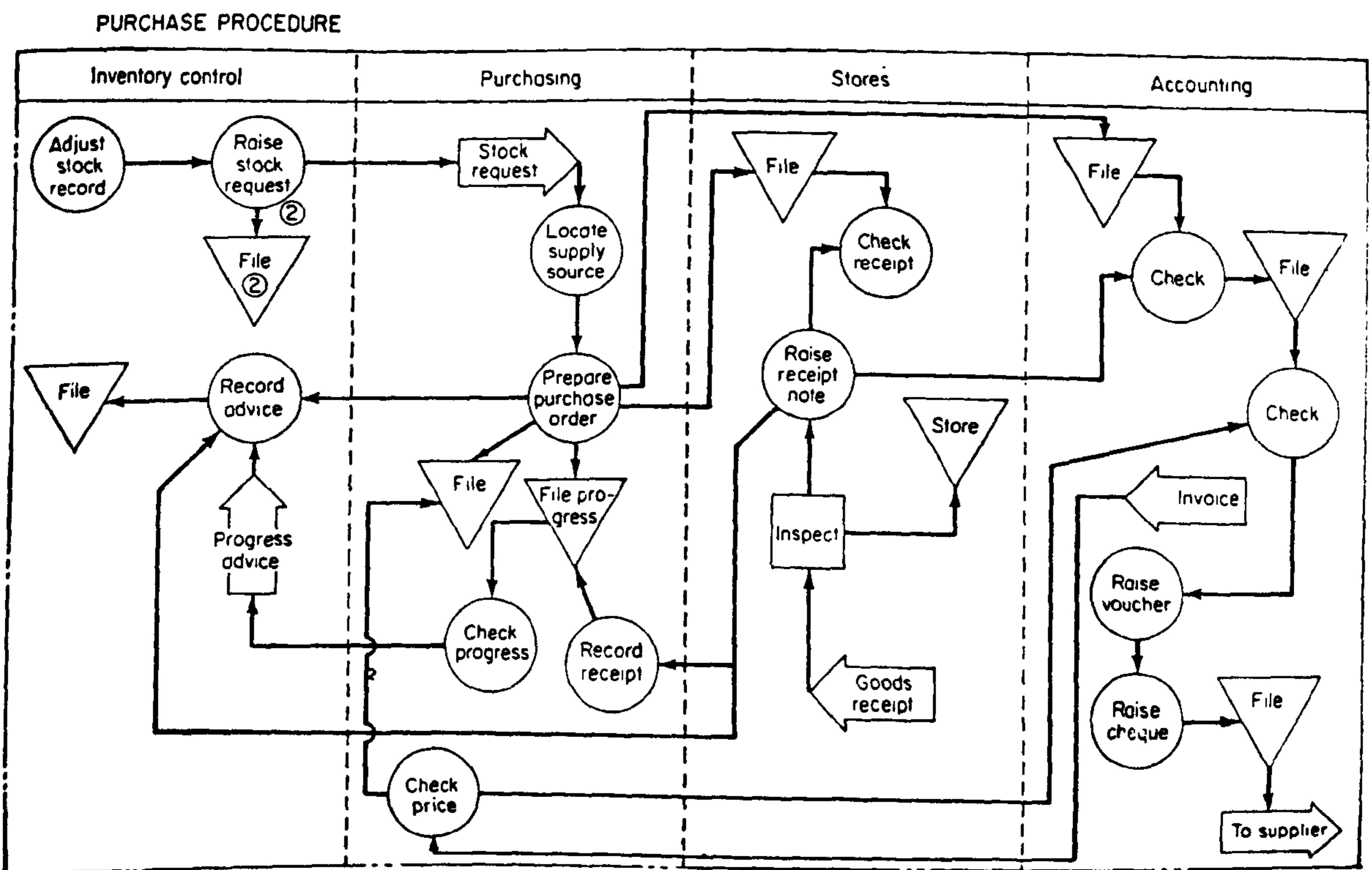


Figure 5.4 FLOW CHART OF INTERNAL INFORMATION SYSTEM

(Source: Unknown - course notes)

The information flow, storage points and checks most relevant to this research project concern the purchase order and its copies which emanate from column two (Fig 5.4) under the heading Purchasing. It will be seen that the information contained in the purchase order is used for the following main purposes:

- a The original is sent to the supplier and in effect becomes a legal contract. Sometimes the supplier receives an additional copy - usually referred to as an acknowledgement copy - which he is expected to return to the purchaser to indicate that he is willing to fulfill the requirements contained in the order.
Supplier copies are not shown in Fig 5.4 which deals with internal information flow and management only.
- b A copy is passed to inventory/stock control to enable them to update stock records.
- c Stores use their copy of the purchase order to enable them to check incoming goods to ensure that what was ordered has been received, in the numbers required and to the quality agreed.
- d Accounts use their copy to cross check what was ordered with what was received (as reported by stores) before payments are made. Accounts will be interested also in terms and conditions of payment.

(Heinritz, op cit. Dowst, op cit)

Figure 5.4 and the above four points are of particular relevance to the purchasing information systems studied in the four workers' co-operatives in this research project

5.4 IMPORTANT PROCEDURES

5.4.1 Buying Agreements

The type of buying agreement used will depend not only on the items being purchased, but also the terms which can be agreed with the supplier. When an order is small it is likely that buyers will have to comply with the supplier's preferences.

Scheduled Buying

The supplier is given an estimate of the forecast requirements for an item. Firm orders are placed against this estimate and price and delivery commitments will often be reflected in the total requirements estimated.

Blanket or Bulk Order

This order is placed to embrace the total demand requirements over a defined period of time. Orders of specific or various sizes are called-off against this as per a schedule or on an as required basis. This arrangement enables the supplier (manufacturer) to reduce costs by producing in large batches. These economies have to be balanced, however, against higher average inventory costs.

In the case of an order being cancelled, the buyer has to accept delivery of stock on hand plus any work-in-process at an agreed price.

Contract Buying

This involves a formal contract drawn up between a supplier and buyer which clearly states how and when deliveries should be made and paid for, the price, quality expected, cancellation clauses and agreements, limits to liability, and similar such issues.

Small Orders

Because the costs in time and money, in progressing small orders can be considerable in relation to the purchase cost of the items requested, a number of cost reduction approaches can be used:

- Combined Requisitions/Purchase Order

This can be compiled by the origination of the requirement. Copies are passed to the supplier, purchasing and goods inwards departments. Upper cash limits should be clearly defined for such transactions.

- Petty Cash

Small purchases are paid for in cash when the items are received or collected. Provided receipts are retained this works quite successfully and reduces paperwork.

- Telephone Orders

Orders can be placed by telephone with monthly statements being prepared and sent to the buyer. This reduces the need for purchase orders and individual invoices. Often a purchase order is given to the supplier during this transaction with the formal purchase order being sent later. However, he may declare that there will be no written confirmation and an order number may not be used.

- . Day-of-week Ordering

The buyer buys particular items on certain days of the week. This is sometimes combined with telephone ordering and on some occasions the supplier will 'phone the buyer at the same time each week. Examples include wholefood warehouses and ice cream distributors.

- . 'Laundry Lists'

These are real time savers for buyers in a wide range of organisations.

A laundry list is a purchase order or requisition order covering goods purchased on a repetitive basis. Item descriptions and standard packaging specifications are included on these lists. The person filling up the order has only to enter quantities required in the boxes or spaces provided on the pre-printed list.

The buying procedures described above will be returned to in a later chapter when the purchasing systems employed in the four co-operatives under review are described and discussed. In the majority of organisations of reasonable size the standard and formal purchase order is employed for most purchases. In the four co-operatives, buying was found to be less formal and the implications of new practices will be discussed.

5.4.2 Price Agreements

. Fixed Price Contracts

Most organisations prefer to place orders at firm prices. The invoice price will be the same as the price agreed at the time of ordering. Orders which can be completed quickly do not present much difficulty, nor do orders involving small amounts of money. However, when large orders are being placed on long delivery it can be difficult to agree a firm price. Design, development, labour and material costs are difficult to estimate three years in advance.

. Fixed Price, Subject to Adjustment

This can be used to overcome the difficulties of fixed price contracts. Adjustments are made on an agreed basis to absorb changes in labour, material and other specified costs. A typical example is copper bought on the London Metal Exchange. However, the implications of this type of agreement for some ingredients bought by one of the co-operatives (in this study) involved in wholefoods wholesaling will be explored later.

. Cost Plus Contracts

This is an alternative way to overcome the problems of some fixed price contracts. The buyer is liable for all costs incurred by the seller, plus a percentage of costs, by way of profit. This agreement provides the temptation for the supplier to incur high costs and should, therefore, be avoided if at all possible.

• Renegotiable Contracts

Sometimes referred to as Adjustable-price contracts. These incorporate price adjustment clauses which allow the buyer to renegotiate the contracted price in the light of subsequent events. Published indices of labour and material costs provide a formula for calculating the change in price due to increased costs. This data can be found in, for example, 'Trade and Industry' and 'Department of Employment Gazette' (HMSO).

(Baily, op cit, Hill, op cit)

So far we have reviewed the mechanistic arrangements and practices for placing orders with suppliers. As with most business procedures, the purchasing process is much more an organisational process involving people who do not always strictly follow the obvious procedures. This topic is discussed in the following section.

5.5 THE BUYING PROCESS AND ORGANISATIONAL BUYING BEHAVIOUR

5.5.1 Introduction

So far this chapter has described the purchasing function and has discussed its relationship with other major functions in the organisation. However, although it is important to consider the objectives, responsibilities and procedures of the purchasing function there is an addition to these mechanistic aspects which centre largely on technical and economic influences, an organic process. Traditional attempts to explain organisational buying decisions and processes have used the assumptions of classical economic theory on the "rational" "economic" buyer. In contrast a more organismic approach takes into consideration "emotional" and "non-economical" determinants of buyers' decisions. It seems plausible, therefore, to assume that organisational buying decisions are subject to the effects of "emotional-non-economical" factors as well as rational economic determinants (Wind, 1968).

Organisational buying decisions are made by individuals who fulfil a role within an organisation. To understand the organisational buying process, therefore, one must understand both individual and organisational decision making. The majority of industrial buying patterns and processes have been, until comparatively recently, of the descriptive, case study variety. Early exceptions include Cyert, et al (1956) Howard and Moore (1963) and Levitt (1965). These authors have attempted to analyse the industrial buying process with a view to identifying and assigning priorities to the variables which are important in the buying process and to uncovering causal relationships among them.

5.5.2 The Buying Process

From a research project concerning the industrial buying process, Webster (1965) developed a model comprising four main stages:

- 1 problem recognition
- 2 organisational assignment of buying responsibility and authority
- 3 search procedures for identifying product offerings and for establishing selection criteria
- 4 choice procedures for evaluating and selecting among alternatives.

1 Problem Recognition

A buying situation is created by the recognition of a problem which can be solved by making a purchase. A problem exists when there is a perceived difference between goals and actual performance. However, to view the organisational buying process as almost exclusively objective and rational is to ignore the essential fact that industrial buyer-seller relationships involve interaction among people. Indeed knowledge about the customer is very strong among members of the sales force. (Parkinson and Baker, 1976) This has important implications for this project since in one of the co-operatives in particular the sellers of products were responsible also for buying them. Also, some organisations may buy goods and services to achieve something approaching pride of possession or because they feel they cannot discontinue an ongoing course of action.

2 The Search Process

Industrial buyers carry out two tasks which require the collection and analysis of information. First the standard against which potential suppliers are evaluated. This is based on a decision concerning what is needed and what is available. Second, alternative available products have to be identified and located in the market.

The search process has no defined destination at which point the buyer can stop his efforts to find the best alternative. Buyers invariably have imperfect knowledge of the market because they can never be certain that they have discovered all available alternatives and thereby can choose that which is best. So at what point does the search, for information, stop? Marschak (1959) has suggested that it might be possible for the buyer to estimate the expected value of additional information, and to discontinue the search when their value is less than the cost of gathering that information. This calls for intuitive judgment which may resemble quasi-marginal calculus. However, it is unlikely that the majority of buyers consciously apply this process. Whether or not the search process is sophisticated and detailed, the buyer finishes with less than perfect information and subsequently an incomplete understanding. In these circumstances the buyer will normally settle for a choice which satisfies the criteria. This will probably mean setting new criteria. Apart from issues of the cost of the search and access to information about all markets, the time factor places a limitation upon the amount of search and, hence, upon the number of alternatives identified and considered. Most purchase decisions have time constraints relating to delivery lead time and dates when orders will actually be used.

The buyer's first step in the research process is the identification of information sources. This information is likely to be located with the sellers sales force, catalogues, trade journals and trade shows. The procedures pursued in this search for, and of information, sources are not particularly well understood. It is probable that the individual buyer follows a set routine in his search of the market. These routines involve selective perception which means the buyer tends to rely upon certain sources of information and to ignore others. For example a buyer may scan appropriate catalogues, 'phone the sales office for more details and ignore trade journals completely. (Webster, op cit)

Sometimes, these search rules are changed over time because of the result of success or failure of the rules in guiding the buyer towards achievement of his goals. This is a form of organisational learning.

Therefore, it seems that search continues until a sufficiently large number of alternatives have been identified. The particular buying situation and the search rules involved will determine what constitutes a sufficiently large number of alternatives.

It is worth noting that the concept of acceptance of a satisfactory answer to the problem of finding products and potential suppliers is a major component of the behavioural theory of the firm developed by Cyert and March (1963) and March and Simon (1958). One of the basic hypotheses of the behavioural theory of the firm is that satisfactory profits, not maximum profits, provide the bench-mark against which decision makers evaluate alternatives.

"Individuals within the firm do not try to find the best alternative, but rather any alternative that meets these acceptable level goals which provide criteria for evaluation of alternatives".

(Webster, op cit, p372)

The industrial buying process involves a varied mixture of personal, organisational and environmental factors. Without doubt, marketing efforts provide a major input to the goal-setting stage of the industrial buying, decision making process (Cyert, March, Simon and Trow, 1956).

Thus the first stage in a model of the industrial buying process is based on a model of the problem-recognition or need definition stage. A problem or need surfaces providing a potential buying situation when a purchased item can contribute to solving the problem. Bearing in mind the large number of suppliers and products available in most market segments, and the unlikely probability of finding all of them, the use of acceptable level goals seems to be very necessary for the buyer.

This search for products and their suppliers which match the needs and constraints imposed upon the buyers is a complex one. The problems associated with finding, accessing, analysing and making buying decisions based upon this information is a long way removed from current computerised information system theory and practice. All organisational, and individual decision making is not based upon the output from computers and their software packages.

This discussion will be continued later when the purchasing systems researched are being described and reviewed.

3 Authority to Buy

purchasing decisions are made by individuals operating within formal organisation (which are enabled to operate through informal arrangements). Individual's responsibility for purchasing decisions are usually clearly defined and will involve 'allocation' of specific products. An individual's responsibility for buying particular products will depend on factors such as the technical complexity of the product, its importance to the organisation in terms of its financial value or in terms of its relationship with the conversion process undertaken by the firm, the product-specific technical knowledge which the individual possesses, and the buyer position in the conversion process. (Webster, op cit) Thus an individual's influence on the purchasing decision is determined by his area of responsibility as specified in the organisation design.

In a conventional large organisation this approach to job design is generally acceptable. However, in a worker's co-operative it is not unusual to find one person responsible for buying particular products. In one of the co-operatives researched each member was assigned a range of products for which they were responsible for buying. However, a system of job rotation, usually on a six month's cycle, took place. This practice had a particular effect on the application of buying theory and possibly resulted in the adoption of very informal information systems. This will be expanded later in this thesis.

4 Making a Choice

This is the final stage in the buying process and involves choosing among alternative product-supplier combinations. (Webster, op cit)

The first step is to determine whether the potential supplier is acceptable based on his credit rating, financial standing, management ability, years in business, size and quality of production process and often quality of product he can attain. Unfortunately, this framework applies to very few worker's co-operatives who sometimes struggle to achieve any form of credit worthiness. It is not unusual for co-operatives to have to pay for deliveries cash-on-delivery. When credit terms are operated by suppliers they are often based on a short time basis. Not surprisingly co-operatives often buy from each other in a process of mutual self interest.

The next step in the process of making a choice is to compare the supplier's product with the criteria or specifications that have been established. Factors included are: product features and quality levels; highest acceptable price; and satisfactory supply situation - quantities and delivery lead time.

The third and final step is to review alternative sources which meet the specifications and to select one (or more) which provides the greatest value to the buyer.

This is a very laudable approach to making a final choice - indeed sound business practice would follow this process. However, it does require purchasing skills not likely to be found in a typical co-operative. This research project and perusal of a wide range of journals did not produce evidence that co-operatives were in a position to take such a semi-scientific approach to choosing a supplier. The problem ranges wider than purchasing systems and later in this thesis the need for appropriate business (information) systems will be explored.

5.5.3 Summary

From the above analysis of the buying process it becomes clear that there are important variables and causal relationships involved. The model proposed by Webster, op cit, divides the buying process into four stages:

- 1 Problem Recognition - A buying situation is created by the recognition of a problem which can be solved by placing an order. A problem exists when there is seen to be a difference between goals and actual performance. This can be caused by a change in either goals or performance. It is important to note that goal setting and problem-recognition are influenced by personal and impersonal factors which can be internal or external to the buying system.
- 2 Buying Responsibility - Decisions to buy items are made by individuals working within an organisational framework. The assignment of buying responsibility is influenced by such factors as industry, company, market, product and individual factors.

- 3 Time Search Process - Individuals have what could be described as routine methods for gathering information relative to finding alternative solutions to problems and for establishing criteria for evaluating buying alternatives. Search can result in a change of goals, and goals serve as selection criteria. Search can become more complex and can consider more information, but at greater cost. Eventually these costs and time constraints terminate the search.
- 4 The Choice Process - This is the final stage in the industrial buying decision whereby one or more suppliers are selected. The choice process is closely related to the search process.

Websters, op cit, model is a useful start towards rationalising the buying process. However, there is still a need to be more specific and to attempt to measure variables and causal relationships. This has important implications for this research project considering that the firms surveyed did not have what would normally be termed formal purchasing systems - in some cases the systems were informal to an extreme degree. This raises the question, how formal does a purchasing system have to be to meet the requirements of the firms within a reasonable (or affordable) cost framework? These points will be included in subsequent discussion.

5.5.4 Organisational Buying Behaviour

If suppliers of goods hope to develop successful and cost-effective marketing strategies they have no alternative but to gain a thorough understanding of the ways in which their customers think, behave and operate in the contemporary, highly competitive business environment.

This topic is particularly relevant to the purchasing activities carried out in the four companies researched. All four companies, two manufacturers, one wholesaler and one retailer, were involved in the purchase of items and raw materials as inputs to their operating systems. The manufacturers converted these material inputs into saleable products and the wholesaler and the retailer, repacked, blended and resold the items they had bought. The strong links between buying products to meet marketing needs is clear.

In addition to the marketing-purchasing interface, the human aspects of buying behaviour are highly relevant to the research findings, particularly when one comes to examine the generation, storage, flow, analysis and accessing of information related to a purchasing process.

This second point, as future discussion will show, raises some very interesting questions, such as: do purchasers always rely on the available information before placing orders for some products with particular suppliers? If they are seen to ignore available information, why do they do so and on what do they base their final decision to buy specific items from particular suppliers.

Some researchers have commented that much of the data on industrial-buying behaviour which has been generated by industrial marketing researchers is not helpful to management. 'What is needed before more data is collected is a realistic conceptualisation and understanding of the process of industrial-buying decisions.' (Sheth 1973, pp50-6)

In this sub-section some of the key dimensions of organisational buying behaviour will be discussed with particular interest shown in the activities of the person or persons making purchasing decisions. Although this discussion has relevance to such topics as marketing planning (and especially market segmentation) and sales force effectiveness, the discussion will be steered towards information flow and individual buyer behaviour since these have particular relevance to the research project.

In order to identify meaningfully those who participate in industrial buying and to anticipate their behaviour, the researcher needs to find answers to a list of questions. These include:

- . What is the type of item or service being purchased?
- . How is it used?
- . Why is it purchased?
- . Has this type of item been purchased in the past?

- . How frequently does the purchaser buy it?
- . Will the performance or technical details be specified or will these decisions be left to the supplier?
- . How essential is the purchase item to the customer?
- . How much risk is entailed in committing the organisation to buying the item?

(Hill and Hillier, 1977)

There are a number of product-related factors which can have a direct effect on buying behaviour. According to Hill and Hillier, op cit, there is not an abundance of empirical evidence to support this view, but it is reasonable to assert that a detailed analysis of the anatomy of purchases of existing and potential customers can help shed some light on the length and nature of the buying process, and the behaviour of the individuals involved. Because the range of goods manufactured by firms in the industrial sector is very wide it appears useful to attempt to develop a classification system.

There have been numerous attempts to classify industrial products and services. These have tended to view the task from a suppliers' viewpoint. (See Frey, 1965) Although these types of classification have some value in relation to the particular needs of customers, the approach is too general and too supplier-orientated to have much value in deciding buying behaviour. Thus it has little relevance to this research project and will not be discussed in any detail. It is important to note when

trying to classify industrial goods that a derived demand situation comes into play. This introduces additional difficulties in developing a meaningful classification system. Fisher (reported in Frey, op cit) has pointed out that 'the manufacturer is concerned with goods and services which are to be marketed to buyers who will use them in connection with the goods or services which they produce.'

Some of the early attempts to classify industrial products and services are reviewed in the Marketing Handbook (Frey, op cit). The Geigy Company (1967) adopted a summarised structure of the chemical industry dividing it into six stages which are in turn grouped into three technology classes as illustrated in Figure 5.5.

RAW MATERIALS	CAPITAL-INTENSIVE
HEAVY CHEMICALS AND INTERMEDIATES	PROCESS TECHNOLOGIES
CONVERTED CHEMICALS	
SPECIALITY CHEMICALS	RESEARCH-INTENSIVE
PHARMACEUTICALS	PRODUCT TECHNOLOGIES
CONSUMER CHEMICALS	
	MASS MARKETING OF
	PRODUCTS WITH HEAVY
	PROMOTION TECHNOLOGIES

FIGURE 5.5: A classification of the activities in the chemical industry.
(Source: (Hill and Hillier, p19)

Fisher's classification adopted capital goods; raw and processed materials, components and sub-assemblies; consumables; and services.
(Fisher 1969, p268)

Marrian (1969) developed a more detailed classification using four divisions (and a number of sub-divisions).

All these approaches, and those included in the Marketing Handbook (Frey, op cit) contain the weakness of a supplier orientation. Consequently, they have little apparent value in deciding buying behaviour. Buying behaviour has important relevance to later discussion in this thesis.

Other writers and researchers have developed classifications from the more complicated customer orientation and this appears to have greater significance.

Risley (1972, p363) has pointed out that 'any classification of industrial goods is far more apt to perpetuate a misdirection of marketing thinking, than it is to contribute to a real understanding of marketing problems. It tends to perpetuate a product-orientation in the minds of marketing men, even those who profess to be market oriented'. Setting aside this quotation, some form of classification is necessary as a beginning in obtaining a meaningful insight into the ways in which industrial markets operate. Classifications based on a customer perspective, can provide valuable understanding of the reasons for making a purchase, the ways in which the purchased items are used, and the circumstances under which they are purchased.

An important step towards a customer orientated classification is based on the novelty of the purchase which depends very much on the reason for the purchase. For example, if a buyer is purchasing routine components to 'feed' his production process, then there is a routine situation. but if he is buying a new item of advanced manufacturing technology, he is faced with a totally different situation. These types of buy classes have been formalised into new buy, modified rebuy and straight rebuy (Robinson and Faris, 1967). The main features of each situation are:

- a NEW BUY The product has not been used in the process previously so there is no experience in the firm and much information is required.
- b MODIFIED REBUY There is a regular demand for this type of product, buying alternatives are known but enough change has taken place to require some change to the established supply procedure.
- c STRAIGHT REBUY A routine purchasing procedure exists and there is an approved list of suppliers.

Robinson and Faris, op cit, contend that these three situations require quite different marketing approaches.

As a first stage in the examination of the anatomy of purchases, it has been suggested that by adopting a customer perspective, industrial goods can be classified into four categories - there are; production services; production facilities; product constituents; and product constituent transformers. (Hill and Hillier, op cit) These have been amplified in Figure 5.6.

FIGURE 5.6 Categories of Industrial Purchases: from the Customer's Viewpoint.

1 Product Services

Those background services which augment the production process or cover development work prior to production. These can be subdivided into two categories:

Advisory services: eg consultancy, banking, insurance, advertising, tax, recruitment, legal.

Ancillary services: eg repairs, servicing, welding, photocopying, research and development, transportation, typing.

2 Production Facilities

Those physical goods or facilities which constitute the means of production, either directly or indirectly, for the organisation purchasing the industrial goods. These can be subdivided into three categories:

Primary equipment: buildings, plant, machines.

Operational equipment: tools and instruments, test equipment, labour, protective clothing, spares and equipment.

Ancillary equipment: furnishing and fittings, stationery.

3 Product Constituents

Those goods which are purchased by an organisation for incorporation, either in their original form, or some adaptation thereof, into the final product, which it markets. These can be subdivided into three categories:

Primary constituents: raw materials, eg copper, iron ore.

Transit secondary constituents: treated primary constituents, eg chemicals, pig iron.

Finished secondary constituents: eg nuts, bolts, screws, rivets, rope, paint, solder, adhesives.

4 Product Constituent Transformers

Those products which help to transform (ie without necessarily forming an integral part of) the product constituent bought by an organisation, into the product which it eventually markets. These can be subdivided into three categories:

Active transformers: Coal, oil fuel

Participative transformers: lubricants, abrasives

Passive transformers: packing and conveyancing materials, eg boxes, containers.

(Source: Hill & Hillier, p22)

This classification of industrial goods is only the first step towards gaining a better understanding of industrial markets. It does not consider the behavioural and other factors eg procedures adopted by companies when making a purchase. Although Robinson and Faris', op cit, grouping of purchases into three buy classes is useful, these are not detailed enough to provide a clear indication of buying behaviour. (Hill and Hillier, op cit).

An alternative way to explain likely buying behaviour based on the anatomy of a purchase from the customer viewpoint has been proposed by Hill and Hillier, op cit. This incorporates some of the work done by Lehmann and O'Shaughnessey (1974, pp36-42). The main elements of the anatomy of the purchase are: usage for the purchased item; the reason for purchase; and the purchase complexity. This approach is summarised in Figure 5.7.

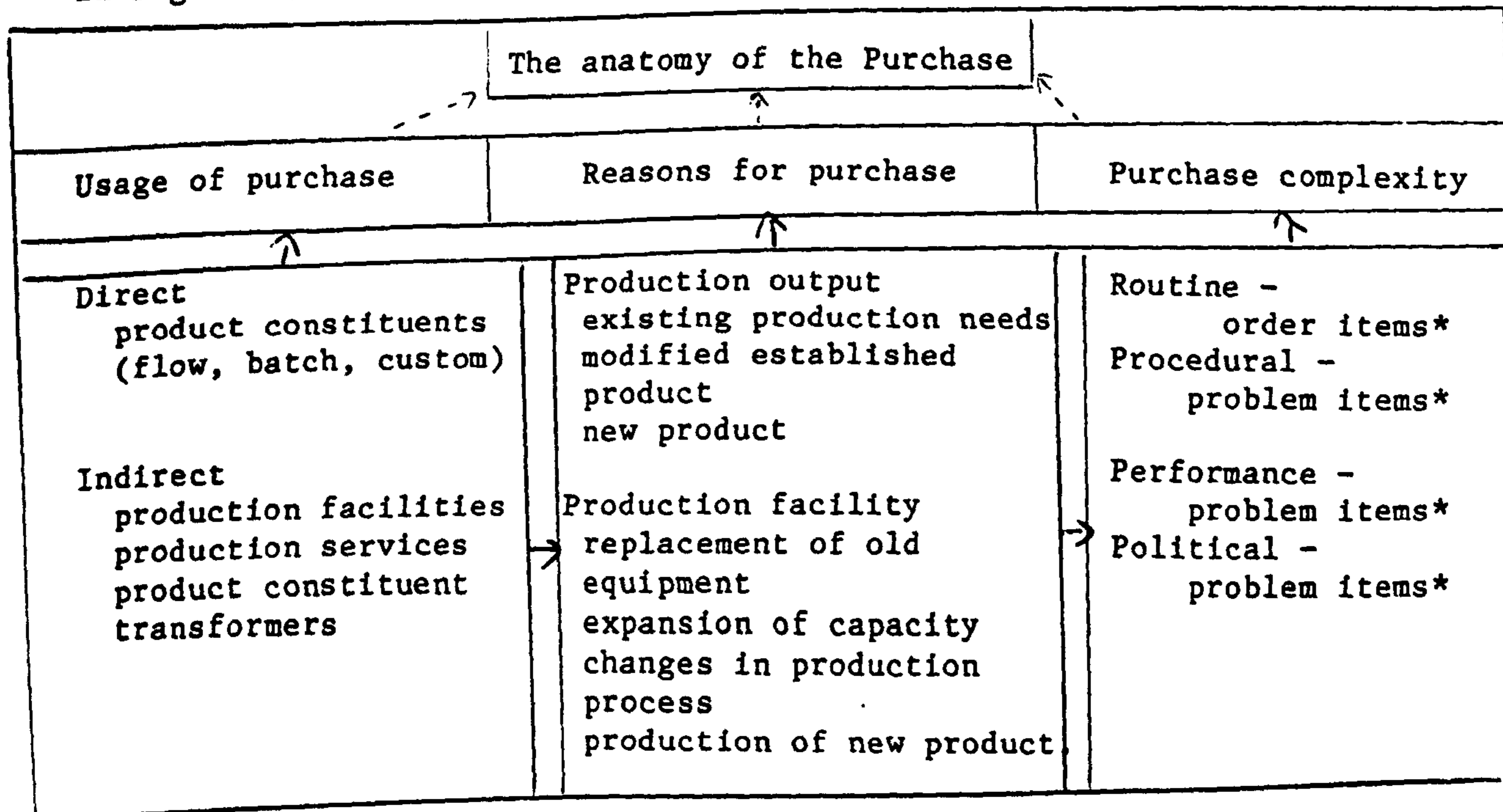


FIGURE 5.7 The Constituent Elements of the Anatomy of the Purchase (Source: Hill and Hillier, p25)

USAGE OF THE ITEM PURCHASED. This is a very useful way of classifying products for the following reasons:

- . It can give a clear indication to marketing personnel of the technical content involved.
- . It indicates the value of, and how essential the item is, and, therefore, the degree of risk involved.
- . It suggests the likely timing of the purchase.
- . It sheds light on whether the product is likely to be buyer or supplier specified.

For further discussion of this topic see Hill and Hillier, op cit.

REASON FOR THE PURCHASE As has been shown from research, there are a number of reasons for purchasing an item. For example, the following relate to production output and production facility.

PRODUCTION OUTPUT

PRODUCTION FACILITY

<p>To supply existing production needs</p> <p>To supply production needs for modified established product</p> <p>To supply production needs for a new product</p>	<p>Replacement of old equipment</p> <p>Expansion of capacity</p> <p>Change in production process</p> <p>Production of a new product</p>
---	---

FIGURE 5.8 Reasons for Purchasing

(Source: Hillier, 1972)

Once more, marketing personnel must ask a series of questions regarding the reasons why customers are making purchases. Criteria used in the process of purchase-decision will be influenced by the reasons for purchase. For example, if the item is bought as a produce constituent, is it to meet existing production needs of an established product which has been modified, or the production needs of a completely new product the customer has developed? On the other hand, if the item purchased is a production facility, is it for the replacement of outdated equipment, or expansion of production capacity, a change in the customer's production process, or for the production of a completely new product?

PURCHASE COMPLEXITY The use to which the purchased item is to be put and the reason for its purchase has implications for the anatomy of the purchase ie purchase complexity. The components in Figure 5.7 go beyond the novelty of the purchase-buy classes of Robinson and Faris, op cit, by attempting to emphasise the need to classify purchases as perceived by industrial buyers. This point is particularly well emphasised by Lehmann and O'Shaughnessy, op cit. They stress the point that it is necessary to classify industrial products into categories that members of the buying centre will perceive as 'homogeneous in their assessment of the relative importance of product/supplier attributes'. In other words, according to Lehmann and O'Shaughnessy, op cit, buyers will weigh product/supplier attributes so as to minimise the problems associated with purchase. If products could be classified in such a way as to reflect the problems inherent in their adoption, such a classification might facilitate prediction of the weightings of the relative importance of product/supplier attributes. It might also be predictive of buyer preferences regarding suppliers. (Lehmann and O'Shaughnessy, op cit) These two authors proceed to sub-divide industrial purchases into four types:

- 1 Routine-order products which are ordered on a repetitive basis and present no serious usage problems because everyone is familiar with them, and they have been 'tried and tested' through previous use.
- 2 Procedural-problem products which are known to 'do the job', but problems may surface because personnel must be taught how to use them.
- 3 Performance-problem products, where the problem centres on the technical implications of using the products.
- 4 Political-problem products, when it is likely that difficulties will be encountered in reaching agreement among those affected if the item is bought. This can occur when large capital outlays are required, particularly when the products are an input to several departments whose needs may diverge.

An organisation may be faced simultaneously with more than one of these categories. If a supplier discovers that most of his customers experience problems (2), (3) and (4) then there is a situation of high degree of purchase complexity. The result will be an extended-buying process, with many, large and varied groups of people involved at each critical stage of the process. Lehmann and O'Shaughnessy, op cit, stress that a product that develops procedural problems in one organisation may fuel performance and political problems in another. From a marketing stance the concept of purchase complexity ie the problem that the purchase presents to the customer is important. It provides a useful base for distinguishing the difficult market segments and assists in developing appropriate marketing strategies. (Lehmann and O'Shaughnessy, op cit)

5.5.5 Models of organisational Buying Behaviour

From the discussion in the previous sub-section, it is clear that the dynamic nature of organisations within their business environment, coupled with the complex interactions which take place between individuals involved in the buying process, present many difficulties for anyone trying to unravel some of the complexities of organisational buying behaviour. This is particularly true in two of the four co-operatives studied in this project. In one case each member was responsible for purchasing a specific range of products for resale with the added dimension of a process of job rotation every six months. In the second case about one third of the members placed orders. In the other two firms studied, both manufacturing, more than one person placed orders but the degree of autonomy was not as great as that operating in the retail and wholesale enterprises. In addition the research findings will show that the roles in the purchasing systems became extremely fluid post-buying in all four co-operatives and especially in the two non-manufacturing firms.

The task of analysing and measuring buying behaviour in organisations is so great that research has tended to concentrate on the development of partial models based on lateral relationships (Straus, 1962) personality (Wilson, 1971) and reciprocal buying agreements (Ammer, 1962). The value of the models developed from such narrow approaches can only be evaluated when they are tested in the context of an overall framework, on a comprehensive model of organisational-buyer behaviour.

In practice few holistic models have been proposed but those that have identify the most critical areas for suppliers of any industrial product. Without a conceptual framework it is not really possible to identify and integrate meaningful areas for research (Hill and Hillier, op cit).

The various methodologies for developing holistic models of organisational buying behaviour have been referred to by Webster (1969) as 'master techniques'. These are useful in determining the kind of information to collect and how to interpret the results and detect significant relationships. The techniques needed to generate, analyse and interpret the necessary information have been termed 'servant techniques'. Included here are postal questionnaires, structured and unstructured interviews, business games for the collection of the necessary information, and the development of multivariate techniques for analytical purposes. The master techniques will largely determine the appropriate servant techniques to be used.

The remainder of this sub-section will concentrate on a review of some of the comprehensive models of organisational buying behaviour. The servant techniques, referred to above, which include methods of collating data from primary sources and the quantitative methods used for analysing this data are not directly relevant to the needs of this thesis and will not be taken further.

A number of comprehensive models of organisational buying behaviour have been proposed. The most popular of these will be summarised showing that although the models may contain many of the same basic elements there are several major differences between them.

These models are of fundamental importance for this research project because as later discussion will show, the buyers in the four co-operatives researched did not always use available information in making a purchasing decision. Webster and Wind (1972) touched on this when they referred to buyer's motives ... "Organisational buying behaviour models can be categorised as 'task' or 'non-task' models. Task models are those emphasising task-related variables (such as price), whereas the non-task models include models that attempt to explain organisational buying behaviour based on a set of variables (such as buyer's motives) which do not have a direct bearing on the specific problem to be solved by the buying task, although they may be important determinants of the final purchasing decision". (Webster and Wind, op cit, p12)

ROBINSON, FARIS AND WIND MODELS

One of the most widely acclaimed models of organisational-buying behaviour is the buy-grid model proposed by Robinson and Faris, op cit. They suggested that the industrial-buying process can be described by a series of sequential purchasing stages:

- 1 The anticipation or recognition of a problem or need, including the realisation that a problem exists, and the awareness that a solution may be possible through the purchase of an industrial good.

- 2 The determination of the quality and characteristics of the needed item.
- 3 The specific description of the item needed.
- 4 The search for, and qualification of, potential sources.
- 5 The examination of the sources, leading to a decision concerning how the item is to be purchased.
- 6 The evaluation of proposals and the selection of suppliers.
- 7 The establishment of an order routine.
- 8 Performance feedback and evaluation.

which they called 'buy-phases'. Robinson and Faris, op cit, introduced the concept of buy classes (new task, modified and straight re-buy) to complete the matrix and to account for the fact that some of the stages might, on occasion, be omitted. This resulted from their findings that the only really significant differences in buying behaviour related to the degree of experience or familiarity with the item to be purchased.

The buy-grid framework has a number of strengths, namely:

- . it suggests that there are critical points in the buying process.

- . it suggests that the process is incremental
- . it suggests that the composition of the buying centre and its behaviour will be related to the problems the purchase presents to the customer organisation

The main shortcoming in this framework is that the phases tend to imply a static rather than dynamic situation and are procedural or activity oriented rather than decision oriented. Also, it does not clearly help to explain the interactions which take place between the various functional areas, and it is possible to challenge the definitions used for the buy-classes as they tend to ignore the reasons for purchase and proposed usage for the purchased items. See Figure 5.9

USAGE

REASONS FOR PURCHASE

NOVELTY OF PURCHASE

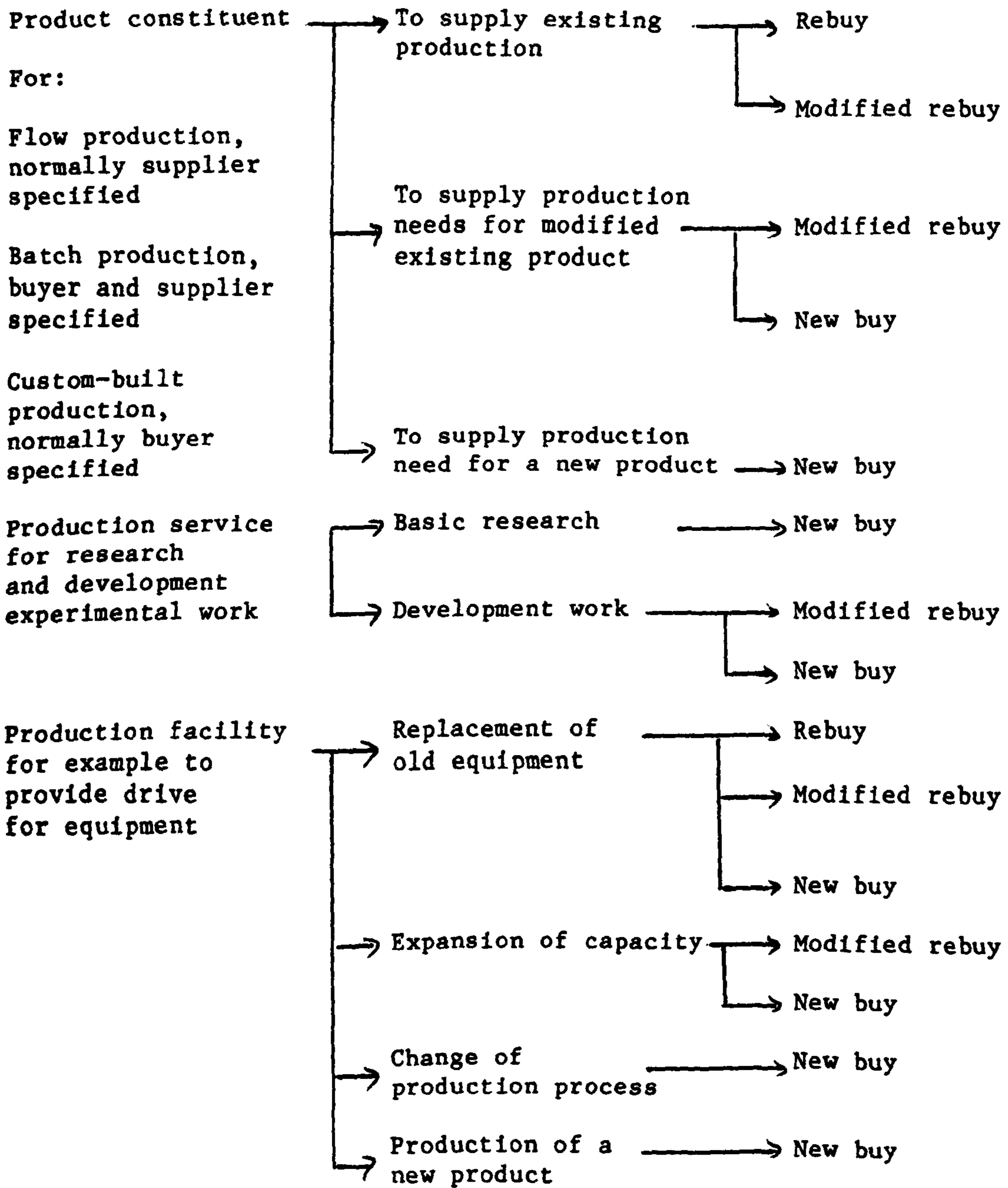


FIGURE 5.9 A hypothetical example of the range of buying situations for a finished good such as a small electric motor.

(Source: Hill and Hillier, p24)

Some of the difficulties identified in the buy-grid model were overcome in a framework proposed by Wind (1967).

This is illustrated in Figure 5.10.

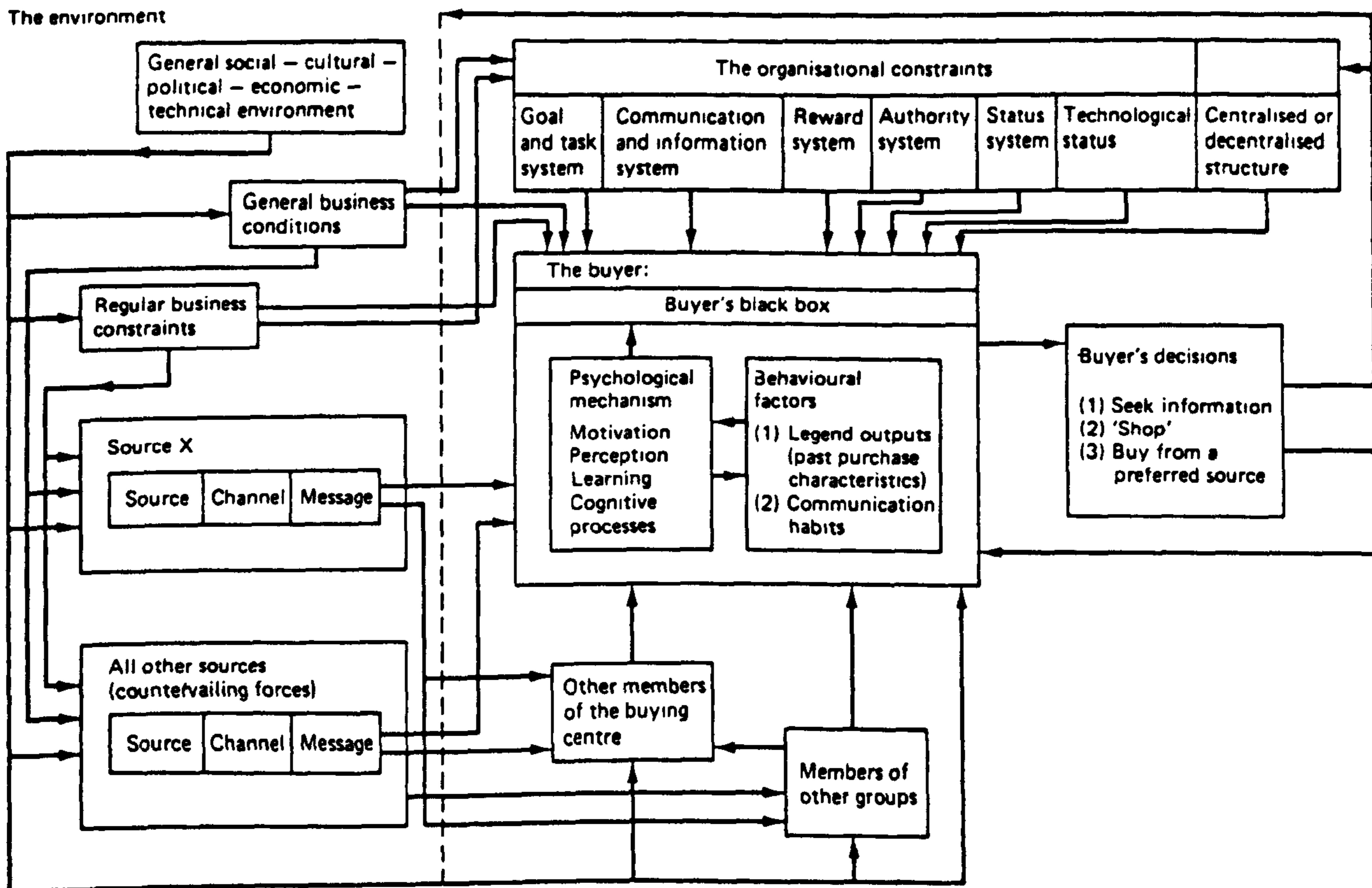


FIG 5.10 The Wind-proposed framework for the analysis of the various determinants of the buyer's behaviour.

SOURCE: Hill & Hillier

It will be seen that Wind's model, op cit, focuses upon the industrial buyer, and introduces the concept of the buying centre. This centre consists of the buyer and other people who are directly involved in the purchasing decision. (This has direct relevance to this research project because, as a later chapter of this thesis will reveal, most of the buyers in the four co-operatives operated within an informal buying centre arrangement, particularly when new task and to a lesser degree when modified rebuy classes were being considered). Wind also includes

in his model members of other groups having peripheral influence on the purchasing decision. Other factors included are the influence of organisational, environmental and competitive factors.

It is suggested that the first two of these three factors impinge on buying behaviour in workers' cooperatives because these firms tend to organise themselves in ways which contrast with conventional firms and they operate in a sub-environment with its own set of values within the general business environment.

Wind's model, *op cit*, provided a much clearer understanding of organisational-buying behaviour than had been available up to that time. However, in the light of more recent knowledge there appear to be a number of limitations. For example, the decision making process is too simplistic and is not specifically attributable to any corporate or individual buying process. In addition the model does not differentiate between task and non-task factors as essential elements to be considered, and the buying centre has not been broken down to identify any interaction between subunits. (Hill and Hillier, *op cit*)

A later model by Hill & Hillier, *op cit*, proposed the existence of two subunits in the buying centre, referred to as the purchasing group and the user department. It also points to an interaction within the buying centre and also between buying units of the buying centre and suppliers.

These models have interesting implications, in particular, for one of the co-operatives research when the buying group was also the user group. Also, as findings will show there was considerable interaction between buying units of the informal buying centre particularly in the two non-manufacturing firms.

WEBSTER AND WIND MODELS

In his first model of buyer behaviour, Webster (1965) proposed four procedural stages, namely: problem recognition; organisational assignment of buying responsibility and authority; search procedures for identifying product offering and establishing selection criteria; and choice procedures for evaluating and selecting among alternatives. Webster subsequently joined forces with Wind to further refine and develop his (1965) model. The outcome is summarised in Figure 5.11

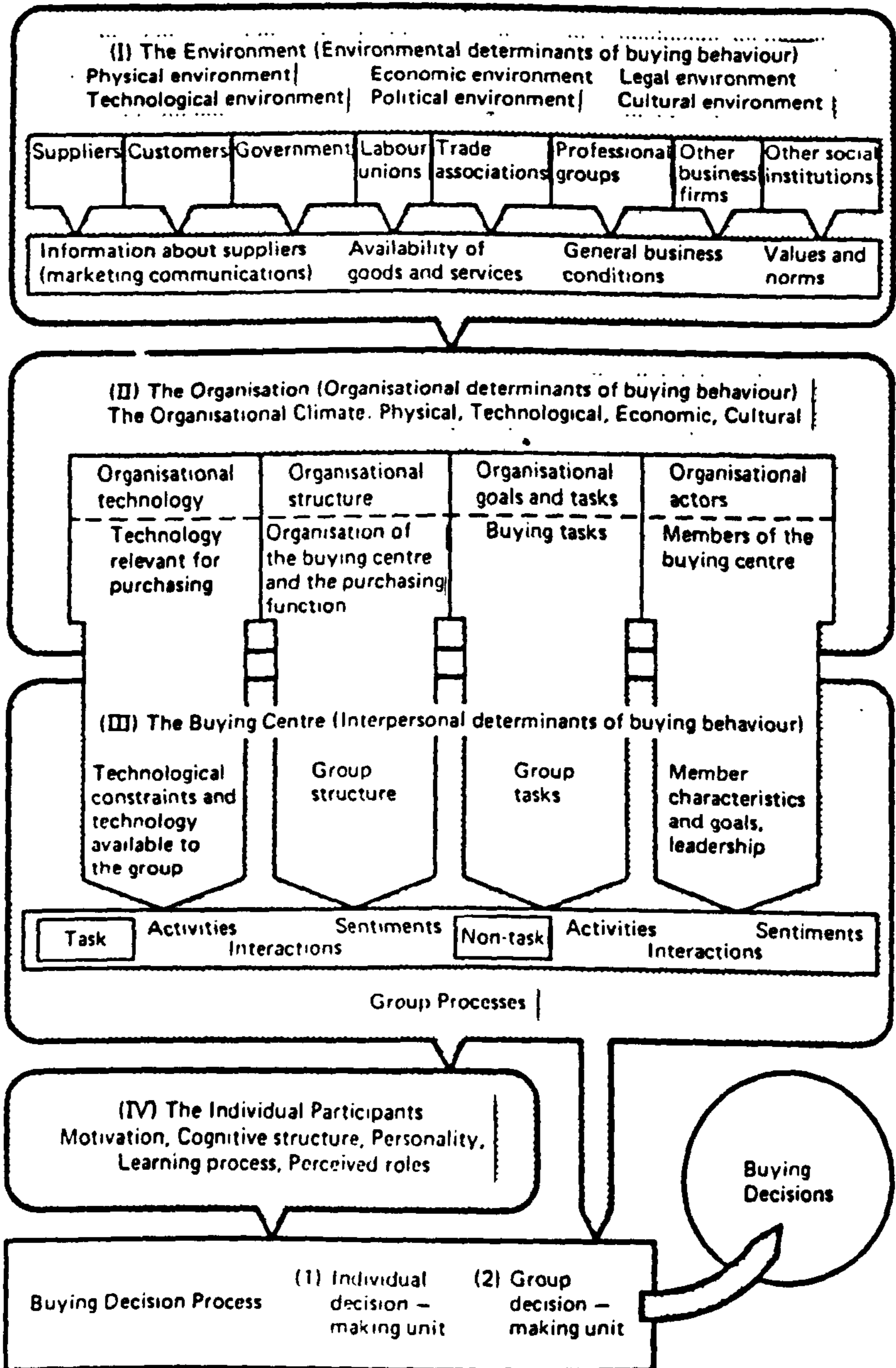


Fig 5.11 The Webster and Wind Model for Understanding Organisational Buying Behaviour
 SOURCE: Webster and Wind, 'A General Model for Understanding Organisational Buying Behaviour'

This amplified model indicates the way in which buying decisions emerge from combinations of individuals and group-decision processes, each of which can be influenced by individual, group, organisational and environmental factors. Although the Webster and Wind model (1972) tends to present a static picture of a dynamic situation, Webster and Wind are obviously aware of this when they point out that the buying process will involve several people, who are in turn influenced by others; by the character of their own organisations; by the environment which affects both individuals and organisations; and by each other's individual's own character and personality.

The model identifies some of the difficulties involved in attempting to portray the complex nature of organisational-buying behaviour. It would be even more valuable if it provided some indication of the decision process, the motive or critical factors influencing each buying decision, and the way in which individuals are involved. Regarding task and non-task factors, Webster and Wind state that it is seldom possible to identify a given set of variables as exclusively task or non-task. They are more likely to consist of a combination of both, with one predominant.

As far as this research project is concerned, the Webster and Wind model presents some interesting issues for the study of purchasing (information) systems in workers' co-operatives. As pointed out by Webster and Wind (above), the buying process will involve other people and other factors. In the two non-manufacturing co-operatives studied other people were involved with the person buying the goods particularly of new goods or new suppliers were being considered. Since both these

firms were organised in similar fashion to an autonomous work group, organisation arrangements and interactions happened in spontaneous fashion. Also the environment in which co-operatives operate has additional dimensions to the general business environment in which they and their more conventional competitors do business. For example, many co-operatives pursue social objectives to a greater extent than conventional businesses which tend to see profit as the main goal. It is also felt that the character and personality of co-operative members differs generally from the typical small business worker. The retail co-operative studied was in effect a feminist group who would not stock products which contained a high proportion of additives, nor would they stock what they termed food dietary products. The wholesale co-operative was a branch of the Campaign for Nuclear Disarmament (CND) and they were members of a trade union which is not strictly necessary in a relatively small co-operative business. These issues will be raised at a later stage in this thesis.

THE SHETH MODEL

Sheth's model (1973) concentrates on information sources as opposed to environmental factors, thus presenting a more dynamic situation. See Figure 5.12

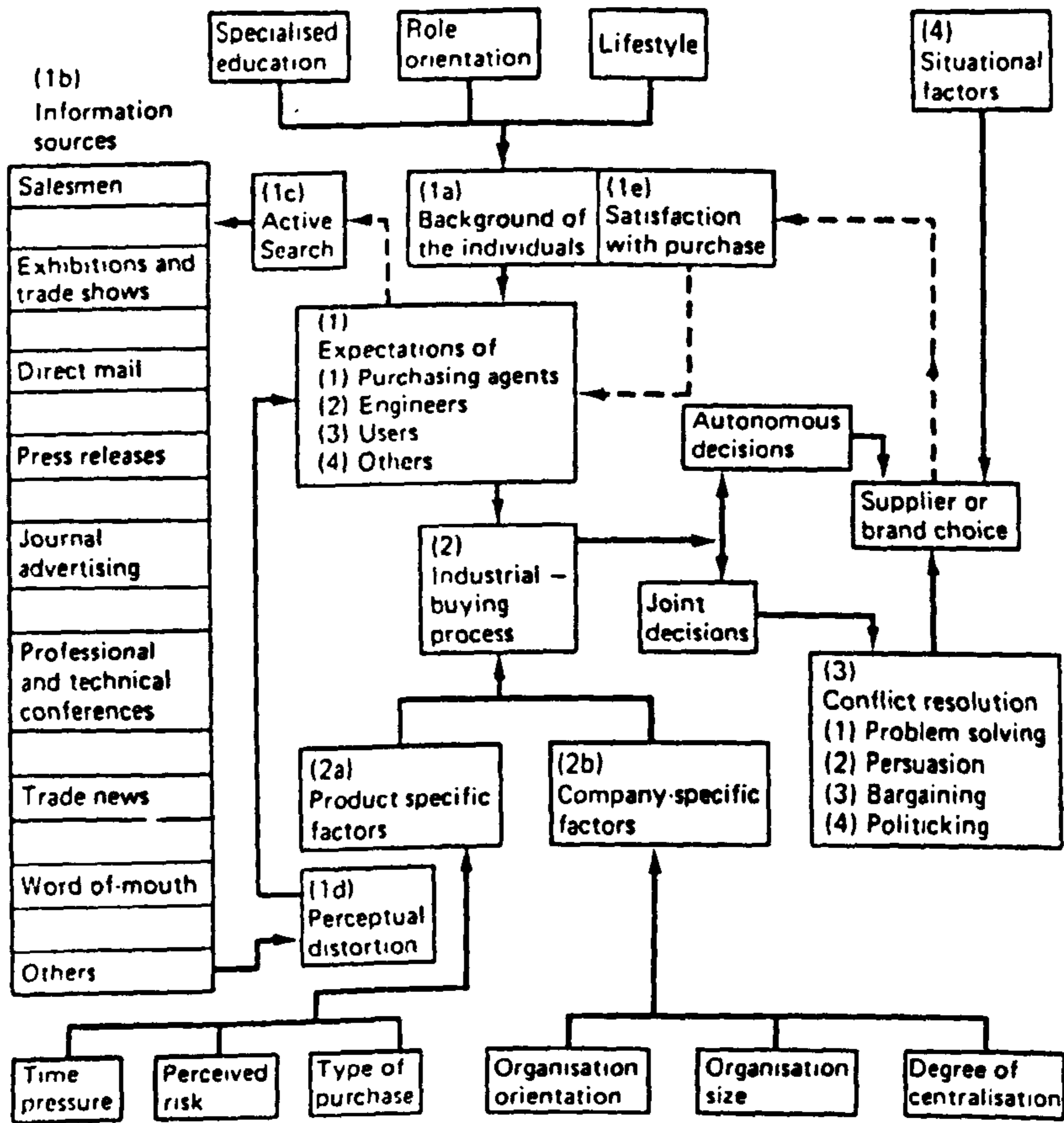


Fig 5.12 The Sheth integrative model of industrial-buying behaviour
SOURCE: Sheth, 'A Model of Industrial Buying Behaviour'

The buying centre in Sheth's model is shown as (1) in the Figure 5.10 and comprises four functional groups (purchasing agents, engineers, users and others). Sheth believes that the actions and expectations of the individuals in the groups are influenced by previous experience and that the information they receive following any search activity will be influenced by their own perceptual distortion.

The model suggests time and pressure, and indicates that information for any possible future decision is being continually updated and that the information-gathering tasks associated with the buying-decision process are continuous, at variable intensity, not at a specific point in time.

This portrayal by Sheth does not appear to fit the situation in the four co-operatives studied in this project. In one firm everyone was responsible for purchasing a specific range of items; in a second a large proportion of members bought material; and in the other two organisations the person responsible for buying treated this function as secondary to their main range of duties. Information on products purchased was not in the main (there were some exceptions) did not take place as a continuous activity. This was unlikely to be because of any form of co-operative organisation - rather it was probably as a result of the low esteem within which industrial purchasing has been held in British business coupled with a lack of training and absence of an acceptable purchasing system. However, the impression was gained during field work that workers' co-operatives are wary of the development and use of even mildly sophisticated business systems. The image comes across that many co-operatives feel they would be selling out to 'Capitalism' if they vigorously sought profit optimisation as their main objective.

Notwithstanding these issues, the Sheth model provides a useful framework for understanding the interactions between many of the variable involved in organisational buying behaviour.

Much of this Chapter has considered the behavioural aspects of purchasing and it is, therefore, appropriate to review the relevant aspects of job and organisation design in the following Chapter. Together these two Chapters (5 and 6) will prepare the ground for consideration of information management effects on job organisation design.

6 JOB AND ORGANISATION DESIGN AND THE INFLUENCE OF INFORMATION MANAGEMENT

6.1 INTRODUCTION

Little research has been conducted in the main contemporary approaches to job and organisation design in workers' co-operatives. However, studies by Hesse and Wall (1976), Ramsay (1976), and Long (1979) suggest that workers in conventional organisations express the greatest interest in participating in decisions directly relating to performance of their jobs and the factors surrounding them. This is followed by broader aspects concerning their own departments. Finally they show a weak interest in participation in overall policy decisions. Within the context of workers' co-operatives it should be noted that workers' participation in ownership of the enterprise is quite distinct from their participation in its management. Workers' participation in ownership as shareholders may be a conditioning factor contributing to the adoption of a participative structure, but does not in itself constitute participation in management. This has important implications for workers' co-operatives and the issue will be raised at a later stage in this thesis. The extent to which workers participate in the management of enterprises that they own will vary from one co-operative to another. There does appear to be an identifiable average or typical arrangement.

Three main issues are at stake here. First, how is power shared between workers in a co-operative? Second, how can co-operation between workers be fostered in such an organisation? Finally, how can the personal involvement of co-operative workers be encouraged and strengthened? Further discussion of these three points follows below.

1 Power

Despite the popular image of power sharing in a typical workers' co-operative this is not always the case. For instance, once the well documented Kirkby Manufacturing and Engineering Co-operative (KME) was formed in late 1974, the issue of control and accountability (power) were at the heart of the problems faced by the co-operative when trying to modify its own performance. Power to all intents and purposes resided in the hands of the two convenor-directors as did virtually all the financial and operating information. The shop steward committee which could have voted the two convenors out of control showed no inclination to do so. It was little more than a legitimising body and rarely did it seek to do more. Thus centralised power held by a few individuals creates a situation where operating control is almost identical to that found in a traditional enterprise. Because ownership has been democratised it does not necessarily follow that government of the firm has been similarly democratised. Indeed the co-operators' influence over events may become more tenuous in a co-operative than in a traditional firm having strong union collective bargaining representation. Eccles (1979) and (1981)

2 Co-operation

The problem of how to achieve greater co-operation between workers with less conflict and more harmonious relations is an external problem for managers of any operating system.

Many people feel that we have not yet found the answer to gaining peoples' co-operation in the form of involvement and commitment at work. This situation typically manifests itself in low productivity, poor quality, late deliveries, over manning, high levels of labour absenteeism and turnover and lack of co-operation when changes in methods, procedures, systems and technology are called for.

The greatest cost of failure to win the co-operation of employees is one of lost opportunity in using and developing the contribution that people at all levels in the organisation are capable of making, and in the main wish to make, to improving business results and utilising opportunities for change.

"One day it will seem strange, in retrospect, that we spend much more thought and effort on developing human ability than on making good use of it once we had it". Heller (1970)

It appears that these approaches taken by managers and their job designers have failed to meet the social needs and aspirations of the people who form an integral part of their operation systems.

Job and organisation designers in business enterprises have proceeded logically from doubtful precepts and in attempting to meet the problems of increasing size and complexity, have become increasingly authoritarian and inflexible resulting in jobs which are more fragmented, narrow and boring than they need be. It is not surprising that managers complain about lack of co-operation from their workers.

The main alternative approaches to job and organisation design will be discussed in greater depth below.

3 Personal Involvement (of Workers)

The way in which a workers' co-operative is organised will depend to some extent on the attitudes towards the organisation of business firms that co-operators bring with them to the co-operative. People tend to hold fairly traditional views regarding how organisations are, or should be, arranged. They tend to accept hierarchies and bureaucratic organisation as the norm.

Many people believe that each worker should have only one boss and that rules and regulations should be applied impartially and impersonally. The hierarchical model is the dominant model active in business organisations.

There are alternative models which have been applied to co-operatives. A familiar one is a representational democratic model which is thought appropriate for charities, sports and social clubs and local authorities. In this arrangement committees and officers are elected by members and are serviced by appointed officials and employees who are likely to be organised in a bureaucratic hierarchy. This form of organisation adheres strongly to rules for committee procedure (often it appears as if written on tablets of stone). There is also the possibility of working by delegation to subcommittees. This particular model applies at board/shareholder level in conventional companies and in a co-operative setting one substitutes the workforce for the shareholders.

A second alternative approach found in co-operatives is that of the 'collective'. Here the general meeting is the main point of focus; decisions are made by 'consensus' rather than by voting on propositions; there is acceptance (at least in theory) of equality between members; and as much as possible agreement is reached informally. This model has attractions for those not in favour of the hierarchical and bureaucratic models.

These three forms of organisation each have a particular type of decision-making mechanism that is seen as 'suitable', although no organisation operates exactly to the 'ideal' for its type. In other words the rational bureaucratic model problems are allocated to various levels in the hierarchy. Decisions affecting the total organisation are taken at the top of the hierarchy, while those affecting only a sub-unit are taken by the head of that sub-unit. In a representative democracy, policy decisions are taken by the elected committee and implementation is carried out by the appointed officials or managers. In a collective, all important decisions are taken by the collective as a whole (at least in theory). Thomas and Comforth (1980)

In their article, Thomas and Comforth, *op cit*, go on to develop a more complex model of decision-making which attempts to match the type of decision making to the nature of the decision. This is important for decision making in workers' co-operatives but although it may be referred to in later discussion, it is not proposed to elaborate on it at this juncture because it diverts from the main stream of the discussion being pursued.

Rather attention will be turned to three main issues:

- 1 Ownership/control/power in workers' co-operatives which will affect and be affected by the job and organisational design arrangements in operation.

This leads logically to a consideration of the second and third items:

- 2 Participation in decision making. Different forms of participation will be discussed and contrasted and their effects on job and organisation design and job satisfaction will be noted.
- 3 The links between different levels of job and organisation design (JOD) will be investigated and the neglected area (in the literature) concerning the effect of poor or inappropriate information flow and management on JOD will be explored.

6.2 OWNERSHIP/POWER/CONTROL IN WORKERS' CO-OPERATIVES

6.2.1 Government Record and Main Policy Approaches

Towards the end of Mrs Thatcher's first government, Conservative ministers were more or less advocating the benefits of employee ownership. This has resulted in a series of measures, which could provide the platform for important developments in the future.

Nevertheless, successive budgets taken in parallel with policies related to the continuing privatization programme at national and local levels

have been less supportive than the rhetoric would have led us to believe. This is not confined only to Conservative ministers - for instance Dr David Owen and Mr Roy Hattersley made important speeches in the Autumn of 1984 advocating policies congruent with employee ownership. (Reported by Oakeshott, 1985)

The concept of employee ownership has received increasing attention in recent years, in part due to claims that it improves job satisfaction, boosts productivity and profits, and brings some measure of workers' control to the workplace. However research findings show that such links are not inevitable. Different forms of employee ownership have different outcomes and implications for companies and their workers.

Fig 6.1 distinguishes the three main policy thrusts which can spread the ownership of productive assets.

**SPREADING THE OWNERSHIP OF PRODUCTIVE ASSETS:
THREE MAIN POLICY APPROACHES**

POLICY APPROACH	COMMENTS
General Citizen Ownership	Involves 'giving' to all citizens shares in nationalised industries which are privatised
Wider Share Ownership	The essential aim is to switch more personal savings into equity investments
Employee Ownership	The single most important objective is to create a real identity of interest between the employee and the firm

Figure 6.1 The Government Record
(Source: Oakshott, 1985, p35)

Much activity has been seen on the first measure in the recent past although Oakeshott predicted this would not happen. Regarding the second option Oakeshott makes the point that this is not likely to happen particularly since Mr John Moore in his address to the Wider Share Ownership Council effectively ruled it out. 'After the most detailed study', he told his audience, 'we decided not to proceed along that route'. (Reported in Oakshott, op cit, p34)

Enough has been said in the press about Wider Share Ownership and it is not proposed to discuss it here. Sufficient to say that neither General Citizen Ownership nor Wider Share Ownership does anything directly to encourage a closer identity of interest between employee and the employing firm. It is a reasonable expectation that a government which is really committed to the concept of employee ownership would attempt to promote and encourage employee-controlled businesses with more radical and supportive legislation. So far there has been no real desire by the current Government to enable working people to become true partners in the businesses for which they work. The term "true partners" highlights the distinction between firms that have employee ownership arrangements and companies that are employee-owned and controlled.

It should also be recognised that employee ownership takes various forms, each of which is liable to have differing implications for such things as levels of job satisfaction, productivity and profitability and the level of workers' control concerning the production process. Toscano (1983)

However, it is worth noting that the current Conservative Government and the previous two administrations have continued to fund the Co-operative Development Agency (CDA) - a body founded by the last Labour Government in 1978.

Unfortunately the Conservatives have 'frozen' their annual funding at £2000,000 per year which in real terms represents less money each successive year.

On a more positive note it is possible for the CDA to apply to Government for additional funding for special projects and additional support for existing developments. This has led to the CDA making successful application for £200,000 to establish a co-operative development project in Middlesbrough. In addition the government has set aside £40,000 for any projects associated with marketing in and of co-operatives.

The CDA has been astute to make applications for funds for development projects associated with job creation and urban development - two issues of great interest to the present government. It is likely that the recent Housing Act will result in the CDA applying for additional funds on the grounds that housing is an area in which co-operatives can play a bigger and more useful part.

6.2.2 Power in Organisations

Power may be exercised in different ways. Lukes (1974) contends that there are three dimensions of power. The first involves an analysis of decision-making processes where there is an overt clash of interests between the factors concerned. Secondly, power can be exercised even

when there are not overt clashes of interest. Lukes, op cit, believes that power can be exercised by excluding groups from the decision-making process and thereby the latent conflict of interests do not become overt. Thirdly, there is the hidden dimension of power. Systems can be established with an inbuilt bias to one party at the expense of another. It is possible for powerful individuals to control information and social institutions in such a way that groups or individuals are no longer able to recognise what is in their own 'real interests'. Brain washing is an extreme form of this form of power.

In essence then, power in a workers' co-operative will depend largely on the amount and level of decision-making by people in the organisation. This in turn will be affected by the availability of appropriate information. Thus there appears to be an important link between information flow and decision-making; possession of relevant information and power in the organisation; and level of job design and degree of decision-making. These interrelations have important implications for workers' co-operatives since it is generally expected that job satisfaction and participation in decision-making (job and organisation design) will be higher and less restricted respectively, in such organisations. As further discussion will show this is not always the case. Indeed there is a great variation between types of workers' co-operative on these issues. Recent research suggests that the greatest equalisation of power is achieved in 'alternative' co-operatives (a form of constructive co-operative). This is not surprising since their members share a strong commitment to democratic ideals and producing for social needs rather than profit. Some of them emphasise democratic control and flexible working conditions at the expense of monetary and efficiency goals. Often a high degree of power sharing is achieved,

through such procedures as job rotation and collective decision-making. This equalisation of power is probably a reflection of the members' middle-class backgrounds and the above average level of education.

In contrast the management structure in a conversion co-operative does not change very much although management is normally accountable to meetings of the work force or their representatives. Change having been initiated by the previous owner of the business often leads to a lack of genuine worker involvement and participation. Where this involvement does exist, it takes a long time to develop (see for example Cornforth and Paton, 1981). Rescue co-operatives present a different picture regarding worker participation and therefore power. Companies formed by such rescue operations depend for success on the ability to acquire management expertise and capital, and a large amount of commitment from the workforce. (See for example Lockett, 1978)

The amount of worker participation tends to vary between co-operatives depending on such factors as, size of the firm, and the degree to which the workers were involved in forming the co-operative. On occasions where such co-operatives have been inspired by a few activists, these activists have assumed leadership in the early days and have often inhibited developments in worker participation in decision-making. (Eccles 1981)

6.2.3 Control in Organisations

The distribution of power and control among members in work organisations has captured the attention of theorists and researchers in organisational behaviour over a long period of time. (Berle and Means, 1932; Dahl, 1970; Dahrendorf, 1959; Drucker, 1971) Although not freely admitted, a major factor in managerial relations, especially at policy level, is the existence of a power structure. Indeed the process of reaching a decision may take longer than is necessary if a powerful faction is determined to achieve a particular outcome. Decisions likely to affect the balance of power the longer the decision is likely to be. (Stewart, 1970) Limited control over specific issues is sometimes vested in workers through participative management and collective bargaining (Strauss, 1977). In contrast some of the attraction for employee ownership in general arises out of the purported positive effects of worker-ownership and control on employee attitudes and behaviours. Morale and productivity are expected to improve, the theory being that when workers own their firms they will be motivated to work more effectively and dispute less. Reduced labour turnover and absenteeism, and fewer grievances will be manifestations of this change in attitude. Similar expectations exist regarding worker control. One study of workers' co-operatives in the Pacific Northwest plywood industry attributes the effectiveness of these organisations relative to non co-operatives to the "considerable motivation for productivity ... released by the self management opportunity to a degree that apparently can out-weigh the inefficiencies of semi-amateur management". (Bernstein, 1977, p5)

The implication here is the belief that worker-ownership and control of organisations might help counter the rising level of worker discontent in the US, documented in literature (Aronowitz, 1974; US Dept of Health, Education and Welfare, 1973). Since worker discontent has been cited as one of the causes of the recent decline in the US productivity rate, ameliorating this problem is important. If on the other hand worker-ownership and control and participation in decision making is a real feature of co-operative organisation, they should possess distinct advantages compared to conventional companies competing in the same markets. As later research findings and discussion will show, it is not as simple as this.

It has to be acknowledged however, that members of a workers' co-operative are not always equal as far as participation in decision making is concerned. To coin the hackneyed phrase, 'some are more equal than others'. Just as in the Greek city states where there were certain political regulations (eg qualifications for voting and eligibility to office) which are characteristic of democracy and others which are characteristic of oligarchy, so too in co-operatives there are qualifications. These may be based on the fact that one is a founder member which bestows a form of privilege or that some have invested more money in the enterprise giving them more authority to voice opinions on policy matters. This is a complex issue because there are many sub-divisions of oligarchy and democracy. (Sabine, 1963)

In an interesting treatment of oligarchy, Michels (1962) points out that although the majority of the socialist schools believe that in the distant future, it may be possible to attain a genuine democratic order,

it is found that a conservative view contends that this attainment is impossible. They declare that no highly developed social order is possible without a "political class". In other words a politically dominant class, the class of a minority.

This issue has important implications for the internal workings of workers' co-operatives. If a small caucus has too much control, there is the ever present risk of it abusing or misusing its elevated position. An example concerns the shop steward convenors in KME referred to earlier. (Eccles, 1979 and 1981).

For further discussion of employee ownership and a range of individual attitudes and behaviour; worker owners and levels of influence; identification with company goals, commitment, and greater job satisfaction refer to Oliver (1986); Greenberg (1980); Russell, Hochner and Perry (1979); Long (1977, 1978a, 1978b) and Rhodes and Steers (1981).

However, if workers' co-operatives provide more satisfying jobs for their members who can achieve greater resource productivity than their conventional competitors, the latter should be made aware of this. In the following section this issue is discussed further.

6.3 THE EXPERIENCE OF CO-OPERATIVE WORKING

Workers' co-operatives, in common with any business organisation involve interactions between the organisation and the person. This prompts questions such as why people start up co-operatives or join them?; do their views on co-operative working change as they gain practical experience of working in such an organisation which is dynamic and under goes change?; to what extent is commitment to a co-operative affected when a member's work-related needs are/are not fulfilled? Fulfilment of these needs will be a measurement of the social performance of co-operatives.

Knowledge about the individual has been largely ignored in the literature concerning co-operatives, with bland generalisations such as that co-operative working is more participative and, therefore, more satisfying to the worker. However, even a cursory review of the literature and personal contact shows that co-operatives vary enormously. Then origins, the visions of their founder members, the products or services produced and the size and age of the co-operative can all affect who is likely to join it - this action being largely self-selecting. People joining a co-operative, influenced by the factors cited above will have different needs and aspirations comparing one co-operative with another. In addition they will bring with them to the business other important and differing influences; male or female; sympathetic to feminist principles or not; young or old; with or without dependents; and with or without qualifications and skills. Their cultural and class backgrounds will vary, and their expectations from employment may differ in relation to all these dimensions.

Exchange Theory (Homans 1950, Thibaut and Kelley, 1959) postulate that: "Human action is based on self interest and calculated to maximise benefits or to satisfy at least cost ... people reward each other by their behaviour and expect rewards in return ... social behaviour is then seen as a form of tenuous contract which is in a constant process of renegotiation. Behaviour incurs future obligations and performance may cease when expected rewards are no longer forthcoming".

Tynan and Thomas (1981)

It should be noted that unlike behaviourist learning theories, exchange theory need not be interpreted as rigidly deterministic, since it allows for people to re-evaluate their views concerning rewards, costs, outcomes and comparison levels. For further discussion of this issue refer to Lewis (1986).

One of the claims frequently made for co-operatives is that they provide more satisfying jobs than conventional businesses. The main difference for a co-operative worker is the opportunity to participate in decision making giving him more control over his working life in the organisation. It is further claimed that such participation in decision making is actively desired by members and the fulfilment it provides increases the social performance of the co-operative. Some authors go so far as to say that the increased job satisfaction resulting from increased control via participation in decision making improves the resource productivity of the business. These are rather sweeping assumptions which will be dealt with below and at later stages in this discussion. Sufficient to say, at this stage, that if the claims

documented above, regarding the success of workers' co-operatives in providing satisfying jobs and increasing productivity (and no doubt quality of product and/or service) are true, then two important issues are at stake:

- 1 conventional businesses should be made aware of the situation in workers' co-operatives so that they can emulate this success
- 2 anything which is likely to restrict these beneficial practices in workers' co-operatives should be identified, analysed and dealt with accordingly.

For the purposes of this particular research project, attention will be focused mainly on item 2.

However before examining the principles and practices of participation it is necessary to remind ourselves that workers' co-operatives do not form a homogeneous groups of organisations. As stated at the beginning of this sub-section, they differ with respect to reasons for formation, objectives they pursue, organisational arrangements and economic circumstances. In the final analysis the most critical of these factors will be the objectives pursued by an individual co-operative, and this will be explored below.

A workers' co-operative has been described as an enterprise which is owned and controlled by the people who work in it (see section 3.2.2). Reading the six principles proposed by the International Co-operative Alliance, (also section 3.2.2), it appears that workers' co-operatives

pursue the normal objective of any business, viz survival, profit and growth. The main difference is that co-operatives are owned and controlled by the people working in them and the form of organisation adopted is likely to be much more participative compared to conventional companies.

However, in reality, although the democratic ownership of work may be evident the objectives pursued by some co-operatives are not directly related to this principle. There is in effect a multiple political agenda. For example a co-operative may be formed primarily to further the cause of feminism followed by the promotion of health foods and then by democratic participation in decision making. The objectives are pursued at perhaps three levels with varying degrees of intensity. In such a situation it is not surprising that sound information management to encourage efficient operations is given little attention. Indeed the introduction of appropriate business information systems may be seen as something which could threaten the objectives being pursued and the way they are pursued.

Co-operatives can have a range of objectives (often too many) ranked in order of importance, from a long list of worthwhile causes. For example, vegetarianism; promotion of the arts through touring and community theatre; employment opportunities for the handicapped; anti-nuclear propoganda; shelter for battered wives.

The danger is that in pursuing these worthwhile objectives, at different levels, actions necessary to ensure the survival and success of the organisation may be neglected or even ignored. These points will be discussed later in relation to the co-operatives studied in this project

6.4 PARTICIPATION THROUGH ^{Job} DESIGN IN WORKERS' CO-OPERATIVES

6.4.1 Forms of Participation

Before beginning a discussion of job and organisation design, levels of job satisfaction and degrees of democracy through participation in decision making, it is necessary to differentiate between different types of participation. Lischeron and Wall (1977) categorise participation into three types: local, medium and distant. Local participation involves decision making about the immediate job and its surrounding conditions, medium participation relates to decisions normally taken by supervisory and middle managers and issues regarding personnel selection, training etc and distant participation involves such task as long term planning and major capital expenditure. Other writers have categorised types of participation in a similar way. For example, Strauss and Rosenstein (1970) have distinguished between immediate and distant participations; Tannenbaum (1974) and Dachler and Wilpert (1978) identify formal and informal participation; and Heller (1976) distinguishes between direct and indirect participation. Discussions from this point, will follow Lischeron and Wall's, op cit, model which will be linked to a three-dimensional model of job design.

Lischeron and Wall's, op cit, research suggested that:

- . A majority of skilled and unskilled workers had a strong desire to influence local and medium level decision making

- . A substantial proportion of skilled and unskilled workers had a strong desire to participation distant level decision making
- . The strongest need for participation was expressed for medium level issues.

Another important outcome from Lischeron and Wall's, op cit, study claimed that workers showed a desire for considerable, if not complete, autonomy in their jobs. It should be noted that this study was carried out in conventional companies, not workers' co-operatives. However, if there is a difference in the desires for participation decision making between 'conventional' workers and those employed in co-operatives, then the general view is that this desire would be stronger in the latter. A critical factor in Lischeron and Wall's, op cit, findings is the strong response to questions concerning the need for medium level participation and a desire for autonomy. The combination of these two factors is of critical importance to job designers operating in Lischeron and Wall's, op cit, environment. The strength of these two responses gives clear insight into the type of factors to be built into the jobs being performed - this in turn will influence the form of organisational arrangements adopted. In the next sub-section of this thesis this issue will be discussed in greater detail.

However, Lischeron and Wall, op cit, make one final point when they appeal to researchers to refrain from asking whether participation leads to increased job satisfaction, and turn their attention to the question what people think about various forms of participation and how their views change over time.

In an interesting study of a small firm in Sydney, Australia which was purchased by its employees, Carruthers (1981), asked employees to rate their actual and their desired amount of influence in decision making. They were also asked to rate the change to this influence since the "buy-out". Carruthers, op cit, used three decision making levels for each of these measures: company; section or work-group; and individual job. The results of this survey are summarised below:

Figure 6.2 Employees' Perceived Influence in Decision Making

DECISION MAKING LEVEL	NONE	PERCEIVED SMALL	INFLUENCE MODERATE	LARGE	TOTAL NO EMPLOYEES
COMPANY	2	8	3	4	17
WORK GROUP	0	3	5	9	17
INDIVIDUAL JOB	1	1	5	10	17

Source: Carruthers, 1981

As indicated in figure 6.2, employees generally saw their influence as moderate to large at the individual job and work-group levels but less at the company level.

However, most employees desired a moderate to large influence at all three decision-making levels in the organisation, as indicated in Figure 6.3:

Figure 6.3 EMPLOYEES' DESIRED INFLUENCE IN DECISION MAKING

DECISION MAKING LEVEL	DESIRED INFLUENCE			TOTAL NO EMPLOYEES
	NONE	SMALL	MODERATE	
COMPANY	0	2	7	17
WORK-GROUP	0	2	4	17
INDIVIDUAL JOB	0	0	4	17

Source: Carruthers, 1981

Company employees perceived and desired influence in decision-making, and there was a reasonable match at both the work-group and individual levels. Although there remains a perceived lack of interest at the company level, it is at this level that the largest increase in influence was felt since the buy-out. The pre buy-out results are summarised in Figure 6.4.

Figure 6.4 EMPLOYEES' PERCEIVED INFLUENCE IN DECISION MAKING, PRE-BUY OUT

DECISION MAKING LEVEL	PERCEIVED CHANGE IN INFLUENCE				TOTAL NO EMPLOYEES *
	DECREASED	STAYED THE SAME	SMALL INCREASE	LARGE INCREASE	
COMPANY	0	1	4	8	13
WORK-GROUP	1	4	2	6	13
INDIVIDUAL JOB	0	5	5	3	13

Source Carruthers 1981

* only the 13 employees who worked for the company pre buy-out are included

Carruthers' findings will be referred to when research results of this project are being discussed.

Carruthers', op cit, findings that in this particular company there appeared to be an increase in perceived change in influence at company level, do not necessarily invalidate references made earlier to the effect that workers tend to value participation in lower level decisions than at company level. Nevertheless, we are reminded of Argyris's Action Theory (1957) which suggests that although workers are liable to say that they are not particularly interested in participation in corporate matters, their theory in use is quite different, resulting in such changes as depicted in Table 3. It may be that workers actually participate more, particularly at company level, simply because the firm is worker owned and workers in the initial stages exercise this opportunity.

At this point it is important to draw a distinction between a participative structure and a participative style. Many writers or organisations have stressed this: "organic" and "mechanistic" organisation (Burns and Stalker, 1981) and the "formally participative" and hierarchically structured organisation (Nightingale, 1979); Walker's (1976) "structure" and "living" participation; French's (1964, pp33-51) "objective" and "psychological" participation; Roy's (1973, pp49-66) "institutional" and "interpersonal" participation; Emery and Thorsrud's (1969) "real" and "apparent" participation; and Lammer's (1967) "style of leadership" and "system of government".

Thus it has to be noted that workers' participation in ownership of the enterprise is not the same as participation in its management. Workers' participation in ownership as shareholders or as citizens may have an influence on the adoption of a participative structure but does not

itself constitute participation in management. See for example evidence on this issue collected by Flanders, Pomeranz and Woodward (1968) in the John Lewis Partnership. As later findings will show this subject is not confined to traditionally organised, firms, but is a feature in some workers' co-operatives. Within such co-operatives there is a division between managerial work and operative work and despite the popular belief, the operatives in some workers' co-operatives do not have the mechanisms nor power to censure their managers. Using Stewarts, op cit, list of "functions of management", the basic arrangement is that managers are concerned with planning, organising, motivating and controlling which is in stark contrast to "doing" on operative work. The divorce of managerial and operative functions was refined by Taylor in his teachings on Scientific Management (1912).

Workers' participation in management is an attempt to bridge this gap and perhaps even to eliminate it. Success would result in increased worker authority and their participation in the structuring of their work situation.

"Workers' participation in management occurs when those below the top of an enterprise hierarchy take part in the managerial functions of the enterprise". (Walker, op cit)

Here, Walker, op cit, distinguishes between the institutional form intended to provide for workers' participation that actually takes place. Walker, op cit, applies the term "structural participation" to the mobilisation form, and the term "living participation" to the

participation actually acted out in organisations. Perhaps Argyris, op cit, would apply his terms, Espoused Theory and Theory in use, to this situation.

Participation in managerial decision making in workers' co-operatives is a point of much discussion. People generally associate co-operative working with such practices. However, as has been mentioned earlier and will recur later, this is not always acted out in practice. This provides an opportunity to examine job and organisation design as a form of participation in workers' co-operatives. If the general expectation that co-operatives are participative regarding managerial decision making is not fulfilled, despite having a democratic structure, it is important that barriers to this enactment are identified, analysed and solutions developed.

6.4.2 Job Design Overview

In most business organisations a number of different specialists are concerned with job design. Engineers who design the machinery and sometimes the factory layout; work study officers who determine the way a job should be done; personnel or organisation design specialists who wish to improve worker satisfaction by changing their jobs; direct production/operations management who are primarily interested in resource productivity. Each has a different set of principles which they apply to the design of jobs. Thus there is a link between the form of job design

adopted and the beliefs and aspirations of the designers. Figure 6.5 summarises the main alternative approaches to the design of jobs and these are discussed below:

Work Study	Engineering	Social Science	Social Policy
emphasis on maximising the efficient use of effort ↓	emphasis on reducing labour costs and dependence on labour ↓	emphasis on motivation and satisfaction ↓	emphasis on the quality of work-life ↓
Rationalisation	mechanisation and automation	Enrichment	Enrichment
Specify precisely how a job should be done, and enforce that method	replace men by machines	allow scope for initiative, interest in the product, fulfilment etc.	allow scope for fulfilment, interest, satisfaction etc.

FIG 6.5 Summary of main influences on Job Design

(SOURCE: BOWEN & CARLISLE, 1979, P25)

Since the days of F W Taylor, op cit, and the Gilbreths (1971) work study and time and motion experts have sought the "best way of doing a job" using the principles of motion economy and a definition of a "fair day's work". Closely related (in origin and aims) to this idea of specifying precisely what the best method is and how long it should take, is the principle of fragmenting work into simple repetitive motions. Often the product moves from one worker to the next on a conveyor belt, with all the planning and integrating responsibilities assigned to management. Such job rationalisation was the major principle of job design until about twenty years ago. It is still widely applied in many companies in the belief that it leads to greatest efficiency.

Engineering in industry has traditionally been associated with mechanising and automating work, partly to increase the scale of production and partly to reduce the dependence on manual labour. Jobs have been, in many cases, the residue of work that could not be automated, and this falls into two categories; the simple, unskilled and often heavy manual work such as loading on and off a machine; and machine minding work with varying degrees of complexity from button pushing to console monitoring and other operating room responsibilities.

Consequently, there are many jobs in business which are extremely monotonous, lacking appreciable job interest. Social Scientists studying workers in such jobs have found high levels of alienation and dissatisfaction. In many cases this has led to dysfunctional outcomes for both the organisation and the individual worker. Numerous writers have suggested that simplified, low skill level, short-cycle jobs have led to low motivation, job dissatisfaction, low productivity and other undesirable behaviour manifesting itself in alienation and poor performance, high rates of labour turnover and absenteeism and frequent strikes. (Argyris, 1957; Herzberg, Mausner and Synderman, 1959; McGregor, 1960)

The third alternative approach to job design is that of the social sciences (industrial psychology and industrial sociology in particular). They have made a major impact, in recent years, on management thinking regarding ways of working. This has led to the introduction of job rotation, job enlargement, job enrichment and increased worker autonomy, as well as various group working arrangements.

Yet another group of people interested in job design, are the policy makers of governments, and the trade union and employees' associations who wish to influence those policies. During the past thirty years, a great deal of interest has been shown in the 'quality of working life' (QWL) and the governments of Britain, USA, France, Germany, Norway and Sweden commissioned studies of the conditions (interpreted broadly) of employees in their countries. Discussed in Delamotte and Walker (1974), The result of this interest has been, and seems likely to continue to be, to add further impetus to the enthusiasm of managers and their advisors for the enrichment of the working peoples' jobs.

Job design advocated by social scientists and social policy-makers is usually a form of job enrichment, an attempt to add something to the workers' jobs which was missing before.

There are three main approaches to changing the design of a job, or three aspects to be considered when a new job is being structured; horizontal job enlargement, vertical job enrichment and ancillary job enrichment. (Bowey and Carlisle, 1979) Job design can take any one of these forms or a combination of them. When vertically enriching a job it is inevitable that some horizontal enlargement and ancillary enrichment will be incorporated.

a Horizontal Job Enlargement

With this kind of job restructuring, the worker is given additional tasks to perform of about the same level of complexity as his original one. This type of change has worked in some cases, but when applied without other aspects of job enrichment, it has a significant

rate of failure. (Birchall, 1975, and Lawler, 1970) It seems that in some cases more of the same kind of monotonous tasks do not increase worker satisfaction, whilst in other cases it does.

The kinds of situations where horizontal job enlargement does not seem to work well, are those where rates of production are more important to management than the quality of work or improvements in worker satisfaction; or where the original work requires very little mental effort and has a regular rhythm which is only infrequently interrupted, so leaving the worker free to daydream or talk whilst keeping up with the work (a situation which some workers find satisfying and do not like to have changed); or where operatives fear that they will not be able to cope with the re-designed job or resent training required for it. An example of the successful application of horizontal job enlargement is described by Wild. This involved the increasing of the job cycle time for television receiver assemblies from 1.75 minutes to five minutes. (Wild, 1976)

Jobs are sometimes horizontally enlarged to the point where an operator is responsible for assembling a complete unit instead of making only a contribution to it. When this happens a job is said to have "closure". An example by Wild, op cit, describes the case of steam iron assemblies whose job cycle time increased from 35 seconds to 3.7 minutes.

Job rotation is another form of horizontal job enlargement, where jobs are enlarged by adding "more of the same" but not all at the same time. Workers rotate between jobs, usually in order to add variety to the work and relive monotony. It seems to work well in situations

where jobs are physically unpleasant and consequently no workers spends an undue length of time in such a situation. Volvo introduced job rotation for paint line operators and for assembly line operators in their Torslanda factory, who were required to adopt awkward postures to reach parts of the product. (Gyllenhammar, 1974)

But there have been situations in which job rotation failed - particularly when it broke up long-standing social groups or where employees enjoyed the unbroken rhythm of the former system, or feared they might not be able to cope with some of the re-structured jobs. (Wild, 1974)

Job rotation is sometimes introduced as a form of group working, with members changing jobs either according to a pre-arranged schedule, or on instructions from management, or at times arranged among themselves. In the latter case, if the group is allowed to decide amongst themselves who will work where and when, they have taken over a responsibility usually reserved for management, a form of vertical job enrichment discussed below:

b Vertical Job Enrichment

This form of job restructuring allows the worker more influence over the functions traditionally associated with management. This implies an increase in the amount of autonomy of the worker. There is considerable evidence that autonomy is sought by many workers to increase satisfaction in their jobs. Shepard (1973), for example, measured the "autonomy deficit" of 303 manual workers in the USA (ie the extent to which their jobs had less autonomy than the workers thought

they should have) and found that "an overwhelming proportion of these workers indicated some degree of autonomy deficit". (71 per cent of the 117 craft workers, 90 per cent of the 92 workers on automated plants and 96 per cent of the 96 workers on mechanised relatively lower skilled jobs). Shepard, op cit, measured the autonomy deficit by asking them to answer the same set of questions from two perspectives. a) as they perceived their present job, and b) as they thought their jobs should be.

Often vertical job enrichment incorporates some form of group working. The group taking on some of the organising and controlling of labour and material formerly the responsibility of supervisors.

An example of a group working scheme which incorporated vertical job enrichment (and horizontal job enlargement) was the formation of small semi-autonomous groups of assembly workers at the Saab factory in Sweden (described by Wild, 1976). Working in groups of four, these employees completely assembled (closure) car engines. apart from some pre-final assembly work. The group member decided whether and how to sub-divide and allocate the work. They were also permitted to exchange jobs or rotate between work stations. In this example the jobs were enlarged horizontally to increase job cycle and times and allow operators to assemble as much as they wished of the complete engine; and enriched vertically to incorporate into the group's responsibilities decision making concerning allocation of duties within the group.

Another example described by Swart (1973) involved the TRW Corporation's introduction of work groups responsible for assembling complete products (horizontal enlargement to the point of closure). The groups also participated in the rearrangement of shifts and staggering of working hours to suit the personal circumstances of the employees (vertical enrichment). This kind of group working has been used in many industries which traditionally use assembly line systems of production. By forming the production system into small groups, assembling complete units, a number of benefits have been obtained. Usually employee job satisfaction increases and alienation is reduced. Invariably the power of any one group of employees to bring the whole production system to a halt by taking strike action is reduced.

Group working, invariably involving critical job enrichment has also been introduced in continuous process firms. Here the technology lends itself fairly easily to providing the necessary conditions for successful group working - identifiable group output; clear boundaries to the group product; independence from other groups except at the beginning and end of the group's contribution.

c Ancillary Job Enrichment

As well as enlarging jobs horizontally by adding more of the same kind of manual work, or vertically by adding some managerial responsibilities, jobs may also be restructured by adding what has been termed ancillary duties (Bowey and Carlisle, op cit). These are duties normally performed by groups of specialists other than supervisor and the manual workers themselves. Such duties include:

- . minor maintenance tasks
- . setting-up machines
- . product inspection
- . rectification of faults in product
- . personnel selection
- . operator training
- . administrative and clerical work
- . planning not normally done by line management

The reason for making this distinction between ancillary enrichment and the other two dimensions of job design is because the nature of the tasks added to the manual workers' jobs is likely to affect the way the group working exercise works out.

An example of ancillary job enrichment was the General Foods Corporation's introduction of group working to its Topeka plant. As reported by Swart, op cit, work groups were formed to cover the entire production system from processing of raw materials to the packaging of the end product. The group members decided how tasks should be allocated, who would cover for absent workers and how manufacturing problems would be handled (factors likely to vertically enrich jobs). In addition they assumed responsibility for selecting new members and the counselling of group members who did not attain group standards (ancillary enrichment and vertical enrichment respectively).

Another example was the office equipment assembly company described by Birchall and Wild (1974) which rearranged its production line to encourage greater interaction between members of a team, enlarged the jobs horizontally by increasing the job cycle time from three minutes to 20 minutes, and gave the groups responsibility for making quality checks and rectifying faults (ancillary enrichment).

The distinction between horizontal enlargement, vertical enrichment and ancillary enrichment is important. Horizontal enlargement helps reduce monotony and boredom inherent in some jobs; vertical enrichment vests some managerial responsibilities in the workers, or more usually semi-autonomous groups of workers, whereby, they assume responsibility for aspects of planning, organising, motivating through an informal form of peer group review, and controlling through monitoring performance and making necessary adjustments; ancillary enrichment will involve different kinds of changes (learning new skills, incorporating specialists into the groups and more effective co-operation between production and ancillary work).

Figure 6.6 shows diagrammatically the three separate dimensions of this particular job design model. Figure 6.7 shows three hypothetical group working exercises classified in the left hand column by the traditional distinction between horizontal enlargement and vertical enrichment; and in the right hand column by the three factor model.

Since vertical enrichment (in the tripartite model) is based on the delegation of managerial tasks to the operators, this has been termed participation in the model. This equates with Lischeron and Wall's, op

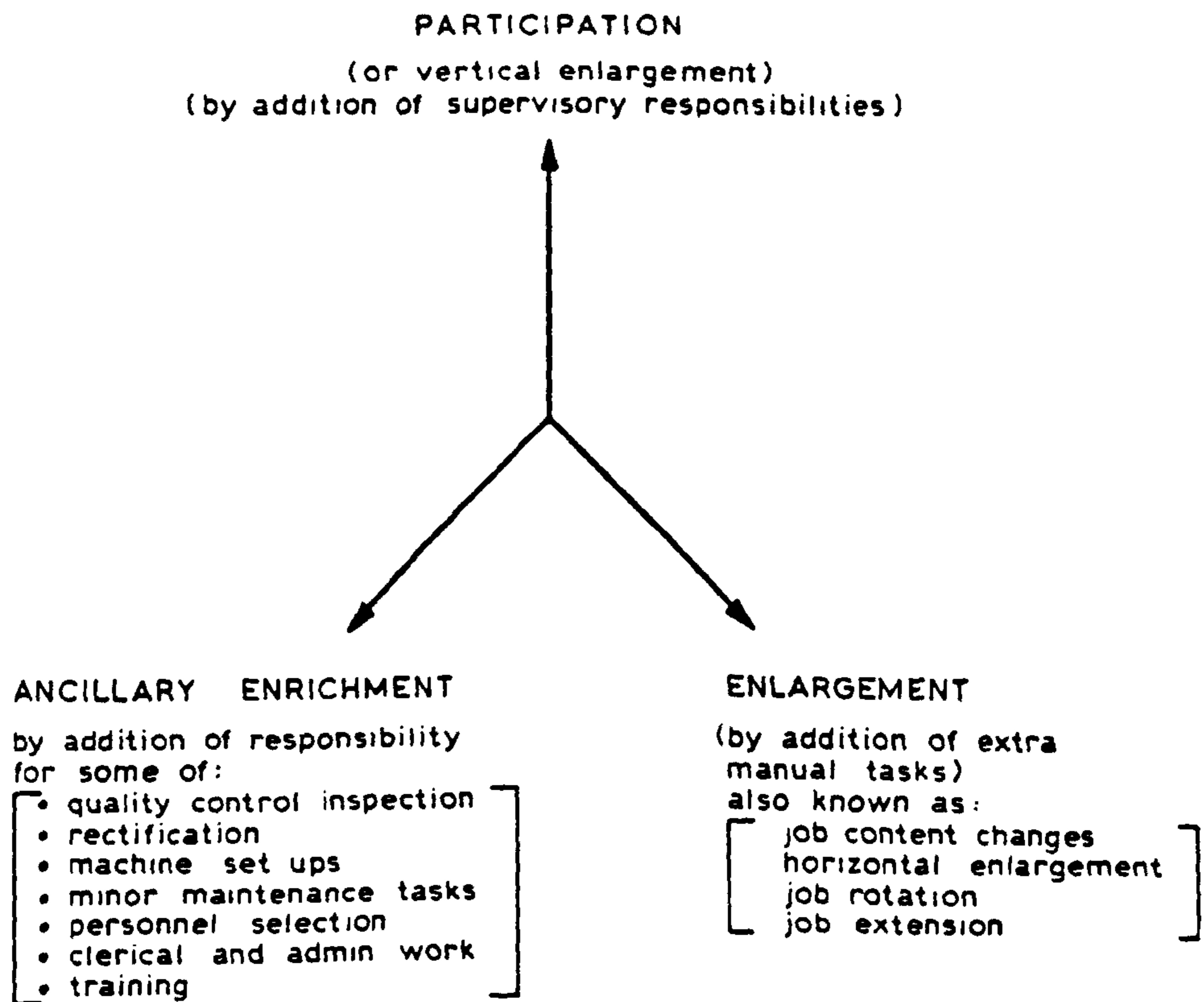
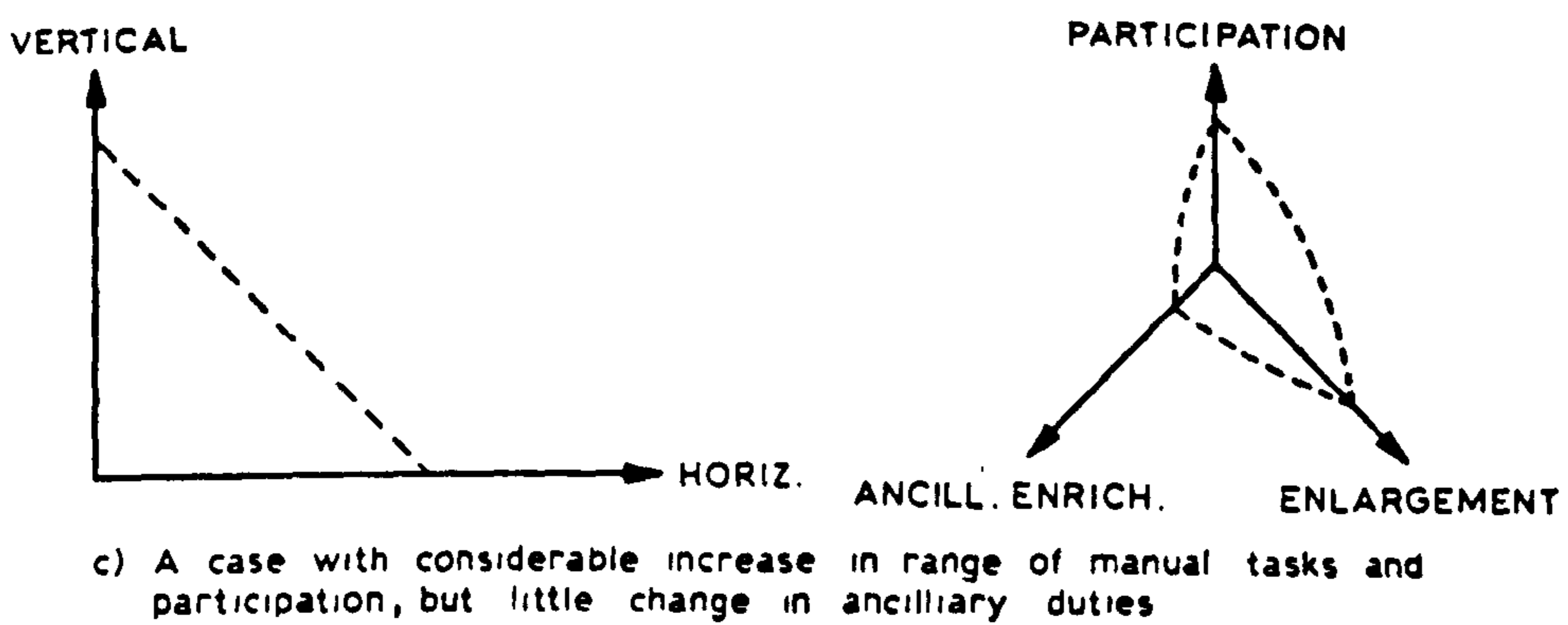
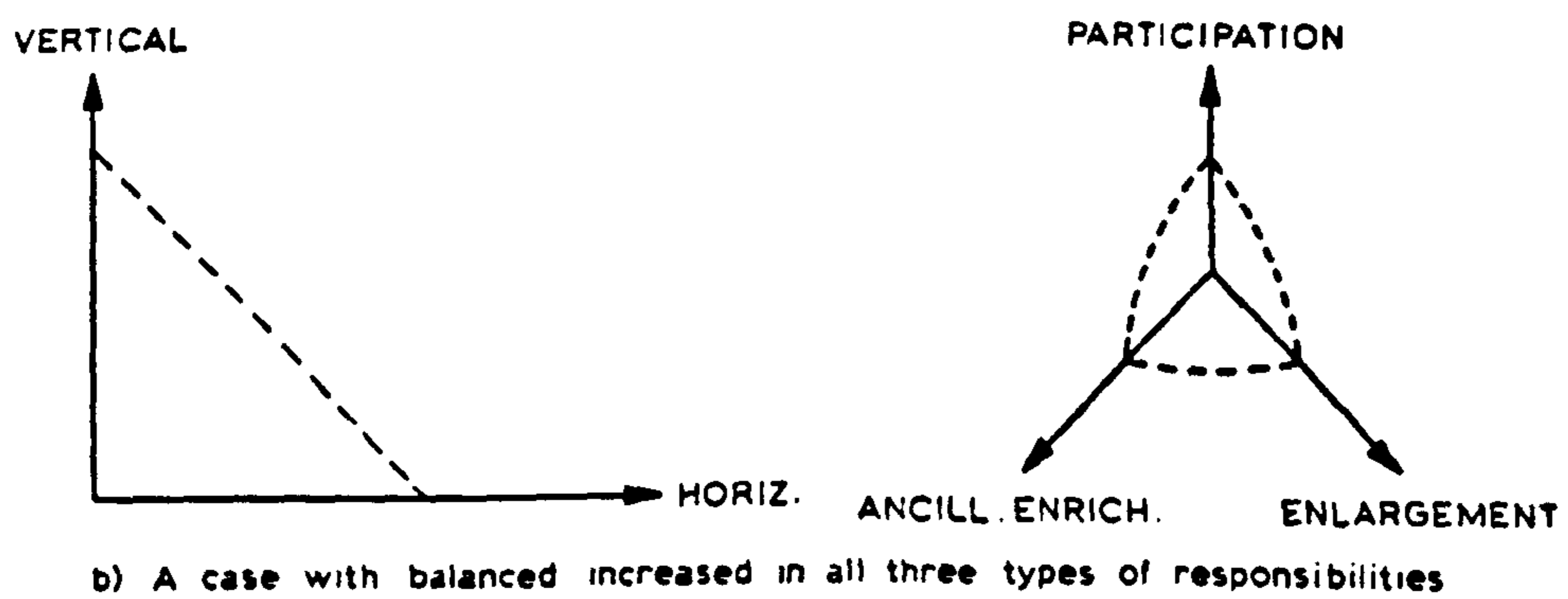
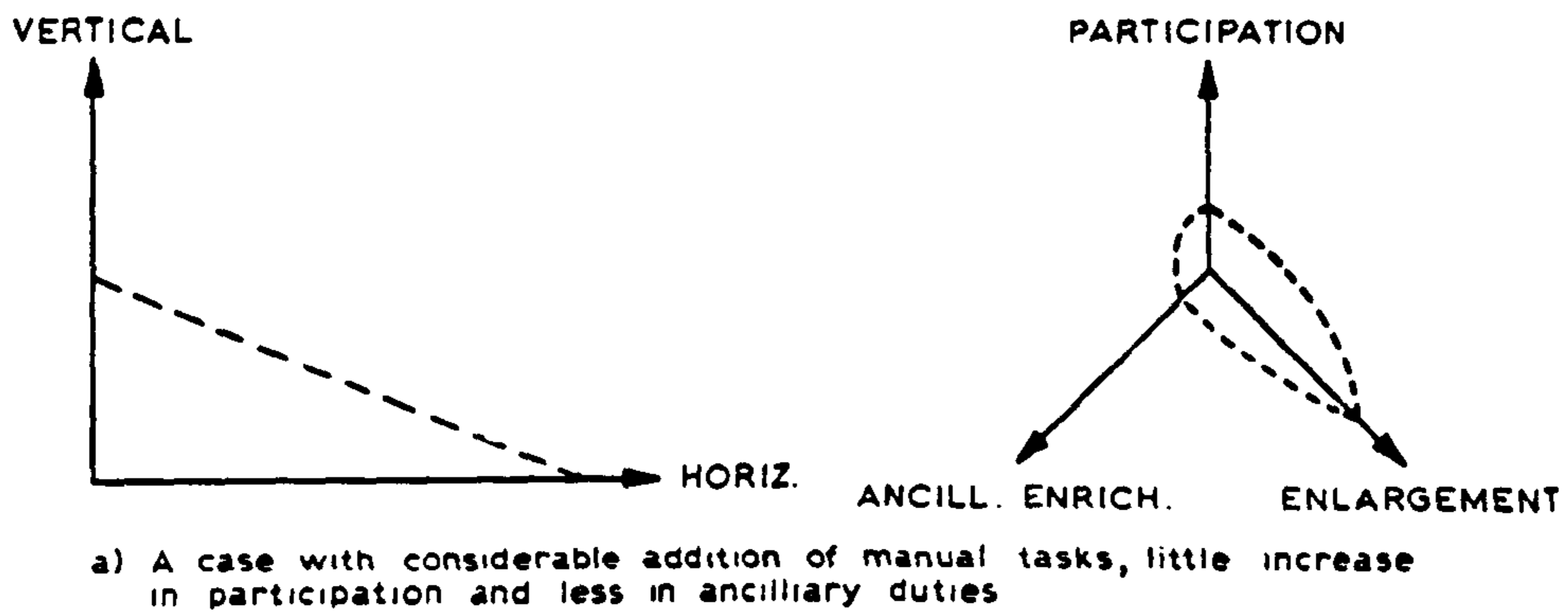


Figure 46 Model of Job DESIGN

(SOURCE: BOWEN & CARLISLE, 1979, P38)



**FIG 6.7 Typical Job Design Profiles
(Conventional & Proposed Profiles Compared)**

(SOURCE: BOWEN & CARLISLE, 1979 P 39)

cit, Medium participation (sub section 6.4.1) Lischeron and Wall, op cit, include personnel selection and operator training within this category. However, in the Tripartite model of job design this has been classified ancillary enrichment because these two tasks are not normally performed by a supervisor who is in reality the shop-floor's first contact with management. In the tripartite model therefore, personnel selection and operator training would be classified under Lischeron and Wall's, op cit, term local participation if the word participation were to added to the job design model.

Referring to Figure 6.7 the tripartite model presents a more accurate picture of job design changes introduced in a work structuring exercise. It is important to differentiate in this way because each of the three types of change will have different outcomes and will be introduced, in the first instance, to meet specific job deficiencies in perceived worker needs.

Job design theory apart, it has to be conceded that some job design projects do not produce the results expected. It must be added, however, that not all organisations embarking on a job design exercise have a clear picture of the outcomes they seek or expect - this will arise later in this chapter. Meantime in the next sub-section issue of claimed advantages possessed by co-operatives over conventional organisations in the area of work organisation will be considered.

6.4.3 Advantages of Co-operatives in Matters of Job and Organisational Design

A number of commentators have argued that the area of jobs and organisation design is one in which workers' co-operatives will possess an advantage over their conventional competitors - reported by Paton (1978). Two reasons are given:

- 1 less supervision will be required in a co-operative because employees will be more committed to the goals of the organisation and will be better informed regarding what is required to achieve them
- 2 job enrichment experiments in conventional firms demonstrate that there is often considerable scope for socially and economically more efficient use to be made of the available human and technical resources. Since co-operatives often express a desire to make work more satisfying, they should be quicker to take advantage of these opportunities.

Following this argument further, co-operative forms of organisation would appear to have certain attractions. First one could expect improved productivity in many cases; second the work would be more varied and interesting; third responsibility for their jobs and the conditions surrounding them would introduce workers to the realities of managerial and business problems.

It could, therefore, be concluded from these three issues that progress in job design is a necessary condition for the development of co-operative working relationships. However, Paton, op cit, sounds a note of caution:

- 1 Most of the job design developments have taken place in large scale operating units where tasks tend to be highly fragmented, and processes are often capital intensive. Such situations are less common in small and medium sized firms that will compete in the market with emerging co-operatives. Also production batches are usually much smaller and labour flexibility tends to be greater in small firms. There is likely to be less scope for enrichment because jobs have not been impoverished to the same extent as in larger firms.
- 2 Job enrichment programmes often require a considerable investment in training and time for development. Small conventional firms and workers' co-operatives will be unable to afford these costs and many have difficulty in finding alternative jobs for displaced persons. Also they may be less able to persuade employees into accepting the proposed changes due largely to difficulty in providing financial incentives. (The author feels this is a sweeping statement and is worthy of further research)
- 3 In many cases the 'improved' jobs fall short of the hopes of idealists who promote co-operatives. Job design changes in conventional firms have tended to be developed for technical and economic benefits, the social aspects being of secondary importance, and sometimes it appears, of no importance. This is particularly

true in the engineering industry when group technology is being introduced (Bowey, 1974; Edwards, 1974; Wild and Buchall, 1975).

The scope of job enrichment in conventional businesses is restricted by a desire to maintain managerial control over the production processes. (Walton, 1975) If this problem is reduced in co-operatives, then the expectation is that they can forge ahead of conventional businesses in matters concerning job and organisation design.

- 4 The basic argument that less supervision will be required in a co-operative, assumes that the members are strongly committed to it. (Rhodes and Steers, 1981). Steers (1977) defined organisational commitment as "the relative strength of an individual's identification with and involvement in a particular organisation". Porter, Steers, Mowday and Beulain (1974) contend that commitment is characterised by three factors: a) a strong belief in an acceptance of the organisation's goals and values, b) a willingness to exert considerable effort on behalf of the organisation, and c) a strong desire to remain a member of the organisation. Mowday, Steers and Porter (1979) argued that commitment differs from the narrower concept of job satisfaction in that commitment is more global, reflecting a general affective response to the organisation as a whole.

"Commitment emphasises attachment to the employing organisation, including its goals and values, while satisfaction emphasises three specific task environments where an employee performs his or her duties." (Mowday et al, 1979)

The more global orientation is more appropriate for this research project because the object of the study is co-operative work organisation embracing contemporary job and organisation design theories and applications. However, it is not proposed to enter into a major discourse on commitment in workers' co-operatives because it is a separate area of major importance offering many opportunities for rigorous research. Sufficient to say in passing that an interesting study by Oliver (1984) concluded that "... co-operatives can generate high commitment under certain conditions. The main thrust of the argument has been that the present sample formed a highly self-selected group that had actively chosen a system of work organisation in line with their beliefs and that dealt with products that they felt were worthwhile. The outcome of this person/organisation 'match' was high commitment. The question of how enduring this commitment can be, and of the extent to which it can exist in less ideologically fervent situations, awaits further research."

For an excellent treatment of commitment in workers' co-operatives please refer to Oliver (1986).

Thus it seems the popular picture of workers' co-operatives having a more successful form of work organisation compared to conventional small businesses is far from clear. Although there may be scope for improved work organisation in co-operatives, it has not been reflected in practice to any marked degree. Even a cursory perusal of some of the literature on small businesses generally (including workers' co-operatives) gives the impression of too many rose-tinted claims for the advantages of small businesses in areas like job and organisation design. In situations where large firms, especially those in the manufacturing sector, have re-organised their operating systems to include such features as a series of distinct small business areas, and semi-autonomous work groups, the view sometimes circulates that the big firms are attempting to exploit the distinct advantages possessed by their smaller colleagues. But this is a distortion of the truth when one considers how much thought and effort has gone into some of these work re-organisation projects - for example Shell, Philips and ICI as reported by Kelly (1982). These newly formed small business areas formed within a large firm differ in many ways from conventional small firms in characteristics of their respective labour forces, age distribution, characteristics of industry and even marital status of the two sets of workers. (Curran and Stanworth, 1986) Converting large businesses to a series of small business areas is not the same as forming a number of small businesses from a work organisation point of view. This will be made clearer later in this thesis when the Japanese Just-in-Time (JIT) methodology is discussed.

Indeed some writers see co-operatives as emulators of some large business practices.

"Co-operatives are, after all, an extension of the use of profit-sharing schemes, employee stock bonuses and autonomous work groups, the latter associated with the 'human relations' school of thought in industrial organisation theory." (Bradley and Gelb, 1982)

Although, in many instances, there is greater labour flexibility in small firms compared to large organisations, it does not necessarily follow that the workers experience a higher degree of job satisfaction or that labour productivity is always higher in small businesses. On some occasions it may be higher or lower, or more important, it may have given workers an appetite for more radical job and organisation design.

Accordingly to Paton, op cit, the failure rate of co-operatives in the past cannot be adequately explained simply in terms of: initial under capitalisation; technological change; and recession. Paton, op cit, points out that the greatest reason for collapse was probably a failure to develop forms of organisation that reconciled the requirements of commercially sound management with an acceptable degree of employee participation. Contrary to popular belief in the media, co-operation does not mean 'no-management'.

The idea of co-operative organisation has been developed negatively according to Paton, op cit. It is 'not just' what has been achieved so far. Thus it appears that there is considerable scope for unconventional small businesses. Paton, op cit, asks what are these reasons for conservatism in job and organisation design in co-operative establishments? What stops the designer(s) from developing forms of ownership that involve more than just profit sharing, a weak supervisory board and a participative management style?

Workers' co-operatives have achieved only a small fraction of the hopes they have inspired and continue to inspire.

What then are the reasons for this lack of a more radical approach to job and organisation design in workers' co-operatives. A literative search reveals little evidence for guidance. However literature concerning job and organisation design generally does provide some plausible factors related to the twin problems of timid approaches to the task and reasons for failure of some work reorganisation projects in business generally. It has to be recorded nevertheless, that literature tends to deal much more with 'successful' cases, the majority of suspected 'failures' not being publicised. The main reasons for failure are listed in the next sub-section.

6.4.4 Barriers to Successful Job and Organisation Design

It is most unlikely that job and organisation design projects 'fail' for one reason only. Rather such an outcome, manifesting itself in an abandonment of the exercise and/or a failure to achieve the results expected, economically and socially will probably be based on a combination of the following factors:

a No Clear Objectives and Poor Evaluation

A report of a European survey to assess the reasons for job structuring and work organisation changes, the objectives of the changes, and the methods of evaluation of effectiveness, indicated that many managers were generally unclear about their objectives in

embarking on such an exercise. In addition, systems for evaluation of the effects of changes were often badly thought out. Without clear objectives, and these should be limited in number, and adequate monitoring, success based on accurate evaluation is unlikely to take place. This makes it virtually impossible to make any necessary adjustments designed to pursue the original objectives. (Wild and Birchall, op cit)

b Too Much prescription

The initial impetus towards job re-design in an organisation may come from external consultants who advocate its benefits; from directors and managers within the company, or from social scientists who teach or advise company personnel. It may also stem from joint management-employee consultation, or in response to employee suggestions.

When outside advisers recommend job design changes they usually work from a Human Needs model of the organisation or a System Needs perspective. They suggest that the prescribed changes will provide employees with opportunities for satisfying higher order needs such as social needs and growth or job satisfaction needs. (Ginzberg, 1975) Or they suggest that job re-design will allow opportunity for more of the capabilities, talents and commitment of employees to be used for the benefit of the organisation. (Taylor, 1977)

Occasionally they may be using a pluralist-type model, and propose work reorganisation as a way of increasing the participation of employees in decision-making, or of recognising a right which employees may be in a position to demand. (Fox, 1974)

Despite all the research studies which have been done, there is still little conclusive proof of these claims, largely because of lack of rigour of many of the studies and partly because only selected information is published about many of the cases.

c Inadequate Research

Many writers warn that job re-design practices are not universally applicable. Turner, Lawrence and Turner are of the opinion that some workers tend to be satisfied with relatively uncomplicated jobs while others become alienated with jobs which are uncomplicated, unchallenging and boring - reported by Morse (1973). In the same article Kaplan et al concluded in a review of job enrichment exercises that such programmes rarely consider the varying desires, aspirations and values of the workers. Also the impact of the differing degrees to which particular jobs lend themselves to enrichment is glossed over. (Morse, op cit) (See also Delamotte and Walker, 1974)

Commenting on the Saab-Scania and Volvo cases, Tichy and Sandstrom (1974) raise doubts about such group working innovations. They feel that in managing the organisation in teams it is assumed, perhaps wrongly, that all workers are stimulated and challenged by working in team settings.

It is clear that although managers, academics, consultants and on occasions, politicians, are willing to advance theories on human needs and will often describe how job design changes can meet these "needs", few people on the supply side bother to consult the workers themselves regarding their point of view. The underlying implication is "we know what is good for them" possibly based on a misunderstanding of the situation under discussion, or a limited understanding of the theories such as those developed by Maslow (1943), Herzberg (1966), McGregor (1957), or McClelland (1961) and on articles describing the Volvo innovation handed out during a management course at the local polytechnic or university. (For a summary of the main sociological and psychological theory relevant to job design see Bowey and Carlisle, op cit)

Fortunately some researchers have gone directly to the source endeavouring to obtain the workers' views on their jobs and the conditions surrounding them. See Weaver (1976), Ramsay (1976) and Holter (1965).

This is an area worthy of further research but enough has been said for the purposes of this research project. For further discussion refer to Carlisle (1981).

d Environmental and Organisational Changes Required

It is an unfortunate feature of many articles on job design that the authors apportion all the benefits of the changes to job design changes introduced. For instance, Brown (reported by Hill, 1976) claims that some of the changes introduced at the Volvo plants were not reported in the literature. Writers have tended to concentrate on job rotation and work group autonomy without mentioning other measures taken by management. For example, an employment agency in the Volvo plant which arranged transfers for workers bored with their present jobs (Gyllenhamman, 1973). One would expect this innovation to reduce labour turnover but most writers attribute this reduction to the improvements in jobs. Volvo also operated a joint company and employee working group which prepared an inventory of improvements to the environment in all Volvo Group factories which were then implemented (Gyllenhamman, 1973). In addition, considerable sums of money were spent on such things as the refurbishing of workshops, improvement of lighting, and ventilation systems, noise abatement measures, improvement of production methods, a central vacuum cleaning system in the foundry and measures to combat oil mist in the workshops.

Ottaway (1976) has proposed an approach to overcome a hostile work environment. He contends that it requires co-operation and less rigid roles, but worker directors is not the answer. His method (bottom-up) helps cope with the basic problem in worker participation which he identifies as the need to change norms, styles and environment.

e Cost

Job re-design exercises require time and implementation costs money. On occasions productivity may actually fall for a period of time. Lansbury (1977) spent a year in Sweden and studied the famous Volvo, Kalmar car assembly plant. His short article gives a very clear account of the context and background to Kalmar, the features of the plant, the way it was planned and initiated and the achievements and problems since it began production in 1974. The plant cost 10 per cent more to construct than a conventional car factory and as early as 1977 there were industrial disputes. So in spite of the improvements in labour turnover and absence, the satisfactory production rates, higher quality, and the undoubtedly excellent working conditions, there have been question marks over its economics. One would expect a responsible management to carefully assess the likely costs of introducing any innovation.

Sadly this is not always the case. It is also a case for regret that 'failures' are not reported in the journals as often as they should be. Such articles would sound a note of caution to those contemplating organisational changes for whatever reasons.

f Lack of Management Support

Job design exercises carried to the point of semi-autonomous group working is a limited form of participation, but as described earlier, a form of participation popular with many shop-floor workers. (Fay and Gadon, op cit, Ramsay, op cit) Although it affects the way the decision-making hierarchy of the organisation impinges on and constrains employees' performance of their jobs and day-to-day actions, it has little or no effect on the policies of the organisation.

Nevertheless, it is not uncommon to find management in organisations embarking on a job design exercise, opposed to the developments - even those which do not provide for worker participation in policy matters. This is unfortunate because although job design developments may initially involve only limited delegation of decision making responsibilities, in some circumstances the responsibility for day-to-day decisions may lead employees into considering and being concerned about wider issues such as policy matters. Greater concern for policy issues on the part of employees will in many situations be of benefit to the organisation as a whole, and is the aim of many employees who introduce innovations in participation. But it may not be welcomed by some levels of management, and in some circumstances may not be welcomed at all, particularly when the employees introduce new criteria into the policy-setting arena. The implications of participatory group working for managerial jobs are considerable and if schemes are to work well, the supervisors and managers who will be involved with them need special preparation and even re-orienting to cope with the changes in their own jobs as well as those of the employees.

This issue is not confined to conventional businesses only because it is not unknown for an elite group to emerge in a workers' co-operative and show some determination to wield power. (Eccles, 1979) Events as described above can be a considerable barrier to successful job and organisation design in workers' co-operatives.

g Alienation of Supervision

Where job design exercises have taken place, many supervisors feel alienated at three distinct stages of the development:

- 1 The changes are usually developed by managers and their advisers, usually under the watchful eye of directors and in conjunction with the shop-floor and their trade union representatives. Consequently supervisors feel that they have not been given an opportunity to contribute nor express their view on the matter nor voice their anxieties.
- 2 The installation stage where the supervisor is usually delegated responsibility for implementing the revised jobs and working arrangements at the 'coal face'. He is likely to feel that the revision would have been better had he been consulted during its development. To exacerbate the situation, implementing these changes will add to his workload and the benefits of the jobs revisions will be enjoyed by the shop-floor.
- 3 An outcome of the implemented revisions is the effect on the supervisor's role. This will be particularly true where autonomy is vested in a work group. He may have lost his right to plan, organise, motivate and control the activities of his former subordinates in the traditional manner. This function is highly valued by many supervisors both from the point of view of the prestige and status it offers them and because of the intrinsic satisfaction given. It is not surprising that they feel threatened, insecure and alienated. For further discussion of this issue refer to Gyllenhamman (1973) and Carlisle (1983).

h Problems of Replication

It is a mistake to introduce job design changes which have been copied from the blue print of something that has worked well elsewhere. The organisation, employees, management, industry, production process and location may be different. What works in one situation may be a disastrous failure in another.

In 1974 the Ford Foundation took six car assembly workers from the USA and placed them in semi-autonomous work groups in a Saab-Scania plant in Sweden (described by Fay and Gadon (1976)). The change involved an increase in the job cycle time for these men from two minutes to 30 minutes, enabling them to assemble complete units. After three weeks, five of the six American workers said they preferred their old system to the Swedish arrangements. Swedish executives were not surprised and the managing director of Volvo said, "They came from an entirely different work culture. Our people have grown into these patterns gradually, for reasons that are essentially Swedish."

This is just one example of something which is right in one situation being unsuited to another. This topic will be raised again in relation to co-operative organisation. It is possible that the 'ideal' concept of co-operative organisation is not totally suitable in many situations. For instance it may be assumed, wrongly on occasions, that all the members of a co-operative are fully committed to the co-operative ideals and that there is general agreement as to the form of these ideals.

i Lack of Knowledge

During the discussions about impediments to successful job and organisation design in this subsection, there has been an underlying assumption that those responsible for job design are knowledgeable about and capable of applying appropriate principles and practices. A review of literature and past research tends to suggest that this is not so. In one company researched by the author, job design changes were introduced as an alternative to flexitime which was requested by the shop-floor personnel. Consequently operators were denied some control over the arrangement of their working day and were offered instead minor horizontal job enlargement and some job rotation. This had the effect of upsetting a reasonably well balanced assembly line with a consequential reduction in output. In addition this substitute action, which is normally introduced to extend the physical demands of the job by calling for exercise of skills of a similar nature, was unlikely to meet the needs of the operators. They had expressed a propensity for more control over work schedules. It was also found that more of the same kind of boring, simple tasks required little mental effort and did not work well. On occasions, such work, which has a regular rhythm with few interruptions enables workers to happily indulge in daydreaming or conversation with colleagues. Thus the innovations introduced by management in this company were not designed to meet the requirements of the original request by the workers. To make matters worse, the changes had a detrimental effect on resource productivity, an event which quickly led to abandonment of the exercise. (Carlisle, op cit) The lesson for management is clear - do not copy other people's schemes no matter how well publicised. Also take sound advice from people capable of assessing workers' needs and proposing changes designed to meet these needs.

6 4.5 CONCLUSIONS

The issues discussed above are very important when job and organisation design changes are being contemplated. They have particular relevance for workers' co-operatives which have, or are expected to have, alternative organisational arrangements to those found in traditional, hierarchical organisations. The idea of co-operative organisation has been developed negatively. (Paton, op cit) It is 'not just' what has been achieved so far. Thus it appears there is considerable scope for unconventional job and organisation design in workers' co-operatives. However, there is not any overwhelming evidence to indicate that job and organisation design in co-operatives (like job satisfaction) is generally more successful than in conventional small businesses. Some of the main factors which determine how successful (or unsuccessful) a job design project will be have been discussed above. But a critical and very neglected issue contributing to the success or failure of job and organisation design is information management. Two separate 'computer scans' across Europe and USA failed to produce any documentation of note in the small business area generally. The situation was even worse in relation to workers' co-operatives. This link between appropriate and adequate information management and job and organisation design is the kernel of this research project. Thus this topic will be considered in the following chapter.

CHAPTER 7

IMPLICATIONS OF INFORMATION MANAGEMENT FOR JOB AND ORGANISATION DESIGN IN WORKERS CO-OPERATIVES.

7.1 Influences from the Traditional Past

Organisations have many stabilising influences, learning processes being a typical example. Also, organisations act through people, and people condition or programme themselves over time as they gather experience in the work situation. Problems that are encountered and solved repeatedly are gradually taken over by standardised responses. These responses can be formalised as written decision rules. Success reinforces reliance on such action programmes and organisations come to rely increasingly upon their past experiences (consequently organisations in balanced, stable situations typically accumulate a series of responses and may grow insensitive to signals signifying the need for change) (Cyert and March, 1963)

Since people have a limited capacity to process information, organisations suffer from the same limitation because they rely on people to handle their information. Using standard operating procedures in place of genuine problem solving is an effective way for organisations to conserve mental energy and to allocate available decision resources to problems which are new and complicated and which call for basic problem solving. In addition, formalised operating procedures ensure that the behaviour of organisations is more consistent over time. "Enacted futures are based on experiences of the past" (Hedberg and Jonsson, 1978).

This is probably desirable in stable, conventional situations when organisations face few discontinuities, and where history reasonably well predicts the future. In changing environments, or during periods of organisational innovation however, the same learning processes lead to organisational inertia. This can undermine organisational survival and can have a detrimental effect where organisations are attempting to adopt less conventional ways of designing and managing their organisational arrangements and activities. An excellent example concerns the area of Management Information Systems (MIS). Here nearly all the developments in theory and practice of information systems have assumed that organisations are hierarchical and managers are in effective control; a bias produced, for instance, in the Systems Management course by the Open University (1974). This approach to MIS theory is value-laden since it contains normative assumptions regarding the way in which organisations should be structured and managed.

In parallel with this managerial approach to MIS has been an awareness of the contradictions and unacceptability of hierarchical organisations and the traditional forms of specialisation and division of labour.

(Wilson, 1973; HMSO, 1975; Martin, 1983.)

Nevertheless information systems of the type designed by managers, or their agents, for management use still tend to prevail. How this is countered by shop-floor workers, and others, is outside the limit of this research project, but will be referred to briefly below. The unacceptable side of MIS is in situations where democratic practices are being introduced or in a workers' co-operative where the expectation would be to see reasonable open access to information and even more

important, information systems designed to provide co-operators with adequate and appropriate information to enable them to actively participate in the running of the business.

The reality is however, that workers' co-operatives either inherit a traditional MIS if they are endowed or develop information systems based on the traditional MIS model if they have other origins.

As research findings will show later in this thesis, co-operatives do not always develop formal information systems for planning and control purposes. However the difference is not just between a MIS in a traditional company and one found in a co-operative - often they are indistinguishable as control systems.

MIS seldom extend to the workforce in a traditional company but in a co-operative there is some effort to extend it into a traditional form of organisation.

7.2 Information and Worker Participation

It is assumed in this thesis that workers have a legitimate interest in the activities of the organisations which employ them. This is particularly true in workers' co-operatives not least because most of the workers employ themselves by virtue of a financial stake in the enterprise. In a conventional firm these interests are, in part, in conflict with those of the organisation's management and to some extent its shareholders. Its normative orientation is consequently somewhat different from that which dominates MIS theory.

The pursuit of these interests can be followed in one of three ways:

- a) through participation in decision making
- b) through oppositional means
- c) a combination of approaches a) and b).

(Lockett, July 1978)

Such activities include a wide range of alternative strategies, including such things as, becoming a worker director, becoming a member of a workers co-operative, or supporting a trade union in its opposition to for example Japanese approaches to the management of a manufacturing process.

Whichever approach, or combination of approaches is pursued, the workers involved will require access to adequate information to aid decision making. The need for adequate information has been commented on by, for example, Bernstein (1976) when he wrote "one of the most common pitfalls in the operation of democratisation schemes is an insufficient release of management-level information to employees".

A different perspective was taken by the CBI (1976), "One of the basic requirements for effective participation is that all those involved should have made available to them certain basic information, without which constructive criticism and comment is impossible". Whichever view is taken it is clear that effective participation (in opposition) is improved by appropriate information. See also Pettigrew (1972).

A further assumption is that 'adequate' or 'appropriate' information is related to the structure of the organisation concerned and to the objectives and strategies developed by those involved. This assumption is generally accepted in MIS circles.

Thus from the discussion so far in this sub-section it appears that there is a need for information systems designed to meet the requirements of workers. From hereon these will be referred to as worker information systems (WIS), after Lockett, July 1978. Pursuing the reasoning of MIS theorists (Clout, 1972, Open University, 1974) it transpires that the ~~from~~ the accumulation of data acquired within and outside the organisation, various types of information must be extracted. But it is critical that this information is problem oriented rather than means oriented. In other words in the contemporary setting, the information users must ensure that the information is directly related to their problems, activities and policies. Information gathering must not be an end in itself otherwise the area of management misinformation systems is encountered (Ackoff, 1967). This implies that some form of information system will usually be necessary to structure the available data in addition to identifying unfulfilled information needs. Therefore if workers are to pursue their interests in any meaningful way, some form of WIS is necessary. The concept of a WIS will be defined in more detail below.

7.3 Worker Information Systems (WIS)

It is widely recognised that information is important in management decision making (McRae, 1971). Indeed management information systems are a key concept in organisational design and change. It follows therefore that deliberate efforts must be made to ensure adequate management information for decision making.

However in situations when some decision making has been delegated to operatives, a MIS based on traditional hierarchical arrangements will not be totally appropriate. MIS designed for a hierarchical management structure will not match the requirements of a system in which decision making has been democratised.

In a workers' co-operative, members participating in decision making - both individually and collectively, will require a flow of information appropriate to their needs and situation.

The argument so far is that traditional information systems are designed specifically for management use. If designed properly they will meet managements' informational needs and will be in a form easily understood by them. But in participative situations such as when semi-autonomous group working is introduced following a job re-design exercise, or in a workers' co-operative, management information systems will be inappropriate. Information may not flow to the 'new participators' and when it does it may be inappropriate and not easily understood. (It is not intended to pursue the problems of workers' information used for oppositional means in these discussions. This subject is outside the remit of the research theme being developed.)

When attempting to define a WIS, three important factors must be considered.

- a) the range of activities forming part of a WIS
- b) the objectives and strategies of workers involved
- c) the type of organisation in which the workers are active.

Lockett's, July 1978, definition of WIS encapsules these three segments admirably: "A worker information system is the range of processes by which information relevant to workers in an organisation is gathered, monitored, analysed, stored and disseminated". This definition covers both structured and informal activities but the key word is "relevant". Again it is stressed that future discussion will confine itself to "participative" WIS, "oppositional" WIS being out of the mainstream of this research project. Sufficient to say that an oppositional WIS is created by the workers independently of management to assist them in a situation where conflict of interests are clear; a typical case is that involving trade union activity. A participative WIS is, in contrast, one which is in part integrated with the organisations MIS and where some degree of concensus is seen to exist. The distinction between the two types of WIS is not always clean cut. It may be that different groups are following varying strategies in which case a combination of elements of the oppositional and participative MIS will exist in parallel.

Since job and organisation design takes place in all organisations This may be done formally following certain principles, two contrasting approaches being the methods practiced by FW Taylor, op cit, and socio-technical systems as advocated by TRIST (1976). In the first case shopfloor workers required little more information than answers to the questions:

- What do you want me to do?
- How am I getting on?
- How much will you pay me for my contribution (performance)?

As a result of the second approach, which rejected both human-relations theory with its emphasis on the social aspects of work organisation and technological determinism, which stressed the constraints of job design as a result of the progress of technological developments. Instead the socio-technical theorists advocated 'joint optimisation' of both sides of the system. [For further discussion of development of job design theories and practices refer to Kelly, 1982]. As a result of socio-technical systems design, those affected would require much more operational (and other) information if they were to experience variety, discretion (or autonomy), task wholeness (or closure), and responsibility in their jobs.

Therefore in the light of what has been said in this sub-section so far, there is a very important link between job design and information management. This topic will be further developed, below with particular reference to workers' co-operatives.

7.4 Job Design and Information Management in Workers' Co-operatives

In the areas of information management, job and organisation design, and worker's co-operatives there is a lack of discussion on two main issues:

- a) little work has been done on the issue of information flow to and from workers who are expected to provide and receive information vis-a-vis the information system. This is important when job and organisation design involves the introduction of semi-autonomous work groups, and is even more important when a firm sets up under co-operative principles.
- b) although there is an abundance of literature concerning information management and information systems in organisation, only occasionally is there any reference to issues relating to job design.

In short the relevance of information management to job design has not been widely recognised. Wilkinson(1970) argued that analysis and possible re-design of information systems was a key aspect of job design.

"A careful analysis and some re-design of the information systems ----- seems to be one of the most important aspects of redesigning jobs".

Hedberg (1977) and Clegg and Fitter (1978) support Wilkinsons, op cit, views. Birchall (1975) refers to the necessity of information flow for decision making purposes. "Information systems must make available all the data required for execution of decision-making duties".

Among the few who have recognised this gap in job design literature are Sime and Fitter (1978) who in discussing the information needs of those responsible for making decisions, commented that those needs are likely to change if decision making is devolved to the shopfloor following job re-design exercises.

Considering the amount of written material available on MIS and on job design, very little attention has been focused on the links between the two.

If we accept that workers have a legitimate interest in the activities of the organisations which employ them, and that these interests are at least partially in conflict with the organisations management, then this view has greater relevance in co-operative organisations. As stated earlier the pursuit of these interests may be either through participation in decision making or through oppositional means, or a combination of these approaches. Continuing this argument, Lockett, op cit, states that effective worker participation (or opposition) is enhanced by adequate information.

For the purposes of this research we are interested in the relevance of information systems at two distinct levels:

- i) sub-system ie job re-design with work groups
- ii) organisation ie workers' co-operatives

A third level, although interesting, may be referred to but will not be discussed in detail.

iii) multi-organisation ie multi-plant corporations from the point of view of trade unions particularly shop stewards.

7.4.1 Job Design and Information Management with Work Groups

The tripartite model of job design discussed earlier shows that job design changes can take place at three levels.

- horizontal job enlargement
- ancillary job enrichment
- vertical job enrichment (participation)

(Bowey & Carlisle, 1979)

Horizontal job enlargement resulting in jobs containing a greater variety of tasks of a similar nature will not require significant changes in information flow in the information system.

Ancillary enrichment will involve new skills different to the ones being used and distinct from managerial activities. This type of change will require access to particular information eg when involved in selection of new members to the section (group), department, appropriate basic information will be necessary. Vertical job enrichment which will invariably lead to the formation of semi-autonomous work groups will definitely call for substantial modifications to the MIS. If groups or workers are to accept devolved responsibilities from management, they

must have appropriate information to fulfill these responsibilities. However diversion of flows of information from a traditional MIS is inappropriate. The groups is now 'planning' and 'doing' whereas previously they performed given tasks as planned and directed by supervisors. The semi-autonomous group is a hybrid arrangement and to succeed requires supporting functions like information management to provide adequate information in an appropriate form. The temptation is always there for supervisors and managers to withhold and delay vital information or to send incomplete information in the hope of retaining control over their operators. The evolution of an elite groups in a workers' co-operation can lead to similar practices (Eccles, 1981)

Some of these points are summarised in Figure 7.1

Level of Development	Major Change (s)	Comments
Horizontal Enlargement	Extension of Physical Skills	Refutation of fragmentation of tasks through high level of task specialisation ie more physical work of a similar nature.
Ancillary Enrichment	Learning of new manual and/or support skills	Refutation of fragmentation and division of labour through taking on other forms of work eg inspection and minor maintenance tasks
Vertical Job Enrichment (Participation)	Learning management/ supervisory skills	Refutation of Taylor's principle of separation of 'planning ' and 'doing'

Fig 7.1: Effects of Different Levels of Job Design Changes.

An interesting case study by Clegg and Fitter, op cit, illustrates well some of the main dichotomies between effective job design and its compatibility with an information system.

The case describes a confectionery factory where the department studied was divided into two separate production areas. Prior to the job redesign project, fairly complex statistics were provided by the factory's management information function from data compiled by the department, production planning, and the work study unit. This data was mainly concerned with the measurement of system efficiency. Feedback on performance was passed to the shopfloor on the following items.

- i) Late completion (2-3 weeks after the week in question),
- ii) In summary form (for a whole production area, for a week),
- iii) Complicated (and not understood)
- iv) Irregular and critical (when performance was low), and
- v) Systematically inaccurate (unfairly depressing performance levels).

Not surprisingly the information received by the workers had a demotivating effect. Also supervisors and operators understood the information system only in the very broadest terms. Emphasis on the shop floor was on 'doing' the job, information gathering not being regarded as relevant to the process of making the product. Consequently the information system was seen as a managerial (excluding supervisors) task. Not surprisingly the recording of information was lax and any information collected was dubious.

The workers "felt cynical about the information system and management's motives" because when operating decisions had to be made it was the supervisors who made them and the actions of the departmental manager were seen as "actions which were perceived by the staff as inappropriate and unfair - in particular, criticising people who already thought they were working hard enough". In fact, the shop floor assessment of a fair day's work was very similar to managements - a clear indication of a less than satisfactory information system. The information system in use served to de-motivate the workers, who understood it only in its broadest aspects and therefore saw it as irrelevant to production of the products. Information gathering was lax at the best of times.

The job redesign exercise resulted in the two departments being organised into two semi-autonomous work groups. These groups accepted responsibility for planning and organising their own work to meet production targets agreed with management. Very soon the inadequacy of the old information systems became obvious. These "..... were quite inappropriate for dealing with the new method of working: quite simply they were management systems designed by managers to enable them to plan and evaluate the production process. Now that staff controlled their own working day, these old systems became unsuitable..... without feedback they could not regulate their own behaviour". One factor that emerged was that the concepts used by operators (number of batches) were different from those in the MIS (efficiency) even though there was general agreement on a 'fair' target.

Eventually a new information system was developed and implemented. It met the following criteria:

- 1 Consistency of information with operators' concepts
- 2 Consistency with desired work organisation
- 3 Accuracy, or at least avoid any systematic biases
- 4 Perceived as fair by management and workers
- 5 Responsiveness to events giving feedback to groups of workers and allowing them to regulate their behaviour
- 6 It should be a straightforward task to collect and disseminate information
- 7 Consistency with existing MIS as well as meeting the needs of the department
- 8 Reasonable administration costs.

After the revised information system was introduced, operators asked for more information and showed a desire to understand it better. They developed a better understanding of the reasons for modification of production targets etc. Not surprisingly the changes - semi-autonomous group working and a modified information system - had repercussions on other functions within the factory.

Significant points to note in this case include the following:

- a) The worker information system (WIS) sat within a participative system.
- b) The study concerned a sub-system within a larger organisation and thus its operation was interrelated with and dependent upon other sub-systems. In practice this is likely to impose constraints upon

the level of redesign of both jobs and information systems. Since the information system gave feedback to the workforce it was significant regarding motivation and in determining the potential success of job design changes. For instance , speed of feedback and the concepts used to present information are crucial factor.

- c) 'Formal' information largely contained in the MIS, and 'informal' (mainly the operators' perceptions and observations) are very important. Also, in using different concepts (management measured the performance through an efficiency index, whereas operators used the simpler scale of batches produced), and having different feedback times, conflicts were structured into the department and its operations.
- d) When the WIS was developed it was integrated into the organisations global MIS and other function. Consequently this strengthened the WIS's potential for improving motivation and feedback and of course increased the importance of control of the WIS. Clegg and Fitter are clear on this point when they say that the information system can reinforce or block changes in work organisation. In essence there is a feedback relationship between the WIS and work organisation. The importance of this is brought out in Clegg and Fitters, op cit, case when they describe supervisors' attempts to adjust targets under the new information system, as well as conniving to alter information fed into the MIS when batches were finished ahead of schedule to protect managements utilisation figures. Control of the WIS is of fundamental importance. In conclusion this case illustrates the importance of WIS in changes at work group level, as well as the form such a participative WIS may take and selection of criteria on which it is based. These

conclusions are strongly supported by Hedberg, op cit, in his investigation of job redesign at Volvo's Kalmar plant (see also Lindholm and Norstedt, 1975). In this well known job design project, the job changes resulted in a need for more information because "an overall picture of the production system had to be compiled, at the same time as required information is fed forward to other teams for planning purposes, and fed back for performance evaluation and correction" (Hedberg, 1977)

In the Volvo exercise the information system for each semi-autonomous work group was designed as part of the overall MIS which included several computer software packages. From the point of view of the work groups these included:

- 1 A process control system, controlling and directing work flow as well as feeding forward planned and potential work load to the work group.
- 2 A production control system specifying specifications for each car.
- 3 A quality control system, feeding back quality control results to the work group.

Once more, control of the worker information system is stressed, "The apparent decentralisation of responsibility to the work group will be matches by a corresponding centralisation of the ultimate control The new information technology undoubtedly strengthens managements overall control. At the same time it is clear that the new technology offers a potential for increased autonomy in each group of workers" Hedberg, op cit)

Thus in Volvo, the worker information system forms an integral part of both the design of jobs and the organisation as a whole and is highly integrated with the MIS, as Fig 7.2 shows.

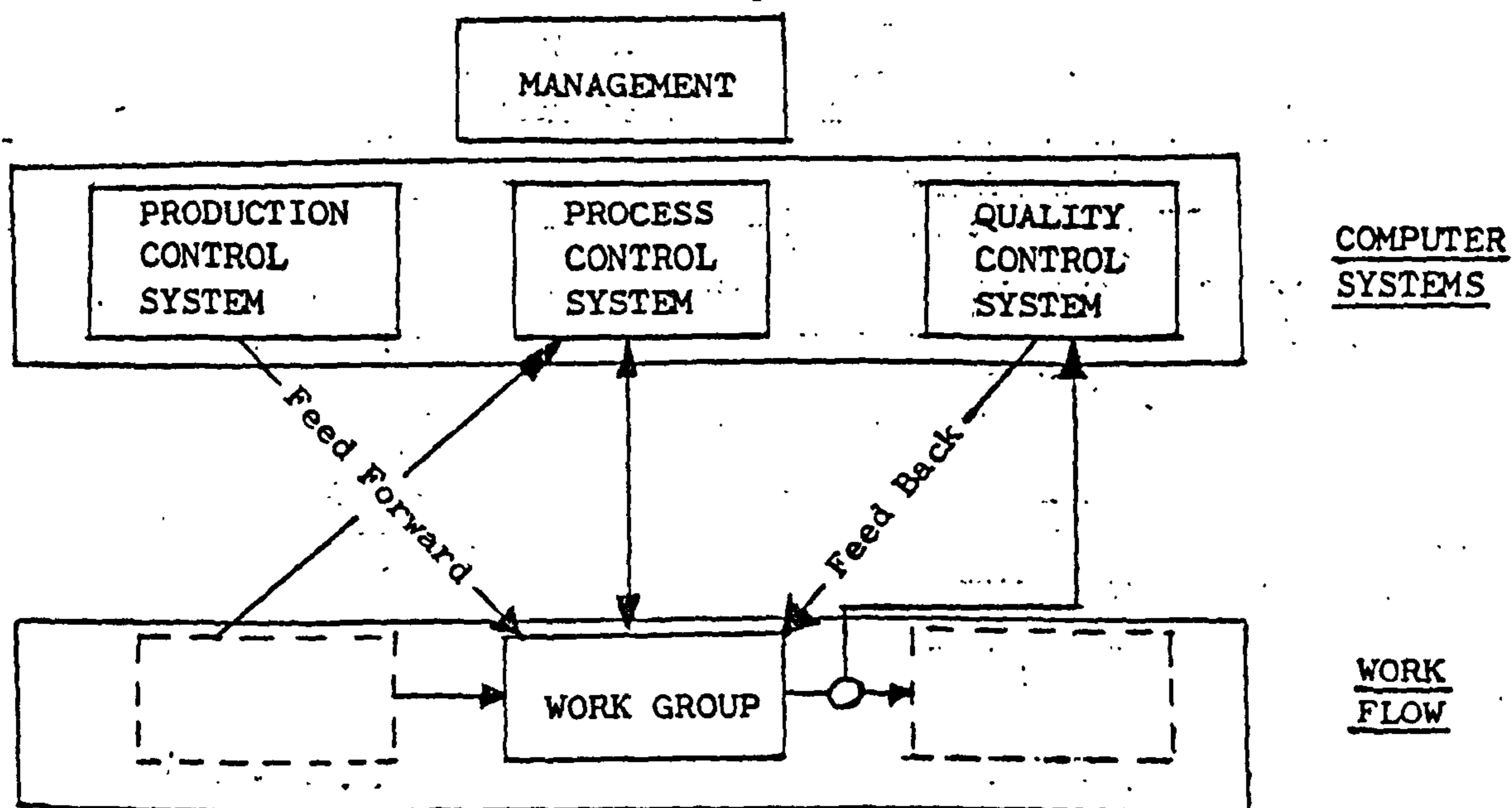


FIGURE 7.2: Information systems at Volvo-Kalmar

(SOURCE: HEDBERG, 1977)

The information system in Figure 7.2 shows clearly the situation between the operating system (manufacturing technology); the information planning and control systems concerned with schedules, work in process, finishing times and quality control of cars in process; and the social system in this case semi-autonomous work groups.

We have just considered worker information systems at the 'sub-system' level but when we move 'up' to the level of organisation with differentiated subgroups the problems become more complex. To illustrate this we will now consider worker's co-operatives where there is at least a theoretical commitment to worker participation.

7.4.2 Job Design and Information Management in Workers' Co-operatives.

Because workers' co-operatives generally express and desire to make work as satisfying as possible, one would expect them to make use of job design theories. Unfortunately this is not always the case for reasons discussed earlier. In this sub-section discussion will be confined to the impact of information flow and information management on job and organisation design in this type of enterprise.

This is important because participation in decision making gives members of co-operatives a useful insight into the problems faced by managers and enables them to become actively involved in higher level decisions. It seems fairly clear that progressive job design is a necessary condition for the development of co-operative working relationships. It is also clear from research that a satisfied work force can often (but not always) be a more productive one. (Lupton, 1975)

Much of the discussion from the previous sub-section 7.4.1 applied to workers co-operatives. In some, particularly small co-operative businesses, some form of horizontal job enlargement takes place. In simple retail outlets especially, there can be a system of job-rotation not always so easy to implement in other types of business eg an engineering machine shop.

However if successful job and organisation design is to become part of co-operative organisational arrangements, management level information will be needed by non-managerial members of the co-operatives in question if they are to have any measurable influence at higher levels than their own work group. This information must be presented in a form designed to

answer management questions. Hedberg, op cit, contends that existing organisational bases may not require much modification such questions in a situation when the filtering of information will be different for managers and workers. This participative management information system is illustrated in Fig 7.3

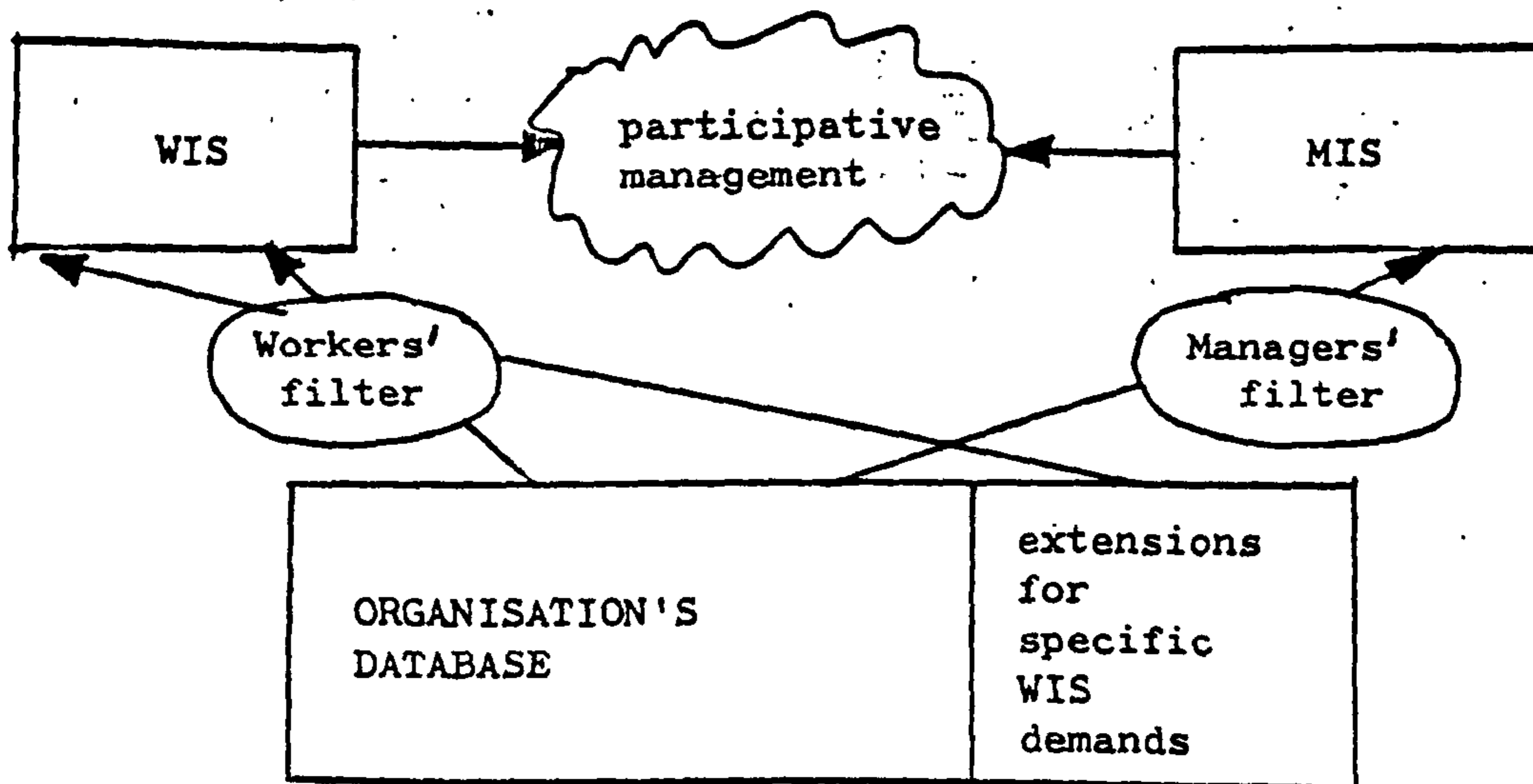


FIGURE 7.3: Participative Management Information System (from Hedberg, 1977)

Lockett (July 1978) makes the point that although this approach is very relevant to 'formal' aspects of WIS, it does not cater for the 'informal' aspects. Neither does it consider adequately the use of information as a power resource and the control of the information system. These items are important vis-a-vis job and organisation design.

One of the basic problems in investigating job and organisation design and information management is the existence of co-operatives with an identifiable management and those without such a structure. It is generally found in small 'collectives' that management tasks are shared among the members whereas in the majority of 'non-collectives' there are people in whom management responsibility has been vested. Another problem is the general practice of having representative structures in firms above a certain size - with, in general, increasing significance in terms of worker participation in larger enterprises. In other works representative democracy increases in importance compared with direct democracy. This situation is illustrated in outline in Fig 7.4 and does not represent a definitive model of the information flows in a co-operatives' WIS. It will be seen from Figure 7.4, that most of the official information flows from management, by a variety of means, to the workers via the workers representatives. Information received by the workers is secondary in nature coming from management via the representatives. Information disclosed by management at general meetings and such like, can be easily 'tailored' to favour the objectives of management.

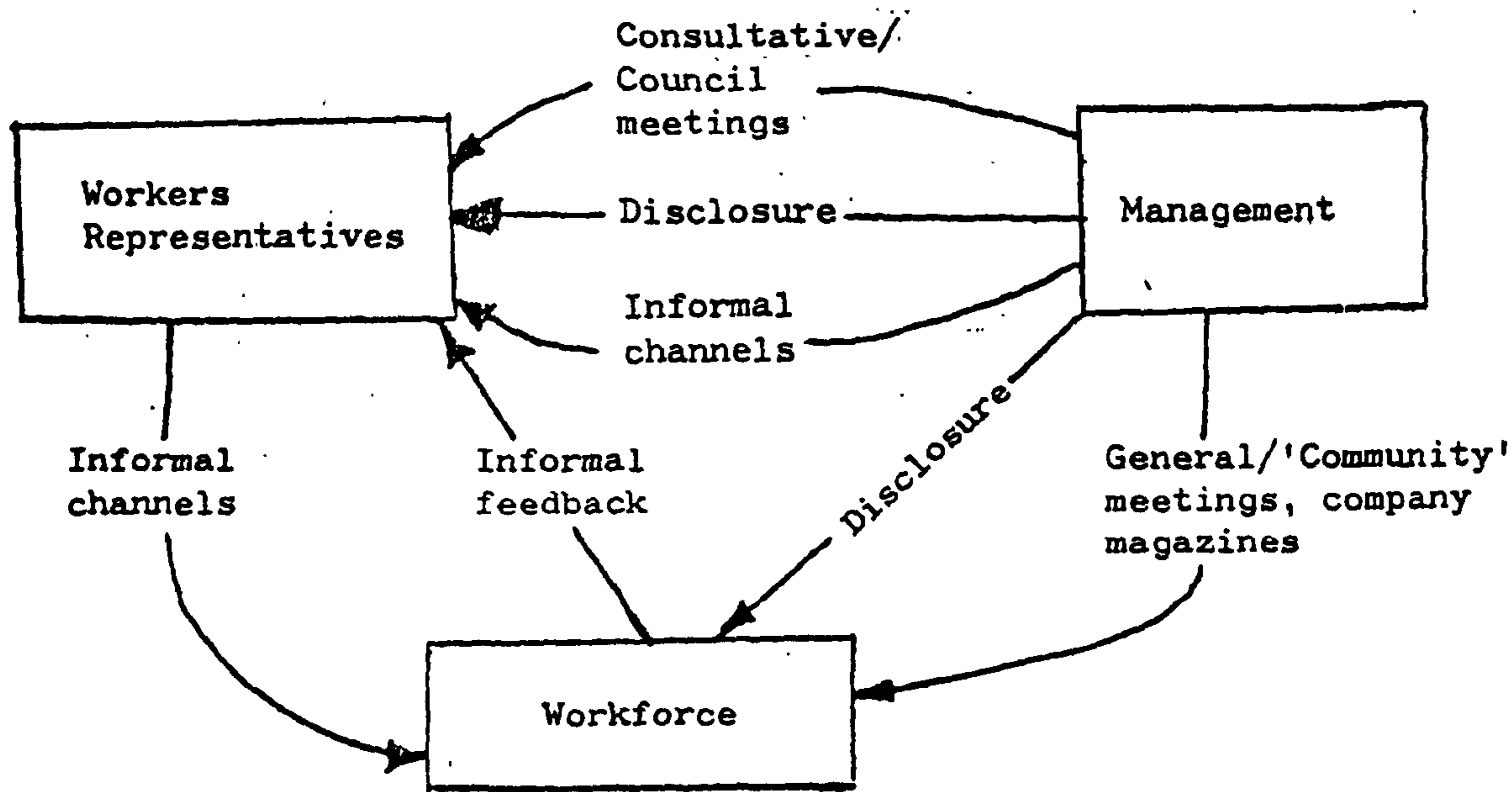


FIG 7.5 : Main information flows in a co-operative's WIS

(SOURCE: LOCKETT, 1978.)

Considering information on wage rates and productivity with reference to Figure 7.3, such information may be available but compiled in a form suitable for answering management questions. Hedberg, op cit, argues that existing organisational basis may not need much expansion to answer such questions whereas the filtering of information will be different for managers and workers. This provides a picture of a 'participative management information system' (PMIS).

Using the example of Airflow (a 200 employee workers co-operative involved in light engineering) it is possible to trace this model (Fig 7.4). The predominant procedures used by management to pass information to the work force were the annual general meeting, a company magazine, notice boards and using managers at lower levels. Among the representative bodies were the Community Council which was meant to be a supervisory board but which was not very effective in practice; and the Consultative Group composed of workers' representatives and directors with the role to discuss issues raised by the work force. This latter committee acted as a channel of communication (which it was meant to do) with little or no bargaining taking place. Most of the discussions centred on directors explaining policies or decisions, and workers' representatives declaring their own or the shop floor views on decisions and proposed courses of action. There was also a significant amount of consultation by management of the groups' chairman and workers representatives informed the work force about events and would obtain feed back in return. Research findings suggest that these channels were used by the workers. Survey results indicated that 72% reach Consultative Group or Community Council minutes "quite often". Twenty-four percent claimed to have discussed issues with a Consultation Group representative or a council member "quite often" and a further 34% did so "occasionally". Regarding attendance at General Meetings 58% claimed to have attended last year's AGM and 67% registered their intention to do so in the future.

Answers obtained to such questions concerning flow of information were similar in Michael Jones, a 40 employee retail jewellery co-operative in Northampton.

The amount of information disclosed was greater than at Airflow. For example, individuals had access to information on the range of salaries paid to members, including directors. The monthly 'Community Meetings' of all members, were much more important than at Airflow because at these meetings major policy decisions were taken. Representative structures were less important, the main ones being in the form of 'action groups' with the remit to discuss and make proposals on specific issues such as pay levels and the legal structure of the co-operative. These 'action groups' comprised 50% management and 50% workers representatives elected by the Community Meeting.

Although Community Meetings had considerable nominal power, 54% of workers declared that they gained little except information from them. This did not signify that they were seen as worthless because 58% felt they had learnt 'quite a bit' at these meetings. It seems therefore, that participatory meetings and bodies may on occasions function more as a channel for effective flow of information than a means of effective worker influence even within a situation of employee ownership and nominal control. This view is supported by research findings in this particular co-operative which showed that directors (about 10% of those employed) were responsible for about half the statements and interventions in Community Meetings in addition to the vast majority of proposals relating to management policy and strategy, even when these views were directly related to workers' interests. One notable issue concerning redundancies supports this point. Although the employees had considerable misgivings about this problem, management proposals to declare redundancies were accepted at a Community Meeting. This has important implications given co-operatives' general commitment to maintaining employment for their members

There are many unanswered questions regarding how information can be used in such situations and some of the barriers to effective worker influence in higher-level decision making. Lockett, op cit, identifies three important factors in relation to this theme.

- a) The workers were faced with the straight choice of either accepting the directors' proposal or closing the firm.
(The directors proposal to introduce redundancies had been initiated as a result of the bank's threat to withdraw its support).
- b) There was not enough information nor time to develop an alternative strategy to the options presented, ie closure v redundancies.
Employees did not have access to relevant information.
- c) Even if the employees had open access to management information, it is likely that they would have had considerable difficulty in understanding and interpreting it to form alternative policies. For example, information divulged to the workers at Community Meetings was presented in terms and concepts for management consumption and thus was not easily understood by the workforce.

It can be concluded therefore that it is not just lack of availability of information that limits the potential influence of workers, ability to understand, interpret and use available information is also a necessity.

A fundamental point underlying the above discussion has been the division of labour between managers (planning) and operators (doers). Other important divisions within an organisation which has relevance for information management is the division of labour into different

specialist departments. This has particular relevance for 'informal' processes of worker information. This aspect of information within organisations has been stressed by March and Simon (1958) when they contended that perception was a key factor and that information would be interpreted differently, or 'selectively perceived' by different departments in relation to their particular preconceptions and frame of reference.

It has been noted by Lockett, *op cit*, that information may be an influential factor regarding conflict within an organisation, and that information may increase rather than decrease conflict. The problem may not be so acute in smaller co-operatives where there may be enough informal contact between departments or work groups to reduce the severity of such problems. But there are potential dangers in a co-operative with several different work groups, some of which have operators dispersed for all or most of the working time and meeting only occasionally.

In some situations like the allocation of capital expenditure between groups it is important that the WIS enables the group to be able to assess each others 'budget claims'. However it is clear that this broad 'disclosure' of information is only necessary for major decisions - otherwise the decision making process will be impeded. The same situation applies to decisions regarding the acceptance or rejection of a particular contract.

The design of a WIS for a co-operative organised into work groups must be closely related to its organisational structure and decision making processes.

The situations described above show how information can be used as a power resource in co-operatives. In Fakenham Enterprises (Lockett, 1978) lack of information on production rates made it impossible for the manager to assess the viability of the work. On other occasions, this manager did not release information on future prospects to the workforce, although there was no legitimate barrier to him doing so. This was in part due to the likelihood of him being challenged on the issue. The implications of such "gatekeeping" flows of information has been commented on in the literature (Pettigrew, op cit) and would seem to have relevance in co-operative forms of organisation, being practiced by managers and non-managers alike.

Although the dynamics of information briefly discussed above is interesting and important, considerable attention needs to be focused on the design of WIS and the training requirements to make them effective. In a study of 10 larger self-managed firms in Yugoslavia, Novosil (1973) produces evidence to suggest that a vicious circle exists resulting in the less educated worker being denied opportunities for participation because others assume they would not be able to comprehend high level issues. In this research Novosil, op cit, also argued that those communicating information through memorandums etc had not considered the appropriate timing, content and form for information in a WIS. In addition there was a reluctance by managers and their advisers to release more information that they reckoned workers needed to do their jobs.

Information released in some British co-operatives also suffers from similar shortcomings and it is likely that a similar 'vicious circle' exists for less skilled or educated workers (Lockett, July 1978) Scott Bader (Pateman, 1970) have attempted to overcome this problem by enabling workers to criticise in challenge management anonymously in company publications and in other ways.

Lockett, (July, 1978) has the last word on this discussion concerning WIS and democratic practices in organisations "..... in the case of participating enterprises, the existence of democratic mechanisms does not solve problems of information and may in fact accentuate them. Although such organisations may have much greater worker access to information this does not necessarily mean worker control of the information systems. The role of MIS is one which has not been considered within many co-operatives, particularly from a systematic point of view."

7.5 Summary

The popular picture of workers co-operatives is one where there is no manager or if one has been appointed, he/she is answerable to the members. Tasks have been allocated with varying degrees of job rotation and labour flexibility.

Perusal of case studies and the author's research indicates that the situation is more complicated than this because there are wide variations in job and organisation design in workers co-operatives. For example two typical arrangements are summarised. in Fig 7.5

Management Structure	Organisational Arrangements
Traditional Hierarchy	Task specialisation and the use of Taylor's separation of 'Planning' and 'Doing'
No Manager	Allocation of Operational Management tasks with job rotation and labour flexibility as required. Community Meetings with policy decision making.

Fig 7.5 Broad Organisation Arrangements in a Workers' Co-operative.

(It should be noted that there are many intermediate stages between the two extreme structures depicted in this figure)

Under a traditional arrangement, a conventional MIS will suffice with appropriate disclosure of information to the workers. The workers may or may not participate in policy decisions but if research findings referred to earlier are true, they will be more inclined to want to make operational decisions because these relate more closely to their jobs and the factors surrounding them - a level which has more attraction for workers in organisations (Long, 1979).

If, however a co-operative does not appoint a manager (common in small retail outlets) and managerial and operational decisions are made by the members who also meet to decide policy issues, a traditional MIS will be inappropriate. Adequate and appropriate information will be required by the participants and this will justify the need for a WIS.

In practice not all co-operatives horizontally enlarge jobs, add ancillary tasks, use various levels of semi-autonomous group working. Nor do they all involve the workers in policy decisions.

Some use a management structure which is conventional, jobs are fragmented and narrow and the membership is only consulted if something dramatic has or is about to happen eg unwelcome pressure from the bank or the possibility of securing a large contract. This is understandable in say a rescue co-operative fighting for survival. In such a situation the protection of a democratic process will be sacrificed in pursuit of more efficient working. Meetings for example may be viewed as necessary to keep people informed and to provide the opportunity for everyone to have a say in what should be done, but they can be tedious, time-consuming and therefore costly. Suma Wholefoods (Williams, 1988) have overcome some of these problems by refining meetings down to four sectors, each meeting separately. This arrangement means that members do not have to listen to the arcane problems of a department with which they are not familiar. Such arrangements resemble the Methods Change Programmes practiced by ICI and Proctor & Gamble (Bowey and Carlisle, op cit) and the current panacea, Quality Circles, which in Japan forms part of the Just-In-Time (JIT) philosophy to the management of operating systems. In addition Suma have a committee which co-ordinates the whole co-operative organisation. This committee is formed by elected representatives from the sectors and has a financial controller and personnel officer. This approach by Suma is unusually pragmatic especially for a constructive co-operative (Williams, op cit).

Thus it is impossible to develop an information system for a workers' co-operative which will meet the dual requirements of meeting social and efficiency needs.

There are too many variable factors to permit this - factors such as:

- * size of co-operative
- * type of product/process eg retailing of electronic assembly
- * aspirations of members
- * objectives (usually too many)
- * management style or no management
- * form of job and organisation design
- * fit between information system and organisation needs.

It would be impossible to portray the above factors (and there are others) on a matrix. If it were possible the resulting diagram would probably be incomprehensible and of little use to those involved in or interested in workers co-operatives. Therefore since this research project is concerned basically with the link between information management and job and organisation design, some of the main issues related to these two factors have been summarised in the following Fig 7.6.

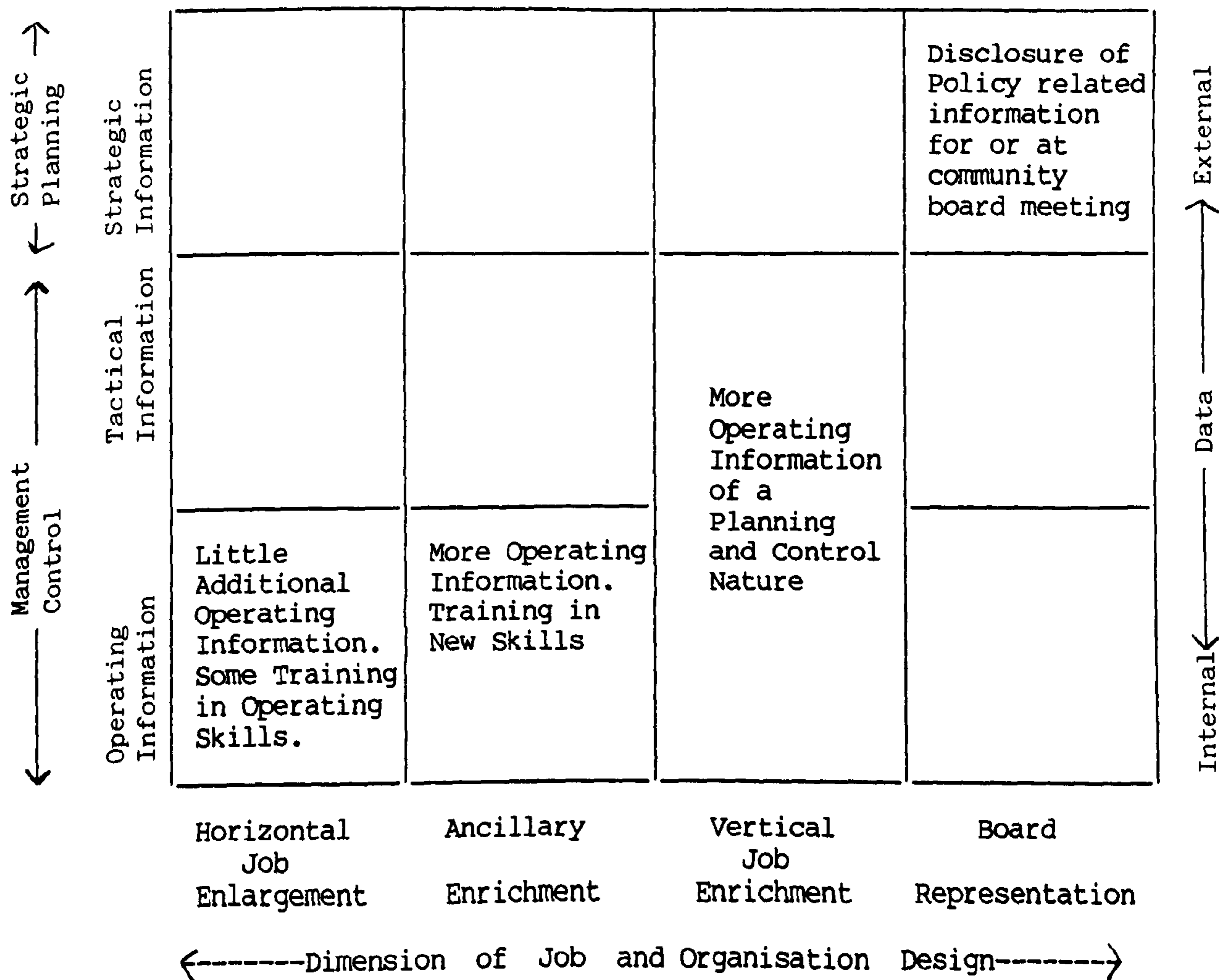


Fig 7.6 Job and Organisation Design Dimensions and Related Information.

Figure 7.6 summarises the information needs to meet the needs for representative democracy and immediate democracy. The former is often seen as a right or a requirement in workers' co-operatives.. It is unlikely to enrich the jobs of the members and it often seen as a duty or chore by those participating (not everyone utilises this particular route to participation (Paton & Lockett, 1978).

In contrast immediate democracy involving job enlargement and enrichment and ultimately leading to semi-autonomous group working practices will meet the basic needs for fulfilment in the workers' jobs.

Much of the literature on the subject concentrates on why and how co-operatives can meet to make corporate decisions, or how managers can be held accountable to the workforce - there is less said about how co-operatives can be arranged so that the members work in groups (or as a composite group) with a collective task and shared responsibility. Such an arrangement is quite different from the classical approach of rationalising, specialising, and specifying individual jobs and responsibilities. There is a need for this alternative approach to receive the kind of vigorous scrutinising and appraisal which it needs if it is to become a tested, reliable, way of arranging co-operative organisations. Job and organisation design to the point of group working is one of the most promising developments in job design in recent years; it offers one of the most effective channels for increasing employee participation; without it many worker's co-operatives are likely to fail in meeting these social objectives and ultimately in many cases their economic viability

It is important however, that the information system is designed to match the organisational arrangements if this potential is to be fulfilled. If the information system is inappropriate, then it is likely that the success of the job and organisation arrangements will be jeopardised, socially and ultimately economically .

CHAPTER 8

8. RESEARCH METHODOLOGY

8.1 INTRODUCTION

This chapter describes how this particular research project evolved; why workers' co-operatives were chosen for investigation; and why the link between successful job and organisation and information management was given specific attention.

The initial views regarding research methods to be adopted are described as are the actual methods employed in the first pilot study.

The questionnaires were further developed, employed and evaluated in the second pilot study and the changes introduced are summarised.

From the two pilot studies and discussions with people involved in small business research the final research methods were finalised and subsequently used. This phase is documented and the results following analysis are described and tabulated in the following chapter.

Four workers' co-operatives were chosen for field work and the reasons for this choice are discussed. The purchasing (information) systems in these four organisations offered a suitable base for data collection and this is discussed.

Development of the research topic and the hypothesis is summarised in Fig 8.1 and the research process is depicted in Fig 8.2.

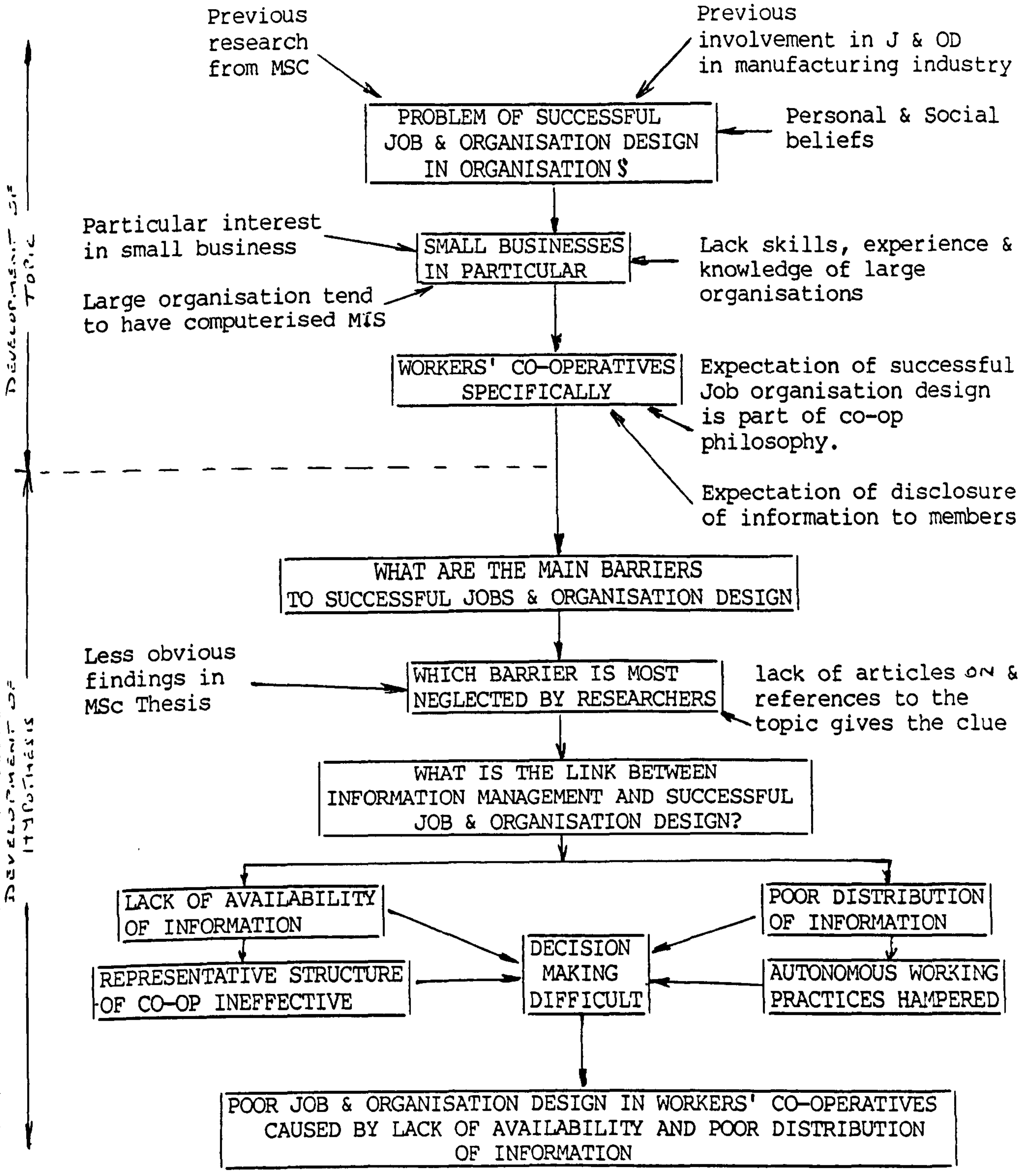


FIG. 8.1 DEVELOPMENT OF RESEARCH TOPIC AND HYPOTHESIS

BEST COPY

AVAILABLE

Poor text in the original
thesis.

Some text bound close to
the spine.

Some images distorted

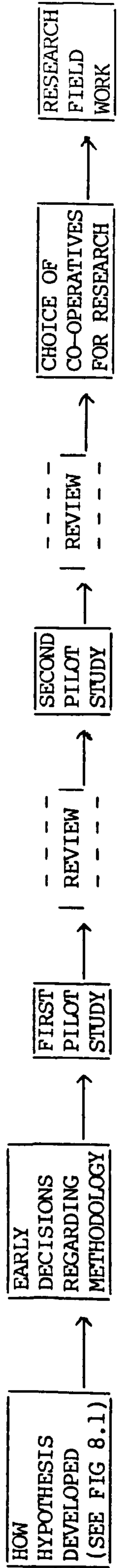


FIG 8.2 THE RESEARCH PROCESS

8.2 DEVELOPMENT OF HYPOTHESIS FOR RESEARCH

8.2.1 THE STARTING POINT

The starting point of this study has been described in chapter 2.

Broadly conceived, its aim was to investigate the effect, on successful job and organisation design in workers' co-operatives, of lack of availability and poor distribution of information. The two main areas to be researched, therefore, were:

- * an information sub-system used for planning and control purposes ie how information was generated and by whom; how it was stored; ease of access to this information and/or its flow to appropriate people; and use of available information by decision makers. This area also provided information relevant to the actual workings of the organisation and the roles people played, thus providing a link between job and organisation design and information management.
- * a job diagnosis survey of the people involved in any way with the planning and control information sub-system referred to above. This part of the investigation endeavoured to discover how these people felt about their jobs and the conditions surrounding them and how they felt they should be changed. It was envisaged that this information would help identify areas where information provision was insufficient and flow was inappropriate; and provide guidance on necessary changes to the information system if it was decided to close the gap between how people perceived their present jobs and how they would like them to be. The importance of compatibility between organisational and job arrangements and the information system has been discussed at length in chapter 7.

Development of the topic to be researched and formulation of an appropriate hypothesis were part of an evolutionary process which was influenced by a number of factors. This is summarised in fig. 8.1 and is described in more detail in the following two sub-sections.

8.2.2 DEVELOPMENT OF RESEARCH TOPIC

One of the main factors fundamental to the completion of a research project over a number of years is that the researcher must be interested in the area in which he has decided to invest considerable time, effort and money.

The author's interest in workers' co-operatives and the problems associated with successful job and organisation design were based on the following factors:

- i) a basic belief that people should have a greater say in their jobs and the conditions surrounding them. From earlier shop-floor experience it became obvious that there was considerable desire for such participation with the added advantage that many shop-floor proposals could lead to more efficient and satisfactory operations. We are currently in the process of re-learning this view through the adoption of the Japanese Just-in-Time (JIT) philosophy, especially in manufacturing industry. Workers' co-operatives would seem to offer an opportunity to obtain many of these benefits.
- ii) A personal involvement in the development and implementation of ICI's Weekly Staff Agreement on one of their trial sites.

iii) The desire to take further some of the findings of a research project leading to an MSc degree.

Research in small business was preferred to large organisations mainly because a study of information management would be less likely to be centred on a computerised system common in many large firms. For the purposes of this study computerisation would be a distraction from the main thrust of the enquiry. It was felt that high technology information systems are worthy of separate study but would in this instance provide less 'rich' data than was expected in a study of small businesses. In addition jobs would probably be more fragmented and specialised in any large firm chosen for research compared to the small firms involved. This situation would provide a poor base for the investigation envisaged. Apart from the reasons given above, considerably less appears to have been written on job and organisation design and information management in small firms compared to the concentration in large organisations.

Because large firms possess the skills, expertise and knowledge denied most small businesses, to develop satisfactory organisational arrangements, - a less formal process existing in the typical small business - the latter projected a more tempting base for further study.

In the process of contemplating which type and size of small firms to study, workers' co-operatives emerged as a worthwhile candidate - the expectation of successful jobs and organisational arrangements is common on the part of those involved or interested in this form of business organisation. Also there is an expectation of open disclosure of information to members. These issues have been touched upon or discussed in chapters 4 and 6.

It has to be recorded that two computer searches of the ABI/INFORM and another database produced nothing of substance or of great relevance to information management and job and organisation design in small businesses (including workers' co-operatives). It was obvious that an interesting choice of topic for research had been made but there was little opportunity for a replicative study nor the chance to consider the research methods used by previous researchers in the field.

8.2.3 DEVELOPMENT OF THE HYPOTHESIS

The harsh realities of the labour market at the present time, overshadow discussions about work humanisation and worker participation in decision making.

Faced with such a pessimistic situation, one might question the relevance of discussions about job and organisation design. In answer to this Kelly (1982) puts forward two points. First, there is no reason to believe that the recession is endless; already Western economies are witnessing growth, unemployment is falling and eventually labour markets will suffer scarcity (in some employment sectors) and the perennial problem of 'motivation' will emerge once more. Kelly's, op cit, second point counters the view that because job redesign in the past was in response to tight labour markets, the theories underpinning job design are redundant. Kelly, op cit, goes on to point out that many firms redesigned jobs in response to competition in product markets, not labour markets and this competition has, if anything, intensified in the course of the present recession. The recent weakening of trades union power has enabled many employers to implement changes in division of labour and

working practices. The 'learn but fitter' companies expected to emerge from harsh monetarist policies are taking shape not least because of dramatic changes in the design of jobs.

Regarding the level of job satisfaction in workers' co-operatives, much of the early work by the Open University's Co-operative Research Unit focussed on this issue. Their findings suggested that satisfaction is no higher in co-operatives than in conventional businesses. However it is possible that this was so because co-operatives workers had gained more job satisfaction than those in conventional firms, and they had higher expectations just because it was a co-operative. (Beishon, et al, 1978).

Although it is sometimes insinuated that a satisfied workforce will be a highly productive unit, (HMSO, 1975) there is not always a positive correlation between job satisfaction and resource productivity. However a satisfied workforce is more likely to ensure higher levels of productivity. This may be a long term return in the form of reduced labour turnover and employee absenteeism. For a discussion of the link between efficiency and job satisfaction see Lupton (1975).

Thus for economic, technical and social reasons it is important to identify the barriers which impede successful job and organisation design in organisations. This is particularly true regarding workers' co-operatives where in view of the hopes and dreams of the members it is important that they survive and that people enjoy working in them. In addition, workers' co-operatives make a useful contribution to job creation.

In summary, the main points which encouraged the undertaking of this research project were:

- i) unless we endeavour to find the reasons why job and organisation design does not always live up to our expectations and attempt to rectify the situation, we stand to repeat the errors made since operating systems were mechanised in the wave of innovations which swept over Britain after 1750. Alienation of workers from the processes they operate has been a constant problem particularly as Britain became more industrialised. [At the beginning of the eighteenth century 92 per cent of the labour force worked as farmers, today it needs less than 3 per cent. Possibly by early in the next century it will require no more than 10 per cent of the labour force to provide us with material needs; that is food, clothes, houses, consumer durables etc. (Stonier, 1979) Nevertheless as the pattern of employment changes and technological investment increases, the problems of appropriate job and organisation design will continue]

- ii. it is desirable that the quality of working life (QWL) is improved because if Pate man's (1970) hypothesis is correct, participation within an enterprise may have a beneficial impact on the attitudes and practices concerning decision making in the wider society. For instance the events of Toxteth in 1981 revealed an alarming degree of alienation; black and white young people alike felt they had no stake in this society. It was the tip of an iceberg; many more are characterised by apathy, which will not take any part in the life of the community; best described as a form of frozen violence. Suspicion of all those who work in prominent positions for the

institutions of society, and in business, has been bred over many years. This has been generated both by the kind of work which has been available, often boring, fragmented and meaningless jobs and the loss of those traditional jobs. (SHEPPARD, 1983)

iii. from a broader perspective, appropriate job and organisation design is important because Palmore's (1969) study indicated that people who felt positively towards their work were more likely to live to an old age. Indeed job satisfaction was the strongest overall predictor of longevity in this study.

In practice it was not possible to study all the factors cited above and the study concerned itself with the effect of poor information management on job and organisational arrangements in workers' co-operatives.

A problem encountered when developing a hypothesis was that it is much easier to find journal articles declaring the reasons why job and organisation design projects are successful, or are claimed to be successful. The failures do not receive as much publicity and therefore the factors leading to such failures are more difficult to discern.

Nevertheless a reasonably comprehensive list can be compiled from available publications - these are:

- * LACK OF CLEAR OBJECTIVES AND UNCERTAINTY ABOUT EXPECTED OUTCOMES
- * DEFICIENCIES IN MONITORING RESULTS FROM CHANGES/DESIGNS INTRODUCED
- * CHANGES INTRODUCED NOT LIKELY TO LEAD TO DESIRED OUTCOMES
- * POOR IMPLEMENTATION OF CHANGES
- * EXISTING PROBLEMS NOT RECTIFIED BEFORE INTRODUCING CHANGES
- * LACK OF KNOWLEDGE ABOUT JOB AND ORGANISATION DESIGN ON THE PART OF DESIGNERS OR PRESCRIBERS OF CHANGES

- * (WRONG) ASSUMPTION THAT EVERYONE WANTS AN 'ENRICHED' JOB
- * ALIENATION OF SUPERVISION
- * RESISTANCE TO CHANGES BY MANAGERS
- * FEAR OF ADDED COSTS OF STUDY AND IMPLEMENTATION
- * TENDENCY BY MANAGEMENT TO RENEGE ON CHANGES IF STARTLING INCREASES IN PRODUCTIVITY ARE NOT ASSURED IN THE SHORT-TERM
- * INSUFFICIENT (OR NO) TRAINING OF OPERATORS AND SUPERVISORS TO MEET ADDITIONAL DEMANDS OF RE-DESIGNED JOBS
- * PAY AND REWARD SYSTEM NOT CHANGED TO MATCH REVISED ORGANISATIONAL ARRANGEMENTS, ESPECIALLY WHEN SEMI-AUTONOMOUS GROUP WORKING IS INTRODUCED
- * MANAGEMENT INFORMATION SYSTEM NOT REVISED TO MEET REQUIREMENTS AND MATCH COGNITIVE LEVEL OF OPERATORS ABOUT TO BECOME MORE INVOLVED IN DECISION MAKING.

Reconsideration of the above list of factors leads one to wonder how operational performance, broadly interpreted, of workers' co-operatives, compares with that of traditional businesses. Also considering the effects organisational changes have on the requirements of an information system, the question could be asked whether decision makers are able and/or choose to make use of information when it is available.

1. Is job and organisation design in a typical workers' co-operative, more challenging and satisfactory for its members compared with arrangements found generally in conventional business?
2. Do information systems generally match the decision makers conceptual model of the work process under alternative forms of job and organisational design?

3. Do information system enable members of workers' co-operatives to participate in decision making on operational issues and problems?
4. Have workers' co-operatives too many objectives which are in conflict with each other, making it impossible to agree and achieve those associated with members' raised expectations of influence in the organisation? (Rhoades, 1960)
5. Does lack of availability of information affect the roles played by co-operators?
6. Does poor distribution or flow of information, when it is available, limit the degree of responsibility in decision making by co-operation members?

Because so little research appears to have been directed at the link between information management and job and organisation design, it was decided to research this topic.

The hypothesis to be tested is that lack of availability and poor distribution of information militate against successful job and organisation design in workers' co-operatives.

Although improvement and protection of the mental and physical health of members of workers' co-operatives justifies this investigation, the economic aspects are of no less importance. Any research or

investigation which identifies reasons for failure; suggests solutions; and in some way helps members of such organisations hold fast to their jobs and dreams, is fully justified. If success breeds success then economically sound co-operatives will encourage the formation of further co-operatives. As in conventional businesses operating in a healthy but competitive market, with appropriate production facilities, economic health is largely based on sound diagnosis and treatment of social, technical and economic problems. Information management may well be the achilles heel of job and organisation design.

8.3 CHOICE OF INFORMATION SUB-SYSTEM

8.3.1 INFORMATION NEEDS, SOURCES AND LOCATIONS

All manufacturing, transport, supply and service operating systems (Wild's classification) comprises two main interactive sub-systems viz a conversion system or process and a supportive information system. Discussion in chapter 4 illustrates the importance of sound integration of these two systems for decision making, regarding planning, organising, motivating and controlling. Further links at a lower level are just as important. For example purchasing departments must be given information about production plans to enable them to obtain required materials. The link between purchasing and accounts is obvious, accounts relying on purchasing to inform them that deliveries have been made and suppliers are therefore due payment. The list of dependencies and interrelations is almost endless.

[Fig. 8.4 summarises the integrative nature of an operating system and its supportive information system].

.. Within this broad framework managers, supervisors and workers within various specialist functions will require appropriate information - this has been discussed in chapter 4.

Business experience and perusal of the literature of will disclose that most of the available information and information needs in a business are to be found in four major business functions:

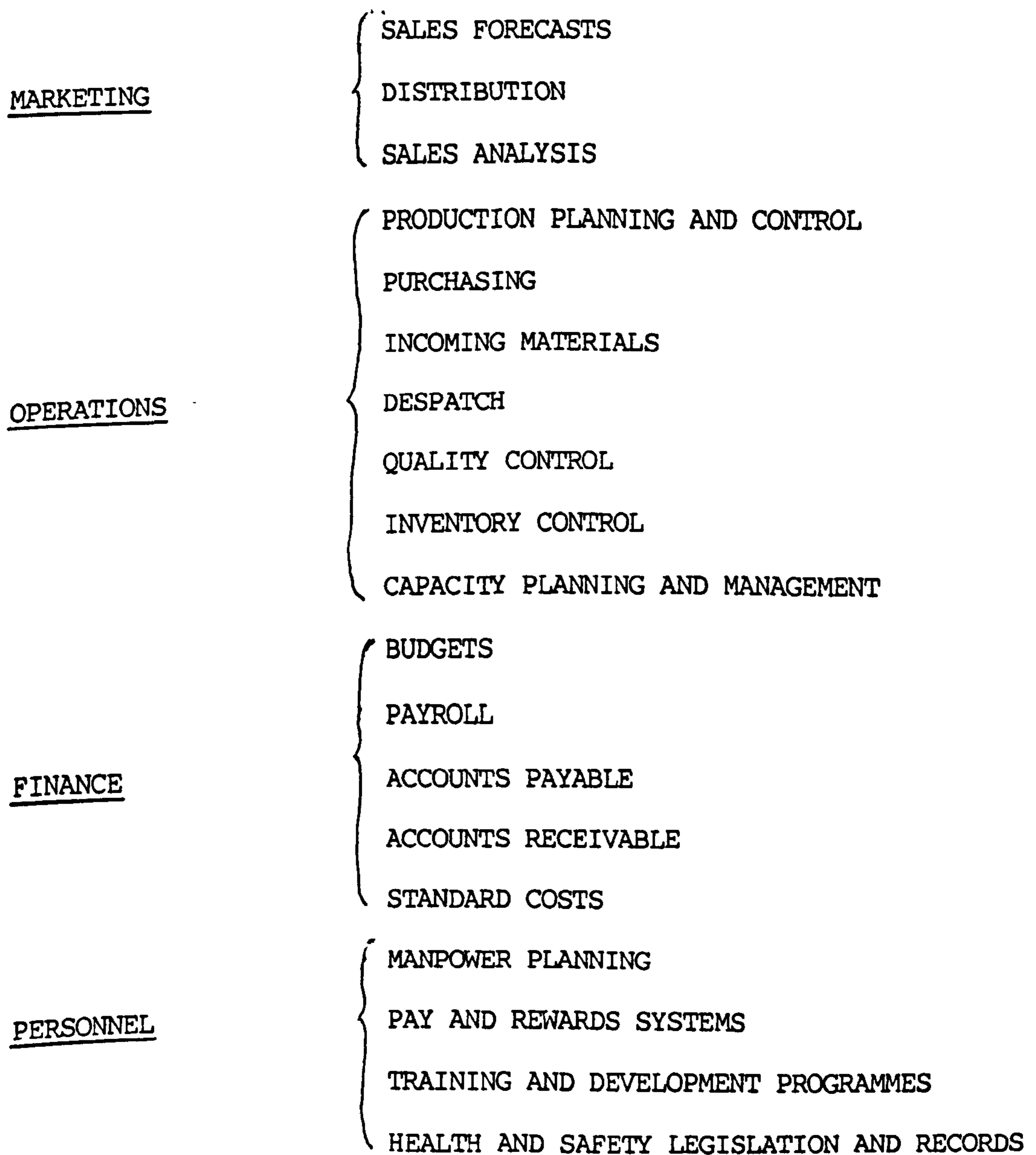


Fig 8.3 BUSINESS INFORMATION SYSTEMS

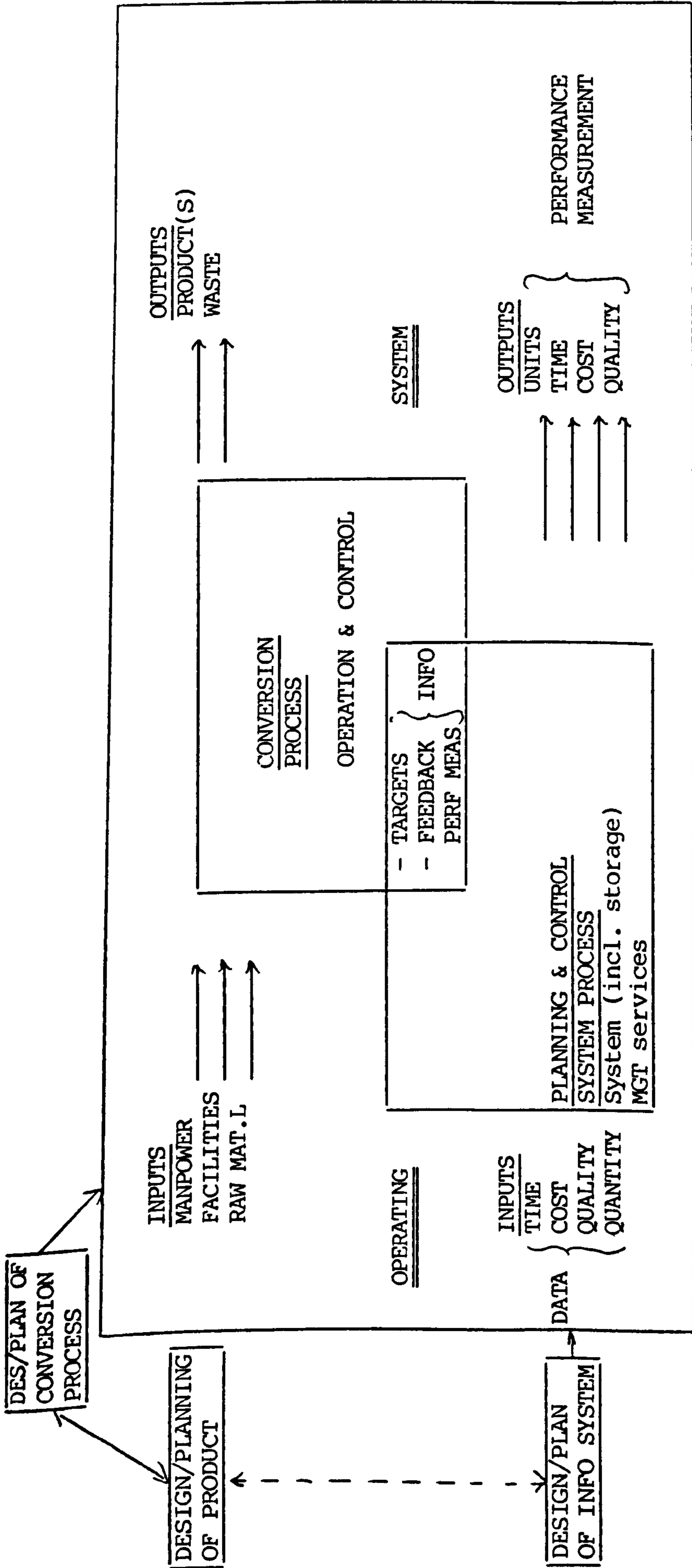


FIG 8.4 INTEGRATED OPERATING SYSTEM

Before dealing with the choice of an information system for investigation; the workers' co-operatives for field work; and the final selections regarding research methods, it has to be stated that final choices on these issues were not immediately obvious. The reasons for this are:

First the hypothesis being tested is a complex one. Contemporary research concerning job and organisation design (JOD) on one hand and information management on the other have tended to be mutually exclusive. Little attempt has been made by researchers to probe the links between them. Most of the publications on JOD tend to concentrate on the relevant psychological, sociological and motivational theories underpinning JOD changes in organisations. Or often research projects identify implementation problems associated with changes proposed. Some studies are limited to the measurement of workers' job satisfaction or to the benefits to the firm following work restructuring.

Information management research generally suffers from its own particular bias. It tends to be focussed on large firms and deals almost exclusively with computerised information systems to the exclusion of rigorous examination of the management of information.

In effect, research is focussed on information technology and little is said about the management of information for decision making.

(These issues have been discussed at length in Chapters 2, 4, 6 and 7). Consequently the researcher has endeavoured to narrow his investigation to identify the links between job and organisation design and information management. Because so little prior research appears to have been carried out on this topic the author was aware that final choices regarding firms to be studied, information systems to be probed and research methods used could turn out to be less suitable than had been envisaged. Although a final review of the study would provide useful guidelines for future researchers, this researcher was consistently mindful of the fact that he would be expected to produce relevant and adequate results to test the hypothesis.

The second area of difficulty concerning field work arose because workers' co-operatives are a complex form of organisation. There is not an ideal model acceptable to all co-operators; some are highly participative but others strongly resemble conventional organisations. A further complexity results from the wide range of objectives espoused by co-operatives and the differences between espoused objectives and objectives actually pursued. Thus some of the decisions made and actions taken do not always equate with objectives claimed to be pursued. (Refer to Chapter 4)

A fourth factor to be considered relates to choosing and studying an appropriate information system.

1. a system in operation in all of the firms studied had to be identified if comparisons were to be made and unique issues highlighted.

2. a carefully selected sample of firms had to be studied to provide a representative view of the situation in workers' co-operatives generally. i.e. conversion defensive on constructive co-operatives which could be involved in manufacturing or non-manufacturing.

Thus it was with a certain amount of caution that the researcher progressed to the issues described and discussed in the following sub-sections. Not surprisingly two pilot studies were conducted before final field work commenced.

8.3.2 THE PURCHASING PROCESS AS A CHOICE

The choice of an information sub-system was not therefore limited and a final selection was made for the following reasons:

Production planning and control systems were rejected because they would not be expected to exist in all firms studied particularly if it was decided to include non-manufacturing businesses. In addition where production planning and control was employed it might have proved to be so informal and primitive as to render it useless for investigation from an information management perspective.

Quality control was ruled out for study fairly quickly because it tends to be applied almost exclusively in manufacturing operations, although this situation is changing just now. In addition manufacturing industry generally in the UK has a poor record regarding the application of quality systems and quality techniques.

Dispatch, although important has limitations as far as data storage and use is concerned so it was not seriously considered for further study.

Since all organisations buy things:

- * raw materials
- * components (bought-out parts)
- * disposable items
- * equipment
- * finished products etc,

it was decided to research the purchasing systems in the co-operatives chosen for investigation. In addition, purchasing incorporates incoming materials reception and inventory and to a degree, quality control. Often the umbrella term given to this function is materials management.

Also since this project is concerned with the effect of information management on job and organisation design, purchasing had other important attractions:

- * it is interactive (often involving a wide range of workers) and is therefore a good subject for investigation where job and organisational issues are under scrutiny.
- * it is a major management functions in most organisations. Poor purchasing performance is often not noticed until the company is in liquidation. Frequently poor purchasing practice is one of the main reasons for failure of the company.
- * it is relational illustrating how a manager is responsible to his customers as well as his employees.
- * it is transactional involving the buyer, the supplier and sometimes the customer and is therefore high in information needs.
- * it is a people responsible area and consequently of relevance when considering job design and organisational arrangements.
- * there are buyer behaviour issues which may relate to organisational arrangements and to the decision support system.

- * it is a convergent function and therefore incorporates internal organisational interfaces and alliances of people and groups.
- * it can be divergent where, for example, maintenance managers and project engineers buy most of their spares and components without reference to the purchasing department.
- * it can be a group activity with specialist purchasing officers pooling their knowledge regarding costly and important purchases or contracts.

It remained to select suitable workers' co-operatives for field work and the factors leading to a final choice are presented in the following sub-section.

8.4 CHOICE OF WORKERS' CO-OPERATIVES

The first problem encountered in arranging this part of the project was in gaining access, for research purposes, to suitable co-operatives. Since this is a very active area in research terms, a number of firms showed signs of suffering from the 'goldfish bowl' syndrome. For this reason, even when access was possible, a number of offers were declined by the researcher. It was felt that a co-operative tired of the attentions of too many researchers would not provide a good base for worthwhile research.

Other enquiries regarding access were abandoned because the firms involved were co-operative in name only and in practice were seen as conventional business lines. Shades perhaps of Argyris's, op cit, Theory in Action.

Opportunities available in co-operatives located in England were declined because it was felt best to restrict research to one geographical region. There was a risk that research carried out in firms located in disparate areas would introduce yet another and unwanted variable. The first decision therefore was to restrict research to co-operatives located in Scotland. This had the added advantage that research field-work would be more satisfactory particularly since the project was being done on a part-time basis.

The second decision concerned the choice of operating systems and since purchasing was to be investigated and all organisations buy things, there were no restrictions on choice between these different systems. Fig 8.5 summarises the four main types of operating system (based on Wild's, op cit, classification) and the level of purchasing in each.

SYSTEM CLASSIFICATION	CHARACTERISTICS OF SYSTEM	LEVEL OF PURCHASED ITEMS
MANUFACTURING	CHANGE IN FORM OF OF PURCHASED ITEMS	HIGH ITEMS FOR PROCESSING
TRANSPORT	CHANGE IN LOCATION OF SOMEONE OR SOMETHING	LOW MAINLY SPARES AND CONSUMABLE ITEMS
SUPPLY	CHANGE IN OWNERSHIP	HIGH ITEMS FOR RESALE AND DISTRIBUTION
SERVICE	CHANGE IN STATE (IE ITEM REFURBISHING)	LOW MAINLY CONSUMABLES TO BE USED IN TREATMENT (EG DRYCLEANING OR DENTIST)

Fig 8.5 LEVEL OF PURCHASING IN OPERATING SYSTEMS

Because manufacturing and supply systems have a high level of purchased items, it was decided to restrict research to co-operatives involved in these activities. Ref Fig 8.5

In Fig 8.5 operating systems have been divided broadly into manufacturing and non-manufacturing, the latter being sub-classified into transport, supply and service systems.

In a manufacturing system, material is fed in and the product which emerges represents a change in form. eg, sheet steel, paint and primer, rivets and fittings could be transformed into a filing cabinet. This filing cabinet could then be transported to a retail outlet (transport system) to be subsequently sold (change in ownership). At some future date the cabinet may be returned to the factory (another change in location) to be refurbished (a service system providing a change in state) in exchange for a fee.

The third choice to be made was between the three types of workers' co-operative:

- * conversion
- * rescue
- * constructive

(These are fully described in Chapter 3.)

It was decided to nominate two types of workers' co-operative rather than attempt to cover all three. It was felt that one type only would be restrictive from a data collection point of view and there would be too

broad and might produce too wide a range of data which could possibly obscure any interesting issues that might arise.

In summary, four co-operatives were chosen for investigation. This selection endeavoured to identify, as well as possible, a representative sample of co-operative businesses in Scotland. The four firms chosen comprised:

- * two constructive co-operatives, formed at birth on co-operative principles, and
- * two rescue co-operatives salvaged from the residue of two conventional factories faced with closure.

(It was not possible to identify a conversion co-operative in Scotland)

Fig 8.6 Summarises these four workers co-operatives

<u>CO-OPERATIVE</u>	<u>PRODUCT(S)</u>	<u>TYPE OF BUSINESS</u>	<u>CLASSIFICATION</u>	<u>TYPE OF CO-OPERATIVE</u>
AYE	WHOLEFOODS & ALLIED PRODUCTS	WHOLESALE	SUPPLY	CONSTRUCTIVE
BEE	WHOLEFOODS, BOOKS, & COOKING EQUIPMENT	RETAIL	SUPPLY	CONSTRUCTIVE
CEE	CLOTHING	MANUFACTURING	MANUFACTURING	RESCUE
DEE	BAKERY	MANUFACTURING	MANUFACTURING	RESCUE

Fig 8.6 THE FOUR CO-OPERATIVES STUDIED

Having secured access to four suitable co-operatives attention was then focussed on the research methods to be used. This selection process is described in the following sub-section.

8.5 CHOICE OF RESEARCH METHODS

8.5.1 THE COMPOSITE PICTURE

"Research techniques are a bit like fishing flies: you choose the right one for the fish you want to catch" (Kane, 1987).

In this research project, information had to be collected about two main systems and their interrelations. See Fig 8.7

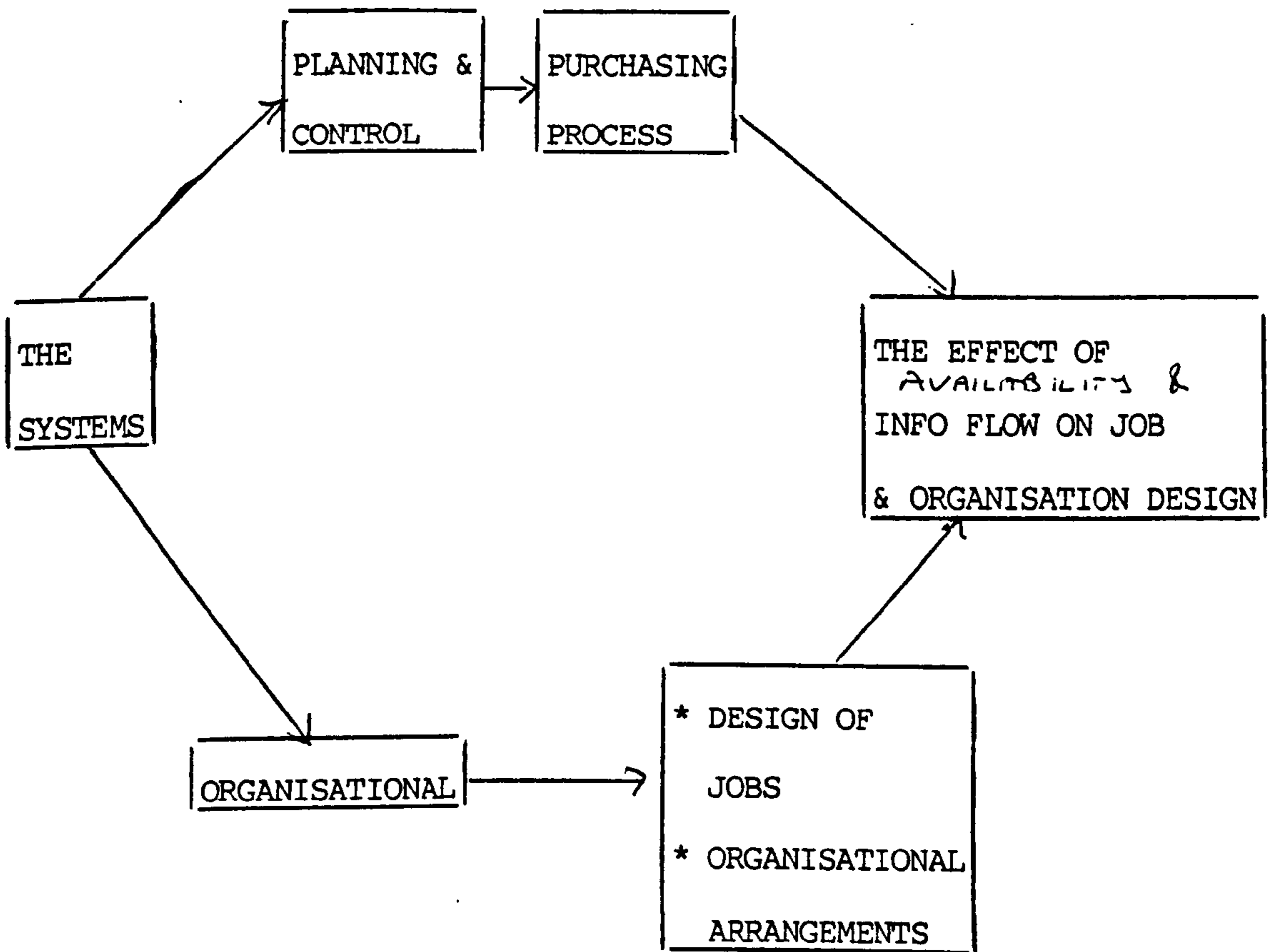


Fig 8.7 SYSTEMS STUDIED

The types of workers co-operatives having been decided and the information sub-system being identified, it remained to make a choice between a number of techniques for data and information collection.

The major techniques are participant observation, interviews, questionnaires and written documentary sources (MOSER, 1969). Each technique is designed to obtain certain types of information not obtainable from other techniques. For example, under certain

circumstances, participant observation can inform us about what people do or what events happen. Questionnaires and interviews tell us what people say they think and do. On occasions we may need to know only one of these; what people say they do, for example. Thus if we are determined to use participant observation because we have been trained in its use and/or have used IT in the past, the relevance of the information collected is going to be reduced.

Fig 8.8 illustrates how research techniques complement and support one another. No one technique duplicates exactly the function of the rest. Each technique produces information that only it can obtain, but it also reinforces the other techniques.

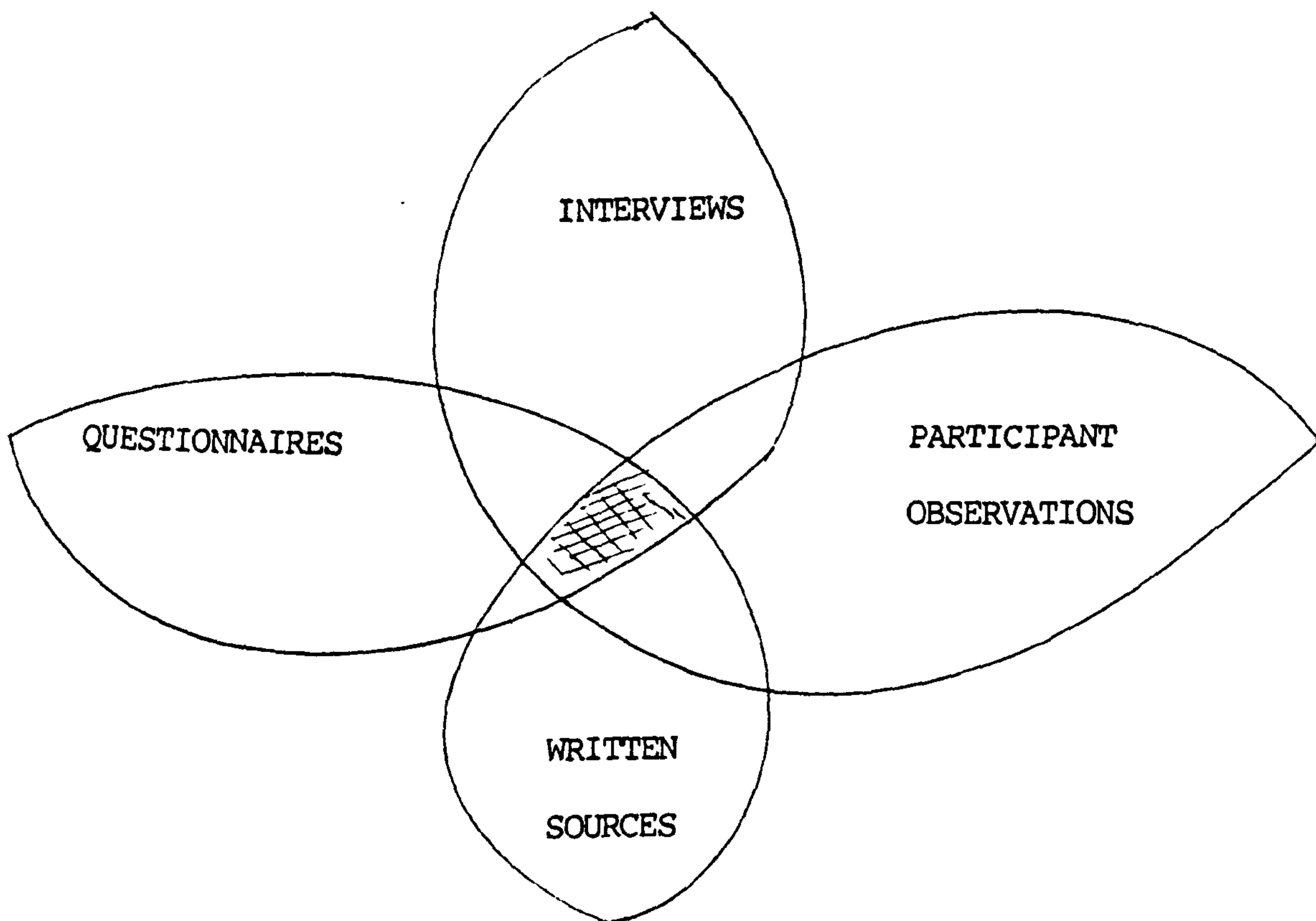


FIG 8.8 HOW RESEARCH TECHNIQUES SUPPORT AND COMPLEMENT EACH OTHER

(Source: KANE, 1987 P 52)

BEST COPY

AVAILABLE

Variable print quality

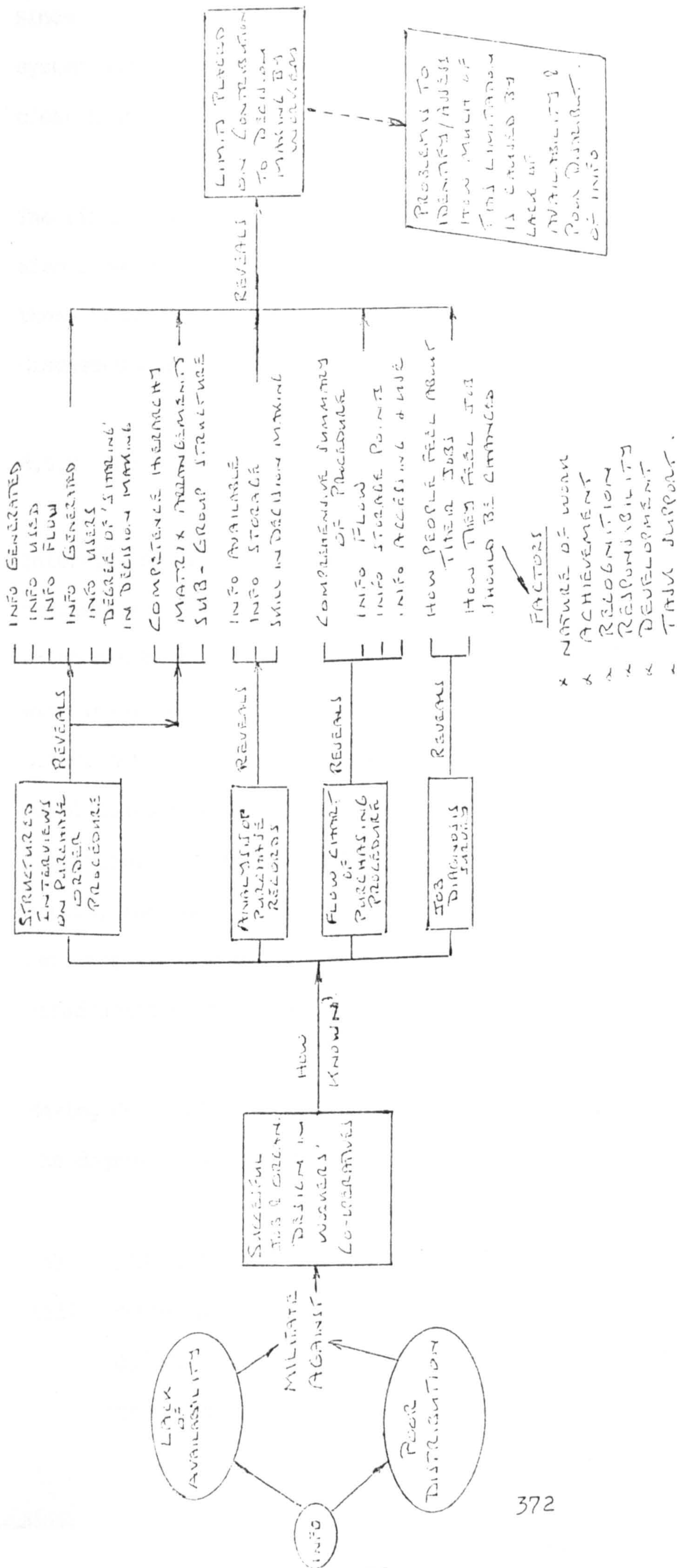


FIG 8.9 THE RESEARCH PROCESS

Since this research project was concerned with a planning and control system and an organisational system and their interaction, it became clear that at least two research techniques would probably be employed.

The final choice of research techniques is summarised in Fig 8.9 which also shows the type of information each technique would yield. Each of these techniques and their application to the two systems studied are discussed below.

8.5.2 THE PURCHASING PROCESS

Interviewing is one of the most frequently used research methods in business and the social sciences. For ascertaining subjective situations which can be expressed verbally it is most appropriate. Because people were involved in a defined system (purchasing), observation in other direct methods were not likely to be effective without asking supplementary questions. However there is always the possibility, when interviewing, that the responses could be influenced by the ignorance, errors, inadequate memory and untruthfulness of the subject.

Nevertheless the practical advantages were considered to outweigh the disadvantages in attempting to establish objective facts.

Having decided to use the interview method, the researcher had to decide the degree of standardisation from three distinct levels:

- (i) NON-DIRECTIVE INTERVIEWING which is qualitative and unstructured
- (ii) FOCUSED INTERVIEW employing a prepared scheme of questions.

Guidelines are laid-down but questions are not standardised and thus sequence is not set.

- (iii) STRUCTURED/STANDARDISED using questionnaire with formulation and sequence of questions set.

Because the non-directive interview has an exploratory purpose and the respondent is presented with a general theme for free ranging discussion with the interviewer who helps him along by asking for details etc, it was felt that this approach would not be suitable when a clearly defined system with set stages was being probed.

Similarly focussed interviews were ruled out largely because it was felt important to ask the same questions, as opposed to a general scheme of questions as guidelines, when studying firms.

Since the survey results relating to the four purchasing systems under scrutiny were to be compared and synthesised it was necessary to use structured interviews where the formulation and sequence of questions was not left to the interviewer at the time of interview. In the study this was planned and proposed in advance giving the subject less spontaneity and yielding answers only to pre-considered questions. This was also likely to guarantee the completeness and comparability of the answers and quantifiability of the results thus affording greater reliability. Thus it was decided to use structured interviews to investigate the purchasing (information) system.

8.5.3 THE PEOPLE INVOLVED IN PURCHASING

Since the effect of poor information management on the degree of success in designing jobs and arranging organisations was the main thrust

of investigation, not all workers in the four co-operatives were studied. Having decided to survey the purchasing (information) system, the purchasing interviews were restricted to those people in any way involved in the purchasing process.

Fig 8.10 and following notes summarise the situation:

CO-OP	NO OF PEOPLE PLACING ORDERS	PRODUCT(S)	TYPE OF BUSINESS	TYPE OF CO-OPERATIVE
AYE	7	WHOLEFOODS	WHOLESALE	CONSTRUCTIVE
BEE	7	WHOLEFOODS	RETAIL	CO-OPERATIVE
CEE	2	CLOTHING	MANUFACTURING	RESCUE
DEE	4	BAKERY	MANUFACTURING	RESCUE

Fig 8.10 PEOPLE DIRECTLY INVOLVED IN PLACING ORDERS

Although 20 people were directly involved in placing orders, others participated in other parts of the purchasing process such as goods inward reception and payment of suppliers. As later research findings will show, a maximum of 26 people, in the four firms, were involved at least one stage in the purchasing process.

Initial reaction may suggest that this is a small sample. However although 26 people were involved in this investigation, it covered four separate purchasing procedures in widely varying firms. It was not felt necessary to collect more data for the purposes of this project. It is

acknowledged that there may be justification for conducting a more detailed investigation on purchasing procedures at a later date. Nevertheless the issue has been explored in depth with the reminder that the findings were obtained with the sole purpose of assessing the information management effects on job and organisation design. Too many companies included in the investigation would have clouded the issue and the researcher was confident that the choice of co-operatives would ensure interesting and worthwhile conclusions vis-a-vis the hypothesis being tested. In co-operative Aye, 7 people out of a total workforce of eighteen were responsible for buying. Some of these buying responsibilities were more difficult than others eg buyer for dried fruit, pulse, beans etc had to anticipate price fluctuations of main suppliers. In contrast, the buying of oils and fruit juices was less complicated.

In co-operative Bee, each member, bar a new entrant, was responsible for buying products for re-sale. These product territories were rotated around the members when the need for variety emerged.

Co-operative Cee had a full-time buyer who was responsible for procurement of 90% - 95% of materials. The general manager was the only other person permitted to purchase required items.

In co-operative Dee four management/administrative personnel were involved in ordering ingredients, disposable items and maintenance spare parts.

8.5.4 ORGANISATIONAL MAPPING

Because this study set out to establish the links between an information system (purchasing) and how jobs and the organisations were structured, it was necessary to map some of the organisational issues embodied in the purchasing process. The main factors investigated under this heading were:

- * the competence hierarchy which gave an indication of the ability and desire by people involved in purchasing to undertake other tasks and jobs within the co-operative but particularly the purchasing process.
- * the possibility of the existence of a sub-group structure identified by people's claimed ability to be able to do particular jobs given the opportunity. Also identification of the people who tended to help each respondent when requested and in turn the people whom respondents helped when it was needed gave a measure of a possible sub-group structure.
- * an indication of any desire for personal development through transfer to a different type of (existing) job.
- * information that would show the existence of a matrix arrangement within the organisation. This was measured by identifying the jobs people assumed responsibility for when someone was absent and the proportion of these jobs completed by the temporary tenants.

This approach to organisational mapping was based on a study by HERBST and GETZ (1977) on work organisation problems encountered in white-collar work in a large Norwegian bank.

8.5.5 ANALYSIS OF PURCHASING RECORDS

Documentary sources of research information provide a richness and detail not usually achieved by more standardised methods of surveying. They can give an insight into the personal character, experiences and beliefs that formal interviewing may not obtain. However there are difficulties in the use of personal documents:

- * it is difficult to obtain a representative collection of documents
- * the more the investigator becomes involved the greater the risk of personal distortion

For further discussion of documentary sources refer to Moser (1969).

8.5.6 FLOW PROCESS CHARTS

Although it was essential to identify the main stages in the purchasing process if meaningful questions were to be constructed for structured interviews and to facilitate comparison between the four systems and a contemporary system, this list of stages omits and shields essential information.

When reviewing an information system it is advantageous to have access to an overall presentation showing such things as who generates information and at what stage in the process; how this information is stored, accessed and by whom; to whom this information flows and by what means; and what use is made of available information.

For this reason, flow process charts were constructed for the purchasing procedures in each of the four workers' co-operatives.

8.5.7 JOB DIAGNOSIS SURVEY (JDS)

The questionnaire which was constructed for the structured interviews of people involved in the four purchasing processes was objective because the questions were seeking facts which were verifiable if the need arose. In contrast the information sought concerning how people felt about their jobs was subjective being concerned with attitudes. Questions in this survey related to opinions, and value judgements concerning attitudes, desires, aspirations and feelings.

The basic rationale behind the JDS survey was that employees possess a vast accumulation of knowledge and experience of the organisation and a wealth of ideas for improvement. This store of knowledge can be used for providing solutions to retractable work problems. (Cole and Stuart-Kotze, 1979). The objective of this JDS survey was not concerned with retractable problems - they did not appear to exist in the four co-operatives - but more with obtaining a link between the 'success' of the current job arrangements measured by the levels of job satisfaction and the information collected on the information system. If one wishes

to discover how people feel about various aspects of their jobs as currently arranged and the areas in which they desire change, they have to be asked appropriate questions. Assuming the topics probed are relevant and the questions asked are appropriate then some form of measurement will be obtained. Since such a questionnaire is subjective it is not an ideal way to measure the variables under scrutiny. But in the absence of an alternative it was decided to measure the success of job and organisation design through the use of an employee attitude survey. Observation was considered as an alternative but this had serious drawbacks such as; large amount of time required and as has been stated earlier, researchers time was limited because the project was done on a part-time basis; even if other observers had been employed it is unlikely that there would have been equanimity in their approach and conclusions; a form of quantitative measurement for comparison purposes would have been absent and the results therefore would have had very limited value for the purposes of the project.

This particular survey was conducted on the premises and respondents were asked to complete their own copy. Since the researcher was on the premises conducting the information survey interviews it was easy to ensure that there was no collusion between respondents when completing the JDS questionnaire.

Before deciding to use a questionnaire to assess the co-operators' feelings and views about their jobs, the use of participant observation was considered. This is characterised by the immediate participation of the observer in the social processes of the socio-cultural system being studied. It is a classic method of scientific enquiry.

Observational methods would appear to be ideally suited to this study since the researcher would be literally surrounded by his subject matter.

However observation as a systematic method of collecting data is much more difficult than first appears. The methods must be carefully chosen when investigating a particular problem. It must be appropriate to the population and samples to be studied; and it should be reliable and objective.

In practice the observational method presents problems on all these factors. For the following reasons, direct observation was rejected as a research technique in this project.

- * It is suitable for only a small proportion of the subjects the researcher wants to study.
- * it permits the subjective influence of the researcher.
- * Personal interpretation of what was seen might involve the researcher imposing his own views and research objectives on the results.
- * it might lack a common purpose and a common interpretation. The observer and the observed are liable to disagree about the 'truth' of what the observer recorded as having happened.
- * the more the participant observer attempts to play the role he has chosen as 'authentically' as possible, the more strongly he will come in time to identify with this role. This can lead to the observer losing sight of the theoretical frame of reference of the observation.
- * since observations cannot usually be recorded while they are being made, but only in retrospect, the results would be relatively unstructured and remain at the level of quantitative description.

It is not surprising that social investigations rely to a large degree on the alternative process of asking questions.

(MAYNTZ, et al 1976; MADGE, 1953)

Questionnaire design is discussed in the next sub-section.

8.6 QUESTIONNAIRE DESIGN

8.6.1 INTRODUCTION

The first step in the process of constructing a questionnaire is to decide what information is required. Thurstone (1928).

In the case of the initial design of the questionnaire for structured interviews, the researcher was not too concerned about the logical order of topics relating to the purchasing process. Indeed in the initial stages the researcher was open to consider if the particular information needed could be collected more efficiently by techniques other than the questionnaire survey (Clover and Balsey, 1984). In the event the initial decision to use a questionnaire for structured interviews appeared to be the correct choice.

The design of a suitable questionnaire for the Job Diagnosis Survey was more complicated than the questionnaire relating to the purchasing process. The latter was more concerned with objective facts whereas the JDS survey was concerned with attitudes and therefore more subjective. Attempts to measure attitudes have been taking place a long time without outstanding success. Part of this difficult results from the statistical difficulties which are encountered when everyday aspects of social behaviour, ordinarily handled as qualitative affairs, are treated from the mathematical point of view (Cole and Stuart-Kotze, op cit). The approach taken to this problem will be dealt with later in this chapter.

The remainder of this chapter will describe how the two questionnaires were developed, tested in two pilot studies, amended as required and consequently used in final work in the four workers' co-operatives.

8.6.2 QUESTIONNAIRE FOR STRUCTURED INTERVIEWS CONCERNING THE PURCHASING PROCESS

The first step towards constructing a questionnaire was to specify the type of information that was required. Having completed this it was then possible to consider the type of questions, and eventually the questions themselves, that would furnish the information sought.

Fig 8.1) summarises the broad categories of information sought. Because of the interaction in this study between the purchasing information system and job and organisation design, it was decided that a number of questions would be included in this questionnaire relating to organisational issues.

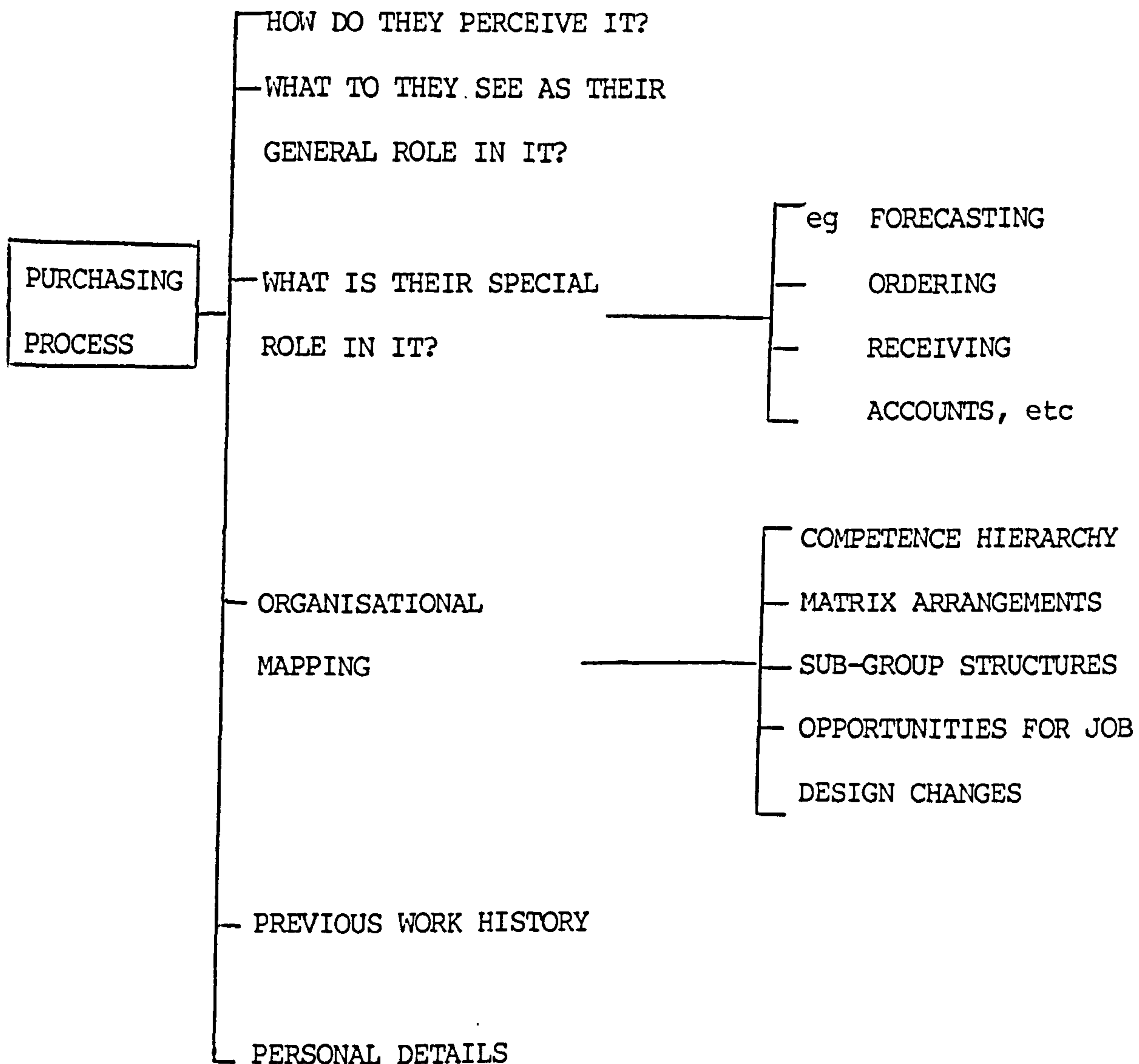


Fig 8.11 BROAD CATEGORIES OF INFORMATION SOUGHT

However some less specific questions were included to ascertain respondents' conceptual understanding of their purchasing process and the roles they played in it. Some questions concerning work history and personal details were also included. It was envisaged that responses to these questions would provide some interesting and perhaps 'rich' data. General questions of this type also had the benefit of 'easing' respondents into the interviews.

Because the study was primarily concerned with the relationship between information management and job and organisation design, it was attempted to carry out some organisational mapping involving those active in the purchasing process. The purchasing process structured interviews were the most appropriate time to collect the relevant information.

Organisational mapping has been discussed in section 8.5.4.

However it was clear that the main focus of attention in the survey would be concerned with the specific roles played by the respondents in the purchasing process. Thus the information requirements were amplified and because of the link between the purchasing process and organisational arrangements under investigation it was decided to differentiate between tasks which were the sole responsibility of individuals and those which were shared with others.

The main elements of a purchasing process are included in Fig 8.12 and the objectives and tasks of people involved in these elements are listed. In addition the information sought and required at each stage is identified in Fig. 8.12.

Fig 8.13 elaborates on 8.12 and tasks undertaken by individuals are differentiated from those where responsibility is shared.

PURCHASING SYSTEM

<u>ELEMENT</u>	<u>OBJECTIVE</u>	<u>INFORMATION</u>
REQUISITIONING	(i) To authorise buyer to place an order	(i) What is required? (ii) By whom? (iii) When?
ORDERING	(i) To authorise supplier to deliver goods (ii) To inform requisitioner of action (iii) To inform Accounts	(i) What is required/How many? (ii) By whom? (iii) When? (iv) At what price?
GOODS RECEIVED	(i) To check receipts (ii) To record receipts (iii) To inform buyer (iv) To inform Accounts	(i) What is received? (Item, Quantity, Quality) (ii) When? (iii) By whom?
PURCHASE ACCOUNTS	(i) To check and agree suppliers' invoices (ii) To pay suppliers (iii) To take as much credit as possible (iv) To analyse purchases	(i) Goods received (item, quantity) (ii) By whom? (iii) Where? (iv) What for? (v) Price to pay
MATERIAL CONTROL	(i) To see that only the materials necessary are bought and paid for	(i) What is needed? (ii) What is bought?

BASED ON BENTLEY T J MANAGEMENT INFORMATION SYSTEMS AND DATA PROCESSING TABLE 3.1

DIRECT
RESPONSIBILITY

SHARED
RESPONSIBILITY

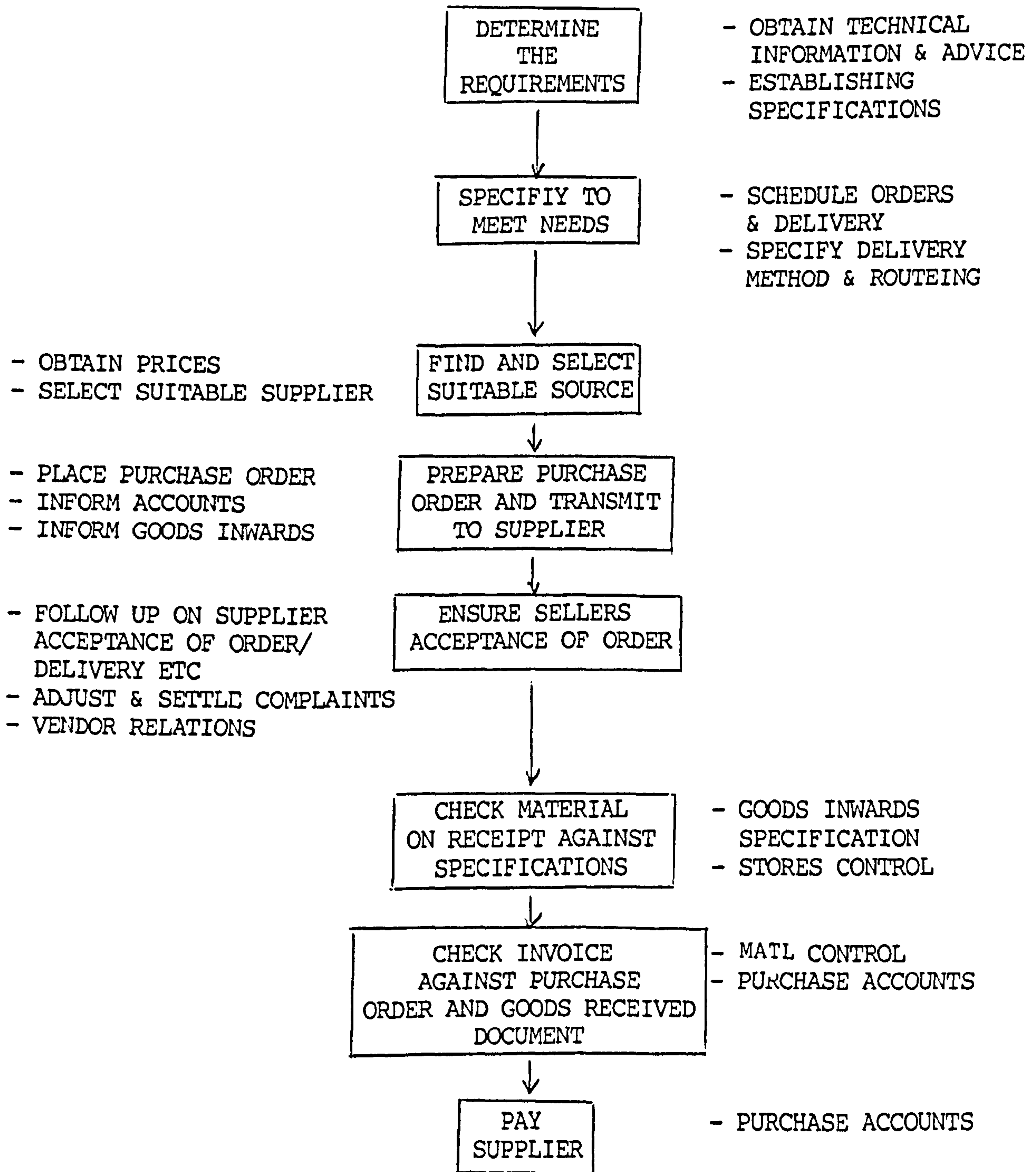


FIG 8.13 PURCHASING SYSTEM PROCEDURE IN CONVENTIONAL SMALL BUSINESS

BASED ON MCCOSH A M ET AL
DEVELOPING MANAGERIAL INFORMATION SYSTEMS
MACMILLAN PRESS 1983 p.92

From these two figures an initial list of sixty-seven questions was prepared for testing in the first pilot study. The objective was to identify questions which were relevant to the study and would produce valid information. Fig. 8.14 includes a sample of these questions.

ELEMENT	QUESTIONS
REQUISITIONING	<ul style="list-style-type: none"> * WHAT DECIDES YOU TO REQUISITION STOCK? (MINIMUM STOCK LEVEL/WEEKLY ORDER ETC?)
ORDERING	<ul style="list-style-type: none"> * WHICH PRODUCTS DO YOU REQUISITION? * HOW DO YOU DECIDE HOW MANY TO ORDER? * DO YOU AGREE PRICE WITH SUPPLIER? * DO YOU WRITE/TYPE PURCHASE ORDER?
GOODS RECEPTION	<ul style="list-style-type: none"> * DO YOU CHECK QUANTITIES DELIVERED? * DO YOU CHECK QUALITY OF DELIVERIES? * AGAINST WHAT DO YOU CHECK QUANTITIES DELIVERED? * DO YOU CHECK GOODS ORDERED BY SOMEONE ELSE?
PURCHASE ACCOUNTS	<ul style="list-style-type: none"> * DO YOU CHECK AGREED PRICE WITH PRICE ON INVOICE? * DO YOU PERSONALLY PAY SUPPLIERS?
MATERIAL CONTROL	<ul style="list-style-type: none"> * DO YOU RECORD DETAILS OF INCOMING GOODS IN STOCK RECORD SYSTEM? * WHAT FORM DOES THIS RECORDING SYSTEM TAKE?

FIG. 8.14 SAMPLE QUESTIONS FOR FIRST PILOT STUDY.

8.6.3 QUESTIONNAIRE FOR JOB DIAGNOSIS SURVEY

This survey was developed to obtain the views of people, involved in the purchasing process, regarding their jobs and the factors surrounding them.

When work is redesigned it is always accompanied by some form of diagnosis. Often the diagnosis is done implicitly, for example when a manager decides that job enrichment additions to a job will overcome the problems with which he is faced. Alternatively diagnosis is an explicit and important part of the prechange planning process. This will involve the collection of extensive and relevant data from those affected.

To rely on perception of what is happening in an organisation will almost certainly result in flawed diagnosis of the situation leading to inappropriate changes yielding unwanted outcomes.

A second risk of relying on intuitive diagnosis of problems in work systems is related to the human tendency, noted in Chapter 6, to misperceive the causes of the behaviour of other people. Excessive attention is paid to the characteristics of the person in understanding someone's behaviour and insufficient weight to the characteristics of the situation in which that person is behaving (Jones and Nisbett, 1971).

Because of this high risk of error when ad hoc procedures are used to draw conclusions about work systems, it is advisable to conduct some kind of systematic diagnostic study before drawing conclusions and introducing changes. What is required is data about the work and people's reactions to it that is comprehensive and trustworthy.

This task is easy to state but much more difficult to do since there are problems with every methodology available to assess jobs and people's reactions to them. (Hackman and Oldham, 1980). Ideally diagnostic data should be collected using questionnaires, interviews and observation. Assuming the findings obtained from these multiple methods are generally consistent, then one can be reasonably sure that the results reflect the phenomena being investigated.

Because the work system investigation in this project was not for the purpose of giving guidance on job redesign requirements, it was not felt necessary to use multiple methods. A job diagnosis survey appeared appropriate to shed light on:

- (i) how people felt about their jobs as presently arranged
- (ii) the types of changes they would like (if any)
- (iii) how better information management would have avoided some of the dissatisfactions registered in a comparison of (i) and (ii)
- (iv) the types of information system changes necessary if job design changes [from (i) to (ii)] were contemplated.

In designing the JDS questionnaire it was felt important to collect general background information about respondents concerning such things as age and number of years in their particular co-operatives. Their general impressions of the jobs was to be obtained by asking questions relating to the degree of interest, enjoyment, challenge, usefulness to the community and opportunity for self-development inherent in the job. In addition information regarding task support was requested by asking how good the organisation was at supporting co-operators in their work.

It was decided to compile a list of ten statements all of which were negative in tone, expressing possible complaints or sources of frustration and concerned such things as work organisation, departmental policies, work loads, equipment, information, training and delegation.

More explorative information was collected concerning:

- (a) The nature of work by questioning the workers about the kind of work done eg varied or repetitive.
- (b) Achievement when the survey was concerned with the sense of accomplishment which the work did or did not give eg opportunity to solve problems.
- (c) Recognition which probed the degree of attention managers and/or peers paid to co-operators.
- (d) Responsibility. Too much recognition could amount to too much supervision. Therefore questions under the heading Responsibility probed the level of independence permitted and the significance of the respondents contribution.
- (e) Development which attempted to summarise how strongly the workers felt their jobs were offering an opportunity to learn and was likely to help them gain promotion or transfer to a better or different job.

The problems in attempting to measure how strongly (or weakly) a person feels about particular aspects of their job has been commented on in section 8.5.6. According to Likert (1932) the best of the early attempts to measure social attitudes were those of Thurstone (1928, 1929). These are characterised by an attempt to equalise the step-intervals from one attitude to the next on the attitude scale.

According to Mayntz, et al, op cit, Thurston's methods were for a long time the most frequently used scaling technique in attitude research. Nowadays its shortcomings are thought to outweigh its convenience. The Likert technique has taken its place.

Using the Likert scale the subject is asked to take a position with regard to each statement. For example he is given the following possible positions:

5	4	3	2	1
Strongly	Agree	Undecided	Disagree	Strongly
Agree				Disagree

Thus to summarise, the self administered questionnaire used for the JDS was based on the Likert interval rating scale. Items (a) to (e) above were, in the first part scored on a six point rating scale (1-6) to eliminate the opportunity for respondents to opt for a neutral position. This measured how people felt about their jobs as currently arranged under the five factors (a) to (e).

In the second part of the survey concerning how people felt their job should be changed, a five-point scale was employed. Thus respondents were given an opportunity, on this second stage of the survey to express a neutral position calling for no change in particular aspects of the job.

For purposes of comparison the two sets of results were scored.

The two sets of results for each response were then subtracted to provide a relative measure of any existing deficit between the demands of the job and the performance of the people concerning it.

To avoid a positive bias a reasonable proportion of statements were presented in a negative fashion. This entailed reversal of response scoring 'strongly agree' being given the value 5.

By assigning whole rational numbers it was assumed that the agreement-disagreement scale is divided into five equally large sections by the five formulations. For individual statements this assumption is of course not justified, although it may be presumed that errors cancel out over a reasonable number of statements. Thus the researcher must treat numerical values from such surveys with caution.

In this particular survey a precise numerical value was not necessary. the objective was to assess the relative strength of feelings to identify factors where specialist deficits existed. The intention then was to

identify any deficits which were possibly influenced by deficiencies in the information system. Additionally it was hoped to comment on changes required if particular deficits were to be eliminated through job design changes.

It was not envisaged that major amendments would be required to the questionnaire following pilot studies. The questionnaire used was based on one used in an MSc research project which in turn developed from conversations with Lynda King Taylor and others with good experience in this particular research technique. Therefore although the JDS questionnaire was more subjective than the objective purchasing process questionnaire, it caused the researcher less frustration during development. (TAYLOR, 1976, 1980)

In the following chapter the development and use of pilot studies is described leading up to final field work.

9 PILOT STUDIES AND FINAL PILOT STUDIES

9.1. THE PURPOSE OF PILOT STUDIES

The purpose of the pilot survey is quite distinct from that of the main survey. In the context of interviews and questionnaires it is used to develop questionnaires which are easy to fill in, easy to read and free from ambiguity in their wording or layout.

By the time a research programme has reached the pilot stage, the investigator will have decided what is relevant to his hypothesis and consequently what areas he should investigate by further direct questioning. Although he knows the matter of his questions, he is usually not as confident about the more appropriate and effective way of wording them.

The earliest stages of pilot work are likely to be exploratory. Typically these will involve lengthy, unstructured interviews and talks with key informants.

This activity gives the researcher a 'feel' for the problem and the succeeding stage of the pilot work will have to be progressed in an organised way. It broadly resembles an assembly line after intensive work on each sub-section, the results are collated into a coherent whole (Madge, op cit, Oppenheim, 1966).

9.2 FIRST PILOT STUDY OF PURCHASING PROCESS

The first pilot study was conducted in two community co-operatives; a small craft shop in a seaside town in Ayrshire; and a grain store in Glasgow. In the craft shop the manager purchased most of the items for re-sale and his deputy made about 20% of total purchases, largely from craft workers, woolen goods knitters and similar people who called at the shop. In the grain store three people purchased supplies as and when required with no specific responsibility for particular goods.

Structured interviews were employed with the five people cited above. The objective of this part of the pilot study was to test initial questions for the questionnaire proper. It was felt that reliance on past industrial experience and reference to text books would not provide the framework within which the final questionnaire would be constructed. From previous involvement in workers co-operatives it was clear that when an actual purchasing system did exist, it would probably be informal in the co-operatives chosen for the study proper.

In the event the craft shop had an adequate manual purchasing system suitable for their needs. The grain store used a very informal system which had evolved over time and made use of the legendary black books, backs of envelopes but mostly human memory. However these two contrasting firms provided an ideal base for constructing the final questionnaire. The main lessons learned from the first pilot study were the types of questions to be asked if the study was to relate to

practices in workers' co-operatives; the decision that many of the questions should be standardised - the more standardised the questions, the more independent the stimulus directed at the respondent is of the researcher conducting the interview (Mayntz, et al, op cit); it became clear that questions relating to the part played by respondents in various stages of the purchasing process should be closed. Open questions and would require respondents to formulate their own answers in contrast to closed questions when alternative answers would be provided. Using closed questions it was anticipated that the interview would 'flow' better and would facilitate better analysis of the data collected. (Mayntz et al, op cit. Oppenheim, op cit).

The first pilot study also made it clear that if the information collected was to be made available in a form suitable for meaningful conclusions to be drawn regarding purchasing practices, some of the questions should be multiple choice. It then became important to ensure that multiple choice questions contained all the possible choices that respondents would be likely to want to use in replying. Respondents have a strong tendency to check (tick) responses which are not what they would exactly like to check. In addition, 'others, please specify', must not be used as a catch-all for a poorly prepared checklist that forces a high proportion of responses into the miscellaneous category. (Moser, 1958; Oppenheim, op cit).

Following the first pilot study it was possible to design a more meaningful questionnaire with the following features:

- * OPEN QUESTIONS relating to respondents perceptions of the purchasing process and their role in it. Also past work history and issues facilitating organisational mapping was probed using open questions.

- * CLOSED questions with multiple choice options were developed regarding the decisions made at the main stages in the purchasing process.

The original decision to carry out personal interviewing as opposed to mail questionnaires was not changed. Good research is characterised by careful sampling; precise measurement; and sophisticated design and analysis in testing hypotheses (Behling, 1980). Since careful thought had gone into choosing the four co-operatives studied and a 100% response was necessary for precise measurement and in this instance mail questionnaires offered no distinct advantages over interviews and there was the distinct possibility of collusion between respondents, interviews were seen as the best way of conducting final field-work. In addition because the job diagnosis questionnaire was to be completed personally by each respondent it was possible to conduct this part of the research in parallel with the purchasing system interviews and ensure that collusion did not occur in the JDS.

The purchasing process questionnaire was subsequently developed and tested in a second pilot study.

9.3 SECOND PILOT STUDY OF PURCHASING PROCESS

It was felt necessary to conduct a second pilot study using the purchasing process questionnaire largely because there had been a need to change the wording of some questions. These changes were made to ensure that the respondents interpreted questions to match the interpretations of the designer.

The questionnaire developed from the first pilot study was tested using four post-graduate students who had been involved in workers' co-operatives prior to coming to college or were involved in a co-operative during their industrial placement period as undergraduates.

The main changes to the questionnaire were:

- * minor changes in the linguistic form of questions. Some of the questions were formulated as if they were going to be published. "Despite being standardised, an interview should retain its casual, conversational character" (Mayntz, et al, op cit, p.104). A few questions were reformulated in approximately the same language that the respondent would use in conversation with a stranger in.
- * a few questions were revised to ensure that the respondents understood them to mean as the interviewer meant to mean. (Moser, op.cit). To this end the examples of lists of words and their alternatives by Gowers (1902) was very useful.
- * the sequence of questions was changed to enable a few opening questions to be asked which would not arouse any inhibition about answering. However they were not trivialised but tried to attract the interest of the interviewees and lead into the topic of the interview (Mayntz et al).

9.4 THE PURCHASING PROCESS QUESTIONNAIRE IN ITS FINAL FORM

Final questions in this questionnaire were framed to obtain information on such things as:

- * Order initiation process
- * System used for placing order
- * Forecasting
- * Information used regarding prices, quality required and delivery lead times
- * Goods reception procedures
- * Evaluation of suppliers
- * Communications between suppliers and co-operatives
- * How information was stored

In addition questions were framed to facilitate a broad organisational mapping for the reasons described in chapter 8.

Other personal details regarding such things as work history were probed with the intention of linking this information to some of the results following analysis of the purchasing process data and possibly the job diagnosis survey.

A sample of the purchasing process questionnaire is included in Appendix I.

9.5 FIRST PILOT STUDY OF JOB DIAGNOSIS SURVEY

Some minor changes in wording of questions was required when it became clear that what was intended was not in fact being asked. However the general order of questions did not appear to need modification.

Since a similar questionnaire had been used in the past it was not expected that major modifications would be required.

9.6 SECOND PILOT STUDY OF JOB DIAGNOSIS SURVEY

Because the second group of people participating in this study were more highly educated and articulate and had practical experience of working in co-operatives they made some suggestions about the wording of the questions. These were discussed with the respondents and some questions were re-worded. However other questions remained unchanged because the researcher felt that because of their level of education there was a danger that some changes would have made the question less than appropriate for the respondents in the final field-work surveys.

This illustrates the difficulty in wording questions for a questionnaire, particularly since some of the respondents in the four co-operatives would have been on degree and similar courses and others would have minor or no qualifications.

A sample of the final questionnaire use in the job diagnosis survey, and a covering letter are enclosed in Appendix II.

9.7 LESSONS FROM THE PILOT STUDIES

The first lesson learned by the researcher in deciding which techniques to use was that the initial question should have been "what techniques can't I use" rather than "which techniques shall I use".

The second lesson was that not enough care had been taken with the completion of the research outline. In retrospect it was felt that the questions should have been easier to extract from this outline.

The third main lesson was that it requires considerable effort, patience and care to design a suitable questionnaire. Only when the questions began to look like they were obvious and the questionnaires gave the appearance that anyone could quickly compile them was the researcher reasonably satisfied with the products.

10 IMPLEMENTATION OF RESEARCH METHODS

10.1 INTRODUCTION

This chapter describes the four workers' co-operatives chosen for investigation. The reasons why they were chosen have already been discussed in chapter 8.

It then goes on to explain how the chosen research techniques - also discussed in chapter 8 - were implemented in field work.

10.2 CO-OPERATIVE AYE

This firm manufactures and wholesales natural and organic foods throughout Scotland and was formed in 1978.

Its aims are to maintain a non-sexist, non-racist, non-ageist and non hierarchical structure. Everyone receives the same wage and is encouraged to acquire and share skills and to rotate jobs.

Co-op Aye tries to encourage local producers of organic products and has a policy of boycotting goods from countries who act contrary to the beliefs which they promote. In addition they oppose the exploitation of animals and do not sell products tested or made from animals.

It is also interesting to note that Co-op Aye is a branch of CND and the members are members of the Transport and General Workers Union. Two of the founder members of Co-op Aye were former members of Co-op Bee but left to promote the health food cause by setting up a co-operative wholesale outlet, Co-op Aye which is Co-operative Bee's major supplier.

Co-op Aye currently has 22 members who are all full-time workers.

Although job rotation and flexibility was actively practised in this co-operative, purchasing and accounting was to a certain extent specialised. The purchasing arrangements in operation at the time of field research is depicted in Fig 10.1.

PURCHASING

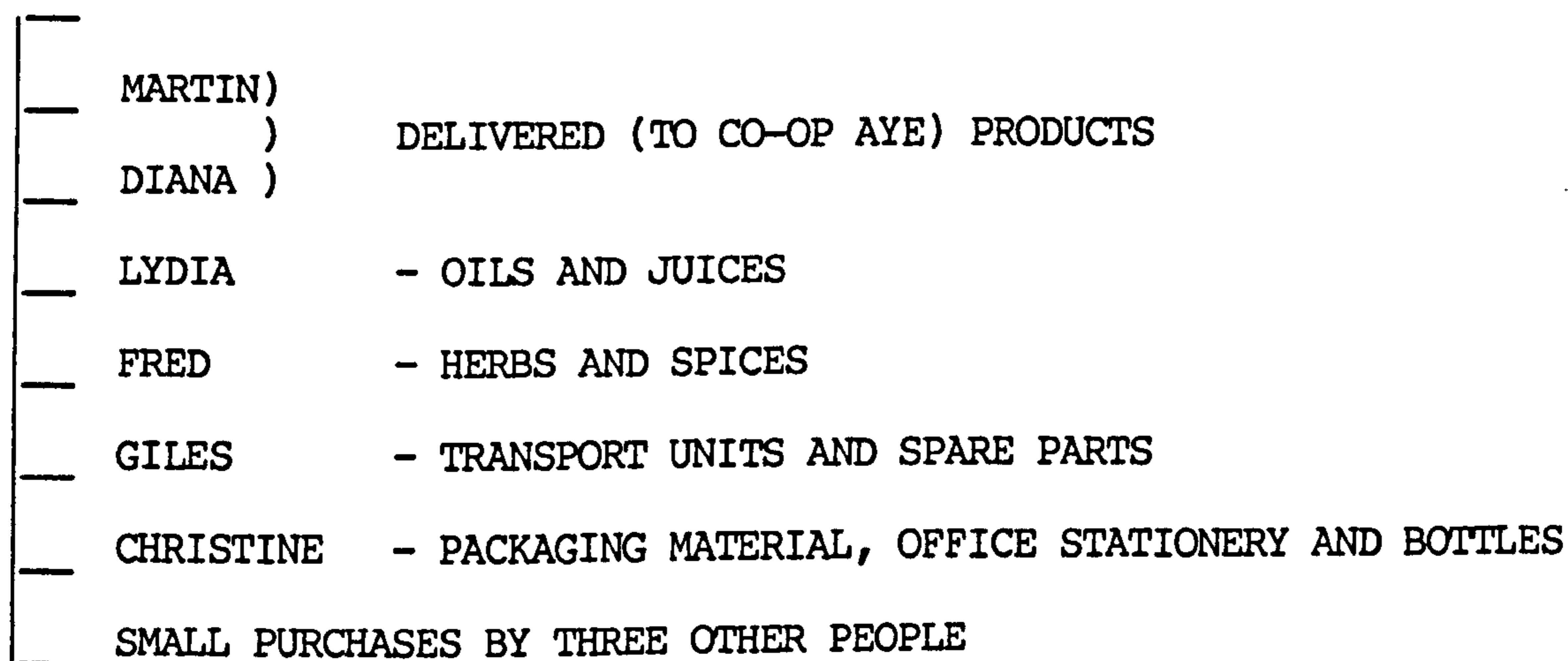


FIG 10.1 BASIC PURCHASING ARRANGEMENTS

Ninety-five per cent of orders were placed by telephone, occasionally being confirmed by letter. The remaining 5% were placed face-to-face or through a forward order when an order would be telephoned, the supplier would send a contract which would be signed by Co-op A and returned to the supplier. A clear picture of this purchasing process is provided in the following chapter.

Although there was no official boss, Martin was clearly seen as leader by others in the Co-operative. Other prominent roles were occupied by Diana - like Martin she was involved in "important" buying; and by Alan and Sara who acted as accountant and assistant accountant respectively.

Other buyers in the firm combined buying with warehouse manufacturing and packing; sales 'repping'; and driving duties. Workers helped each other as necessary and both informal and formal job rotation was practiced.

When an order was placed, by whatever means, it was recorded in an order book. There was one order book for all products.

Delivered material was checked by anyone available, the delivery note passing to Alan (accountant) who checked it against an invoice. Once per day Alan and Diane visited the warehouse to check the quality of recently delivered goods. In the case of dissatisfaction the matter was raised with the supplier concerned.

Operational decision making was very much a universal issue and people consulted each other for advice. The mid-day lunch was prepared on the premises, using wholefoods. This task was performed on a rota basis. At this lunch much information was exchanged, advice sought and freely given.

Policy decisions were taken collectively at one of the regular meetings held for such purposes.

10.3 CO-OPERATIVE BEE

This business was formed in 1977 by a group of young people, mainly university graduates, in response to an anticipated change in people's eating habits.

Growth in demand prompted the members to open a second shop, in November 1984. This second shop is situated three shops distance from the original one. Between them the two shops retail wholefoods and affiliated non-foods, herbs, spices animal free toiletries, home-brew supplies, kitchenware and books on feminism and whole-food cooking.

During field-work studies, Co-op Bee had eight members, all full-time workers plus two part-timers.

Everyone, with the exception of a newcomer was responsible for purchasing a specific range of products eg books, herbs and spices, grain foods or home brew supplies and kitchenware. Rotation between these tasks takes place by mutual consent about every six months or longer. The other tasks associated with the business such as re-packing, shelf loading and selling are allocated again by mutual agreement or as demand dictates.

The majority of orders are placed by telephone and some are placed face to face. Since there is no formal purchasing system, purchase orders are not generally used. In some instances when a supplier insists on it a top copy from an indelible duplicate book is used. Depending on who accepts delivery of the goods, this duplicate book may be referred to.

Policy issues are discussed and decisions made at regular policy meetings. During the researchers time of association with Co-op Bee, the Wednesday half-day was used for this purpose but did extend into a continuation on Sunday afternoons.

10.4 CO-OPERATIVE CEE

In October 1980, a large clothing group decided to close its Scottish factory. This eventually took place at Christmas of that year with the loss of 71 jobs.

Attempts were made, particularly by the factory manager, to attract potential buyers for the unit. No serious buyers emerged and the worker seemed doomed to join the dole queue.

However the largely female workforce were determined to keep the factory in production and led by the factory manager they decided to form a workers' co-operative. Various bodies were approached for help including the Scottish Development Agency (SDA) and the Scottish Co-operatives Development Committee (SCDC).

Finally 23 people formed the new co-operative each member investing £100 of their redundancy payment in the venture and agreeing to work without pay for 10 weeks. At the end of this period the co-operative members were paid half their normal earnings. In June 1987 a £3.6 million order was secured in Sweden and this enabled full wages to be paid.

At the time of this research Co-op Cee had 34 members all full-time and 22 part-timers who concentrated on the manufacture of waterproof clothing.

The workers in this co-operative are happy to leave operational decision making to the factory manager and those closest to him, namely the company buyer, the marketing manager and to a lesser extent the company secretary. In practice policy meetings are held to ratify decision

already taken, a situation acceptable to the co-operators in this firm. The stitchers and other manual workers believe that managers should manage and they should make garments. In economic terms this appears to work satisfactorily but it may offend some with rather different views on how a co-operative should work.

In Co-operative Cee there was no evidence of job rotation nor a particularly strong desire for it. Production operations are organised on traditional "assembly line" principles.

10.5 CO-OPERATIVE DEE

In 1981 a large national bakery closed its factory in Glasgow transferring its operations to a Yorkshire factory with excess manufacturing capacity and more modern equipment.

Some of the workforce did not see much opportunity for re-employment in a district with one of the highest unemployment records in Glasgow. They explored the idea of starting their own business assuming they could come to an agreement regarding premises and equipment with the parent company. The idea of forming a workers' co-operative was raised and SCDC was contacted for guidance and assistance.

The co-operative commenced production on 2 February 1981 with a preponderance of maintenance workers - almost 50% of the total workforce. Each of the sixteen founder members invested £250 in the enterprise and this was backed through grants from Glasgow District Council, local business people and trade unions.

Unfortunately because of poor trading results, Co-operative Dee closed in early 1986 with the loss of 24 full time and 3 part-time jobs. This was largely as a result of producing products with low demand during a particularly warm and dry summer in the West of Scotland in 1985.

Ironically the firm appeared to be well prepared to improve the situation in the future. Strathclyde Regional Council had seconded a very sound manager with experience in marketing and production and his comprehensive analysis of the position laid sound foundations for a turn-round in the business. However in times when local authorities supportive to such causes are limited in financial resources harsh decisions have to be taken.

During informal discussions with some of the influential and more articulate founder members, the point was made that had they received guidance on which pieces of equipment to salvage from the original closure they would have had more flexibility to produce products for which there was a demand. It is difficult for workers' co-operatives to recover from wrong initial decisions.

Co-operative Dee was organised on similar lines to Cee with people in key positions making major decisions ie general manager, bakery supervisor and despatch manager who was also responsible for maintenance. Policy meetings were to all intents and purposes non-existent.

The majority of requests to purchase are made by the bakery supervisor on consecutively numbered requisitions in an indelible book. Top copies are passed to a clerkess who may request additional information such as delivery dates.

10.6 RESEARCH TECHNIQUES

The Job Diagnosis Survey (JDS) questionnaire was completed by the respondents simultaneously with the researchers conducting structured interviews related to the purchasing process. Appointments were made for these purposes to ensure that there were no unnecessary distractions and operations in the four firms would be disrupted as little as possible.

In conjunction with the above surveys, flow process charts were constructed of the purchasing processes showing how information was generated, stored, flowed and was accessed. Cooperative Cee requested a copy of their chart because they hoped some day to computerise their systems and felt that the chart was a useful analysis of their purchasing system, normally required before computerisation.

Analysis of purchasing records was not pursued very far. Record keeping was so poor that any comments or recommendations made would have had dubious value. It was noted in Co-operative Bee however that little forethought was given to amounts purchased. With a product like long grain rice for instance, with constant demand, it would be possible to forecast annual demand, negotiate competitive terms and prices and have pre-arranged deliveries with perhaps some additional call-offs.

Co-operative Cee was aware of this opportunity but unfortunately it was denied them because they manufactured to customer order and therefore bought materials only on receiptⁱ of an order.

CHAPTER 11

RESEARCH RESULTS

11.1 INTRODUCTION

This chapter presents the findings from field studies in the four co-operatives chosen for research. Material will be presented and commented on in the following order:

- * purchasing process explored using structured interviews
- * job diagnosis survey details particularly related to information management.
- * organisational mapping established from the purchasing process structured interviews
- * flow process charts of the purchasing processes

11.2 PURCHASING PROCESS SURVEY

11.2.1 BACKGROUND

Structured interviews were conducted with people involved in purchasing in the form of co-operatives. Questions were framed to obtain information such things as:

- Order initiation process
- System used for placing order

- Degree of forecasting demand for products
- Information sources consulted regarding prices and quality required and delivery lead times
- Goods reception procedures
- Evaluation of suppliers
- Communications between suppliers and co-operatives
- How information was stored.

11.2.2 VARIABLES PROBED

The following list summarises the tables containing summarised results from the interviews on the four purchasing procedures:

<u>TABLE</u>	<u>TITLE</u>
11.1	Triggers leading to order placement
11.2	Methods used to decide order quantities
11.3	Forecasting databank
11.4	Amount of forecasting done by individuals (without assistance)
11.5	Frequency of reference to suppliers' pricelists
11.6	Use of records of previous prices paid
11.7	Frequency of price negotiation
11.8	Frequency with which quality requirements are specified
11.9	Negotiation of delivery dates
11.10	Method used for placing an order
11.11	Proportion of suppliers who receive a purchase order
11.12	Responsibility for receiving incoming goods

- 11.13 Incoming goods inspection factors
- 11.14 Documents used to check incoming goods
- 11.15 Suppliers evaluated for service provided
- 11.16 Reasons for choosing suppliers for evaluation
- 11.17 Factors used in assessing suppliers
- 11.18 Communications with suppliers

Because the two constructive co-operatives had much in common; non-manufacturing based; and had extremely informal purchasing systems, it was decided to combine their survey results. For the same reasons the two rescue co-operatives' results were combined; both manufacturing; with a semblance of a formal purchasing system. This combined presentation of results will facilitate more meaningful comparison of the factors probed. Individual company survey results are presented in Appendix III.

11.2.3 SUMMARISED RESULTS

Summarised results with comments are presented below regarding the main purchasing system variables probed.

Order Triggers with Responses

The main triggers which prompted people in the four co-operatives to place orders were:-

TRIGGERS	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 14)	RESCUE (N = 6)	ALL (N = 20)
Warning from colleague	93%	50%	80%
Review of stock levels	79%	17%	60%
Product out of stock	71%	17%	55%
Customer request	57%	50%	55%
Regular intervals	43%	17%	35%

TABLE 11.1 TRIGGERS LEADING TO ORDER PLACEMENT

The data in Table 11.1 shows the most quoted reason for placing an order to be following a warning from a colleague that a stock item was either low or exhausted. In the constructive co-operatives, 13 of the 14 people involved in placing orders cited this response.

These high scores are surprising when one considers that the trigger with the second highest score involved respondents claiming that stock level reviews led to orders being placed. Not entirely unexpectedly most of these stock reviews appeared to take place after warnings were received. However, it must be noted that the high overall score on this item was brought about by the responses in the constructive co-operatives.

The highest scored item in the rescue co-operatives quoted customer requests as the main factor in placing orders. This is caused by such factors as the clothing manufacturing co-operative making almost entirely to customer order.

Order quantities

METHOD	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 14)	RESCUE (N = 6)	ALL (N = 20)
Use own judgement	100%	Nil	70%
Buy to meet customer request	57%	50%*	55%
Order standard package size	71%	Nil	50%
Depends on money available	64%	Nil	45%

TABLE 11.2 METHODS USED TO DECIDED ORDER QUANTITIES

* The three other respondents (50%) placed orders as instructed by the three people (50%) registered in this table who were buying to customer order.

Every person in the constructive co-operatives responsible for ordering goods claimed to use their own judgement when deciding how many/how much to order. There was no evidence of scientific methods or quantitative techniques being used to help ascertain the most beneficial order quantities or order periods.

The ordering of standard package sizes is fairly common in wholesaling and retailing. However, the possibility of gaining better price discounts by placing long term orders (for a year or more) with call-offs was not investigated by the buyers.

Decisions regarding order quantities should be based on some form of quantitative analysis because there are advantages and disadvantages in buying both small and large quantities.

The pressures for small inventories include:

- * Interest or opportunity costs
- * Storage and handling costs
- * Insurance premiums
- * Shrinkage costs: pilferage, obsolescence and deterioration.

In contrast the advantages of ordering and holding large quantities include the following:

- * Customer service
- * Ordering or set-up costs
- * Operating system utilisation
- * Transportation costs
- * Unit cost of purchased items.

By calculating a compromise size of order, operating costs can be minimised without sacrificing customer service.

[The actual approach taken will depend on such things as whether the item under review has an independent demand, such as a packet of rice, or is dependent on a final product as in the case of five road wheels for a car being manufactured - refer to KRAJEWSKI and RITZMAN (1987)].

There was some evidence to show that the buyers were well aware of the importance of good purchasing for company results. For example because the constructive co-operatives are involved in wholesaling and retailing they buy a wide range of products. In addition a large number of people are involved in purchasing. As a result of these two factors, it would be easy for the companies to overspend precipitating a cash flow problem.

To avoid this happening, the person(s) responsible for accounts is consulted to ensure that the co-operative is not over committed financially.

Forecasting

No co-operative attempted to forecast demand for all its purchased items. Nine out of fourteen 'buyers' in the constructive co-operatives claimed that they attempt to forecast demand for some items. Only one out of six in the rescue co-operatives made the same claim. In the latter case the products are either well established and repetitive or are made to customer order. Thus scope for forecasting is limited. Ten respondents did not attempt to do any forecasting.

Forecasts in the four co-operatives are based on data from the following sources:-

SOURCE	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 9)	RESCUE (N = 1)	ALL (N = 10)
Past sales records	89%	Nil	80%
Own judgement	50%	Nil	60%
Changes in price	33%	Nil	30%
Others	22%	100%	30%

TABLE 11.3 FORECASTING DATA BANK

No statistical forecasting techniques were used. Perusal of available past sales records were deemed to be sufficient for forecasting purposes.

As in Table 11.2 the use of one's own judgement did not appear to have any precise, identifiable meaning.

The response from the rescue co-operative involved in clothing manufacture classified as 'others' in Table 11.3 actually entailed perusal of production records when special discounts were offered by suppliers.

Details of forecasted demand were either recorded by individuals in personal record books or simply carried 'in the head'. When asked how much of the forecasting each person did without assistance, the following responses were obtained:-

PROPORTION	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 9)	RESCUE (N = 1)	ALL (N = 10)
All	44%	Nil	44%
Some	56%	Nil	56%
None	Nil	100%	100%

TABLE 11.4 AMOUNT OF FORECASTING DONE BY INDIVIDUALS (Without Assistance)

Order Placement

Three factors concerning order placement were probed in the interviews:

- price
- quality
- delivery performance

It is generally accepted that these are the three most important issues regarding purchasing. In manufacturing the contemporary main factors are quality and delivery performance, a situation likely to be elevated further as for example trade barriers etc are removed in Europe and Just-in-Time (JIT) manufacturing systems are introduced.

PRICE

When asked how often suppliers price lists were consulted when placing an order the following picture emerged:

FREQUENCY	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 14)	RESCUE (N = 6)	ALL (N = 20)
Always	22%	17%	20%
Sometimes	64%	50%	60%
Never	14%	33%	20%

TABLE 11.5 FREQUENCY OF REFERENCE TO SUPPLIERS' PRICELISTS

On the same theme, respondents were then asked how often they consulted records of previous priced paid to supplier. The following replies were obtained:

FREQUENCY	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 14)	RESCUE (N = 6)	ALL (N = 20)
Always	36%	50%	40%
Sometimes	57%	17%	45%
Never	7%	33%	15%

TABLE 11.6 USE OF RECORDS OF PREVIOUS PRICED PAID TO SUPPLIERS

Previous priced paid to suppliers were recorded and stored in a wide range of places:-

- invoices
- quotation record book (personal)
- stock book
- in someone's head

- card index system (personal)
- stock card (personal)
- personal file
- supplier' catalogue
- delivery notes
- supplier's record book
- product record book

Assuming the data stored in these ways is sound the serious problem remains how to locate it and gain access to its contents. Generation and storage of information costs money and is only worthwhile if it can be accessed easily and can be used to improve speed and quality of decision making.

Considering the range and storage points regarding previous prices paid and the fact that only 8 out of 20 respondents consulted these records on every occasion, price monitoring and negotiation did not receive the attention it warrants. This is supported by evidence from a further question concerning the negotiation of prices when orders were being placed. Contrary to normal expectations the frequency of price negotiation was low as shown in the following table:

FREQUENCY	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 14)	RESCUE (N = 6)	ALL (N = 20)
Always	7%	Nil	5%
Sometimes	64%	50%	60%
Never	29%	50%	35%

TABLE 11.7 FREQUENCY OF PRICE NEGOTIATION

It is standard purchasing procedure when placing an order to refer to a history record card. This would name previous suppliers, quantities supplied, prices paid and dates. There may be other information on such things as failure to meet agreed delivery date; shortages and rejects; service generally. At this stage price increases are identified and reasons discussed. In the event of there not being an increase in price it is good purchasing practice to attempt to negotiate a more favourable one with the existing supplier or with a potential one.

The information in Table 11.7 gives genuine cause for alarm - 50% of the people in the rescue co-operatives never negotiate prices!! This is a point worthy of further research. Is the cause lack of professional training in procurement or has it a deeper psychological reason? In the case of the four co-operatives under review it probably results from a general lack of training in procurement and the absence of anything approaching a suitable information system. The issues discussed in chapter 5 regarding buyer behaviour are not felt to apply here in any meaningful way. At a basic level it is difficult to fathom why a company accepts as normal the endeavours of their customers to obtain lower prices yet they themselves do not apply the same effort in obtaining better prices from their suppliers.

QUALITY

Quality can be defined from an internal perspective as conformance to specifications and from an external perspective as value or fitness for use. Value, a fitness for use, may be judged on the basis of hardware quality, product or service support. (KRAJEWSKI and RITZMAN op cit).

Regarding purchasing practices, the role of the buyer in identifying supplier capabilities and working with suppliers to achieve higher levels of quality is as important as managing the specifications for purchased parts and materials (see tables 11.16 and 11.17 and discussion).

Unless specific quality of products is clearly specified, recorded and ordered there will be no guarantee that what has been accepted from suppliers matches what was requested.

This survey suggests that quality is not always defined at time of ordering.

FREQUENCY	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE	RESCUE	ALL
	(N = 14)	(N = 6)	(N = 20)
Always	14%	33%	20%
Sometimes	64%	17%	50%
Never	22%	50%	30%

TABLE 11.8 FREQUENCY WITH WHICH QUALITY REQUIREMENTS ARE SPECIFIED

About one person in seven in the constructive co-operatives (retail and wholesale) always specified quality requirements when placing orders.

The ratio was about two and one half times better in the rescue co-operatives which were manufacturing based. However the quality specification record of the rescues was far from favourable since half the respondents never specified quality for their suppliers.

Part of this non-specification of quality may be accounted for, particularly in the constructive co-operatives, by the perceived presence of an implied quality level in a branded good. Certain 'labels' are bought and product quality is assumed to be as before. However the results summarised in Table 11.8 give cause for concern - prevention of subsequent quality related costs such as lost added value in manufacturing processes and customer dissatisfaction is a philosophy actively pursued by all leading edge companies to-day. The consequences for any company not defining its quality requirements for purchased materials and items can be serious.

DELIVERY DATES

Failure by a supplier to meet promised delivery dates may lead to items being out of stock. This would affect sales revenue or production costs and would reduce customer satisfaction.

In many retail and wholesale establishments delivery of products takes place at regular intervals say, one particular day each week. Provided the order is placed with sufficient lead time, then delivery of the product can take place on time. In the constructive co-operatives studied it was common practice for a supplier to telephone each week to ascertain the order. In fact the wholefood wholesaler practiced telephone sales for this purpose, the retail co-operative being one of their customers.

From the survey it appears that delivery dates are negotiated as follows:-

FREQUENCY	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 14)	RESCUE (N = 6)	ALL (N = 20)
Always	36%	100%	55%
Sometimes	50%	Nil	35%
Never	14%	Nil	10%

TABLE 11.9 NEGOTIATION OF DELIVERY DATES

It will be noticed that the two rescue co-operatives claimed always to negotiate delivery dates. This contrasts with the responses in the constructive co-operatives where about 1 in 3 respondents made this claim. This difference is to be expected. The rescue co-operatives are manufacturing based and are making almost exclusively to customer order in one case and to customer standing orders with some flexibility in the order. In the former case, materials and fittings etc are ordered for a particular contract and delivery of these items is geared to a promised delivery data and available manufacturing capacity.

Therefore delivery of raw materials is very important. In contrast the average small retailer could tolerate a stock-cut easier and for longer than the average manufacturer making to customer order. In the former case it will normally be possible to substitute an alternative product or indeed the customer will often choose a substitute. The manufacturer will inevitably be faced to resort to overtime working and/or

sub-contracting, with its attendance problems, to meet promised delivery dates. Nevertheless in both types of co-operatives failure by suppliers is something which must be dealt with immediately. The first step in this exercise is to ensure that the supplier has a clear delivery date agreeable to both parties.

ORDER PLACEMENT

72% of those in the constructive co-operatives claimed to place orders without assistance from colleagues. In the rescue co-operatives this figure was 83% giving an overall score of 75%. In other words when people were ordering things they get on with it in much the same fashion as found in conventional small companies.

Texts on purchasing invariably stress the need for well designed purchase orders:

- to make clear to the supplier what is required, how many, quality, price and delivery date
- to enable goods being delivered by a supplier to be checked against what was specified at time of ordering
- to ensure that what was ordered and received is paid for under the agreed terms of the contract.

The interview survey produced the following frequencies concerning methods for placing orders with suppliers.

FREQUENCY	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 29)	RESCUE (N = 13)	ALL (N = 42)
Purchase order	10%	15%	12%
Telephone	49%	46%	47%
Face to face	31%	31%	31%
Others	<u>10%</u>	<u>8%</u>	<u>10%</u>
	100%	100%	100%

TABLE 11.10 METHOD USED FOR PLACING AN ORDER

The figures for the rescue co-operatives have to be qualified:

- i. The clothing company buyer invariably telephones her order to supplier and confirms it later with a purchase order clearly specifying requirements.
- ii. The bakery did not send any purchase orders.

The co-operatives with a low score on the use of purchase orders were not unduly worried about the risks of such an approach to ordering. They felt they could trust their suppliers based on past experience. However, there was no empirical evidence to support this trust.

When faced with the direct question 'How many suppliers receive a purchase order when an order is placed with them?', the following picture emerged:

PROPORTION	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 14)	RESCUE (N = 6)	ALL (N = 20)
All	Nil	33%	10%
Some	36%	Nil	25%
None	64%	67%	65%

TABLE 11.11 PROPORTION OF SUPPLIERS WHO RECEIVE A PURCHASE ORDER

Thus the majority of suppliers do not receive a purchase order for the goods they supply.

The clothing co-operative uses a conventional purchase order with copies. The other co-operatives which claim to send out purchase orders do so using consecutively numbered duplicate books. Since the copies are retained in the books which do not have a precise location, it is difficult for others to check incoming goods against what has been ordered.

Goods Accepting

The following table shows that 69% of incoming orders are received and checked by anyone in the co-operative i.e. not just the person who placed the order. In the constructive co-operatives, which handle a large number of products and have frequent deliveries, this figure is a staggering 82%.

GOODS RECEIVED	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 17)	RESCUE (N = 9)	ALL (N = 26)
Ones you ordered	Nil	22%	8%
Any	82%	45%	69%
None	18%	33%	23%

TABLE 11.12 RESPONSIBILITY FOR RECEIVING INCOMING GOODS

When asked which factors were checked when goods were being received the most frequently quoted factors were:

FACTORS	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 14)	RESCUE (N = 6)	ALL (N = 20)
Quantity delivered	100%	100%	100%
Shortages	100%	100%	100%
Damages/breakages	100%	100%	100%
Quality	86%	50%	75%
Price	64%	17%	50%
Achievement of delivery date	Nil	50%	15%
Others (mainly check for unordered items or substitute products)	21%	17%	20%
No factors checked	Nil	Nil	Nil

TABLE 11.13 INCOMING GOODS INSPECTION FACTORS

At face value the positive claims in Table 11.13 are encouraging. However, this enthusiasm wanes when the figures in Table 11.14 are presented. These concern the documents which are used to carry out the checks listed in Table 11.13.

DOCUMENT	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 14)	RESCUE (N = 6)	ALL (N = 20)
Delivery note	100%	83%	95%
Invoice	71%	20%	55%
Purchase order	21%	20%	20%
Others (generally a personal record book or a large supplier record book)	21%	20%	20%
None of these	Nil	20%	5%

TABLE 11.14 DOCUMENTS TO CHECK INCOMING GOODS

It achieves little if incoming goods are checked against specifications on documents generated by the supplier.

Although the goods delivered may correspond with the descriptions on the delivery note and/or invoice, there is no guarantee that what has been delivered, accepted, and eventually paid for, matches what was ordered. This is particularly true in the majority of situations where there are no purchase orders. Even when purchase orders have been used they are not always cross-referenced with supplier documents.

Supplier Evaluation

A fairly high percentage of suppliers were chosen for evaluation of the service they provide.

PROPORTION	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 14)	RESCUE (N = 6)	ALL (N = 20)
All	36%	83%	50%
Some	57%	17%	45%
None	7%	Nil	5%

TABLE 11.15 SUPPLIERS EVALUATED FOR SERVICE PROVIDED

Four out of five respondents claimed to have help in making these evaluations.

The reasons for choosing particular suppliers for evaluation varied considerably between the constructive co-operatives and the rescue co-operatives.

REASON	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 13)	RESCUE (N = 6)	ALL (N = 19)
Opportunity for alternative supplier	54%	17%	42%
All suppliers chosen	23%	67%	37%
Draws attention to self	31%	-	21%
Critical items	23%	-	16%
Poor reputation	23%	-	16%
Value of orders	8%	-	5%
Others (including gut feeling)	31%	17%	26%

TABLE 11.16 REASONS FOR CHOOSING SUPPLIERS FOR EVALUATION

Investigation of the factors included in the assessment of suppliers produced some interesting points.

FACTORS	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 13)	RESCUE (N = 6)	ALL (N = 19)
Meeting of agreed quality standard	77%	100%	84%
Price charged	92%	50%	79%
Achievement of promised delivery date	62%	67%	63%
Discount offered	69%	33%	47%
Others	38%	17%	32%

TABLE 11.17 FACTORS USED TO ASSESS SUPPLIER

Quality appeared to be the most important factor when assessing suppliers. The highest individual score concerned quality in the two rescue co-operatives which are manufacturing based.

This highlights a basic difference between the two pairs of co-operatives. One pair manufactures products while the other supplies products from its operating system.

In a manufacturing system, sub-standard raw materials, not intercepted on delivery, is fed into the operating system to have value added to it at a series of stages of production. When it is eventually noticed that the item does not meet quality specifications and is scrapped, the cost equals cost price plus value added. This can be considerable.

In a supply system, such a wholesaler or retailer, cost may be added to the product through handling, storage and paper processing, but not high processing costs or value as in manufacturing.

Generally sub-standard items will cause much more disruption to schedules, capacity utilisation and labour allocation in manufacturing than in a supply environment. However, other factors may have much more significance in supply systems than manufacturing. For example because there is such a constant process of replenishment of stocks, storage, display and re-sale, much more attention should be paid to price changes, discounts offered and credit terms available.

Communication

The final factor investigated concerned communications between the four co-operatives and their suppliers.

	<u>TYPE OF CO-OPERATIVE</u>		
	CONSTRUCTIVE (N = 14)	RESCUE (N = 6)	ALL (N = 20)
Speed at answering queries or replying to messages	86%	83%	85%
How helpful are answers to queries	86%	83%	85%
Speed in warning about likely problems	79%	67%	75%
Reliability in giving information having promised to do so	79%	67%	75%
Efficiency/manner of sales representatives	64%	83%	70%
Efficiency in sending quotations and acknowledgements etc	64%	50%	60%
Prior warning about imminent price increases	7%	17%	10%
Others	7%	33%	15%
None of these	7%	-	5%

TABLE 11.18 COMMUNICATIONS WITH SUPPLIERS

From Table 11.18 it appears that problems concerned with technical and operational issues are rated highest of all. The supplier who responds to them quickly and accurately is valued more highly than those who are slow to answer or whose answers are found not to be helpful.

Feedback information regarding price quotations and price increases is important but is not rated as highly as a technical and operational issues.

Amplified data from the purchasing process are provided in Appendix III and further comments are made below.

11.2.4 AMPLIFIED RESULTS WITH COMMENTS

Full purchasing survey results relating to questions directly concerned with the purchasing process are presented in Appendix III. This data will be commented on below.

JOB DESIGN (Q13-15)

In the constructive co-operatives all the members, except for the new recruit, was involved in placing orders (Co-op Bee) or in the case of Co-op Aye, 41% of members actually placed orders. This signifies a high degree of ancillary enrichment.

In contrast in the rescue co-operatives, two people (6%) of the total work force in Co-op Cee were directly involved in this task; in Coop Dee 17% of the total were active. Ancillary enrichment as far as buying was concerned was limited here compared to the constructive co-operatives.

EFFECT OF ORDERING POLICY/PRACTICE ON INFORMATION MANAGEMENT (Q16-26)

A number of findings here give cause for alarm. For example there appears to be a general lack of system for such things as forecasting, perpetual stock reviews and calculation of economic order quantities (EOQ). In fact during the collection of responses to Q17 the impression was given that most respondents did not fully understand what was meant by the term 'forecast', equating it it is believed with amount likely to be ordered.

When negotiating orders there was a very low level in specifying quality required, and little discussion on delivery dates. Regarding the latter it is acknowledged that some items may not require protracted negotiation if they are delivered on specific days each week, often following a telephone call for orders by the suppliers sales force.

INFORMATION MANAGEMENT (Q27-37)

In purchasing, accumulated data has two important uses. It can be used as a guide to future actions when negotiating an order and it is essential when checking incoming goods.

With the exception of Co-op Cee there was a distinct lack of stored data. Even when data was available it was not easily accessible and perhaps when accessible was not used. It was alarming to find that in the majority of cases incoming goods were checked against records prepared by suppliers. Co-op Aye were sub-consciously aware of this since the 'accountant' and his deputy visited the warehouse to check goods after they had been accepted. Clearly there is a need for an information system which provides appropriate information for checking incoming goods.

VENDOR RATING (Q39-42)

It is a feature of leading edge companies, particularly those embracing the Just-in-Time (JIT) philosophy, that vendors are evaluated on a regular basis. This requires a suitable evaluation scheme and access to compiled data concerning each supplier.

These factors were not evident in the four firms and regarding Q42 it is felt that responses reflected a desire to do so rather than a standard practice. The same comments apply to Q43 which reflects some of the evaluation factors concerning suppliers.

In conclusion there appears to be a lack of appropriate purchasing information systems in the four firms, the problem being more acute in some than in others. Also it seems that the respondents to the questionnaire have no clear conceptual view of what comprises an effective purchasing system.

This is borne out by the cross referencing Q35 and Q42. Although quality is claimed to be the 4th most important factor when checking incoming goods, meeting of agreed quality standards is the most important factor when assessing suppliers. Also since incoming goods are checked against suppliers documentation it is unrealistic to assume that in general effective quality checks take place.

Reliable and useable information concerning technical and delivery issues is important to the co-operatives (Q43). It is not inconceivable that suppliers who provide it, tend to be trusted and consequently secure the orders without the need for the four firms to generate, store and use their own independent data base.

11.3 JOB DIAGNOSIS SURVEY (JDS)

11.3.1 INTRODUCTION

Although the JDS provides a measure of the level of job satisfaction of those involved in purchasing in the four co-operatives, and an indication of the types of job design changes sought, this was not the primary purpose of the survey. Rather it was intended to identify the 'gaps' between these two measures and to consider if, how and why lack of availability of information and/or its distribution contributed to such discrepancies. Also data from the survey would prove useful in considering the information system changes necessary if the identified 'gaps' were closed through job re-design. Conversely changes in the information systems such as the development and use of a more formal purchasing system would have an effect on job design proposals.

The JDS has been fully described in chapter 8 and a sample of the questionnaire used is in appendix II.

In the following sub-section the results of the JDS are presented and discussed.

11.3.2 SUMMARISED RESULTS

The first stage, relating to the job as currently arranged, was scored on a six point scale (1-6) to eliminate the opportunity for respondents to opt for a neutral position. In the second part of the survey, concerning

how the workers felt the jobs should be changed, a five point scale was employed. Thus respondents were given the opportunity in this second stage of the survey to express a neutral position calling for no change in particular aspects of the job.

The two sets of results, for each factor, were then subtracted to provide a relative measure of any existing deficit between the demands of the job and the preferences of the workers concerning it.

Survey results showing mean average scores and standard deviations for the four individual co-operatives are summarised in Table 11.20 and a composite measure of the existing deficits relating to the variables measured is presented in Table 11.21.

The general picture emerges of four workers' co-operatives with generally happy workforces.

In a previous survey using a similar questionnaire on female packers on a production line packing toiletries and cosmetic products, with little job rotation on the same line, the following results emerged. These are compared with those from the current study in Table 11.19.

<u>VARIABLE</u>	<u>CURRENT STUDY</u>	<u>PREVIOUS STUDY</u>
GENL. IMPRESSIONS	5.235	3.470
NATURE OF WORK	4.529	2.630
ACHIEVEMENT	5.248	2.250
RECOGNITION	4.478	3.210
RESPONSIBILITY	4.937	2.560
DEVELOPMENT	4.980	1.960
TASK SUPPORT	4.257	3.000

TABLE 11.19 COMPARISON OF TWO JDS SURVEYS

Thus it is possible that workers' desire for job redesign may result from a large autonomy deficit (such as existed in the previous study). On the other hand the same desire could result by workers in any or all of the four co-operatives showing a desire for job enlargement/enrichment as a result of their raised expectations from working a co-operative with generally satisfying jobs. This factor has to be borne in mind when interpreting and commenting on survey results.

More detailed and specific comments are made in section 11.3.3 but issues which stand out from Figs 11.1 and 11.2 include the following.

- * Co-operative Dee had generally lower scores on most of the variables investigated compared with the other three enterprises. At the time field work was carried out, Co-operative Dee was having serious trading difficulties and morale was lower than it would have been had the firm been on a sounder financial footing. More issues clouded peoples perception of intrinsic job satisfaction.

* a desire for greater opportunity to develop experience a stronger sense of achievement was evident in all four co-operatives including Co-operative Dee.

CONSTRUCTIVE CO-OPERATIVES

RESCUE CO-OPERATIVES

VARIABLE	CO-OP AYE		CO-OP BEE		CO-OP CEE		CO-OP DEE	
	X	SD	X	SD	X	SD	X	SD
GENERAL								
IMPRESSIONS	5.500	0.687	5.563	0.610	5.542	0.706	4.333	2.468
NATURE OF THE WORK	(a) 4.611	1.276	4.656	1.203	4.750	1.090	4.100	1.786
	(b) 2.661	0.682	2.781	0.649	2.688	0.789	2.000	0.894
ACHIEVEMENT	(a) 5.278	1.017	5.313	0.950	5.500	0.707	4.900	1.090
	(b) 2.889	0.315	2.843	0.712	2.875	0.330	2.400	0.663
RECOGNITION	(a) 4.472	1.067	4.188	1.509	5.000	0.756	4.250	1.545
	(b) 2.556	0.685	2.518	1.227	2.375	0.718	2.500	0.592
RESPONSIBILITY	(a) 5.111	1.075	5.219	1.053	4.688	1.446	4.750	1.608
	(b) 3.056	0.392	3.156	0.507	2.938	1.478	3.050	0.947
DEVELOPMENT	(a) 5.389	0.891	5.031	0.847	5.250	0.432	4.250	1.410
	(b) 2.528	0.687	2.594	0.471	2.750	0.432	1.850	0.853
TASK SUPPORT	4.431	1.038	4.844	0.9555	4.286	1.084	3.467	1.376

LEGEND

(a) Present jobs (measured on six-point scale)

(b) How present jobs should be changed (measured on five point scale)

TABLE 11.20 JOB DIAGNOSIS SURVEY MEAN AVERAGES AND STANDARD DEVIATIONS FOR THE FOUR WORKERS' CO-OPERATIVES

TABLE 11.21 COMPOSITE DEFICITS

VARIABLE	CURRENT X	DESIRED X ₁	DEFICIT X - X ₁
GENL IMPRESSIONS	5.235	-	-
NATURE OF WORK	4.529	2.533	1.996
ACHIEVEMENT	5.248	2.752	2.532
RECOGNITION	4.478	2.487	1.991
RESPONSIBILITY	4.937	3.050	1.887
DEVELOPMENT	4.980	2.431	2.549
TASK SUPPORT	4.257	-	-

From Table 11.21 the five double scored variables were ranked in descending order according to level of satisfaction with present arrangements; according to absolute preference for increase in that variable; and in relation to the deficit between present job and how it should be arranged. - see Fig 11.1

FIG 11.1 RANKING OF VARIABLES (IN DESCENDING ORDER)

CURRENT LEVEL OF SATISFACTION	LEVELS OF DEFICIT	LEVEL OF PREFERENCE FOR ABSOLUTE INCREASE
1 ACHIEVEMENT	1 DEVELOPMENT	1 DEVELOPMENT
2 DEVELOPMENT	2 ACHIEVEMENT	2 RECOGNITION
3 RESPONSIBILITY	3 NATURE OF WORK	3 NATURE OF WORK
4 NATURE OF WORK	4 RECOGNITION	4 ACHIEVEMENT
5 RECOGNITION	5 RESPONSIBILITY	5 RESPONSIBILITY

The results for the individual co-operatives yield the following rankings (Fig 11.12), again in descending order.

FIG 11.2 AUTONOMY GAPS RANKED IN DESCENDING ORDER

<u>AYE</u>	<u>BEE</u>	<u>CEE</u>	<u>DEE</u>
1 DEVELOPMENT	ACHIEVEMENT	= (ACHIEVEMENT (RECOGNITION	ACHIEVEMENT
2 ACHIEVEMENT	DEVELOPMENT		DEVELOPMENT
3 RESPONSIBILITY	RESPONSIBILITY	DEVELOPMENT	NATURE OF WORK
4 NATURE OF WORK	NATURE OF WORK	NATURE OF WORK	RECOGNITION
5 RECOGNITION	RECOGNITION	RESPONSIBILITY	RESPONSIBILITY

The results summarised in Figs 11.1 and 11.2 are used in subsequent discussion.

11.3.3 COMMENTS ON RESULTS

Some brief comments will be made about the variables measured and and the interaction between them and job and organisation design.

GENERAL IMPRESSIONS

There was a consistently strong positive response to this battering of questions suggesting that the respondents are generally happy with their work situation. - see Table 11.1. However it is interesting to note that although the questions, in this section of the survey, concerning work as a means of developing the individual was answered positively, development as a variable in a later section of the questionnaire featured strongly as an area where people felt positive about present opportunities. In addition however it was the variable where desire for more was evident. The conclusion is drawn that the respondents saw some potential for personal development in their firms, but progress in this direction was slower than they would have liked.

TASK SUPPORT

Responses to questions under this heading were less positive than was the case for General Impressions. Features which gave cause for further enquiry included.

- * lack of work organisation
- * procedures at times a hinderance rather than a help
- * personal conflict with the policies of the co-operatives

- * work load excessive
- * lack of information to facilitate effective completion of job
- * lack of training and/or dubious value of any training given.

Lack of organisation and unhelpful procedures usually result in adequate information not being available to job holders. Because things are not being done in a systematic way emergency actions often have to be taken to catch up on delivery dates etc. This situation reflects the fundamental difference between working hard and working effectively. Without adequate and appropriate information it is not usually possible to organise work and complete it effectively and provide a reasonable degree of job satisfaction to the people doing it. These issues will be returned to in the next chapter.

FEATURES OF THE WORK (DOUBLE SCORED VARIABLES)

i) DEVELOPMENT

This variable ranked second on the scale of satisfaction with present job and first on the deficit scale and level of preference for increase. Although respondents felt that their jobs allowed them to develop there was a clear desire for additional opportunities towards that end.

Because it is likely that working in a co-operative entails a wider range of responsibilities and duties than would be permitted in most conventional firms, it is possible that this situation has fuelled the fire for even more opportunities to develop, to learn and to increase career opportunities. This is an issue worthy of further research.

From the research findings it is not possible to predict how better information management would improve the situation. The introduction of an integrated computerised system linking purchasing, stock control and accounting might have a beneficial effect through giving the respondents the opportunity to develop new skills relevant to future needs in business and commerce generally.

ii) ACHIEVEMENT

This variable had the highest current level of satisfaction and the second highest deficit and was fourth on the absolute scale. The key factor here is the deficit and it is clear that there is a need for improvement on this issue. Because of the poor degree of organisation and lack of acceptable information it is contended that the respondents are unable to contribute ideas, solve problems and try out new methods, nor follow or see tasks through to completion. The impression was given during field work that many of the respondents were often unsure what was happening next. An appropriate information system would clarify many of these issues, allowing people to plan ahead, monitor progress, take corrective action, communicate clearly with others and in some way quantify and evaluate proposals for improvement.

iii) RESPONSIBILITY

This variable was placed in the middle of the current level of satisfaction scale and at the bottom of both the deficit and absolute level of preference for increase scales.

This suggests that people are reasonably happy with this aspect of their jobs. There are no clearly defined links between this variable and information management.

iv) NATURE OF THE WORK

This variable was second last on the satisfaction scale and third on the other two measures.

It seems in the four co-operatives the jobs were perceived as somewhat narrow, repetitive, routine and not very creative. However the score on the current level of satisfaction scale was fairly high (4.529 out of a possible theoretical score of 6.000). In fact Co-op Dee pulled the average score down slightly. It is very likely that working in a co-operative has increased people's expectations about what this form of organisation can offer and how it satisfies individual needs. It is not felt that there is any cause for unnecessary alarm on this issue but again a sound information system might improve the situation. A well designed information system in addition to contributing to a solution of the problems for which it was developed, makes possible interesting and profitable interpretations, extrapolations and analyses using the stored data.

v) RECOGNITION

Was placed at the bottom of the current satisfaction scale; near the bottom of the deficit scale; and second in the measure of preferred absolute increases.

The deficit value was affected by the generally high scores on the current satisfaction scale so the deficit should not be entirely underestimated. However it is important in such a situation that hasty changes are avoided because a fairly large increase in factors relating to recognition might affect the situation regarding responsibility (item (iii) above). Too much recognition could lead to having others being in close attendance with comments too much of the time.

This variable does not have obvious links with information system issues but is more related to human communications - a separate form of information.

From this study it would appear that improvements in information management would enrich the jobs of the people involved. The likely outcomes would be an even more satisfied workforce and not least, more efficient operations.

11.4 ORGANISATIONAL MAPPING

11.4.1 INTRODUCTION

A number of questions were included in the purchasing process questionnaire to facilitate the mapping of some of the important organisational issues relevant to this study. (Questions 48-53)

COMPETENCE HIERARCHY/COMPETENCE RANGE/HIERARCHY

Using questions 48-53 in the purchasing questionnaire the following issues were probed to identify their possible presence in the four firms.

- (a) The presence of a hierarchical structure along which promotion would be likely to take place. In a co-operative which is ostensibly even handed in relation to the roles played by members this type of development is important. Where a hierarchical structure exists the issues of power and control (discussed earlier) are raised.
- (b) The competence range of respondents is a critical factor because if certain members are denied opportunities to develop their competence to do the higher status jobs (where these exist), a hierarchical structure becomes a major feature with all its shortcomings.
- (c) In situations where people are limited in opportunities to expand their competence to do a wider range of jobs a hierarchical arrangement will develop. To combat this, informal groups of people will co-operate, within the overall structure, to mutually develop their competence levels albeit on a limited scale.
- (d) In contrast to a combination of a hierarchical structure and a sub-group structure, it is possible that a matrix arrangement exists in firms organised on co-operative lines. Where such a structure exists it would be interesting to identify and useful to study how it operates and on which tasks.

The four issues listed above have important implications for job and organisation design and how people feel about their jobs. In addition the flow of information will largely determine the

structure adopted and actually used in any particular company. Lack of information will make some organisational arrangements unworkable and will reduce the level of participation of any individual worker. Such a situation will be reflected in the kind of responses obtained in a parallel job diagnosis survey.

In the following text, answers to questions relating to the above issues are summarised and discussed taking each of the four co-operatives in succession.

11.4.2 CO-OPERATIVE AYE

FIG 11.3 COMPETENCE HIERARCHY AND RANGE

JOB NOMINATED for 48(a)	PERSON	JOB PREFERRED 48(b)
NIL	GILES (PURCHASING TRANSPORT UNITS AND SPARES)	CHRISTINE'S (SALES)
*CHRISTINE'S (PURCHASING PACKAGING MATERIAL, OFFICE SUPPLIES BOTTLES AND SALES) *SARA'S - (ASSISTANT ACCOUNTANT)	KAREN-ANN (DRIVING AND CREDIT CONTROL)	CHRISTINE'S (SALES)
MARTIN'S (PURCHASING DELIVERED GOODS)	DIANA (PURCHASING DELIVERED GOODS)	DON'T KNOW
NONE	CHRISTINE (PURCHASING AND SALES)	ANN-MARIE'S (WAGES)
NONE	ALAN (ACCOUNTANT)	NONE
CHRISTINE'S (SALES) MARTIN'S (PURCHASING)	LYDIA (PURCHASING OILS AND JUICES)	ALMOST ANYTHING
ALAN'S (ACCOUNTANT)	MARTIN (PURCHASING DELIVERED GOODS)	CHRISTINE'S (SALES) ALAN'S) ACCOUNTS SARA'S)
ALAN'S (ACCOUNTANT)	SARA (ASSISTANT ACCOUNTANT)	ALAN'S (ACCOUNTANT)
NONE	FRED (PURCHASING HERBS AND SPICES)	NONE

From the above responses and informal conversations it became clear that certain jobs carry a higher status than others. The top jobs appear to be ALAN'S and SARA'S (ACCOUNTS); MARTIN'S (MORE DIFFICULT PURCHASING); AND CHRISTINE'S (SALES). It was also noted that the holders of these jobs had a generally higher level of education and/or work experience than the others.

Karen-Ann was both nominated for and preferred Christine's job and was nominated by Sara for her job. Karen-Ann was a bright and energetic young woman who endeavoured to contribute whenever and wherever required.

Not surprisingly Sara who was 'Deputy Accountant' preferred and was nominated for Alan's job in accounts. Alan appeared to be seen as an accountant by himself and others.

Christine's job was seen as attractive by three out of eight respondents largely because it is challenging and interesting but does not require the same type of analytical skills inherent in Martin's nor Alan's jobs.

Fred who was fairly new to the buying process was not seen as competent to take on another job nor did he wish to do so.

In Co-op Aye competence was based on ability and success which it is felt was a reflection of past educational attainments and practical experience.

Responses to questions 49 and 50 generally support these conclusions.

FIG 11.4 MATRIX STRUCTURE

WHEN YOU ARE ABSENT WHO DOES YOUR JOB? ALL OR PART OF IT? Q51	PERSON	WHICH JOBS DO YOU TAKE OVER WHEN SOME-ONE IS ABSENT? ALL OR PART OF IT? Q52
ANN-MARIE (SALES) PARTS	GILES (PURCHASING TRANSPORT UNITS & SPARES)	WAREHOUSE WORK, MANUFACTURING & TELEPHONE SALES. ALL
ISABEL (CREDIT CONTROL) GILES & JOHN (VEHICLE MTCE) PARTS	KAREN-ANN (DRIVING & CREDIT CONTROL)	GILES - (HGV DRIVING) CHRISTINE - (TELE SALES) ALL
MARTIN (PURCHASING DELIV GOODS) PARTS	DIANA (PURCHASING DELIVERED GOODS)	MARTIN'S - PART WAREHOUSE DUTIES - ALL
LYDIA/KAREN (PURCHASING) KAREN/ISABEL/ANN-MARIE FOR SALES PURCHASING - PART TELE-SALES - ALL	CHRISTINE PURCHASING AND SALES	ANN-MARIE (WAGES) - ALL FOOD PURCHASING - SOME
WAREHOUSE PEOPLE - PARTS	LYDIA (PURCHASING OILS AND JUICES)	ANY IN WAREHOUSE - ALL
DIANA - PARTS	MARTIN (PURCHASING DELIVERED GOODS)	DIANA - ALL TELE-SALES - ALL
WILLIE FOR WAREHOUSE WORK (ALL) MARTIN/DIANA FOR BUYING (ALL)	FRED (PURCHASING HERBS AND SPICES)	ACCOUNTS - PRICING INVOICES (ALL)
ALAN & LINDEN (PARTS)	SARA (ASSISTANT ACCOUNTANT)	ALAN'S ALL DIANA - PARTS
SARA - PARTS	ALAN ACCOUNTANT	SARA'S WAREHOUSE/MANUF IF REALLY NECESSARY

The information in fig 11.4 does not suggest the presence of a matrix structure. Rather the important buyers, Martin and Diana substitute for each other; the accountants Alan and Sara follow the same practice. The other workers rotate jobs fairly regularly and therefore feel competent to help with any job with which they are familiar when the need arises.

Responses to question 53 point to the same conclusions. In this particular co-operative there is wide job flexibility albeit with 'little pockets' of higher status, namely 'higher level' buying and accounts.

In conclusion working arrangements in Co-op Aye are flexible, people responding when the need arises. However people did tend to specialise according to their level of competence as perceived by themselves and by their peers. This situation contrast with most conventional organisations where jobs are likely to be more rigidly specialised with less help being expected or given and job rotation being seldom practiced. In this situation sub-group structures are more likely to be found and matrix structures may develop or may be imposed by senior management especially when a special project has to be managed.

11.4.3. CO-OPERATIVE BEE

As stated earlier, people in this firm specialised in the purchase of particular items, and job rotation took place, about every six months, or earlier (or later) if some people felt the need to exchange duties.

Analysis of questions 48-53 did not uncover sub-group structures, nor matrix arrangements. When people needed help or when absent, the person who previously filled that role was most likely to help or act as

substitute. Two of the respondents showed a particular keenness to help or deputise in the jobs for which they had a preference - invariably resulting in their capturing that job in the next cycle of job rotation. In some cases some jobs were avoided e.g. book-keeping.

In conclusion the arrangements at Co-op Bee had all the hallmarks of a successful autonomous work group, with people aspiring to new challenges within their perceived competence level. Also during the researcher's frequent visits, during business hours and at general meetings, the principle of emergent leadership emerged to meet each crisis and answer specific questions.

11.4.4 CO-OPERATIVE CEE

In this co-operative roles were much more rigid than in co-operatives Aye and Bee. When asked who would be likely to take over one's job, or which job would one be likely to inherit in the case of resignations, there were close ties between the production manager and the buyer and between the company secretary and the marketing manager. However if the company secretary or the maintenance fitter left, they felt someone should be recruited from outside the firm.

During staff absences, the responses to resignation situations were offered again.

When people needed help, assistance was available from a wider range of people but this issues involved were of an operational nature which would encourage similar interaction in most firms.

Therefore in essence the roles in Co-op Cee were rigid. On a macro scale the stitchers made the products and the 'managers' managed. On a narrower spectrum these 'managers' tended to specialise on their own jobs, interacting with their peers as the process of management demanded.

11.4.5 CO-OPERATIVE DEE

This co-operative was the most rigid of all four. The only situations which emerged from this part of the survey were between the bakery supervision and the despatch manager who was in effect the production manager; and the office supervisor and her clerkess.

From an organisational point of view there was little to suggest this was a worker's co-operative. It would not be too harsh to say that it was a safety net between having a job and being unemployed. Unfortunately the latter situation happened when the bakery closed less than a year after this field work.

11.5 FLOW PROCESS CHARTS

11.5.1 INTRODUCTION

Flow Process Charts (FPC's) are used by industrial engineers and others to provide a composite and easily understood picture of a wide range of processes, systems and procedures.

The four purchasing systems under review were charted in this way to identify such things as data generation; data storage; and information flow. By 'superimposing' information obtained by the other research techniques it is possible to highlight issues like lack of flow of essential information; data which is collected and not used at subsequent stages in the process, and limitations imposed by the information system on participants jobs.

Charts for the four purchasing systems follow with comments.

11.5.2 CO-OPERATIVE AYE

The FPC for the purchasing process is in Appendix IV.

The main points which emerge from this chart are that stock review was carried out on a routine basis. In other words each stock item received the same amount of attention irrespective of whether it was a fast or slow turnover item; or was a critical item regarding value; or was important regarding a much prized customer contract. There was no attempt to identify the 'vital few' items (usually about 20% of total stocked items) which often account for 70-80% of total stock turnover. Items in this category justify, on economic grounds, detailed attention regarding stock levels. The remaining items in turn justify varying levels of attention. This practice, usually referred to as Pareto Analysis, reduces operating costs and often improves customer service by avoiding stock-outs.

It is clear from the chart that the purchasing system has a number of serious weaknesses the main one being that deliveries are checked against supplier generated paperwork. In addition quality of product takes place after goods have been accepted and signed for.

Although buying has been allocated to a number of people in this firm, thereby increasing ancillary job enrichment, there is evidence that Martin is a key figure in this organisation - an issue raised in discussions concerning the purchasing process survey.

11.5.3 CO-OPERATIVE BEE

This system is illustrated in Appendix V and with the exception of a dominant person, the comments made regarding Co-operative Aye, apply to Co-operative Bee.

Although much thought has been given to ancillary job enrichment - everyone is responsible for purchasing a defined range of goods and horizontal job enlargement takes place through job rotation - the importance of good information management has not been grasped in Co-operative Bee.

Poor information management can easily result in frustration and lack of pride when doing a job like buying. Instead of being a smooth systematic and challenging procedure it can become a series of crises related to stock-outs, lack of information on suppliers and their deliveries.

Not least lack of availability and poor distribution of information can result in inefficient and costly operations, often leading to degeneration of participative practices and eventually economic crises with the threat of closure never far away.

11.5.4 CO-OPERATIVE CEE

Full details are provided in Appendix VI.

This was the most professional purchasing system of the four studied. The purchasing process itself was integrated with product cost estimating, the stages in the production process and accounts. The only serious weaknesses were that incoming material was checked for quantity against suppliers documentation and fabric was checked for quality as seen but not against specified quality. The latter point is not as bad as first appears because fabric in cut-make-and trim *firms* is usually not checked until a bale or length of fabric is 'unrolled' immediately prior to manufacturing. Established suppliers seldom supply inferior quality fabric to that specified.

This particular co-operative was organised in a traditional way with a very competent general manager and well established purchasing, accounting and marketing functions. Although the stitchers owned the firm they participated in decision making only when a major issue emerged, eg the Swedish order mentioned in Chapter 10. Even then they were much guided as to future action by the professional management team.

Thus it could be said that information management was reasonably good in Co-operative Cee, but jobs were largely narrowly specified and at operator level were identical to those found in any conventional garment manufacturing firm.

This situation developed because the firm had/has a clear objective to survive protect employment and make healthy profits. In time it is possible that if the firm became more successful, attention would turn to issues of participation. Meantime everyone seems content with present arrangements and the pursuit of improved business performance is the predominant objective. The purchasing information system reflects this aim.

11.5.5 CO-OPERATIVE DEE

This purchasing information system is detailed in Appendix VII.

The perennial practice of checking incoming materials against supplier generated documentation is evident in this system. Conversely the system had some good points - for instance it was integrated with the accounting system, although it was noticed that this system also left much to be desired.

It was also noted that the production supervisor checks stock weekly. In a bakery it would not be a difficult task to fairly accurately estimate annual usage of the main ingredients used and negotiate better prices and/or discounts on an annual basis.

The purchasing system itself showed other notable weaknesses resulting from not having reliable records of what was on order. For example during one visit it was discovered that although an order had been placed for pie trays using the 'formal' system, another supplier phoned the clerkesses who immediately placed a further order on the grounds that this second supplier was having production production problems and that future supplies could be restructured.

As in the case of Co-operative Cee, the management and office staff were more concerned that only designated people would authorise payment (and write cheques) for supplies received than that which had been received equated with what had been ordered. In Co-operative Dee care was taken to compare the contents of invoices with that displayed in delivery notes, both of which were generated by suppliers.

11.5.6 CONCLUSIONS

Perusal of the Flow Process Charts supports and reinforces the findings from the Purchasing System Surveys.

People using the systems were very vague about the purpose of a purchasing information system. There was almost an attitude that any piece of paper is better than none when checking incoming goods.

Vital information is often not available or if available is not accessible because of the informal arrangements in operation. Whether this situation de-enriches jobs is open to question - it may add challenge and frustration but almost certainly it is poor business practice which increases costs unnecessarily.

As stated earlier (Chapter 6) workers co-operatives may have a multiple political agenda which sees business success as less critical. This will result in information management practices and systems less than appropriate for firms operating in a competitive market. Job satisfaction may be high in such a situation but the price will be just as high as a result of inefficient planning, organising and controlling resulting from lack of availability and poor distribution of information.

There is a need for consultancy support to assist workers' co-operatives to develop appropriate information systems to support the type of job and organisation design expected in such enterprises. Not least a more professional approach to information management will improve the operational performance of these businesses without necessarily sacrificing participative work practices when such practices are high on the list of objectives.

12 DISCUSSION, CONCLUSIONS AND FUTURE RESEARCH

12.1 INTRODUCTION

As was described in Chapter 2, this study set out to show that lack of availability and poor distribution of information militate against successful job and organisation design in worker's co-operatives. In the final analysis the results were not deterministic - a number of other issues had a bearing on the results and conclusions drawn. These will emerge in the discussion which follows and it will be noted that they related strongly to some of the questions raised when developing the hypothesis to be researched - see 8.2.3.

The discussion which follows will consider the implications of the research findings for the worker's co-operative movement and for future research.

12.2 SUMMARY OF MAIN RESEARCH FINDINGS

Amongst the various issues which have emerged from these research findings, there are six in particular which impinge upon job and organisation design and information management and are worthy of some comment:

- i. Buying behaviour
- ii. Buying agreements
- iii. Co-operative organisation
- iv. Objectives and their influence
- v. Information management
- vi. Management skills and knowledge & systems design.

These are summarised in Fig 12.2 and discussed below in relation to the literature and research findings. Finally some comments are made regarding their interaction.

12.2.1 BUYING BEHAVIOUR

Regarding buying behaviour, the research findings show that the four co-operatives did not generally embrace the task models which emphasise task-related variables (such as price). Buying behaviour was more related to the non-task models which attempt to explain organisational buying behaviour based on a set of variables (such as buyers' motives).

Buyers tended to purchase items from other co-operatives when possible, or from suppliers with whom they were familiar i.e. source loyalty. This passive approach to buying meant that the buyers were seldom at risk when placing orders with new suppliers - it became in many instances, a routine activity. This approach to buying equates with Wind's (1968) application of the behavioural theory of the firm to the source selection decision. It also relates to the practice in the four firms of finding a solution to purchasing problem by following the simplest route with little risk.

R A Bauer (1960) defines perceived risk as uncertainty about the outcome of a decision and the consequences of alternative decisions. Empirical evidence supports the belief that the Theory of Perceived Risk is applicable to organisational buying decisions. Sheth (1973) summarises the strategies used by industrial buyers to reduce their risk:

- * Reliance on supplier reputation
- * Development of strong source loyalty
- * Search for information
- * Reliance on credible sources such as personal friends and experts, and
- * Great deliberation, thinking and planning in high-risk situations.

Most of these strategies were evident in the constructive co-operatives (Aye and Bee), particularly:

- * using established supplier and staying with him
- * much lunch time informal discussion

In Cee, relationships had been established with suppliers who appeared to offer a reliable service. During informal chats (not directly related to this research) about the possible design, manufacturing and marketing of weather suits for runners and the like, the distinct impression was given that Cee would approach present suppliers for material even in cases where new fabrics became available. They would have been willing to use advanced material in their products but did not feel it necessary to discuss purchase agreements with a set of new suppliers. A clear case of reliance on supplier reputation and strong source loyalty. It was also noted at Cee that very little information search took place for advanced fabrics specifically developed for manufacturers of protective clothing and sports wear.

In Dee, arrangements with current suppliers was felt to be adequate although with the arrival of a general manager, sponsored by Strathclyde Regional Council, this was about to change. This person was determined to exploit buying agreements to his firm's advantage. Unfortunately Dee ceased trading before the fruits of his analysis of purchasing data was realised.

From the above comments it will be seen that buyers in workers' co-operatives are often reluctant to take risks by seeking out alternative materials and suppliers. Nor do they show much desire to negotiate purchasing agreements to their advantage - an issue dealt with below.

In many cases therefore, available information concerning current suppliers was not used to benefit the firms. Similarly information about new products and alternative suppliers was not sought. Conclusions drawn regarding the four firms studied suggest that even when information is available to buyers they may decline to use it preferring to maintain a straight rebuy situation (Robinson, Faris and Wind, 1967). It may be that source loyalty was important to the four firms for reasons of mutual self support and the belief that other co-operatives and sympathetic suppliers would understand problems of liquidity and be more tolerant in difficult situations. In such cases information availability is not always the dominant factor. One must distinguish between individual and organisational decision making.

12.2.2 BUYING AGREEMENTS

The type of buying agreement used is influenced by the items being purchased and the terms which can be agreed with the supplier. Small orders often result in buyers having to comply with the suppliers' preferences.

In almost half the cases in the four firms studied, orders were placed by telephone with monthly statements being prepared and sent to the buyer. This reduces order placing costs but creates a dangerous situation because there is no record or easily accessed record of what has been ordered - fully discussed in section 12.2.5.

12.2.3 CO-OPERATIVE ORGANISATION

Although the literature on worker's co-operatives gives the impression that because co-operatives are owned and controlled by the people working in them (Chaplin and Cowe, 1977, Young & Rigge, 1981), participation in decision making is widespread at strategic, managerial and operational levels. This was not the case in all of the four co-operatives studied in this project. The actual situation in these firms is summarised in Fig. 12.1.

Fig. 12.1 PARTICIPATION IN DECISION MAKING IN FOUR CO-OPERATIVES

CO-OPERATIVE	LEVEL OF DECISION MAKING		
	STRATEGIC	MANAGERIAL	OPERATIONAL
AYE	HIGH	HIGH	TOTAL
BEE	HIGH	HIGH	TOTAL
CEE	TOKEN	NIL	NIL
DEE	NIL	NIL	NIL

(this data relates to the total working population in each of the four co-operatives and not just those individuals involved in the purchasing process).

As outlined in Chapter 11, managerial and strategic decisions in co-operatives Cee and Dee, were made by the managers and those closest to them. Otherwise the manual and routine office jobs were fragmented and narrow and there was no need for other than basic operational information. Managerial and strategic information did not generally flow to people at these levels in the organisations.

In contrast, what could best be described as an autonomous group working situation operated in Aye and Bee. Managerial and strategic decision making, termed participation on the tripartite job design model (Bowey and Carlisle, 1979), was the concern of everyone, although a few people, particularly in Aye, enjoyed a slightly elevated status as referred to in Chapter 11.

In all four firms, ancillary job enrichment was provided by participation in the purchasing process to varying degrees, but not to everyone in Aye and to even fewer people in Cee and Dee.

In conclusion the form of job and organisation design adopted was an important determinant of the amount and type of information which flowed to particular people. Restricted, narrow jobs did not require elaborate and comprehensive information. For example this was the case, considering the total workforces in Cee and Dee. However, with high levels of immediate participation (Strauss and Rosenstein, 1970) in Aye and Bee, comprehensive and appropriate information was required, not just for efficient running of the purchasing process, but for the managerial functions. Judging by the results of the purchasing process survey and flow process charts, in Chapter 11, much needed information was either not available or did not flow or was not easily accessed by those needing it. Information systems which do not fulfil the requirements expected of them can be a constant source of frustration to users and may affect responses to questions on task support issues when measuring the level of job satisfaction - see appendix II. In addition and perhaps even more important, flaws in an information system can seriously jeopardise the economic performance of any business. This was discussed in Chapter 11 when for example it was seen from the purchasing process survey and the flow process charts that valuable information was hidden in such places as 'black books' and in people's heads and was not therefore available for buying information analysis from which could be developed more effective purchasing policies.

The most serious shortcoming of the purchasing information systems studied concerned the checking of incoming goods for quantity, quality and delivery performance against supplier generated paperwork. These and other issues will be returned to later. Sufficient to say at this stage that the design and development of appropriate information systems would improve the effectiveness and probably personal satisfaction of those involved and would enhance business performance. This latter item would tend to reduce the introduction of economic degeneration which brings in its wake democratic degeneration as dealt with at length in Chapter 3.

However participation can be affected by issues other than information management. One of these concerns the objectives pursued by individual co-operatives and this is considered below.

Adoption of appropriate information systems might well signify their desire to pursue the objectives they are not slow to espouse. For example job protection and creation; economic viability to enable them to pursue 'social' causes; and development of more challenging and satisfying jobs.

12.2.4 OBJECTIVES AND THEIR INFLUENCE

In this study, the degree to which participation in decision making took place, appeared to be directly related to the objectives pursued by the individual firms and how these objectives were ranked in order of importance.

In each of the four co-operatives there was evidence of a multiple political agenda. For example, Co-operative Aye was most concerned to encourage the consumption of health foods in Scotland. This was followed by the maintenance of a non-sexist, non-racist and non-hierarchical organisation structure. In descending order they also pursued job satisfaction, equality of earnings and support of the principles of CND.

Co-operative Bee pursued similar objectives to Aye's, viz, increased consumption of health foods and use of animal free toiletries, to run the business on feminist principles claimed to be less susceptible to conflict and competition they associated with male dominated enterprises; and finally the improvement of job satisfaction.

Co-operatives Cee and Dee had objectives which clearly contrasted with those in Aye and Bee. They were more concerned with job protection; expansion in areas of high unemployment; and improvement of wages. To achieve these aims the members felt it best to leave 'management' to the managers and consequently a traditional MIS was sufficient in a situation where limited access to information was the norm.

Although Cee and Dee's espoused theory concerned job protection and creation, they did not take appropriate steps (theory in use) to achieve these aims. (Argyus 1976, 1980). It was felt that this was because of lack of knowledge regarding good management practice. This problem will be raised later in this chapter.

Comparing Aye and Bee with Cee and Dee it is noted that the former are constructive co-operatives whereas Cee and Dee are rescue co-operatives. Invariably rescue co-operatives are set-up with the express desire to

save as many jobs as possible from the remnants of the failed company. This being the main objective it is not surprising that the popular image of co-operative working arrangements entailing flexible working arrangements and full company participation in strategic decision making, does not usually take place. Rather there is a tendency to continue the working arrangements of the failed firm and to inherit and use the basic management information system which if it is of reasonable standard meets the requirements of a narrow job specialisation arrangement. A more participative arrangement would require a different type of information system - one which would operate on worker generated data and would be easily accessed by these same workers when faced with problems to be solved. In other words a traditional management information system would conflict with the organisational arrangements in a constructive co-operative. In the rescue co-operatives studied, jobs were highly specialised and the information systems, which were superior in design to those in the constructive co-operatives, were from the traditional MIS mould. The information systems in the constructive co-operatives were extremely informal. To have developed a traditional MIS and implemented it in these firms would have seriously affected the design of jobs and organisational arrangements in these firms. (Mumford, 1971). A situation of operational and managerial information flowing to a limited number of people would have rendered the flexible working practices inoperable. In addition restrictions on the flow of strategic information would have adverse effects on the participative environment in existence.

Clearly the design of information systems has to be linked to the organisational arrangements. This is a particularly difficult task in constructive co-operatives because more people tend to be involved in decision making than in a rescue co-operative. This requires open access to operational, managerial and strategic information. In addition in both types of co-operative, the presence of informal information has to be considered (Lockett 1978.) Informal information flow takes place in all organisations but it is a strong feature of constructive co-operatives because of the flexible and autonomous working arrangements in existence.

Therefore although there is a strong link between information management and job and organisation design, per se, the objectives of a business will strongly affect both the working arrangements adopted and the information system used. Altruistic objectives will attract people idealistic in outlook who will generally feel happiest in a flexible, participative working environment. Unfortunately when deciding their objectives they may lose sight of traditional business pursuit of profit and efficiency. A particular problem for constructive co-operatives with 'unstructured' working arrangements is the development of an appropriate worker information system. (Lockett, 1978).

Therefore it is important for workers' co-operatives, of whatever types, to develop appropriate information systems to match their organisational arrangements and to ensure the prosperity and continuation of the company.

The Socio-Technical Systems (STS) approach has much to say regarding the blending of the social and technical systems in an organisation. (Emery and Thorsrud, 1974, Lucas, 1975, Mumford, 1971, Strassman, 1976). The attractions of the STS approach have been discussed in Chapter 4.

Pursuing the point concerning efficiency and profits, some observations will be made about the deficiencies of information systems in worker co-operatives in the following sub-section.

12.2.5 INFORMATION MANAGEMENT

In chapter 4 the case was made that a flow of appropriate and sound information is required if effective decisions are to be made in business. The point was also made that this does not necessarily entail high cost investment in computerised systems. Nevertheless the prudent choice of computers and software can help increase the speed of decision making and sometimes the quality of these decisions. For example stock control is often less a mathematical problem but one more associated with data processing. With developments in computers, particularly the power and speed of micros, it becomes possible to blend stock control with production planning and as a result many manufacturing companies, large and small, now use Material Requirements Planning (MRP) (Orlicky, 1975) for this purpose.

However, whether or not a company decides to computerise its information system, a careful study of the information system will be required. Things to be considered include who generates the information; how is it stored and where?; who will make use of it and in what ways?; is it

easily accessed?; do those receiving information or who ask for its generation make effective use of it?; who really needs particular information as opposed to wanting it?; and lastly how much does the information system cost to run? These issues were dealt with in section 4.3.1. Although the researcher did not see evidence of it in the four co-operatives, system designers need to ensure that critical information flow is not restricted by individuals who might exploit the situation to increase their personal status and power within the organisation.

The results presented and described in Chapter 11 show that the four co-operatives had purchasing information systems which leave much to be desired; systems which did not give warning that stock should be replenished; imprecise basis for deciding how much to order; available data not aggregated to facilitate demand forecasting for high volume products; scant attention paid to price paid, quality demanded and received, and delivery performance of suppliers; and no formal system for evaluating supplier performance. Lack of acceptable standards in information management did not appear to affect the level of job satisfaction judging by the results of the JDS survey - people in the four firms appeared to be more satisfied with their jobs than comparable workers in conventional firms. However it should be noted that almost all the people employed in the constructive co-operatives participated in the purchasing process. In contrast a limited number were involved in the rescue co-operatives. Because those excluded from the survey were doing jobs arranged in traditional ways it is likely that had they been surveyed they would have had a negative effect on the JDS survey results. But this was outside the remit of this study. Nevertheless the

findings indicate that the organisational arrangements affect and are affected by the information system. In the rescue co-operatives a limited number of people used the purchasing information systems largely because the job and organisation design influenced it that way. In turn the organisational arrangements were affected by the objectives pursued. This is a complex issue of importance to the workers' co-operative movement. In many conversations with people in the four firms, they espoused their desire to see the co-operative survive, but in the case of Aye and Bee the impression was given that to adopt appropriate information systems might jeopardise 'the co-operative way of working.'

Two main issues emerge here. First they associate information management with traditional management information systems which they believe, quite correctly, would influence the current job and organisation design arrangements. Second the constructive co-operatives in particular, seem to equate the use of effective business information systems with degeneration of democratic principles. The teachings of the Webbs are still abroad. In fact appropriate worker information systems would help resist political degeneration by guarding against economic degeneration which results in co-operative workers exploiting themselves in the market and eventually abandoning many of their democratic principles for expediency.

12.2.6 PROFESSIONAL MANAGEMENT & SYSTEMS DESIGN

Perusal of tables 1 - 18 in chapter 11, and the flow process charts show the need for a properly designed purchasing system. Shortcomings of present arrangements include:

- lack of availability of information to assist buyers when placing orders
- difficulties in accessing purchasing information through use of non standardised personal records
- need for rational and systematic review of stock levels - Table 11.1
- need to investigate the use of such techniques as Statistical Quality Control (SQC) on delivered goods - Table 11.8
- need for system which would ensure accurate checking of incoming goods against what was ordered - Table 11.14
- need for proper vendor rating system which would produce much more scientific information - Tables 11.15 and 11.16.

These findings are supplemented and supported by the comprehensive picture provided by the flow process charts. Particular points which emerge are:

- * information is generated without reference to a scientifically designed and developed system
- * information storage appears to be rather a haphazard facility e.g. little 'black books', pieces of paper and often peoples memories.

* essential information does not flow to nor is accessible by those who need it. For example much incoming material is checked against supplier generated documentation because there is a general lack of in-house data.

* stock control and turnover ratios are conspicuous by their absence.

Therefore although the four co-operatives buy things they do not possess sound purchasing systems. The dangers of this have been explained in chapters 4 and 11. Without adequate information systems no firm is able to effectively control its operations. Two of the most important control areas for small businesses are purchasing and inventory control. The absence of competence in these areas is often revealed only during the post mortem of the failed business. In this respect the four co-operatives stand on shaky ground, particularly the two constructives.

Inventory of materials, parts, goods and supplies represents a high investment in all businesses. A system is required to ensure that not too much money is tied up in stocks and at the same time to enable the business to meet the majority of sales opportunities. Setting stock levels is not a hit-and-miss task.

Likewise the purchasing system needs to be developed to meet particular organisational and market needs. A situation where stock levels are not systematically controlled; quality levels are not set; and incoming goods are not properly checked against an in-house data base is unsatisfactory to say the least.

The development of Purchasing and Inventory Control systems require expertise and it is doubtful if many workers' co-operatives have this to the required level.

Unfortunately many of the current problems faced by the co-operative movement in Britain have their roots in the past. Chapter 3 describes the evolution of the movement over a long period of time which was accompanied by the formation and growth of a proliferation of support bodies. However there is no effective mechanism for these bodies to work in unison and the best any of them can do is consult with (some) others and make what is seen as an effective contribution.

Perhaps one could be critical of some co-operative development agencies and other bodies supportive of workers' co-operatives. Their concentration on accounting and marketing procedures creates an imbalance in the co-operative businesses. It is sound practice to keep a check on the company's financial position and operations and it is also good that they advise on how the products or services should be marketed. However improvement of buying procedures and effective control of the operating system is essential if the business is to remain viable.

There is a case for supporting bodies to recruit highly competent industrial engineers for operating system consultancy services, even within a situation of limited funding.

Government policy makers who claim to be passionately interested in the growth and viability of small businesses in the UK should consider grants to workers' co-operatives for consultancy purposes. They might have a register of approved consultants from whom the co-operatives could request feasibility studies on which to base their choice of consultant.

The results of such consultancy assignments would help safeguard the financial and human investment in these particular small business organisations. If self-help and free enterprise are to be encouraged then this matter should be given immediate attention.

Support such as this would benefit the economy more than the ill-formed platitudes we have become used to.

Such support would ensure the success of the workers' co-operative movement and would have beneficial effects in the economy.

12.3 INTERACTIVE MODEL

It would be unrealistic to leave the six parts discussed above in isolation. In reality they interact, affect and make demands on each other - see Fig 12.2.

For example buyers did not always use available information when placing orders. As described in the literature, they tended to remain loyal to established sources especially if these sources were co-operatives. In some cases they remained loyal because they claimed that by doing so they obtained advantageous payment terms. Accepting this was true, no attempt was made to ascertain if lower buying prices elsewhere outweighed extended payment periods. It appears that buyers in workers co-operatives do not always use available information when placing orders nor do they always seek out information which might be to their advantage. It is likely that this type of buyer behaviour would remain when sound information systems are available.

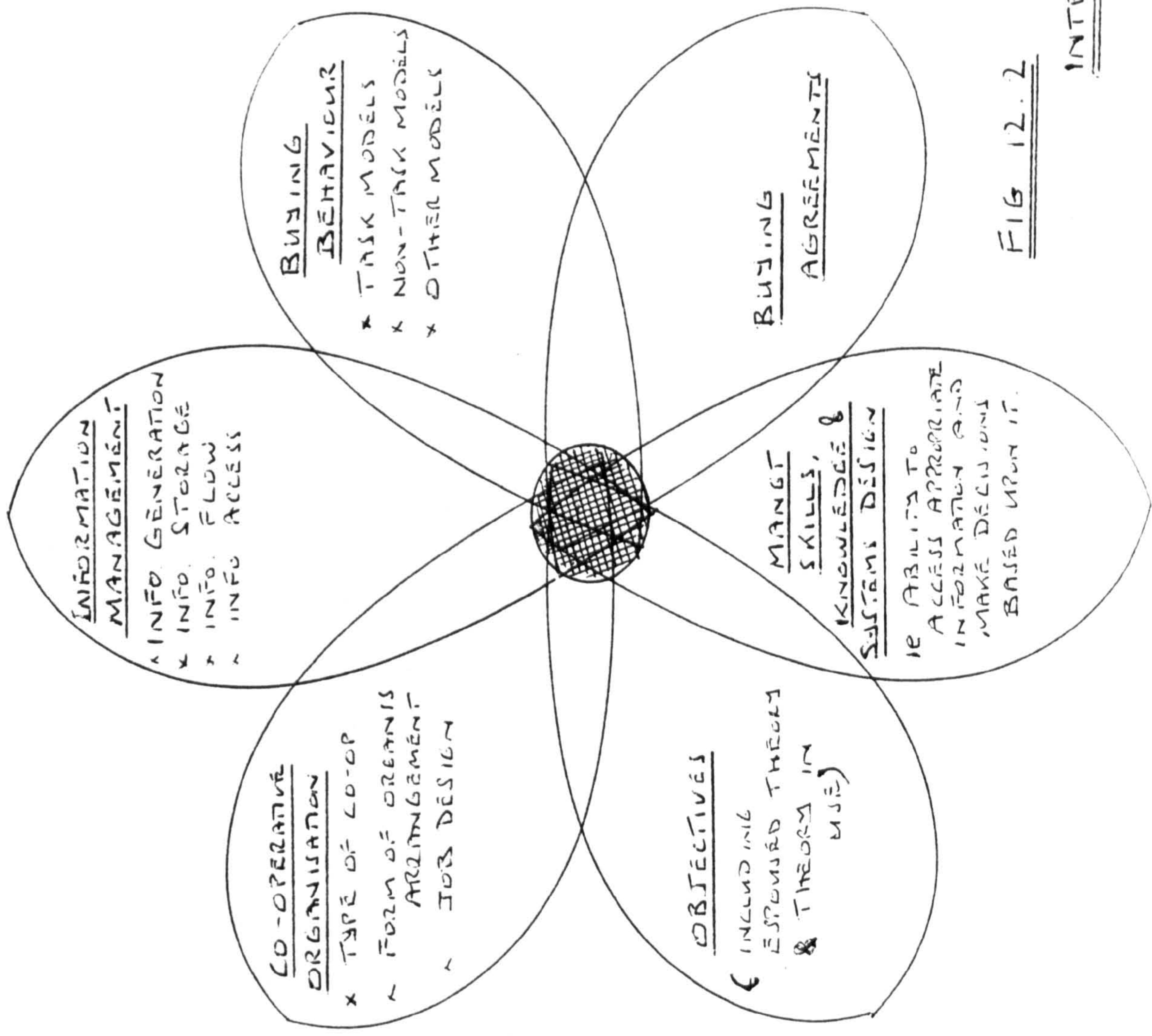


FIG 12.2 CO-OPERATIVE INTERACTIVE MODEL

It was noted in Tables 11.3 and 11.4 that the level of forecasting of buying requirements was poor and was done infrequently. Opportunities were lost to forecast annual consumption and use this information to negotiate scheduled buying contracts at lower cost per unit purchased. In the same way such information could have been used to place blanket orders or contract blanket agreements as described in 5.4.1. (Baily, 1978; Hill, 1987). This is a clear case of not making use of available information resulting from a general lack of management skills.

The results of this project have shown that there are important links between information management and job and organisation design. However caution has to be exercised when reviewing particular cases. For example co-operative Cee (rescue/manufacturing) was concerned mainly with job preservation and the democratic processes were not highly developed. Since operational decisions were made by the 'management team' there was no need to develop a worker information system (Lockett, 1978). In effect the organisational arrangements adopted largely determined the information system in use.

In addition to information management having an influence on organisational arrangements, and vice versa, it also had a strong effect on operational efficiency. In various sections of this thesis the point has been made that available information was not used to improve operational performance. For example above when forecasting using available data was not analysed.

Objectives pursued by the four firms provide a sound base for re-considering Argyrus's Theory in Action. (Argyris, 1976, 1980). Cee

and Dee's espoused theory regarding the main objective was the maintenance of jobs and possible job creation. In practice however they did not take appropriate steps achieve this. Actions one would expect to see in a firm with these objectives would include the development and use of appropriate information systems to support decision making. Apart from a lack of sound purchasing systems the absence of planning systems were absent. In addition accounting was little more than a book keeping exercise to satisfy banks and VAT inspectors. It is contended however that the dichotomy between espoused theory and theory in use was not hypocritical. Rather the situation developed because of lack of management skills, in some cases, as a result of which the 'managers' were not aware of the necessity for sound information management.

There was also a hidden fear that the adoption of contemporary business systems would jeopardise the co-operative principles and ways of working. The dichotomy refererred to above was also caused to an extent, by the lack of ability to develop and implement sound information systems.

The links between lack of availability of sound information systems and degeneration are clear. Without such systems mistakes will be made and opportunities lost leading to economic degeneration. For traditional companies they may eventually lead to closure. Co-operatives in the same situation may have an intermediate step between economic degeneration (and associated self-exploitation), and closure, namely political degeneration identified by the adoption of less participative working practices and strategic decision making being allocated to an enhanced group within the firm.

In the above section attempts have been made to illustrate the interaction between the issues listed in section 12.2. Co-operatives like any organisation are dynamic systems. Issues, problems decision and solutions on one aspect are likely to have repercussions for other sub-systems.

12.4 COMPARISON WITH THE MONDRAGON GROUP

This situation in the UK workers' co-operative movement is in stark contrast to the Mondragon group of co-operatives in the Basque Region of Spain - fully described in 3.3.2. But then political and economic conditions following the Spanish Civil War did much to bind the people of that area in a common purpose. Nevertheless Arizmendiarieta wrote 'People do not normally become co-operators spontaneously, they have to be taught - the soil may be fertile but it has to be cultivated' (Reported in Wiener and Oakeshott, 1987). Circumstances in the Basque Region were far from conducive to success; a run-down remote industrial area with no rail or water transport and poor roads; low levels of technical education; and of course a hostile government.

Nevertheless the Mondragon group started from small beginnings but throughout its growth was prudent enough to see that if they were to succeed they had to embrace modern management methods and keep abreast of new technology and not simply concentrate on the preservation of what they saw to be the co-operative form of organisation. For example one sub-division of the Caja Laboral, Lan Kide Suztaketa SA, (or simply LKS), is further subdivided into the following departments:

- * Market research and evaluation-research
- * Agriculture and food business promotion
- * Industrial business promotion
- * Audit and financial records and forecasts
- * Managerial control and assistance (Intervencion)
- * Consultancy (Asesoriamiento) - marketing, production engineering, personnel, organisation, tax and law
- * Building - planning, industrial, housing
(Winener and Oakeshott, op cit)

A recent development of the Group's educational initiatives shows three objectives: first to ensure the supply of future managers, which normally comes from graduate entrants; second, to provide service and training for working managers; and third to help rank-and-file members elected to the various councils and boards of management to equip themselves to make decisions about matters which can be complex and highly technical.

Professionalism and quality of management has always been a major consideration in the Group's formula for success.

There is no obvious reason why the Mondragon success could not be replicated in say Cleveland, West Scotland, Merseyside, South Wales or some day Northern Ireland. The main requirements would be: leaders who are prepared to devote all their time and energy to establishing it without much thought to personal financial gain or political acclaim; and realistic central government backing. Perhaps current government

sponsored initiatives in Cleveland will provide a break through. Meantime the current UK co-operative movement urgently requires consultancy support and the infusion of competent managers sympathetic to the co-operative ideals and professionally capable of developing business systems. The support agencies appear to be dominated by people with either a social work or community education background - experience which is useful but professional management is necessary if co-operatives are to survive in a competitive market. The converse of Arizmendiarrreta's views quoted above is also true. People who embrace the co-operative principles do not always accept the need for sound business methods and systems. They have to be made aware of the consequences of not doing so and then helped and encouraged to develop and use these approaches in a competitive market.

In the four co-operatives studied and in others visited, the rudiments of stock control, purchasing, production control and quality control were not always understood by the members.

In the two constructive co-operatives studied, this problem was magnified because of the (very acceptable) practice of developing broad job responsibilities and the practice of job rotation. If everyone buys for the organisation then everyone should be trained to an acceptable level of proficiency in purchasing techniques and procedures. The same principle holds true for any of the operational problems and techniques. For example capacity planning and management; production planning and control; stock control; methods improvement.

Training of this nature would have to be preceded by the development of relevant and appropriate information systems.

Good operating systems and management can be a competitive weapon. The level of competence found in this research project appears to be a millstone.

12.5 CONCLUSIONS

Whether or not a company is organised on co-operative principles; whether or not it follows the normal practice in rescue co-operatives of broadly preserving many of the organisational arrangements and practices of the failed company; or whether it operates in a highly participative and flexible manner - it has to face competition from conventional companies - often from a base of under capitalisation. All four companies studied cited under capitalisation as a serious problem.

However to survive in a competitive market from such a base demands vigorous efforts to use effectively resources available. This implies and indeed involves the design of sound business systems and the proper use of proven management and business techniques. Systems and techniques associated with information are, in a sense, the life blood of the organisation.

Lack of availability and/or poor distribution of information to decision makers is a slow form of suicide for any organisation. This is particularly true for workers' co-operatives faced with a none too sympathetic market and economy.

Thus based on the discussion above it is clear that the outcomes from this research are not deterministic. They are affected by the issues raised above: objectives pursued; type of co-operative; form of organisation; general lack of management skills; and lack of appropriate information systems; and buying behaviour.

The lack of availability and poor distribution of information had a more serious effect on the operational efficiency of the four co-operatives studied than on the success of job and organisation design. Eventually poor work structuring, for whatever reasons, will influence operational success but poor or lack of appropriate information systems for planning and control decision making will have more serious and immediate consequences than job enrichment issues particularly in the early years of operation. Indeed trying to improve worker autonomy and participation without first attending to essential operational issues and problems is similar to fitting disc brakes to a donkey cart.

This project has shown that there is a clear need for professional management, training and information systems development in workers' co-operatives. Training must embrace both the principles and practices of co-operative working and the need for and use of modern business systems. As Mondragon has shown these two issues need not be mutually exclusive.

Conventional business has attempted to obtain the benefits of more participative working arrangements through job and organisation design projects - this was dealt with at length in chapters 6 and 7.

In this respect constructive co-operatives have an advantage over conventional business by virtue of their democratic ownership of work. However they need to become more aware of the necessity for sound management practices.

Rescue co-operatives appear to be less democratic than constructives but may have the remnants of workable business systems. There is a need for the members of rescue co-operatives to be educated in the principles of co-operative working.

Workers' co-operatives which preserve co-operative working practices within a framework of appropriate information systems have the potential to combine economic and social success.

12.6 IDEAS FOR FURTHER RESEARCH IN WORKERS' CO-OPERATIVES

12.6.1 INTRODUCTION

It is not considered that this research project has established conclusively the effect of lack of availability and poor distribution of information on successful job and organisation design. Rather it has identified an inextricable link between the two issues and stresses the importance of sound and appropriate information systems if job satisfaction is to be enhanced and operating efficiency is to be improved. This is important for the workers' co-operative movement because an efficient, profit making unit eliminates the need for workers to exploit themselves in the market and degeneration no longer becomes inevitable.

During this study a number of issues emerged which the researcher thought worthy of investigation. The most important of these, relevant to the study, are discussed below.

12.6.2 REPLICATION OR EXTENSION OF THIS STUDY

The main theme of this project is worthy of further rigorous enquiry. Such an exercise would build on the findings of this current project which was exploratory in nature. This was because of the lack of previous research efforts on the links between information management and job and organisation design.

Further research activity as outlined above would provide useful information to enable workers' co-operatives to improve their operations and succeed in the market without compromising their democratic and participative ways of working. This is particularly important given Government response to initiatives in Cleveland. If a mini-Mondragon is successfully established in this area, people involved in the workers' co-operative movement will be encouraged to increase their efforts to match the success of this pilot project.

12.6.3 INFORMATION SYSTEMS SUPPORT

During field work for this project and associations with a range of co-operatives, the picture emerged of small businesses existing from day to day and week to week without a clear understanding of their operational performance. Policy meetings, which the author sometimes attended, were often dominated by crisis issues rather than rational discussion about future prospects and how they could be exploited.

Poor information management at operational and management levels affected strategic decision making by allowing these crises to develop (these issues have been discussed in Chapter 4).

Much of the training received by co-operators, concerned decision making at policy level and the principles of good communication. Such training is essential but is of limited use if operational problems recur on a regular basis.

Much has been made, in previous discussion, of the need for appropriate information systems. In practice system design, development and support is not generally forthcoming from support agencies. For example the author met the founders of co-operative Dee at a conference in their first year of trading. (Before this project was conceived). On sampling one of their meat pies it was suggested that they should consider implementing a quality control system for work in process to ensure that the correct amount and proportions of ingredients were included in their products.

The offer of the services, free of charge, of a post-graduate student, supervised by the author, were declined because "we don't want to get involved in all that management theory stuff". Further enquiries revealed that the support body involved with Dee had given valuable advice on marketing and accounting, but operations management systems such as purchasing and quality control had not been mentioned by either party.

During subsequent field work for this project, the Weights and Measures Inspectorate severely warned Dee that it would have to "tighten up on production" to ensure that all pies were of the correct weight and contained regulation amounts of meat. Failure to do so would result in severe penalties.

Apart from the need for co-operatives to be made aware of the benefits of good operational practices, there is a clear need for information systems support by the people who advise co-operatives on business matters.

A survey of field workers in co-operative support agencies (qualifications and practical experience) is required. This would identify their ability to develop and implement basic business systems to deal with critical operating problems and deficiencies faced in workers' co-operatives.

12.6.4 THE JAPANESE PHILOSOPHY RELATED TO WORKERS' CO-OPERATIVES

Some of the features observed during visits to the constructive co-operatives particularly, reminded the researcher of the Just-in-Time (JIT) concept used by many Japanese firms. This is currently being adopted by 'leading edge' companies like IBM, Polaroid, Philips, Hewlett-Packard, Black and Decker and General Electric. Many small firms, often suppliers to the above companies, are also benefitting from adopting this philosophy.

The JIT approach is simple: Produce and deliver goods just in time to be sold, subassemblies just in time to be assembled into finished goods,

fabricated parts just in time to be built into subassemblies, and purchased material just in time to be transformed into fabricated parts. Japanese industry produces small quantities "Just in time" in contrast to Western industry which produces large batches "just in case". The Western approach consequently entails the use of complex and costly systems for planning and control and large inventory buffer stocks.

Some of the features of operations management in the constructive co-operatives which resembled the JIT approach were:

- * managing by what is seen rather than what a print-out or other information sheet tells them has happened
- * ordering products as required and avoiding the need to carry large inventories based on economic order quantities (EOQ)
- * manufacture of things like muesli and repacking of beans, oils, fruit juices etc to meet immediate needs - in other words small batch production which eliminates the need for storage of large quantities for future use
- * the practice of extensive job rotation and flexibility of labour
- * elimination of the hierarchical distinction between managers and manual workers with its attendant employment conditions and rewards for managers
- * less separation between thinking and doing activities

* group discussions about the days problems at lunch or in the evening. This is very reminiscent of Japanese quality circles which is an integral part of the JIT philosophy.

In an interesting article McCormick and Marshall (1987) advance the view that Japanese firms could be considered as a form of workers' co-operative. It is perhaps a generalisation, but true nevertheless, that Western preoccupations with co-ops have conditioned thinking to follow a traditional pattern. However many of the features identified as characteristics of co-ops can be found in Japan; for example, profit sharing, participation in decision making and the presence, as at Mondragon, of a bank to provide external finance.

Further development of the Japanese philosophy of managing operating systems would probably be accepted much more quickly in constructive co-operatives. Members of this type of co-operative reject the traditional approach to running business, and as this research has shown have much in common with typical Japanese firms. In endowed and rescue co-operatives a change in culture would be required since it is likely that members of these types of firm have been socially conditioned to accept hierarchies as the normal model. In co-operatives Aye and Bee this was certainly the case.

Judging by the productivity and quality of Western firms who have adopted the JIT philosophy, there is a golden opportunity for workers co-operatives in the UK to survive, grow and perhaps steal a march on their conventional competitors. JIT activity in the UK has, until the recent past, been concentrated on medium to large firms. But as the system becomes established in a large firm it eventually affects small firms in the supplier chain.

However it has to be acknowledged that Japan employs more industrial engineers per capita than any other industrialised nation. Bearing in mind earlier discussion about systems development, the message is clear to policy makers and co-operative development agencies that they should employ people capable of developing effective planning and control systems thereby improving the performance of the operating system.

It is proposed that adoption of the JIT philosophy in workers' co-operatives would meet the requirement for providing an enriched working environment, with good information flow. Judging by results claimed by companies adopting the JIT philosophy, business performance and results would also improve.

The most challenging and exciting future research project to emerge from this thesis would be an evaluation of the benefits from adopting the Japanese Just-in-Time philosophy in workers' co-operatives.

It is hoped that these and other issues will be carried forward in research projects by others. There is a great need for research findings from an operations management perspective in small business in general and workers' co-operatives in particular.

12.6.5 CONCLUSIONS

In this chapter, conclusions have been drawn from the data accumulated in the study; first from the perspective of the co-operative movement; and second with the interests of the co-operative research community in mind.

In the final section the limitations of the study will be discussed. Consideration of these limitations have provided a learning situation for the researcher.

12.7 LIMITATIONS OF THE PRESENT STUDY

Since this study was of an explanatory nature, a number of limitations were bound to emerge. Two obvious limitations will be discussed below.

(a) JOB DIAGNOSIS SURVEY (JDS)

It was difficult to cross reference research results from the JDS with the purchasing system interviews. This was largely due to the absence of prior work on the issues involved. With hindsight the researcher would welcome the opportunity to conduct another JDS more closely related to information management problems. Hindsight is of course a wonderful asset. The important thing is that only by carrying out the JDS was the researcher able to see the opportunity for improvement in this research method.

(b) CASE STUDIES

The choice of purchasing processes in the four co-operatives was the correct one for the reasons discussed in Chapter 8. To have studied more than one information system in an exploratory study would have yielded irrelevant data which would have obscured the relevant data required to test the hypothesis.

Nevertheless the idea of using observation to write up a series of case studies had attractions. For example the more informal practices and relationships could have been recorded. Also information flow on a macro scale would have been identified. For example views and opinions on strategic issues which had been discussed or were about to be discussed at a policy meeting. In the case of the rescue co-operatives the real decision makers would have been identified and 'pockets of power' might have been revealed.

However these points merely illustrate the dangers in the observation method; issues studied in depth influenced by the researchers ideas and ~~the~~ ^{their} interpretation of situations based on incomplete evidence. The observation method was rejected because it was not considered reliable and objective enough for the purposes of this investigation.

However the information collected in the study provides an opportunity to write suitable cases which would be of use to other researchers and the workers co-operative movement in general. Nevertheless the opportunity to prepare a broad based case in some of the co-operatives researched would be welcomed. A good example of a doctoral research based text backed with an action research generated case study is seen in Wajcmans excellent text *Woman in Control* (1983) and Locketts Open University Monograph, *Fakenham Enterprises* (1978).

Despite the points discussed above it is felt that the research methods chosen were the correct ones for this study. All research methods have limitations and the skill is in choosing methods which will minimise these limitations.

12.8 LEARNING EXPERIENCE

A research project leading to a possible doctorate is bound to involve much learning by the researcher. Knowledge is gleaned about the topics being studied; methods used (and rejected); and not least about self.

The main learning issues immediately following completion of this thesis in its final form are discussed below. It is expected that further issues will be uncovered in the passage of time.

During the literature review it was difficult at times to decide what was really relevant and what was interesting but marginally relevant. This was probably caused by a nagging doubt that the thesis when completed would not contain enough words. Judging by the size of this thesis this fear was unnecessary. Therefore the researcher learned that a well chosen hypothesis will draw upon sufficient material provided the researcher is painstaking enough to cover the ground open to him. In fact some of the literature was sought, located and used during and after field work activities as relevant issues came to light eg need for professional management and systems design.

During formulation of the hypothesis there was a tendency^{to} develop a hypothesis which was in reality three interrelated hypotheses. It was felt at the beginning that the business^{WORLD} would have to be revolutionised following completion of this thesis. This may seem a very obvious mistake that most researchers would avoid, but this researcher had to learn it in a slightly more painful manner.

Questionnaire design turned out to be more difficult than had been anticipated, formulating questions to obtain the desired information and the wording of questions was an exacting task. This illustrates the view that each researcher brings his own set of strengths and weaknesses to a project of this nature. In the business world, marketing people (and possibly others) relate to the external environment and often use questionnaires to obtain information. In contrast production/manufacturing personnel are more concerned with internal issues and if questionnaires are required they are often constructed by human resource management specialists. Therefore questionnaire design was a very worthwhile learning experience for the author.

During field work the author was reminded of the importance of achieving rapport with people in the four firms. Failure here can affect the validity of information collected. Fortunately this was one of the strengths the researcher brought to this project gained from previous shop floor experience, and an extended period as an industrial engineer and management consultant. Nevertheless because he had never worked in a workers' co-operative, the author spent some time trying to understand the language, customs, attitudes and habits of the people involved in the workers co-operative movement. This was achieved by advising co-operatives personally, attending community meetings and conferences and by supervising post-graduate and undergraduate students on real business problems faced by particular co-operatives.

The picture emerges of a part-time researcher constantly reminding himself that he was not only conducting an interesting research project

but one that would be subjected to close examination. This learning process was worthwhile in that it has improved the writer's ability to undertake future research projects. This will be particularly useful when he undertakes research projects more closely related to his teaching area.

12.9 FINAL COMMENT

This project has raised as many questions as it has answered. This was to be expected in an exploratory study of this nature.

Nevertheless some important issues have been raised for the workers co-operative movement - discussed in section 12.2.

Also the ground has been broken for future researchers in a barren but important area of research activity.

It is hoped that some of the points will be taken further by both researchers and practitioners.

Only by improving and constantly seeking 'the one best way' will the hopes and dreams of people involved in the workers' co-operative movement be protected.

THANK YOU FOR AGREEING TO CHAT WITH ME ABOUT YOUR JOB.

I AM GOING TO ASK YOU A FEW SIMPLE QUESTIONS ABOUT THE ROLE YOU PLAY IN THE BUYING OF GOODS FOR RESALE IN THIS COOP. I AM ENDEAVOURING TO BUILD UP A PICTURE OF TWO THINGS:

- (1) THE SORT OF INFORMATION THAT IS GENERATED, STORED AND USED BY YOU WHEN YOU ARE ORDERING GOODS FROM YOUR SUPPLIERS.
- (2) THE ROLE YOU PERSONALLY PLAY IN THE PURCHASING PROCEDURE AND YOUR RELATIONS WITH OTHER PEOPLE ALSO INVOLVED IN THE PURCHASING PROCEDURE.

FIRST OF ALL I WOULD LIKE TO OBTAIN SOME BACKGROUND DETAILS CONCERNING YOUR POSITION IN THIS COOP.

BEFORE DOING THIS I WOULD BE PLEASED TO ANSWER ANY QUESTIONS YOU MAY WISH TO ASK ME ABOUT THIS PROJECT.

O.K. NOW WE WILL WORK OUR WAY THROUGH THE FOLLOWING SIMPLE QUESTIONS.

**TEXT BOUND INTO
THE SPINE**

PURCHASING PROCEDURE
PROPOSED INTERVIEW QUESTIONNAIRE

PRELIMINARY INFORMATION

1. Could I have your name please? _____

2. What is your job title? _____

3. Would you please give me a brief description of your job mentioning
the things you do and are responsible for. _____

4. How long have you worked in this co-op? _____ years _____ months

5. What did you do before taking this job? _____

6. Why did you leave your last job?

1. MADE REDUNDANT

2. PAY WAS LOW

3. DID NOT LIKE CONDITIONS (Amplify)

4. DID NOT LIKE THE WORK ITSELF

5. OTHERS(Please specify)

7. How many days per week do you work here? _____

8. How many hours per week do you work here? _____

9. Have you invested money in this co-op? YES/NO

10. (If yes), how much please? £ _____

NOW I WOULD LIKE TO ASK YOU ABOUT THE PURCHASING/BUYING PROCESS IN
THIS CO-OP AND YOUR INVOLVEMENT IN IT.

II. Would you please describe the purchasing process in this co-op?

12. Can you give me details of your role in this?

13. How many products are you solely or primarily responsible for ordering?

ALL
SOME
NONE

14. With how many suppliers do you personally place orders on a regular basis?

ALL
SOME
NONE

15. How do you know or decide that an order should be placed?

ORDER PLACED AT REGULAR INTERVALS
FOLLOWING REVIEW OF STOCK LEVEL
WARNING FROM SOMEONE ELSE IN CO-OP
CUSTOMER REQUEST
PRODUCT OUT OF STOCK
OTHERS (Please specify)

16. How do you decide how many or how much should be ordered?

STANDARD AMOUNT ALWAYS ORDERED
ORDER ENOUGH TO BRING STOCK TO SPECIFIC LEVEL
STANDARD PACKAGE SIZE
USE OWN JUDGEMENT
DEPENDS ON MONEY AVAILABLE
BUY ENOUGH TO MEET CUSTOMER REQUEST
CALCULATE MOST ECONOMIC QUANTITY
OTHERS (Please specify)

17. For how many products do you attempt to forecast demand in the medium to long term?

- ALL
- SOME
- NONE

(IF NONE GO TO QUESTION 21.)

18. On what information or factors do you base your forecast?

- PAST SALES RECORDS
- CHANGES IN PRICE
- OWN JUDGEMENT
- OTHERS (Please specify)

19. Where do you record details of your forecast?

- SUPPLIERS RECORD BOOK
- PRODUCT RECORD BOOK
- COMPUTER
- OTHERS (Please specify)

20. HOW MUCH OF THE FORECASTING DO YOU DO YOURSELF?

- ALL
- MOST
- SOME

21. When you place an order, how often do you consult suppliers pricelists?

- ALWAYS
- SOMETIMES
- NEVER

22. When placing an order how often do you negotiate price?

- ALWAYS
- SOMETIMES
- NEVER

23. How often do you consult records of previous prices paid to suppliers?

- ALWAYS
- SOMETIMES
- NEVER

(IF NEVER GO TO QUESTION 25)

24. Where are these records of previous prices paid recorded or stored?

- PURCHASE ORDER COPIES
- INVOICES
- DELIVERY NOTES
- SUPPLIERS RECORD BOOK
- PRODUCT RECORD BOOK
- COMPUTER
- OTHERS (Please specify)

25. When placing orders how often do you specify quality of product required?

- ALWAYS
- SOMETIMES
- NEVER

26. When placing an order how often do you negotiate delivery dates?

- ALWAYS
- SOMETIMES
- NEVER

27. When ordering goods how much of the ordering do you do yourself?

- ALL OF IT
- MOST OF IT
- SOME OF IT

28. What method do you use for placing an order?

- PURCHASE CRDER
- TELEPHONE
- FACE TO FACE
- OTHERS (Please specify)

29. How many suppliers receive a purchase order when an order is placed with them?

- ALL
- SOME
- NONE

30. Who in this organisation writes/types purchase orders?

- PERSON PLACING ORDER
- A SPECIFIC PERSON
- NO ONE

31. Who sends purchase orders to suppliers?

- PERSON PLACING ORDER
- A SPECIFIC PERSON
- NO ONE

32. Who in this co-op receives and retains a copy of the purchase order?

- PERSON PLACING ORDER
- ACCOUNTANT
- STORES MANAGER
- SPECIFIC PERSON
- NO ONE

33. Where are purchase order copies retained/stored?

- SPECIAL FILE
- SUPPLIER FILE
- PRODUCT FILE
- ACCOUNTS
- STORES
- COMPUTER
- OTHER (Specify)
- NO WHERE

34. When goods are being delivered to this co-op, which are you responsible for receiving?

- ONES YOU ORDERED
- ANY
- NONE

15. When receiving goods which of the following factors do you check?

- QUANTITY DELIVERED
- SHORTAGES
- DAMAGES/BREAKAGES
- QUALITY OF FINISH
- PRICE
- ACHIEVEMENT OF PROMISED DELIVERY DATE
- OTHERS (Please specify)
- NO FACTORS CHECKED

16. To which of the following documents do you refer when checking incoming goods?

- PURCHASE ORDER
- INVOICE
- DELIVERY NOTE
- COMPUTER
- OTHERS (Specify)
- NONE OF THESE

17. Where do you record details of any faults/breakages/shortages etc

- PURCHASE ORDER
- INVOICE
- DELIVERY NOTE
- SUPPLIERS RECORD BOOK
- PRODUCT RECORD BOOK
- FAULTS/SHORTAGES BOOK
- COMPUTER
- OTHERS (Specify)
- NONE OF THESE

18. Who is responsible for paying suppliers for goods received?

- PERSON WHO PLACED ORDER
- PERSON WHO RECEIVED GOODS
- MANAGEMENT COMMITTEE
- ACCOUNTS
- ANYONE
- OTHERS (Specify)

39. How many suppliers do you evaluate regarding the service they give you?

- ALL
- SOME
- NONE

40. Do you receive help in making these evaluations? YES/NO

41. On what basis are these suppliers chosen for evaluation?

- ALL SUPPLIERS CHOSEN
- VALUE OF ORDERS
- CRITICAL ITEMS
- POOR REPUTATION
- OPPORTUNITY FOR ALTERNATIVE SUPPLIER
- OTHERS (Specify)

42. Which of the following factors do you consider when assessing the performance of any supplier?

- PRICE CHARGED
- DISCOUNT OFFERED
- ACHIEVEMENT OF PROMISED DELIVERY DATE
- MEETING OF AGREED QUALITY STANDARDS
- OTHERS(Specify)

43. Regarding COMMUNICATIONS between yourself and your suppliers, which of the following factors do you consider when assessing his delivery performance?

- * HOW QUICKLY/SLOWLY HE ANSWERS YOUR QUERIES OR CONTACTS YOU WHEN YOU LEAVE A MESSAGE.
- * HOW HELPFUL HIS ANSWERS ARE TO YOUR QUERIES
- * HOW QUICKLY HE WARNS YOU THAT HE IS HAVING PROBLEMS WHICH MAY AFFECT YOU.
- * HIS RELIABILITY IN GIVING YOU INFORMATION ABOUT HIS PRODUCTS HAVING PROMISED TO DO SO.
- * HIS EFFICIENCY IN SENDING QUOTATIONS AND ACKNOWLEDGEMENTS ETC.
- * EFFICIENCY OF SALES REP WHO CALLS ON YOU.
- * OTHERS (Specify)

THANK YOU VERY MUCH FOR YOUR PATIENCE AND COOPERATION. I WOULD LIKE TO FINISH BY ASKING A FEW QUESTIONS OF A MORE GENERAL NATURE. I PROMISE IT WILL NOT TAKE LONG.

44. Sex (interviewer note) MALE/ FEMALE

45. What jobs have you had since leaving school, starting with the first one?

BRIEF JOB DESCRIPTION _____

BRIEF JOB DESCRIPTION _____

BRIEF JOB DESCRIPTION _____

BRIEF JOB DESCRIPTION _____

46. Could I have a rough idea of your age please? Are you-----

Under 21	<input type="checkbox"/>	41 - 45	<input type="checkbox"/>
21 - 25	<input type="checkbox"/>	46 - 50	<input type="checkbox"/>
26 - 30	<input type="checkbox"/>	51 - 55	<input type="checkbox"/>
31 - 35	<input type="checkbox"/>	56 - 60	<input type="checkbox"/>
36 - 40	<input type="checkbox"/>	Over 60	<input type="checkbox"/>

47. I do not wish to know your exact earnings but an approximation would be very helpful. Are your weekly earnings, before deductions

Less than £50	<input type="checkbox"/>
£51 - £60	<input type="checkbox"/>
£61 - £70	<input type="checkbox"/>
£71 - £80	<input type="checkbox"/>
£81 - £90	<input type="checkbox"/>
£91 - £100	<input type="checkbox"/>
More than £100	<input type="checkbox"/>

48 If you should leave this job, who would be likely to take it over?
(a) _____

(b) Which jobs would you be likely to take over if someone else leaves? _____

49. Which other jobs in this organisation would you be able to do given the opportunity? _____

50. Which jobs in this co-op would you like to do given the opportunity? _____

51. If you are absent who does your job? _____
(a) _____

(b) Do they do it ENTIRELY or JUST PARTS OF IT? _____

52. Which jobs do you take over when someone else is absent?
(a) _____

(b) Which jobs do you help with when someone else is absent?

53. When you need help with your job who tends to give you this help?
(a) _____

(b) Who do you help with their job when they need help?

PRELIMINARY INFORMATION

Before starting the survey proper, please provide the following information.

Put a tick in the box that applies to you against each question.

1. SEX MALE FEMALE

2. HOW OLD ARE YOU?

UNDER 21	<input type="checkbox"/>	41 - 45	<input type="checkbox"/>
21 - 25	<input type="checkbox"/>	46 - 50	<input type="checkbox"/>
26 - 30	<input type="checkbox"/>	51 - 55	<input type="checkbox"/>
31 - 35	<input type="checkbox"/>	56 - 60	<input type="checkbox"/>
36 - 40	<input type="checkbox"/>	Over 60	<input type="checkbox"/>

3. HOW LONG HAVE YOU WORKED IN THIS CO-OPERATIVE?

UNDER 1 YEAR	<input type="checkbox"/>	6 - 10 YEARS	<input type="checkbox"/>
1 - 5 YEARS	<input type="checkbox"/>	OVER 10 YEARS	<input type="checkbox"/>

4. WHERE ELSE HAVE YOU WORKED? _____

5. WHAT IS YOUR JOB IN THIS CO-OP? _____

Section B

Features of my work

This section explores your feelings about different aspects of your work. It is divided into five groups of four questions each -

- 1) **The Nature of the Work (Questions 7 - 10):** The questions in this group are concerned with the kind of work you do - eg, is it wide-ranging or narrow, varied or repetitive, creative (calling for new ideas from you) or just routine?
- 2) **Achievement (Questions 11 - 14):** Here we are concerned with the sense of accomplishment that your work may or may not give you - do you have the chance to contribute ideas, solve problems, try out new methods, follow particular tasks through to completion (rather than being left in the dark about what happens next)?
- 3) **Recognition (Questions 15 - 18):** Even the most interesting work may seem futile if nobody pays any attention to what you do. These questions are concerned with the extent to which you feel your work is appreciated.
- 4) **Responsibility (Questions 19 - 22):** Too much recognition could amount, perhaps, to having someone breathing down your neck all the time. How independent are you allowed to be? How significant do you really think your own contribution is? This is the kind of question we are concerned with here.
- 5) **Development (Questions 23 - 26):** Summing it all up, do you feel your work is getting you anywhere? This group of questions is concerned with whether you feel your work gives you the chance to learn and whether it helps you from a career point of view.

Each question in this section has two parts. Part (a) is similar to the questions in the previous section, ie a statement about your present work, against which you are asked to indicate to what extent you agree or disagree. Part (b) asks what you would really prefer.

Example Imagine the following question occurred in Section B -

Part (a) 'In doing my work, I move about a lot'

Perhaps you quite often have to move out of your department, and also, very occasionally, take part in inter-departmental meetings. You might then decide to tick the 'on balance agree' box.

Part (b) 'I would prefer to move about'

The truth is, however, that moving out may be a waste of time and most of the meetings you attend do not seem to concern you very much. It would be much better to be left to get on with your own business. You might then tick the 'much less' box.

7(a) My job is broad rather than narrow in scope.

Strongly agree	Mainly agree	On balance agree	On balance disagree	Mainly disagree	Strongly disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(b) I would prefer my work to be broad

Much more	Slightly more	To the same extent	Slightly less	Much less
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8(a) My work is repetitive rather than varied.

Strongly agree	Mainly agree	On balance agree	On balance disagree	Mainly disagree	Strongly disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(b) I would prefer my work to be repetitive

Much more	Slightly more	To the same extent	Slightly less	Much less
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9(a) My work is routine rather than creative

Strongly agree	Mainly agree	On balance agree	On balance disagree	Mainly disagree	Strongly disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(b) I would prefer my work to be routine

Much more	Slightly more	To the same extent	Slightly less	Much less
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) My work requires me to make full use of my abilities

Strongly agree	Mainly agree	On balance agree	On balance disagree	Mainly disagree	Strongly disagree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(b) I would prefer to be required to use my abilities

Much more	Slightly more	To the same extent	Slightly less	Much less
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly agree	Mainly agree	On balance agree	On balance disagree	Mainly disagree	Strongly disagree
(a) In doing my work I do not have the opportunity to put forward my own ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Much more	Slightly more	To the same extent	Slightly less	Much less
(b) I would prefer to have the opportunity to put forward my own ideas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly agree	Mainly agree	On balance agree	On balance disagree	Mainly disagree	Strongly disagree
(a) In doing my work I have the opportunity to solve difficult or interesting problems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Much more	Slightly more	To the same extent	Slightly less	Much less
(b) I would prefer this to be the case	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly agree	Mainly agree	On balance agree	On balance disagree	Mainly disagree	Strongly disagree
(a) In doing my work, I am encouraged to try out new methods if I want to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Much more	Slightly more	To the same extent	Slightly less	Much less
(b) I would prefer to be encouraged to try out new methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly agree	Mainly agree	On balance agree	On balance disagree	Mainly disagree	Strongly disagree
(a) In doing my work, I do not have the opportunity to follow particular tasks through to completion.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Much more	Slightly more	To the same extent	Slightly less	Much less
(b) I would prefer to have the opportunity to follow through particular tasks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly agree	Mainly agree	On balance agree	On balance disagree	Mainly disagree	Strongly disagree
15 (a) When I do a good piece of work it is recognised	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Much more	Slightly more	To the same extent	Slightly less	Much less
(b) I would prefer my good work to be recognised.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly agree	Mainly agree	On balance agree	On balance disagree	Mainly disagree	Strongly disagree
16 (a) My mistakes are not pointed so that I can learn from them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Much more	Slightly more	To the same extent	Slightly less	Much less
(b) I would prefer my mistakes to be pointed out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly agree	Mainly agree	On balance agree	On balance disagree	Mainly disagree	Strongly disagree
17 (a) My bosses/supervisors tell me what they think of my general progress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Much more	Slightly more	To the same extent	Slightly less	Much less
(b) I would prefer this to happen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Strongly agree	Mainly agree	On balance agree	On balance disagree	Mainly disagree	Strongly disagree
18 (a) My bosses/supervisors do not give enough consideration to my ideas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Much more	Slightly more	To the same extent	Slightly less	Much less
(b) I would prefer my bosses/supervisors to ignore my ideas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Strongly agree Mainly agree On balance agree On balance disagree Mainly disagree Strongly disagree

(a) My work gives me the chance to develop new skills

Much more Slightly more To the same extent Slightly less Much less

(b) I would prefer my work to give me the chance to develop new skills

Strongly agree Mainly agree On balance agree On balance disagree Mainly disagree Strongly disagree

(a) My work does not enable me to develop a broader outlook

Much more Slightly more To the same extent Slightly less Much less

(b) I would like the opportunity to develop a broader outlook through my work

Strongly agree Mainly agree On balance agree On balance disagree Mainly disagree Strongly disagree

(a) The experience that I get in this work will help me expand my ability in new/different directions.

Much more Slightly more To the same extent Slightly less Much less

(b) I would prefer this to be the case

Strongly agree Mainly agree On balance agree On balance disagree Mainly disagree Strongly disagree

(a) My experience in this work should help me if I decide to change my job

Much more Slightly more To the same extent Slightly less Much less

(b) I would prefer this to be the case.

APPENDIX III

1 of 7

PURCHASING PROCESS SURVEY DATA

		CO-OPERATIVE				SUM OF CONS. CO-OPS	SUM OF RES. CO-OPS	SUM TOTAL
		AYE (N=9)	BEE (N=8)	CEE (N=4)	DEE N=5)			
Q13								
How many products are you solely or primarily responsible for ordering?	ALL	0	0	0	1	0	1	1
	SOME	7	7	2	3	14	5	19
	NONE	2	1	2	1	3	3	6
Q14								
With how many suppliers do you personally place orders on a regular basis?	ALL	0	0	0	1	0	1	1
	SOME	7	7	2	3	14	5	19
	NONE	2	1	2	1	3	3	6
Q15								
How do you know or decide an order should be placed?								
* order placed at regular intervals		0	6	0	1	6	1	7
* following review of stock level		5	6	0	1	11	1	12
* warnings from others in co-op		6	7	0	3	13	3	16
* customer request		2	6	2	1	8	3	11
* product out of stock		4	6	0	1	10	1	11
* others		3	4	2	0	7	2	9
Q16								
How do you decide how many or how much should be ordered?								
* standard amount always ordered		1	1	0	0	2	0	2
* order to special stock level		3	2	0	2	5	2	7
* standard package size		4	6	0	0	10	0	10
* use own judgement		7	7	0	0	14	0	14
* depends on money available		4	5	0	0	9	0	9
* buy to meet customer request		2	6	2	1	8	3	11
* calculate most economic quantity		4	2	0	0	6	0	6
* others		3	4	0	2	7	2	9
Q17								
For how many products do you attempt to forecast demand in the medium to long term?	ALL	0	0	0	0	0	0	0
	SOME	4	5	0	1	9	1	10
	NONE	2	2	1	4	4	5	9

CO-OPERATIVE

CO-OPERATIVE				SUM OF CONS. CO-OPS	SUM OF RES. CO-OPS	SUM TOTAL
AYE (N=9)	BEE (N=8)	CEE (N=4)	DEE (N=5)			

Q18

On what information or factors do you base your forecast?

* past sales record	3	5	0	0	8	0	8
* changes in price	1	2	0	0	3	0	3
* own judgement	2	3	0	0	5	0	5
* others	0	1	1	0	1	1	2

Q19

Where do you record details of your forecast?

* suppliers record book	0	0	0	0	0	0	0
* product record book	0	1	0	0	1	0	1
* computer	0	0	0	0	0	0	0
* others	5	4	1	0	9	1	10
* don't record	1	0	0	0	1	0	1

Q20

How much of the forecasting do you do yourself?

ALL	1	3	0	0	4	0	4
MOST	3	2	0	0	5	0	5
SOME	0	0	1	0	0	1	1

Q21

When you place an order how often do you consult suppliers' pricelists?

ALWAYS	1	2	1	0	3	1	4
S'TIMES	5	4	1	2	9	3	12
NEVER	1	1	0	2	2	2	4

Q22

When placing an order how often do you negotiate price?

ALWAYS	1	0	0	0	1	0	1
S'TIMES	4	5	1	2	9	3	12
NEVER	2	2	1	2	4	3	7

Q23

How often do you consult records of previous prices paid to suppliers?

ALWAYS	5	0	2	1	5	3	8
S'TIMES	2	6	0	1	8	1	9
NEVER	0	1	0	2	1	2	3

APPENDIX III
3 of 7

			CO-OPERATIVE				SUM OF CONS. CO-OPS	SUM OF RES. CO-OPS	SUM TOTAL
			AYE (N=9)	BEE (N=8)	CEE (N=4)	DEE (N=5)			
<hr/>									
Q24									
Where are these records of previous prices paid recorded/stored?									
* purchase order copies			0	0	0	0	0	0	0
* invoices			2	3	0	1	5	1	6
* delivery notes			0	1	0	0	1	0	1
* supplier record book			1	0	1	0	1	1	2
* product book			3	0	0	0	3	0	3
* computer			0	0	0	0	0	0	0
* others			4	3	1	2	7	3	10
<hr/>									
Q25									
When placing an order	ALWAYS		2	0	2	0	2	2	4
how often do you specify	S'TIMES		2	7	0	1	9	1	10
quality of product	NEVER		3	0	0	3	3	3	6
required?									
<hr/>									
Q26									
When placing an order how	ALWAYS		4	1	2	4	5	6	11
often do you negotiate	S'TIMES		3	4	0	0	7	0	7
delivery dates?	NEVER		0	2	0	0	2	0	2
<hr/>									
Q27									
When ordering goods	ALL		4	6	2	3	10	5	15
how much of the ordering	MOST		1	1	0	1	2	1	3
do you do yourself?	SOME		2	0	0	0	2	0	2
<hr/>									
Q28									
What method do you use for placing order?									
* purchase order			2	1	2	0	3	2	5
* telephone			7	7	2	4	14	6	20
* face to face			5	4	2	2	9	4	13
* others			1	2	0	1	3	1	4
<hr/>									
Q29									
How many suppliers	ALL		0	0	2	0	0	2	2
receive a purchase order	SOME		3	2	0	0	5	0	5
when an order is placed	NONE		4	5	0	4	9	4	13
with them?									
<hr/>									

APPENDIX III
4 of 7

CO-OPERATIVE

AYE (N=9) BEE (N=8) CEE (N=4) DEE (N=5)

SUM OF CONS. CO-OPS SUM OF RES. CO-OPS SUM TOTAL

Q30

Who in this organisation writes/types purchase order?

* person placing order	3	2	2	0	5	2	7
* a specific person	0	0	0	1	0	1	1
* no one	0	0	0	0	0	0	0

Q31

Who sends purch. orders to suppliers?

* person placing order	3	2	0	1	5	1	6
* a special person	0	0	1	1	0	2	2
* no one	0	0	0	0	0	0	0

Q32

Who in this co-op receives and retains a copy of the purchase order?

* person placing order	3	2	2	1	5	3	8
* accountant	0	0	0	0	0	0	0
* stores manager	0	0	0	0	0	0	0
* specific person	0	0	0	0	0	0	0
* no one	0	0	0	0	0	0	0

Q33

Where are PO's retained/stored?

* special file	0	0	2	0	0	2	2
* supplier file	0	0	0	0	0	0	0
* product file	0	1	0	0	1	0	1
* accounts	0	0	0	0	0	0	0
* stores	0	0	0	0	0	0	0
* computer	0	0	0	0	0	0	0
* others	3	1	0	0	4	0	4
* no where	0	0	0	0	0	0	0
* don't know	0	0	0	1	0	1	1

Q34

When goods are being delivered to this co-op which are you responsible for receiving?

* ones you ordered	0	0	2	0	0	2	2
* any	6	8	1	3	14	4	18
* none	3	0	1	2	3	3	6

APPENDIX III
5 of 7

CO-OPERATIVE

CO-OPERATIVE				SUM OF CONS. CO-OPS	SUM OF RES. CO-OPS	SUM TOTAL
AYE (N=9)	BEE (N=8)	CEE (N=4)	DEE (N=5)			

Q35

When receiving goods which of the following factors do you check?

* quantity delivered	6	8	3	3	14	6	20
* shortages	6	8	3	3	14	6	20
* damages/breakages	6	8	3	3	14	6	20
* quality of finish	5	7	1	2	12	3	15
* price	4	5	1	0	9	1	10
* achievement of delivery date	0	0	1	2	0	3	3
* others	0	3	1	0	3	1	4
* no factors checked	0	0	0	0	0	0	0

Q36

To which of the following documents do you refer to when checking goods?

* purchase order	1	2	1	0	3	1	4
* invoice	4	6	1	0	10	1	11
* delivery note	7	7	3	2	14	5	19
* computer	0	0	0	0	0	0	0
* others	1	2	1	0	3	1	4
* none of these	0	0	0	1	0	1	1

Q37

Where do you record details of faults/breakages/shortages etc?

* purchase order	0	1	0	0	1	0	1
* invoice	1	6	0	0	7	0	7
* delivery note	6	4	2	3	10	5	15
* suppliers record book	0	0	0	0	0	0	0
* product record book	0	0	0	0	0	0	0
* faults/shortages book	0	0	0	0	0	0	0
* computer	0	0	0	0	0	0	0
* others	3	3	2	1	6	3	9
* none of these	1	0	0	0	1	0	1

Q38

Who is responsible for paying suppliers for goods received?

* person who placed order	1	0	0	0	1	0	1
* person who received order	0	6	0	0	6	0	1
* management committee	0	1	0	0	1	0	1
* accounts	9	8	4	3	17	7	24
* anyone	0	0	0	0	0	0	0
* others	0	0	0	1	0	0	0

APPENDIX III
6 of 7

CO-OPERATIVE

AYE (N=9) BEE (N=8) CEE (N=4) DEE (N=5)

SUM OF CONS. CO-OPS SUM OF RES. CO-OPS SUM TOTAL

Q39
How many suppliers do you evaluate regarding service given? ALL SOME NONE

4	1	2	3	5	5	10
3	5	0	1	8	1	9
0	1	0	0	1	0	1

Q40
Do you receive help in making these evaluations? YES NO

5	6	1	3	11	4	15
2	0	1	1	2	2	4

Q41
On what basis are suppliers chosen for evaluation?

* all suppliers chosen	3	0	2	2	3	2	5
* value of orders	0	1	0	0	1	0	1
* critical items	0	3	0	0	3	0	3
* poor reputation	1	2	0	0	3	0	3
* opportunity for alternative supplier	2	5	0	1	7	1	8
* others	2	2	0	1	4	0	4
* draws attention to self	2	2	0	0	4	0	4

Q42
Which of the following factors do you consider when assessing the performance of any supplier?

* price charged	6	6	2	1	12	3	15
* discount offered	4	5	1	1	9	2	11
* achievement of delivery date	4	4	2	2	8	4	12
* meeting of agreed quality standards	5	5	2	4	10	6	16
* others	3	2	0	1	5	1	6
* credit terms	3	4	0	2	7	2	9

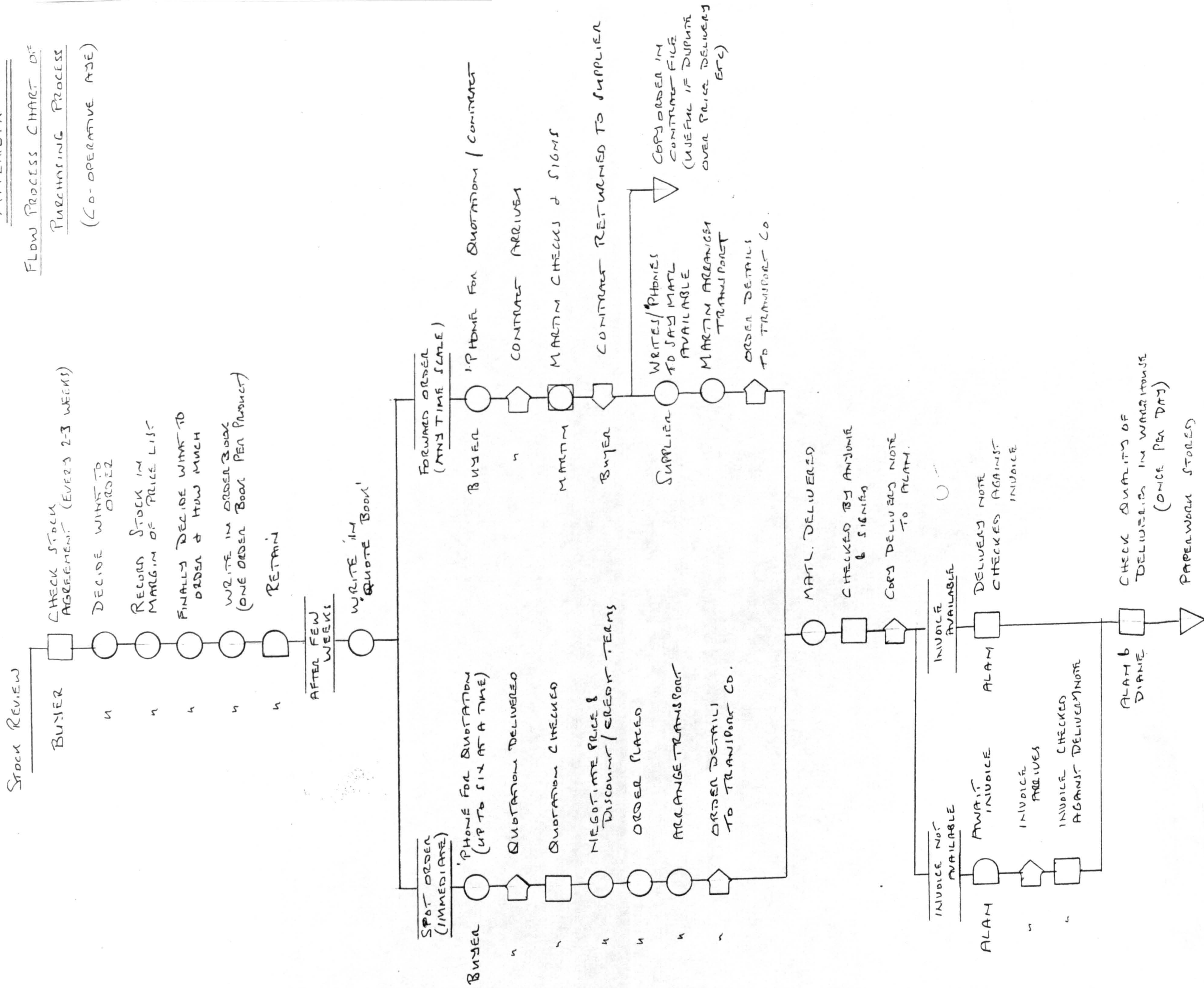
Q43
Regarding communications between you and your suppliers, which of the following factors do you consider when assessing his delivery performance?

* how quickly/slowly he answers your queries or contacts you when you leave a message	6	6	2	3	12	5	17
* how helpful his answers are to your queries	6	6	2	3	12	5	17

	CO-OPERATIVE				SUM OF CONS. CO-OPS	SUM OF RES. CO-OPS	SUM TOTAL
	AYE (N=9)	BEE (N=8)	CEE (N=4)	DEE N=5)			
* how quickly he warns you that he is having problems which may affect you	5	6	1	3	11	4	15
* his reliability in giving you information about his products having promised to do so	6	5	2	2	11	4	15
* his efficiency in sending quotations and acknowledgements etc	6	3	1	2	9	3	12
* efficiency of sales rep. who calls on you	5	4	2	3	9	5	14
* flexible attitude in times of trouble	1	0	0	1	1	1	2
* prior warning about imminent price increase	0	1	0	1	1	1	2
* others	0	1	0	2	1	2	3
* none of these	0	1	0	0	1	0	1

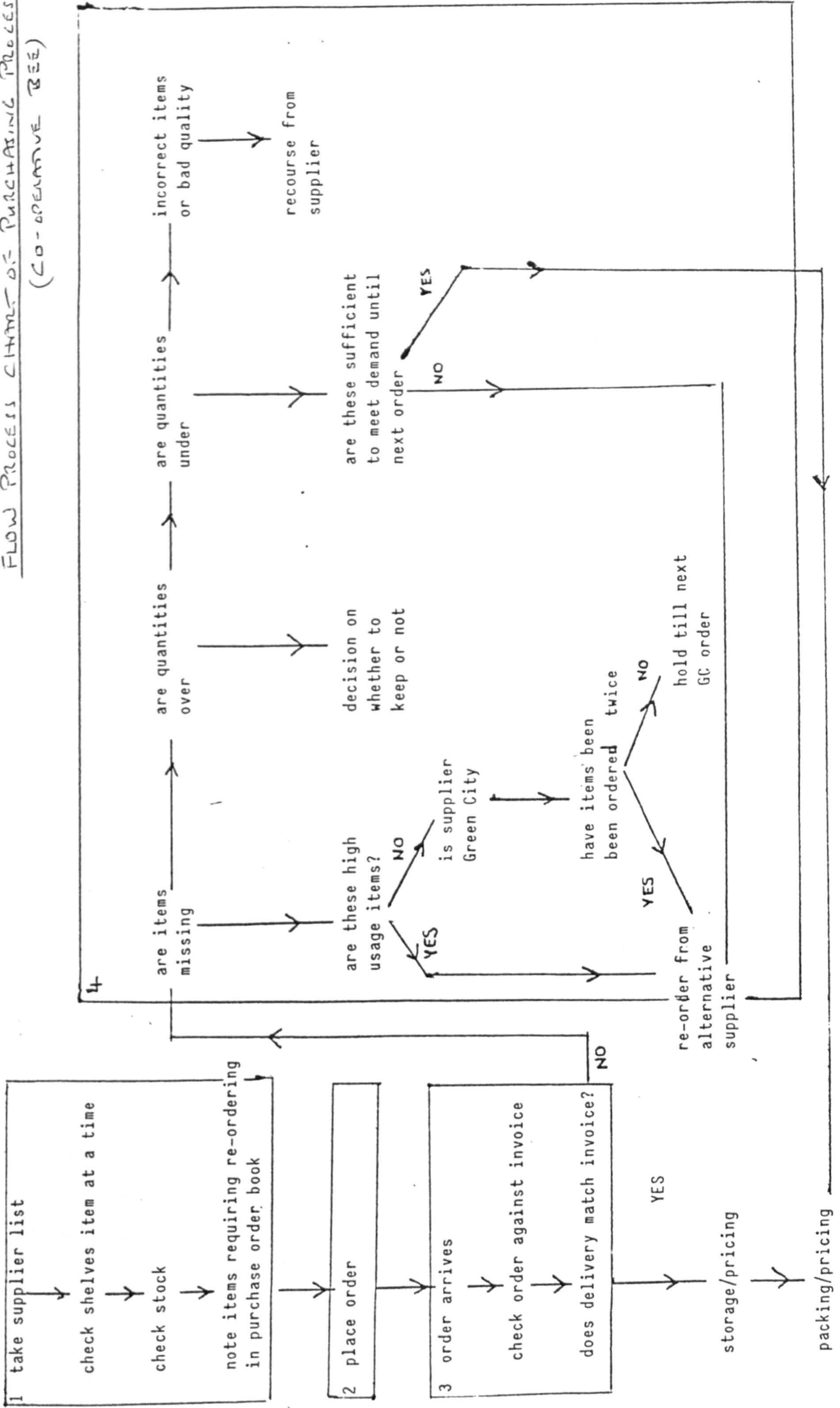
APPENDIX IV

FLOW PROCESS CHART OF
PURCHASING PROCESS
(CO-OPERATIVE AGE)



APPENDIX V

FLOW PROCESS CHART OF PURCHASING PROCESS
(CO-OPERATIVE BEE)



APPENDIX VI

FLOW PROCESS CHART OF PURCHASING PROCESS

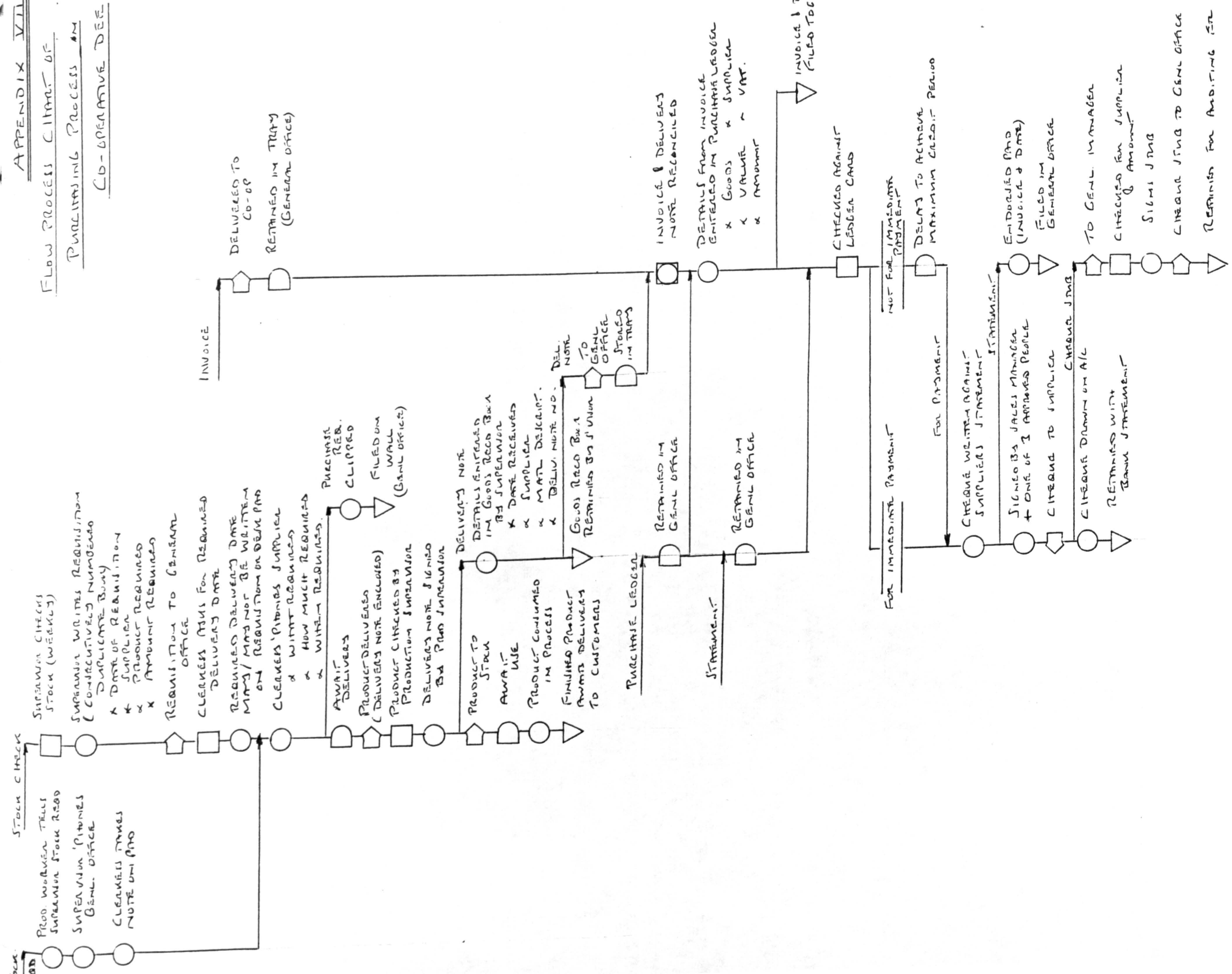
(CO-OPERATIVE CEE)



APPENDIX VII

FLOW PROCESS CHART OF

PURCHASING PROCESS IN CO-OPERATIVE DEE



STOCK CHECK

PROO. WORKER TELLS SUPERVISOR STOCK READ

SUPERVISOR WRITES REQUISITION (CONSECUTIVE NUMBERS DUPLICATE BUNDLY)

REQUISITION TO GENERAL OFFICE

CLERK'S ADVISES FOR REQUIRED DELIVERY DATE

CLERK'S ADVISES SUPPLIER & WITHIN REQUIRED

HOW MUCH REQUIRED

AWAIT DELIVERIES

PRODUCT DELIVERED (DELIVERY NOTE ENCLOSED)

PRODUCT CHECKED BY PRODUCTION SUPERVISOR

DELIVERY NOTE SIGNED BY PROD SUPERVISOR

PRODUCT TO STOCK

AWAIT USE

FINISHED PRODUCT AWAIT DELIVERY TO CUSTOMERS

PURCHASE LEDGER

STATEMENT

FOR IMMEDIATE PAYMENT

FOR PAYMENT

CHEQUE WRITTEN AGAINST SUPPLIER'S STATEMENT

SIGNED BY SALES MANAGER + ONE OF 3 APPROVED PEOPLE

CHEQUE DRAWN ON A/C

RETURNS WITH BANK STATEMENT

CHEQUE TO GENERAL MANAGER

CHEQUE FOR SUPPLIER'S AMOUNT

SIGNED JMS

CHEQUE SENT TO GENL OFFICE

RETURNS FOR AUDITING

INVOICE

DELIVERED TO CO-OP

REMAINS IN TRAY (GENERAL OFFICE)

INVOICE & DELIVERY NOTE RECONCILED

DETAILS FROM INVOICE ENTERED IN PURCHASE LEDGER

X GOODS X SUPPLIER X VALUE X VAT

CHECKED AGAINST LEDGER CARD

NOT FOR IMMEDIATE PAYMENT

DELAYS TO ACHIEVE MAXIMUM CREDIT PERIOD

ENTERED AND (INVOICE & DATE)

FILED IN GENERAL OFFICE

TO GENL. MANAGER

CHEQUE FOR SUPPLIER'S AMOUNT

SIGNED JMS

CHEQUE SENT TO GENL OFFICE

RETURNS FOR AUDITING

INVOICE & DEL. NOTE FILED TOGETHER

BIBLIOGRAPHY

- ABEL, P The Viability of Industrial Producer Co-operatives in Crouch C and Heller F (Eds), 1983
- Organizational Democracy and Political Processes, p73 John Wiley & Sons Ltd
- ACKOFF, R E Management Misinformation Systems, Management Science, December 1967, pp147-56
- AMMER, D S 'Realistic Reciprocity', Harvard Business Review, Vol 40, Jan-Feb 1962, pp116-42
- ANDERSON, Management Information Systems and Computers: An Introduction, Macmillan Press Ltd, 1986
- ANTHONY, R M Planning and Control Systems: A Framework for Analysis, Boston, Harvard University Press, 1965
- ARGYRIS, C Personality and Organisation, New York, Harper and Row, 1957
- ARGYRIS, C Integrating the Individual and the Organisation, J Wiley & Sons, New York, 1964
- ARGYRIS, C Intervention Theory and Method, Addison-Wesley, 1970
- ARGYRIS, C 'Management Information Systems: The challenge to Rationality and Emotionality', Management Science, Vol 17 No 6, ppB275-B292, 1970
- ARGYRIS, C Organizational Learning and Effective Management Information Systems: A Prospectus for Research Program on Information Resources Policy, Working Paper 76-4, Harvard University, 1976
- ARGYRIS, C Organizational Learning and Management Information Systems, Accounting, Organisations and Society, Vol 2 No 2, 1977
- ARGYRIS, C 'Some Inner Contradictions in Management Information Systems' in Lucas, H C et al, The Information Systems Environment, North-Holland, 1980
- ARGYRIS, C & SCHON, D Organisational Learning, Addison-Wesley Publishing Co, Reading, Mass, 1978
- ARONOWITZ, S False Promises: The Shaping of American Working Class Consciousness, New York: McGraw-Hill, 1974

- ASTON, B Mythology and Misplaced Pessimism: A Look at the Failure Record of New Small Businesses, Paper presented at the UK Small Business Management Teachers Association, Manchester Business School, 1980
- BAILY, P Purchasing and Supply Management, (4th Ed), Chapman and Hall, 1978
- BAILY, P Purchasing Systems and Records, (2nd Ed), Gower Publishing Co Ltd, 1983
- BAILY, P & FARMER, D Purchasing Principles and Management, (4th Ed), Pitman, 1983
- BARNARD, C J The Function of the Executive, Harvard University Press, 1938
- BATSTONE, e "Organisation and Orientation: A Life Cycle Model of French Co-operatives", Economic and Industrial Democracy, Vol 4, pp139-161, 1983
- BEER, S Cybernetics and Management, New York, John Wiley & Sons, 1959
- BEHLING, O The Case for the National Science Model for Research in Organisational Behaviour and Organisation Theory, Academy of Management Review, Vol 5 No 4, pp483-490, 1980
- BEISHON, J, LOCKETT, M Job Satisfaction Research Programme: Summary Report
& PATON, R on the Open University Project, Milton Keynes, Open University Systems Group, 1978
- BENN, T The Industrial Context in the New Worker Co-operatives, Spokesman Books, 1976
- BENTLEY, T Management Information Systems & Data Processing, Holt Business Texts, 1982
- BERLE, A, Jr & MEANS, G The Modern Corporation and Private Property, New York, Macmillan, 1932
- BERNSTEIN, P Workplace Democratisation: its Internal Dynamics, Kent State University Press, 1976
- BERNSTEIN, P Worker-Owned Plywood Firms Steadily Outperform Industry, World of Work Report, 2(5), pp49, 56-7, 1977
- BERTALANFFY, Von, L 'An Outline of General System Theory', British Journal of the Philosophy of Science, Vol 1, (1950) Reprinted in General Systems Theory: Foundations, Development, Applications, New York, George Brazilllem, 1968

- BIRCHALL, D W & WILD, R "Autonomous Work Groups", Journal of General Management, Vol 2, No 1, 1974
- BIRCHALL, D W Job Design: A Planning and Implementation Guide for Managers, Gower Press Ltd, 1975
- BOGGIS, F Workers' Co-operatives: A Vital Experiment in Participation in Industry (ed), Campbell Balfour, Rowaman & Littlejohn, 1973
- BOLTON, J E Report of the Committee of Enquiry on Small Firms, Cmmd 4811, London HMSO, 1971
- BOSTROM, R P & HEINEM, J S 1978, MIS Problems and Failures: A Socio-Technical Perspective, Part 1: The Causes, MIS Quarterly, September 1977
- BOSTROM, R P & HEINEM, J S MIS Problems and Failures: A Socio-Technical Perspective, Part 2: The Application of Socio-Technical Theory, MIS Quarterly, 1977.
- BOULDING, K E 'General Systems Theory: The Skeleton of Science', Management Science, Vol 3, No 4, pp197-208, 1956
- BOWEY, A M "Report on Other Companies' Experiences with Group Technology", Unpublished, Restricted Circulation, 1974
- BOWEY, A M & CARLISLE, B Group Working, Management Decision Monograph, MCB Publications, 1979
- BRADLEY, K & GELB, A Worker Capitalism: The New Industrial Relations, Heinemann Educational Books Ltd, 1983
- BRADLEY, K & GELB, A "Motivation and Control in the Mondragon Experiment", British Journal of Industrial Relations, 1983
- BRADLEY, K & GELB, A Co-operatives at Work: The Mondragon Experience, Heinemann Educational Books ltd, 1983
- BULLICK, LORD (Chairman) Report of the Committee of Enquiry on Industrial Democracy, HMSO, 1977
- BURNS, T & STALKER, G M The Management Innovation, Tavistock Publications, 1961
- Business Monitor Report on the Census of Production Summary Tables, PA1002, HMSO, 1981
- CAMPBELL, A et all "The Basque Workers' Co-operatives", Journal of Industrial Relations, Vol 10, No 3, pp32-40, 1977
- CAMPBELL, A Mondragon, ICOM Pamphlet No 9, Industrial Common Ownership Movement, 1980

- CARLISLE, B Group working in Employing Organisations: its Implications, Effects and the Factors Causally Related to its "Success", Unpublished, MSc Thesis, Strathclyde University Business School, 1981
- CARLISLE, B Job Design Implications for Operations Managers, International Journal of Operations and Production Management, Volume 3, No 3, pp40-48, 1983
- CBI Practical Employee Participation in Smaller Firms, CBI, 1976
- CHAPLIN, P Co-operatives Contemporary Britain, Stanworth, J et al (Eds), Perspectives on a Decade of Small business Research: Bolton 10 Years On, Aldershot, Gower Publications, 1982
- CHAPLIN, P & COWER A Survey of Contemporary British Worker Co-operatives, Manchester Business School and Centre for Business Research, Working Paper No 36, 1977
- CHECKLAND, P B Systems & Science, Industry and Innovation, An Inaugural Lecture, University of Lancaster, 1969
- CHILD, J Strategies of Control and Organisation Behaviour, Administrative Science Quarterly, 1-17, 1973
- CHILD, J Management and Organisational Factors Associated with Company Performance, Part 1, Journal of Management Studies, pp175-189, 1974
- CHILD, J Managerial and Organisational Factors Associated with Company Performance, Part 2, Journal of Management Studies, pp12-27, 1975
- CHURCHMAN, C W et al Introduction to Operations Research, New York, John Wiley & Sons, 1957
- CLEGG, C & FITTER, M Information Systems: The Achilles Heel of Job Redesign? Personnel Review, Volume 3, No 3, 1978
- CLEGG, H A Cited in K F Walker, 'Industrial Democracy: Fantasy, Fiction or Fact' Times Management Lectures, p29, 1970
- CLOOT, P L Management Information: A Systematic Approach, Administrative Staff College, Henley, 1972
- COCKERTON, P & WHYATT, A The Workers' Co-operative Handbook, Aberdeen Peoples' Press, 1985
- COLE, G D H A Century of Co-operation, Allen & Unwin for the Co-operative Union, London, 1944

- COMMISSION OF THE EUROPEAN COMMUNITIES Prospects for Workers' Co-operatives in Europe
Volume 1, Overview, 1981
- CORNFORTH, C Some Factors Affecting the Success or Failure of Worker Co-operatives: A Review of Empirical Research in the United Kingdom, Economic and Industrial Democracy, Volume 4, No 2, pp163-190, 1983
- CORNFORTH, C "Conditions for Maintaining Democracy and Alternative Priorities in Worker Co-operatives", Paper Prepared for the 7th European Group for Organisational Studies Colloquium, Stockholm, Sweden, 1985
- CORNFORTH, C & PATON, R 'Participation and Power: The Case of the Jewellery Co-operative', Paper Presented to the First International Conference on Producer Co-operatives, Copenhagen School of Economics and Social Science, May 1981
- COWE, R Learning the Lesson of Co-operation, The Guardian, October 1986
- COYNE, J & WILSON, N Worker Co-operatives and the Promotion of Co-operative Development in Britain, 1974
- CRONIN, B 'Synoptic Rationality: an Unattainable Goal?' in Information Management: From Strategies to Action, Cronin, B (ed), ASLIB, 1985
- CURRAN, J & STANWORTH, J "A New Look at Job Satisfaction in the Small Firm" in Curran, J et al (eds), The Survival of the Small Firm, Vol 2 Employment, Groth, Technology and Politics, Gower press, pp61-74, 1986
- CURRIE, R M Work Study, Pitman, 1960
- CYERT, R M, SIMON, H A & TROW, D B "Observation of a Business Decision", Journal of Business, 29, No 4, pp237-248, October 1956
- CYERT, R M & MARCH, J G A Behavioural Theory of the Firm, Eaglewood Cliffs, NJ, Prentice-Hall, Inc, 1963
- DACHLER, H P & WILPERT, B "Conceptual Dimensions and Boundaries of Participation in Organisations: A Critical Evaluation", Administrative Science Quarterly, pp23 and 1-39, 1978
- DAFT, R L & MACINTOSH, N B 'A Tentative Exploration into the Amount and Equivocality of Information Processing in Organisational Work Units', Administrative Science Quarterly 26, 1981
- DAFT, R L Organisation Theory and Decision Making, West Publishing Co, 1983

- DAHL, R A After the Revolution? New Haven, Conn, Yale University Press, 1970
- DE CAJELLA, P Reported in Prospects for Workers' Co-operatives in Europe, Vol 11, Report on Spain, p9, Commission of the European Communities, Undated
- DELAMOTEE, Y &
WALKER, K F "Humanisation of Work and the Quality of Working Life - Trends and Issues", International Institute for Labour Studies, Report No 11, 1974
- DERRICK, P European Workers' Co-operatives: Perspectives from the United Kingdom, In Prospects for Workers' Co-operatives in Europe, Vol 11, The Commission of the European Communities, 1981
- DICKSON, G W &
SIMMONDS, J K 'The Behaviour side of MIS', business Horizons, August 1970
- DOBLER, D W et al Purchasing and Materials Management: Text and Cases (4th Edn), McGraw-Hill, 1984
- DOWST, S R Basics for Buyers, Cahners Books, 1973
- DRUCKER, P The Age of Discontinuity, London, Heinemann, 1969
- DRUCKER, P F "The New Markets and the New Capitalism" in D Bell and I Kristol (Eds), Capitalism Today, New York, Basic Books, pp44-79, 1971
- EARLE, M J Prototype Systems for Accounting, Information and Control, Accounting, Organisations and Society, Vol 3, No 2, ppl68-172, 1978
- EARLE, M J &
HOPWOOD, A G 'From Management Information to Information Management', in H C Lucas et al The Information Systems Environment, North-Holland, 1980
- EATON, J Mondragon: Myth or Model, Co-operatives Research Unit, Open University, 1983
- ECCLES, T Kirkby Manufacturing and Engineering in The New Worker Co-operatives, Spokesman Books,
- ECCLES, T Control in the Democratised Enterprise: the Case of KME in Purcel, J and Smith, R (eds), The Control of Work, Macmillan Press Ltd, 1979
- ECCLES, T Under New Management, Pan Books Ltd, 1981
- EDWARDS, G A B Group Technology - Technique, Concept or New Manufacturing System, Parts 1 and 2, Chartered Mechanical Engineer, p67-70, February 1974 and p61-64 March 1974

- EMERY, F E &
THORSRUD, E Form and Content in Industrial Democracy: Some Experiences from Norway and Other European Countries, London, Tavistock, 1974
- FAIRCLOUGH, M Degeneration and Producer Co-operatives: A Reappraisal of the Socialist Tradition, "The Webb's Revenge?", paper presented to The National Conference for Research on Worker Co-operatives, London, October 3, 1986
- FAYOL, H 1916, Administration Industrielle et Generale, (General and Industrial Management, Trans, Constance Storrs, London, Pitman 1949
- FISHER, L Industrial Marketing - and Analytical Approach to Planning and Execution, London: Business Books, 1969
- FLANDERS, A, POMERANZ, R & WOODWARD, J Experiments in Industrial Democracy, London, Faber and Faber, 1968
- FLEET, K Triumph Meriden in The new Worker Co-operatives, Spokesmen Books, 1976
- FORRESTER, J World Dynamics, Cambridge, The MIT Press, 1973
- FOX, A Beyond Contract: Work Power and Trust-Relations, Faber, 1974
- FOY, N Pathways to participation, Management Today, January 1974
- FOY, N & GADON, H Worker Participation: Contrasts in Three Countries, Harvard Business Review, May-June 1976
- FRANKLIN, W H Jr & FRANKLIN, S G Sr Business, ppl5-20, Jan-March 1982,
- FRENCH, J R P Laboratory and Field Studies of Power in E Boulding (Ed), Power and Conflict in Organisations, London, Tavistock Publications, 1964
- FREY, A W (ed) 'Industrial Marketing' Marketing Handbook, 2nd Edition, Chapter 27, New York, Ronald Press Co, 1965
- GAGE, W L Value Analysis, McGraw-Hill, 1967
- GALBRAITH, J Designing Complex Organisations, Addison-Wesley, 1973
- GARCIA, Q The Performance of Labour Managed Firms, The Macmillan Press, 1970
- GILB, T & WEINBERG, G M Humanized Input, Cambridge, Massachusetts, Winthrop Publishers, 1977

- GARDNER, J 'America in the Twenty-Third Century', New York Times, July 27, 1968
- GEIGY COMPANY, THE 'Growth Planning at Geigy', Conference Manual, No 230, University of Bradford Management Centre, July 1967
- GEORGIU, P The Goal Paradigm and Notes towards a Counter Paradigm, Administrative Science Quarterly, pp291-310, 1973
- GILBRETH, F B Papers on Scientific Management, Time and Motion Study, Harvard University Press, 1947
- GINZBERG, E "Work Structuring and Manpower Realities", in Davis, L E and Cherna, A B (eds), The Quality of Working Life, Vol 1, The Free Press, 1975
- GOREY, G A & SCOTT-MORTON, M S S A Framework for Management Information Systems, Sloan Management Review, pp55-70, Fall 1971
- GOWERS, E The Complete Plain Words, Penguin Books, 1962
- GREATER LONDON ENTERPRISE BOARD A Strategy for Co-operation: Worker Co-ops in London, undated
- GREENBERG, E S Participation in Industrial Decision-Making and Work Satisfaction: The Case of the Producer Co-operatives, Social Science Quarterly, 60, pp551-559, 1980
- GREINER, L E et al 1970, 'Putting Judgement Back into Decisions', Harvard Business Review, March-April, 1980
- GRINYER, P & NORBURN, D Planning for existing Markets: Perceptions of Executives and Financial Performance, Journal of the Royal Statistical Society, Series A, pp70-97, 1975
- GUARDIAN, THE 1983 Sacked Workers Launch Own Shipyard, 7 October
- GUARDIAN, THE EEC Backing for Welsh Co-op Plan, The Guardian, January 13, 1984
- GULICK, L Notes on the Theory of Organisation in Gulick 1 and Urwick L (Eds), Papers on the Science of Administration, pl3, New York, Institute of Public Administration, 1937
- GUTHRIE, A 'Attitudes of the User-Managers Towards Management Information Systems', Management Informatics, Vol 3 No5, pp221-232, 1974
- GYLLENITAMMAR, P "The Volvo Experiment", BBC Interview with Kenneth Harris, 1973

- GYLLENHAMMAR, P Participation at Volvo, Journal of General Management, Vol 1 No 4, 1974
- GYLLENHAMMAR, P G Pople at Work, Addison Wesley, 1977
- HACKMAN, J R &
OLDHAM, G R Work Redesign, Addison-Wesley Publishing Company, 1980
- HEDBERG, B Information Systems for Alternative Organisations: Using Information Technology to Facilitate Industrial Democracy and Organisational Learning, Paper to Advanced Course of Information Training Group of EEC Social and Technical Research Committee, 1977
- HEDBERG, B, MUMFORD, E Computer systems, Work Design and Job Satisfaction, Pergamon Press, New York, 1977
- ANDERSON, M et al
- HEDBERG, B &
JONSSON, S "Designing Semi-confusing Information Systems for Organisations in Changing Environments", Accounting Organisations and Society, Vol 3 No 1, pp47-64, 1978
- HEDBERG, B Information Systems for Alternative Organisations: Using Information Technology to Facilitate Industrial Democracy and Organisation Learning, Paper to Advance Cause of Information Training Group of EEC Social and Technical Research Committee, 1977
- HEINRITZ, S F et al Purchasing: Principles and Applications, (7th Edition), Prentice-Hall, 1986
- HELLER, F On the Misuse of Human Skill, Tavistock Institute of Human Relations Document HRC 318, 1970
- HELLER, F A "Decision Processes: an Analysis of Power Sharing at Senior Organisational Levels" in dubin, R, Handbook of Work, Organisation and Society, Chicago, 1976
- HERBST, P G & GETZ, I "Work Organisation at a Banking Branch: Towards a Participative Research Technique", Human Relations, Vol 30 No 2, ppl29-142, 1977
- HERTZ, D B &
RUBENSTIEN, A H Research Operations in Industry, New York, King's Crown Press, 1953
- HERZBERG, F B,
MAUSNER, B &
SYNDERMAN, B The Motivation to Work, New York, Wiley & Sons, 1959
- HERZBERG, F Work and the Nature of Man, Cleveland, World Publishing Co, 1966
- HESPE, G & WALL, T The Demand for participation among Employees, Human Relations, 29, pp411-428, 1976

- JONES, D British Producer Co-operatives, Coates, K (ed),
The New Worker Co-operatives, Spokesman Books,
1978
- JONES, E E & The Actor and the Observer: Divergent
Perceptions of the Causes of Behaviour in E E
Jones et al (eds), Attribution: Perceiving the
Causes of Behaviour, Moristown, N J, General
Learning Press, 1971
- KANE, E Doing Your Own Research, Marion Boyars, 1987
- KATZ, D & KAHN, R L The Social Psychology of Organisation, New York,
John Wiley & Sons, Inc, 1966
- KELLY, J Scientific Management, Job Redesign and Work
Performance, Academic Press, 1982
- KIRKHAM, M Industrial Producer Co-operation in Great
Britain: Three Case Studies, Sheffield
University, MA Thesis, 1971
- KLING, R 'Towards a Person-Centred Computer Technology',
Proceedings of the ACM National Conference,
pp387-391, 1973
- KRAJEWSKI, L J & Operations Management: Strategy and Analysis
RITZMAN, L P Addison-Wesley Publishing Co, 1987
- LAMMERS, C J Power and Participation in Decision Making in
Formal Organisations, American Journal of
Sociology, 73, pp201-216, 1967
- LANSBURY, R "The Volvo Experience: Myth or Reality?",
Personnel Management (Australian IPM), Vol 15 No
1, Autumn 1977
- LAWLER, E E "Job Design and employee Motivation", Personnel
Psychology, Vol 22, Reproduced by Vroom, V H and
Deci, E L (eds), Management and Motivation, 1970
- LEGRENDRE, M Quelques Aspects Des Relations Professionnelles,
Paris: Service D'Etues Pour Le Developpement et
L'animation, 1969
- LEHMANN, D R & 'Difference in Attribute Importance for Different
O'SHAUGHNESSEY Industrial Products', Journal of Marketing, Vol
38, April 1974
- LEVITT, T Industrial Purchasing Behaviour: A Study of
Communications Effects, Division of Research,
Graduate School of Business Administration,
Harvard University, 1965
- LEWIN, K et al Patterns of Aggressive Behaviour in
Experimenting Created 'Social Climates', Journal
of Social Psychology, No 10, pp271-99, 1939

- LEWIS, J The Experience of Co-operative Working or Co-operation and Job Satisfaction, Paper presented to: The National Conference for Research on Worker Co-operatives, London, 1986
- LIKERT, R A Technique for the Measurement of Attitudes, Archives of Psychology, June 1932
- LINDHOLM, R & NORSTEDT, J P The Volvo Report, Swedish Employers Confederation, 1975
- LINEMAN, M & TUCKER, V "What is a Workers' Co-operative?", In Workers Co-operatives; Potential and Problems, UCC Bank of Ireland Centre for Co-operative Studies, 1983
- LLOYD, J Labour Co-partnership, Harper Brothers, London 1898
- LOCKETT, M Fakenham Enterprises, Co-operatives Research Monograph No 1 CRU, Open University, 1978
- LOCKETT, M Worker Information Systems: Towards an Analysis, (Discussion Paper Loaned to Author) Co-operatives Research Unit, UK, Open University, 1978
- LOCKETT, M & PATON, R The Jewellery Co-operative, Co-operatives Research unit, Open University, 1979
- LONDON, K The People Side of Systems, New York, McGraw-Hill, 1976
- LONG, R J The Effect of Employee Ownership on Job Attitudes and Organisational Performance: An Exploratory Study, Unpublished Doctoral Thesis, Cornell University, 1977
- LONG, R J The effects of Employee Ownership on Organisational Identification, Employee Job Attitudes and Organisational Performance: A Tentative Framework and Empirical Findings, Human Relations, 31, pp29-49, 1978
- LONG, R J The Relative Effects of Share Ownership vs Control on Job Attitudes in an Employee-owned Company, Human Relations, 31, pp753-763, 1978, b
- LONG, R J Desires for and Patterns of Worker Participation in Decision Making after Conversion to Employee Ownership, Academy of Management Journal, Vol 22 No 3, pp611-617, 1979
- LORSCH, J & ALLEN, S Managing Diversity and Independence, Division of Research, Graduate School of Business, Harvard University, 1973
- LUCAS, H C Towards Creative System Design, New York, Columbia University Press, 1975

- LUCAS, H C Why Information Systems Fail, Columbia University Press, New York, 1975
- LUCEY, T Management Information Systems (5th ed), D P Publications Ltd, 1987
- LUKES, S Power: A Radical Approach, Macmillan, 1974
- LUPTON, T "Efficiency and the Quality of Working Life: Technology of Reconciliation", Organisational Dynamics, Autumn 1975
- LYSONS, C K Purchasing, Longmans, 1981
- MACKIE, A The Scottish Daily News in The New Worker Co-operatives, Spokesman Books, 1975
- MADGE, J The Tools of Social Science, Longman, 1971
- MANDEL, E "Self-management - Dangers and Possibilities" in International, 2 (4), 1975
- MARCH, J G & SIMON, H A Organisations, New York, John Wiley & Sons Inc, 1958
- MARKUS, M L & ROBEY, D Human Relations, Vol 36 No 3, pp203-226, 1983
- MARRIAM, J 'Marketing Characteristics of Industrial Goods and Buyers' in A Wilson (ed), The Marketing of Industrial Products, London, Hutchinson, 1966
- MARSCHAK, J "Remarks on the Economics of Information" in Contribution to Scientific Research in Management, Los Angeles: Division of Research, Graduate School of Business Administration, University of California at Los Angeles, pp79-97, 1959
- MASON, R O Basic Concepts for Redesigning Management Information Systems, AIS Research Paper No 8, Graduate School of Business Administration, University of California, Los Angeles, October 1969
- MARTIN, S Managing Without Managers: Alternative Work Arrangements in Public Organisations, Sage Publications, Inc, 1983
- MASLOW, A H "A Theory of Human Motivation" Psychological Review, Vol 50, 1943
- MASLOW, A H Motivation and Personality, New York, Harper and Row, 1954
- MAYNTZ, R, HOLM, K & HOEBNER, P Introduction to Empirical Sociology, Penguin Books Ltd, 1976
- MAYO, E The Human Problems of and Industrial Civilisations, New York, Macmillan, 1933

- MAYO, E The Social Problems of an Industrial Civilisation, Boston, Harvard university, 1944
- MAYO, E The Political Problems of an Industrial Civilisation, Boston, Harvard University, 1947
- MCCLELLAND, D C The Achieving Society, Van Norstrand, Princeto, New Jersey, 1961
- MCCLOSKEY, J F & TREFETHEM Operations Research for Management, Baltimore, The John Hopkins Press, 1954
- MCGREGOR, D M The Human Side of Enterprise in Adventures in Thought and Action, Proceedings of the Fifth Anniversary Convocation of The School of Industrial management, Massachusetts Institute of Technology, pp23-30, 1957
- MCGREGOR, D The Human side of Enterprise, New York, McGraw-Hill, 1960
- MCRAE, T W (ed) Management Information Systems, Penguin Education, 1971
- MCRORBIE, G Small is Possible, Sphere Books Ltd, 1981
- MEHERABIAM, A Silent Messages, Belmont, CA, Wadsworth, 1971
- MICHELS, R Political parties: A Sociological Study of the Oligarchical Tendencies of Modern Democracy, The Free Press, 1962
- MINTZBERG, H The Nature of Managerial Work, New York, Harper & Roa, 1972
- MORGAN, W Developing an Information System that Helps Make Plans Come True (Small Business II), Management Focus, ppl6-19, Sept-Oct 1978
- MORSE, J & KIMBALL, G E Methods of Operations Research, New York, John Wiley & Sons, 1951
- MORSE, J J "A Contingency Look at Job Design", California Management Review, Vol 16 No 1, Autumn 1973
- MOSER, C A Survey Methods on Social Investigation, Heinemann Educational Books Ltd, 1969
- MUMFORD, E & BANKS, D The Computer and The Clerk, The Villafield Press, Glasgow, 1967
- MUMFORD, E Systems Design for People, England, National Computer Centre, 1971
- MUMFORD, E, MERCER, D, MILLS, & WEIR, M 'The Human Problems of Computer Introduction', Management Decision, Vol No 1, pp6-17, 1972

- MURDICK, R G
Prentice-Hall,
(with MUNSON, J C) MIS Concepts and Design (2nd edition)
1986
- NIGHTINGALE, D V The Formally Participative Organisation,
Industrial Relations, pp310-321, 1979
- NOVOSEL, P Self Managerial Participation and the Great
China Wall of Communication, Participation and
Self-Management, Vol 6 (Zagreb) pp175-181, 1973
- OAKESHOTT, R The Case for Workers' Co-ops, Routledge and
Kegan Paul, 1978
- OAKESHOTT, R Prospects for Workers' Co-operatives in Europe,
Vol 11 Report on Spain, the Commission of the
European Communities, 1981
- OAKESHOTT, R The Beginnings of an Employee Owned Sector,
Lloyds Bank Review, No 155, pp32-44, 1985
- OAKESHOTT, R & WEINER, H Worker-Owners: Mandragon Revisited, Anglo-German
Foundation for the Study of Industrial Society,
1987
- OLIVER, N An Examination of Organisational Commitment in
Six Workers' Co-operatives in Scotland, Human
Relations, Vol 37 No 1, pp29-46, 1984
- OLIVER, N Commitment in Producer Co-operatives: A
Perspective from the Social Psychology of
Organisations, unpublished PhD Thesis, UK: Open
University, 1986
- OPEN UNIVERSITY T242 Systems Management, Unit 10 Management
Information Systems, UK, Open University, 1974
- OPEN UNIVERSITY T244 Technology: A Second Level Course,
Managing in Organisations Block II, Open
University, 1985
- OPPENHEIM, A N Questionnaire Design and Attitude Measurement,
Heinemann Educational Books Ltd, 1976
- ORLICKY, J Material Requirements Planning, New York:
McGraw-Hill 1975
- OTTAWAY, R N "A Change Strategy to Implement New Norms, New
Styles and New Environment in the Work
Organisation", Personnel Review, Vol 5 No 1,
Winter 1976
- PALMORE, R 'Work and Well-Being' Warr, P and Wall, T (eds),
Penguin Books, 1975
- PARKINSON, S T &
BAKER, M J Organisational Buying Behaviour, Macmillan Press
1986
- PARSONS, W J Improving Purchasing Performance, Gower, 1982

- PATEMAN, C Participation and Democratic Theory, Cambridge University Press, 1970
- PATON, R Some Problems of Co-operative Organisation, Co-operatives Research Monograph, No 3, The Open University, 1978
- PATON, R & LOCKETT, M Fairblow dynamics, Co-operatives Research Monograph, No 2, 1978
- PATON, R "Why Do Large Co-operatives Degenerate? - and Must They?", Paper presented to the 4th International Conference on the Economics of Self Management, Liege, Belgium, 1985
- PETTIGREW, A M Informational Control as a Power Resource, Sociology, 6 (2), pp187-204, 1972
- PETTIGREW, A & MUMFORD, E Implementing Strategic Decisions, Longman, New York, 1975
- PHILLIPS, B S Social Research: Strategy & Tactics (2nd Ed), The Macmillan Company, 1971
- POLLOCK, K et al Improvements Needed in Managing Automated Decision-Making by Computers Throughout the Federal Government, Report to the congress by the Comptroller General of the United States, (FGMSD-76-5), 1976
- PORCHE, E J 'To Better Smaller Offices', Office, January 1969
- PORTER, L W, STEERS, R M, MOWDAY, R T & BAILAIN, P V Organisational Commitment, Job Satisfaction and Turnover among Psychiatric Technicians, Journal of Psychology, 59, pp603-609, 1974
- POTTER, B The Co-operative Movement in Great Britain, London, Sonnenschein, 1891
- RAMSAY, H Participation: The Shop Floor view, British Journal of Industrial Relations, Vol XIV No 2, July 1976
- RHODES, S R & STEERS, R M Conventional vs Worker-Owned Organisations, Human Relations, Vol 34, No 12, pp1013-1035, 1981
- RISLEY, G Modern Industrial Marketing, New York, McGraw-Hill, 1972
- ROBEY, D Designing Organisations: A Macro Perspective, Irwin, 1982
- ROBINSON, M & PATON, R Worker Information Systems & Development of Large Co-operatives, Open University: CRU Working Paper, 1983
- ROBINSON, P J & FARIS, C W Industrial Buying and Creative Marketing, Boston Allyn and Bacon, 1967

- ROETHLISBERGER, F J & DICKSON, W J Management and the Worker, Harvard Univeristy Press
1939
- ROW, A J 'Coming to Terms with Computer Management Systems', Financial Executive, April 1968
- ROY, S K Participative Management in Public Industry: Organisational Groundwork Necessary in C P Thakur and K C Sethi (eds) Industrial Democracy: Some Issues and Experiences, New Delhi, Shiri Ram Centre for Human Resources, 1973
- RUATTI, J L European Co-operatives: Perspectives from Italy in Perspectives for Workers' Co-operatives in Europe, Vol III, Country Reports, Second Series, The Commission of the European Communities, December 1981
- RUBENSTEIN, A H et al 'Some Organisational Factors related to the Effectiveness of Management Science Groups in Industry' Management Science, Vol 13 No 8, ppB508-B518, April 1967
- RUSSELL, R, HOCHNER, A & PERRY, S E Participation, Influence and Worker-Ownership, Industrial Relations, 18, pp330-341, 1979
- SABINE, G H A History of Political Theory, (3rd Edition), George G Harrap & Co Ltd, 1963
- SCDC SCDC News, Issue No 2, September 1986
- SCDC Annual Report, 1986
- SCHABACKER, J C Cash Planning in Small Manufacturing Companies, Washington DC, Small Business Administration, 1960
- SCHULTZ, R L & SLAVIN, D P (eds) Science, Implementing Operations Research/Management
American Elvevier, New York, 1975
- SCHUMACHER, E F Small is Beautiful: A Study of Economics as if People Mattered, Sphere Books Ltd, 1974
- SCHUMACHER, E F A Guide for the Perplexed, Jonathan Cape, 1977
- SHEPPARD, D Bias to the Poor, Hodder and Stoughton, 1983
- SHETH, J N 'A Model of Industrial Buyer Behaviour', Journal of Marketing, Vol 37 pp50-56, October 1973
- SIBILLE, H I & RUATTI, J L European Co-operatives: Perspectives from Francein
Prospects for Workers' Co-operatives in Europe, Vol III, Country Reports, Second Series, The Commission of the European Communities, December 1981

- SIME, M E & FITTER, M J Computer Models and Decision Making in Warr, P B (ed), Psychology at Work (2nd Edition), Penguin books, 1978
- SIMON, H A, GUETZKOW, G, Centralisation v Decentralisation in Organising the
 KOZMETSKY, G & TYNDALL, G Controllers Department, New York, Controllershship Foundation Ince, 1954
- SIMON, H A The New Science of Management Decision, New York, Harper & Row, 1960
- SMILES, S Self Help, Penguin Books, 1986
- SMITH, R L 'Complete Information for All', Office, January 1969
- SOMMER, H E 'How to Analyse Your Own Business' in Management Aids for Small Businesses - Annual No 2 ed by E L Anthony, Washington DC, Small Business Administration, 1958
- STEWART, R The Reality of Organisation, Pan Books, 1970
- STEWART, R The Reality of Management, London, Pan Books Ltd, 1979
- STRASSMAN, P A 'Managing the Costs of Information', Harvard Business Review, pp133-142, Sept-Oct 1976
- STEERS, R M Antecedents and Outcomes of Organisational Commitment, Administrative Science Quarterly, 22, pp46-56, 1977
- STONIER, T Department of Science and Society, Bradford University, Paper delivered in the Middlesex Science and Technology
- STRAUSS, G 'Tactics of Lateral Relationship: The Purchasing Agent', Administrative Science Quarterly, Vol 7, September 1962
- STAATS, E B 'Information Needs in an Era of Change', Management Accounting, October 1968
- STRAUSS, G Workers: Attitudes and Adjustments in Rostow, J W (Ed), The Worker and the Job, pp73-98, New York, The American Assembly, 1974
- STRAUSS, G "Managerial Practices" in J R Hackman and J L suttle (Eds), Improving Life at Work, Santa Monica, California, Goodyear, pp297-363, 1977

- SWART, J C "The Worth of Humanistic Management: Some Contemporary Examples", Business Horizons, June 1973
- TANNENBAUM, A S Systems of Formal Participation in G Strauss, R E Miles, C C Snow and A S Tannenbaum (Eds), Organisational Behaviour: Research and Issues, Madison, Wisc; Industrial Relations Research Association, 1974
- TAYLOR, F W The Principles of Scientific Management, New York, Harper & Row, 1912
- TYALOR, J C "Experiments in Work System Design: Economic and Human Results", Part 1 Personnel Review, Vol 6 No 3, Summer 1977, also Part 2, Personnel Review Vol 6 No 4, Autumn 1977
- TAYLOR, L K Fairer Slice of the Cake, Business Books, 1976
- TYALOR, L K Not for Bread Alone: and Appreciation of Job Enrichment (3rd Edition), Business Books, 1980
- TEMESKI, E A 'Building Human Factors into Computer Applications: The Computer Profession Must Overcome a "Jackass Fallacy"!'
Management Datamatics, Vol 4 No 4, ppl15-120, August 1975
- THIBAUT, J & KELLEY, H The Social Psychology of Groups, New York, Wiley, 1959
- THOMAS, A "Survival Rates of Worker Co-operatives in UK Since 1976", Paper presented to the National Conference for Research on Worker Co-operatives, London, October 3, 1986
- THOMAS, A & CORNFORTH, C "A Model of Decision Making for Worker Co-operatives", Conference Proceedings, Plunkett Foundation 5R co-op Seminar held in Hertford College, Oxford, 1980
- THOMAS H & LOGAN, C Mondragon: an Economic Analysis, Allen & Unwin, 1982
- THOMPSON, E P The Making of the English Working Class, Penguin Books, pp820-837, 1978
- THOMPSON, J D & TUDEN, A Strategies, Structures and Processes of Organisational Decision in Thompson, J D et al (eds), Comparative Studies in Administration, University of Pittsburg Press, 1959
- THORNLEY, J Workers' Co-operatives: Jobs and Dreams, Heinemann Educational Books, 1981

- THURSTONE, R R Attitudes can be Measured, American Journal of Sociology, 33, pp529-554, 1928
- THURSTONE, R R The Measurement of Attitude, Chicago, University of Chicago Press, 1929
- TICHY, N M & SANDSTROM, T "Organisational Innovations in Sweden", Columbia Journal of World Business, Summer 1974
- TOSCANO, D J Toward a Typology of Employee Ownership, Human Relations, Vol 36 No 7, pp581-602, 1983
- TRICKER, R I Effective Information Management: Developing Information System Strategies, Beaumont Executive Press, 1982
- TRIST, E L Critique of Scientific Management in Terms of Socio-technical Theory in Weir, M (ed), Job Satisfaction, Fontana, London, 1976
- TUCKER, V A History of Workers' Co-operatives in Ireland and the UK in Workers' Co-operatives: Potential and Problems, UCC Bank of Ireland Centre for Co-operative Studies, 1983
- TURCOTTE, W E Control Systems, Performance and Satisfaction in Two State Agencies, Administrative Science Quarterly, pp60-79, 1974
- TYNAN, E & THOMAS, A Careers of Activists in Workers' Co-operatives, unpublished CRU Discussion Paper, UK, Open University, 1981
- US DEPARTMENT OF HEALTH EDUCATION AND WELFARE Work in America: Report of A Special Task Force to the Secretary of Health, Education and Welfare, Cambridge: MIT Press, 1973
- VANEK, J Self Management, Economic Liberation of Man Harmondsworth, Penguin Books, 1975
- VAN HEE, K M Trends in Information Systems for Managers in New Challenges for Management Research, A H G Rinndoy Kahn (ed), Elvevier Science Publishers BV (North Holland), 1985
- VINES, S 'A Mondragon for Wales?', The Observer, February 1981
- WAJCMAM, J Women in Control: Dilemma of a Workers' Co-operative, The Open University Press, 1983
- WALES TUC Co-operation and Job Creation in Wales: A Feasibility Study, 1981
- WALKER, K Workers' Participation in Management: Probelms Practice and Prospects, Geneva: International Institute for Labour Studies, 1976

- WALTON, R E "The diffusion of New Work Structure: Explaining Why Success did not Take Place", Organisational Diagnosis, pp3-22, Winter 1975
- WARD, C Tenants Take Over, The Architectural Press Ltd, London, 1974
- WEAVER, C N What Workers Want from Their Jobs, Personnel, May-June 1976
- WEBB, S & B Industrial Democracy, w Vols, Longmans Green, London 1897
- WEBB, S & B Co-operative Production and Profit Sharing, Special Supplement, New Statesman, 1914
- WEBB, S & B Consumers' Co-operatives Movement, Longman, Green & Co, London, 1921
- WEBB, S & B A Constitution for the Socialist Commonwealth of Great Britain, Longman, London, 1921
- WEBER, M The Theory of Social and Economic Organisation, Free Press, 1947
- WEBSTER, F E 'Modelling the Industrial Buying Process', Journal of Marketing Research, Vol 11 pp370-6, November 1965
- WEBSTER, F E 'Industrial Buying Behaviour' in BA Morin (ed), Marketing in a Changing World, AMA, 1969
- WEBSTER, F E & WIND, Y Organisational Buying Behaviour, Prentice-Hall Inc, Eagleswood Cliffs, NJ, 1972
- WEST MIDLANDS COUNTY COUNCIL Directory of Worker Co-operatives in the West Midlands, Undated
- WEINER, M Cybernetics, Cambridge, Mass, The MIT Press, 1948
- WHISLER, T L The Impact of Computer in Organisations, Praeger, 1970
- WHITE, M Intelligence Management in Information Management: from Strategies to Action, Cronin, B (ed) ASLIB, 1985
- WHYATT, A In the New Co-operative, 1986
- WILD, R Mass Production Work, Journal of General Management, Vol 3 No 3, Spring 1976

- WILD, R "Job Restructuring and Work Reorganisation: Some Views and Some Recent Developments" Management Decision, Vol 12 No 3, 1974
- WILD, R & BIRCHALL, D W "Job Restructuring and Work Organisation", Journal of Occupational Psychology, Vol 46, pp169-77, 1975
- WILD, R Essentials of Operations Management (2nd ed), Holt, Rinehart & Winston, 1985
- WILKINSON, A A Survey of Some Western European Experiments in Motivation, Institute of Work Study Practitioners (now Institute of Management Services), 1970
- WILLIAMS, I Working Together for Prosperity, The guardian, February 1986
- WILSON, D T 'Industrial Buyers' Decision Making Styles', Journal of Marketing Research, Vol III, pp433-6, November 1971
- WILSON, N Economic Aspects of Worker Co-operatives in Britain: Recent Developments and Some Evidence, Proceedings of the Sevent Co-operative Seminar, The Plunkett Foundation for Co-operative Studies, 1982
- WILSON, N A B On the Quality of Working Life, UK, HMSO, 1973
- WIND, Y 'A Case Study of the Purchase of Industrial Components' in Robinson, P J and Faris, C W (eds), Industrial Buying and Creative Marketing, Boston: Allyn and bacon, 1967
- WIND, Y "Applying the Behavioural Theory of the Firm to Industrial Buying Decisions", The Economic and Business Bulletin, 20 pp22-8, Spring 1968
- WIND, Y & ROBINSON, P 'Simulating the Industrial Buying Process' in King, R L (ed), Marketing and the New Science, of Planning, AMA 1968
- WOODCOCK, C Grant for Worker Co-operatives project, The Guardian, May 1987
- WOODMAN, L 'Information Management in Larger Organisations' in Information Management: From Strategies to Action, Cronin, B (ed), ASLIB, 1985
- YOUNG, M & RIGG, M Prospects for Workers' Co-operatives in Europe, Vol 1 Overview, The Commission of the European Communities, 1981
- ZANI, W M Blueprint for MIS, Harvard Business Review, pp95-100, Nov-Dec 1970