



City Research Online

City, University of London Institutional Repository

Citation: Vermaak, L. (1994). New product development in financial services companies: the role of the corporate centre. (Unpublished Doctoral thesis, City University London)

This is the accepted version of the paper.

This version of the publication may differ from the final published version.

Permanent repository link: <https://openaccess.city.ac.uk/id/eprint/7460/>

Link to published version:

Copyright: City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

Reuse: Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

**NEW PRODUCT DEVELOPMENT
IN FINANCIAL SERVICES COMPANIES:
THE ROLE OF THE CORPORATE CENTRE**

LEON VERMAAK

**Thesis submitted for the degree
of Doctor of Philosophy**

1994

ABSTRACT

This thesis reports a study examining how the corporate centres of UK financial services companies involve themselves in product development in constituent businesses. Herein lies a key challenge for corporate managers - deciding on the appropriate balance between corporate involvement and granting autonomy to business units.

Analysis of 16 businesses in large UK banks, building societies and insurers shows that in successful product development businesses the corporate centre becomes more intensely involved than in less successful businesses. In addition to providing expert product development advice, a corporate centre can provide leadership in the agreement of objectives based on a long-term vision of market opportunities. The results show that successful businesses are helped by their corporate centres to capitalize more fully on their entrepreneurial efforts. This is so particularly when businesses are allowed autonomy in performing operational tasks.

Less successful product development businesses, on the other hand, are distinguished from winners by a distinctly different type of corporate involvement which at the extreme amount to unnecessary meddling in their affairs.

Dedicated to Lizette, without whose support this journey would not have ended; and to my parents, without whose encouragement it would not have begun.

TABLE OF CONTENTS

	Page
LIST OF TABLES AND FIGURES	i
ACKNOWLEDGEMENTS	iv
DECLARATION	v
1. INTRODUCTION	1
1.1 THE PROBLEM: CORPORATE INVOLVEMENT VERSUS MEDDLING IN PRODUCT DEVELOPMENT ACTIVITIES OF CONSTITUENT BUSINESSES	1
1.2 THE CONTEXT: THE FINANCIAL SERVICES INDUSTRY	1
1.3 THE AIM OF THE RESEARCH: HOW DO CORPORATE CENTRES MANAGE PRODUCT DEVELOPMENT?	3
1.4 THE METHOD OF THE INVESTIGATION	3
1.5 THE FIELDWORK	10
1.6 LIMITATIONS OF THE STUDY	11
1.7 AN OVERVIEW OF THE FINDINGS	12
2. CORPORATE CENTRE INVOLVEMENT IN MANAGING NEW PRODUCT DEVELOPMENT: A REVIEW OF THE LITERATURE	16
2.1 THE CONCERN: CONTROL VERSUS AUTONOMY IN MANAGING FROM THE CENTRE	16
2.2 CORPORATE INVOLVEMENT IN MANAGING CONSTITUENT BUSINESSES	19
2.2.1 Types Of Corporate Planning And Control Systems	20
2.2.2 Intensity Of Corporate Involvement	23
2.2.3 Business Complexity	28
2.3 PORTFOLIO LEVEL CORPORATE INVOLVEMENT	31
2.4 THE CORPORATE CONTRIBUTION	38
2.4.1 Introduction	38
2.4.2 Analytical Framework: The McKinsey 7Ss	39
2.4.3 Similarities Between Products and Services	41
2.4.4 The Corporate Contribution	46
2.4.4.1 New Product Strategy	46
2.4.4.2 New Product Shared Values	47
2.4.4.3 New Product Style	49
2.4.4.4 New Product Structure	50
2.4.4.5 New Product Skills	51
2.4.4.6 New Product Staff	53
2.4.4.7 New Product Systems	53
2.5 THE PROPOSED RESEARCH	60

3.	RECENT CHANGES IN THE UK FINANCIAL SERVICES INDUSTRY	63
3.1	INTRODUCTION	63
3.2	ENVIRONMENTAL CHANGE AND NEW PRODUCT DEVELOPMENT	63
3.2.1	Legislative Change	64
3.2.2	Technological Change	68
3.2.3	Supply and Demand	69
3.3	RESULTS OF PRELIMINARY FIELDWORK EXERCISE	74
3.3.1	Corporate Involvement: An Increasingly Important Topic	74
3.3.2	Approach Adopted	76
3.3.3	The Findings Of The Preliminary Study	77
3.4	THE NEED FOR SPECIFIC RESEARCH	81
4.	THE METHOD OF THE INVESTIGATION	82
4.1	INTRODUCTION	82
4.2	METHODOLOGICAL APPROACH	83
4.3	RESEARCH STRATEGY	85
4.4	THE CHOSEN DESIGN	91
4.4.1	Research Question	91
4.4.2	Hypotheses	92
4.4.3	Unit Of Analysis	97
4.4.4	The Dependent Variable	98
4.4.4.1	Scope	99
4.4.4.2	Attributes	99
4.4.4.3	Timing	107
4.4.4.4	Standards Of Comparison	108
4.4.4.5	Participants In The Measuring Process	110
4.4.4.6	Conclusion	110
4.4.5	The Principal Independent Variable	113
4.4.6	Other Independent Variables Used For Control Purposes	115
4.5	SUMMARY	119
5.	THE FIELDWORK	121
5.1	INTRODUCTION	121
5.2	SAMPLE ELEMENTS	121
5.3	DATA COLLECTION INSTRUMENT AND METHOD	127
5.3.1	Data Collection Methods: A Review	127
5.3.1.1	Method Of Administration	129
5.3.1.2	Degree Of Disguise	132
5.3.1.3	Degree Of Structure	132
5.3.2	Data Collection Phase One: Corporate Level	133
5.3.2.1	The Corporate Interview	133
5.3.2.2	The Questionnaire	135
5.3.3	Data Collection Phase Two: Business Level	144
5.4	PILOT STUDY	146
5.5	SUMMARY	148

6. ANALYSIS OF RESULTS 149

6.1	INTRODUCTION	149
6.2	CASE STUDY RESPONSE	151
6.3	DATA ANALYSIS	152
6.4	ACCURACY OF CORPORATE RESPONSES	155
6.5	BUSINESS COMPLEXITY	158
6.6	SUCCESS AND FAILURE	162
6.7	THE INFLUENCE OF EXTERNAL FACTORS	166
6.8	THE INFLUENCE OF INTERNAL FACTORS	171
6.9	RESULTS OF HYPOTHESIS TESTS	174
6.9.1	Appropriateness of Corporate Involvement	174
6.9.2	Supporting Hypotheses	176
6.10	PORTFOLIO CONDITIONS	180
6.11	DISCUSSION	184
6.11.1	The Influence of Business Level Factors on Success	184
6.11.2	The Influence of Corporate Level Factors on Success	189
6.11.2.1	The Nature of Corporate Involvement in Complex Businesses	190
6.11.2.2	Interdependency Among Variables in Complex Businesses	194
6.11.2.3	Explaining Variation In Involvement in Complex Businesses	204
6.12	SUMMARY	207

7. THE UNDERLYING RELATIONSHIPS BETWEEN VARIABLES 208

7.1	INTRODUCTION	210
7.2	THE NATURE OF CORPORATE CENTRE INVOLVEMENT	210
7.2.1	INTENSITY OF CORPORATE INVOLVEMENT IN WINNERS AND LOSERS	210
7.2.2	INTERDEPENDENCE AMONG INVOLVEMENT VARIABLES	215
7.2.3	EXPLAINING VARIATION IN INVOLVEMENT	222
7.2.4	SUMMARY	225
7.3	THE INFLUENCE OF ENDOGENOUS FACTORS ON NPD SUCCESS	226
7.3.1	BACKGROUND TO THE ANALYSIS	226
7.3.2	INTERDEPENDENCE AMONG BUSINESS AND CORPORATE LEVEL VARIABLES	228
7.3.3	EXPLAINING VARIATION IN INVOLVEMENT	235
7.4	DISCUSSION	239
7.4.1	THE NATURE OF CORPORATE INVOLVEMENT	239
7.4.2	THE INFLUENCE OF ENDOGENOUS FACTORS ON NEW PRODUCT DEVELOPMENT SUCCESS	240
7.5	SUMMARY	252

8. MANAGERIAL IMPLICATIONS 254

8.1	INTRODUCTION	254
8.2	CRITICAL FINDINGS	254
8.3	CORPORATE INVOLVEMENT - NOT MEDDLING	255
8.4	COOPERATION, NOT CENTRALIZATION	256

8.5	MARKET-DRIVEN - NOT PROCESS DRIVEN APPROACH	258
8.6	FLEXIBLE INVOLVEMENT, NOT BUSINESS AUTONOMY	261
8.7	SUMMARY	266
9.	CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH	269
9.1	INTRODUCTION	269
9.2	PURPOSE OF THE STUDY	269
9.3	CONTRIBUTIONS TO NEW PRODUCT DEVELOPMENT PROGRAM LITERATURE	271
9.4	CONTRIBUTIONS TO THE CORPORATE LITERATURE	273
9.5	CONTRIBUTIONS TO THE SERVICES LITERATURE	276
9.6	LIMITATIONS OF THE STUDY	277
	9.6.1 Conceptual Limitations	277
	9.6.2 Methodological Limitations	280
	9.6.3 Summary	283
9.7	SUGGESTIONS FOR FURTHER RESEARCH	283

APPENDIX 1 LETTER SENT TO CORPORATE RESPONDENTS . . 285
APPENDIX 2 CORPORATE INTERVIEW: FLIP CHARTS USED . . 287
APPENDIX 3 LETTER SENT TO BUSINESS LEVEL RESPONDENTS . 293
APPENDIX 4 CORPORATE QUESTIONNAIRE 295
APPENDIX 5 BUSINESS LEVEL QUESTIONNAIRE 307
REFERENCES 319

LIST OF TABLES AND FIGURES

TABLE	Page
2.1 THE 7Ss FRAMEWORK FOR ORGANIZATIONAL ANALYSIS	40
2.2 MANAGERIAL FACTORS ASSOCIATED WITH NEW PRODUCT DEVELOPMENT PROGRAM SUCCESS	62
3.1 LEVEL OF CORPORATE CENTRE INVOLVEMENT IN NEW PRODUCT DEVELOPMENT	78
3.2 FACTORS INFLUENCING CORPORATE CENTRE INVOLVEMENT	80
4.1 DELPHI EXERCISE PARTICIPATION RATE	104
4.2 SUCCESS ATTRIBUTES INCLUDED IN DELPHI ANALYSIS	105
4.3 FINDINGS OF DELPHI EXERCISE (%)	106
4.4 INTERPRETATION OF DELPHI EXERCISE (%)	109
4.5 ATTRIBUTES OF NEW PRODUCT DEVELOPMENT SUCCESS TO SCORE THE DEPENDENT VARIABLE	112
4.6 FRAMEWORK FOR ANALYSIS OF THE WIDER BUSINESS ENVIRONMENT	119
5.1 POPULATION OF LARGE BRITISH CONTROLLED FINANCIAL SERVICES COMPANIES IN LONDON	124
5.2 RESEARCH METHODOLOGY ADOPTED	147
6.1 CASE STUDY RESPONSE	152
6.2 CONVERGENCE OF CORPORATE CENTRE-BUSINESS RATINGS	157
6.3 CLASSIFICATION OF BUSINESS COMPLEXITY	160
6.4 CLASSIFICATION OF NEW PRODUCT DEVELOPMENT PROGRAM WINNERS AND LOSERS IN MORE COMPLEX BUSINESSES	162
6.5 CLASSIFICATION OF NEW PRODUCT DEVELOPMENT PROGRAM WINNERS AND LOSERS IN LESS COMPLEX BUSINESSES	163
6.6 THE INFLUENCE OF EXTERNAL FACTORS ON SUCCESS IN MORE COMPLEX BUSINESSES	168
6.7 THE INFLUENCE OF INTERNAL FACTORS ON SUCCESS IN MORE COMPLEX BUSINESSES	172
6.8 THE APPROPRIATENESS OF CORPORATE INVOLVEMENT IN MORE COMPLEX BUSINESSES	175
6.9 PORTFOLIO RELATEDNESS OF COMPLEX BUSINESSES	182
6.10 THE INFLUENCE OF PORTFOLIO RELATEDNESS ON SUCCESS IN MORE COMPLEX BUSINESSES	183
6.11 DIMENSIONS OF BUSINESS COMPLEXITY	187
6.12 VARIABLE RESULTS FOR WINNERS AND LOSERS IN MORE COMPLEX BUSINESSES	193
6.13 RELIABILITY ANALYSIS	196
6.14 EIGENVALUE AND EXPLAINED VARIANCE OF FACTORS	199
6.15 COMMUNALITY VALUES	200
6.16 FACTOR SCORES	203
6.17 STEPWISE REGRESSION COEFFICIENTS	205
7.1 VARIABLE RESULTS FOR WINNERS AND LOSERS	213
7.2 RELIABILITY ANALYSIS	216
7.3 EIGENVALUE AND EXPLAINED VARIANCE OF FACTORS	219
7.4 COMMUNALITY VALUES	219
7.5 FACTOR LOADINGS	220
7.6 STEPWISE REGRESSION COEFFICIENTS	224
7.7 RELIABILITY ANALYSIS	229
7.8 EIGENVALUE AND EXPLAINED VARIANCE OF FACTORS	231

7.9	COMMUNALITY VALUES	232
7.10	FACTOR LOADINGS	233
7.11	STEPWISE REGRESSION COEFFICIENTS	237
7.12	SCHEFFÉ TESTS FOR BUSINESS CLUSTERS	242
7.13	SCHEFFÉ TESTS FOR DIMENSIONS OF BUSINESS COMPLEXITY	244
8.1	TYPOLGY OF CORPORATE CENTRES	261

FIGURE	Page
2.1 SUGGESTED INTENSITY OF CORPORATE PLANNING AND CONTROL STYLE FOR DIFFERENT LEVELS OF BUSINESS COMPLEXITY	30
2.2 SUGGESTED APPROPRIATENESS OF CORPORATE PLANNING AND CONTROL STYLE	37
2.3 CONTINUUM OF EVALUATION FOR DIFFERENT TYPES OF PRODUCTS	43
2.4 PRODUCT CATEGORIZATION ACCORDING TO BENEFITS OFFERED	44
4.1 THE DEDUCTIVE-INDUCTIVE MODEL	84
4.2 CLASSIFICATION OF RESEARCH STRATEGIES	87
4.3 THEORETICAL HYPOTHESIZED ASSOCIATIONS	94
4.4 HYPOTHESIZED ASSOCIATIONS AND DEGREE OF PRODUCT DEVELOPMENT SUCCESS	97
4.5 THE RESEARCH MODEL	117
5.1 SAMPLE SELECTION	126
5.2 BASIC CHOICES AMONG MEANS FOR COLLECTING PRIMARY DATA	128
5.3 PROCEDURE USED FOR DEVELOPING THE QUESTIONNAIRE	137
6.1 THE RESEARCH MODEL	153
6.2 SUPPORTING HYPOTHESES: PREDICTED/ACTUAL OUTCOMES FOR MORE COMPLEX BUSINESSES	177
6.3 SUPPORTING HYPOTHESES: RESULTS OF CHI-SQUARE TEST	179
7.1 CLUSTERS OF BUSINESSES	241
7.2 TYPOLOGY OF CORPORATE CENTRES	252

ACKNOWLEDGEMENTS

I would like gratefully to acknowledge the help and support of the following:

The executives who contributed to the study by agreeing to provide valuable time and energy to discuss their work.

Fellow students at City University Business School who unselfishly shared their knowledge and insights.

My supervisor, Professor Axel Johne, for his expert advice, regular guidance and forthcoming criticism.

DECLARATION

The University Librarian is hereby granted the power of discretion, without reference to the author, to allow single copies, in whole or in part, to be made of this thesis. They should be for study purposes only and subject to the normal conditions of acknowledgement.

1. INTRODUCTION

1.1 THE PROBLEM: CORPORATE INVOLVEMENT VERSUS MEDDLING IN PRODUCT DEVELOPMENT ACTIVITIES OF CONSTITUENT BUSINESSES

The critical importance of top management support to achieve product development success is unquestionable. However, little empirical evidence exists on the role of corporate management as opposed to senior business management. This distinction is important because changes to the product can be achieved through top-down encouragement from corporate management or from autonomous initiatives taken by business unit managers (Burgelman & Sayles, 1986; Hall, 1987; Pinchott, 1985; Scarborough & Lannon, 1989). It is important to get the balance between corporate involvement and business autonomy right, because, as Cooper and Kleinschmidt (1990) remark: "day-to-day meddling by the top management is not conducive to success".

1.2 THE CONTEXT: THE FINANCIAL SERVICES INDUSTRY

Following deregulation, globalization of markets and developments in information technology, the financial services sector is becoming increasingly competitive and demand-driven. The quest to remain competitive and profitable in this dynamic

environment has led to barriers between banks, building societies and insurers breaking down as these separate institutions position themselves to meet customer needs more precisely. Therefore, the structures of many financial services companies are becoming increasingly complex, as new product ranges are developed to serve newly defined markets.

Ennew, Watkins and Wright (1990) assert that while company structures are becoming more complex, the corporate centre-business relationship may also need to change. Anecdotal evidence suggests that the corporate centre-business relationship is indeed a topic of concern to many financial services companies. However, there is little agreement on the appropriate nature of this relationship. For example, Bevan (1989) reports a trend towards centralization in Midland Bank. On the other hand, Ward (1989) and Wichman (1989) conclude that the changes in the financial services industry in Europe necessitate greater business level responsibility, accountability and initiative.

1.3 THE AIM OF THE RESEARCH: HOW DO CORPORATE CENTRES MANAGE PRODUCT DEVELOPMENT?

Despite many far-reaching changes in the financial services sector, the role of the corporate centre in product development in financial services companies has been neglected in the literature. The primary goal of our research has been to address this shortcoming by achieving an increased understanding of how the corporate centres of financial services companies manage product development in their constituent businesses.

The principal research question addressed in the research is:

Are certain styles of corporate centre involvement in constituent businesses associated with higher product development success than others?

1.4 THE METHOD OF THE INVESTIGATION

The methodology used in this research is the deductive approach. This approach has allowed for deduction of hypotheses from the corporate and business strategy literature. Specifically, it has been necessary to identify the intensity of corporate involvement in the new product

development process of constituent businesses. This is because, as Goold and Campbell (1987) have shown, the different styles of corporate involvement can be classified in terms of the intensity of corporate involvement in the planning and control of constituent businesses.

Kenyon and Mathur (1991) have shown that some businesses require more corporate involvement than others. Those that require more corporate involvement are relatively complex from a business management point of view. They are businesses which need substantial corporate resources; which face complex market and product conditions, and whose long payback periods justify considerable corporate involvement. On the other hand, businesses which are less complex need less corporate involvement to achieve product development success.

Thus, the corporate and business strategy literatures provide a base upon which to explore the extent to which the product development success of a group of new products is associated with the style of corporate centre involvement. The case study method was selected as the appropriate research vehicle, because it provides real-life description of managerial behaviour through multiple data sources.

Definitions Used:

The unit of analysis is the product development program

in the business. The unit being studied is, therefore, the business. A **business** is defined as the organizational unit which offers a single, uniquely positioned product to a market (Kenyon & Mathur, 1991). In accordance with the common usage of terms in the relevant literature a **market** is defined as a discrete set of customer needs, while a **product** is defined as a bundle of benefits offered to the customer. The word "product" is, therefore, used in its generic sense to describe the various offerings of financial services companies (Buttle, 1989; Lovelock, 1990; Meidan, 1984; Urban & Hauser, 1980).

This definition of a business was adopted with the knowledge that many different types of organizational units can be distinguished depending on whether they are defined for strategic planning purposes or for business management purposes (Day, 1984). A **strategic planning unit (SPU)** - the organizational unit for evaluating market opportunities - has been shown to be useful for analysing a distinct segment of the environment in which a company wants to do business (Ansoff & McDonnell, 1990; Ohmae, 1982). The definition of an SPU depends on management's appreciation of the competitive environment as a set of opportunities (Ohmae, 1982).

On the other hand, a strategic business unit (SBU) is a unit of the company supplying one or more market segments (Ansoff & McDonnell, 1990; Day, 1984). An SBU has profit and loss accountability to the corporate centre and is therefore

used for budgeting and resource allocation. However, as has been stressed by Ansoff and McDonnell (1990) and Ohmae (1982), it is misleading for strategic market planning purposes to focus solely on SBUs.

An **SBU** can supply more than one strategic planning unit, depending on the structural arrangements management believes to be most suited for competitive purposes. Henceforth, the term "business" will be used to depict the organizational mechanism for supplying a single product to a unique set of customers. This nomenclature has been previously adopted by Ansoff and McDonnell (1990), Day (1984), and Mathur (1988).

In particular, this study is concerned with the achievement of new product development program success. A **new product** is defined in terms of novelty to the company. This is viable because it is the supplier who will have to deal with the operational difficulty of product development. **Program** success is a measure of repeated project success over the long-term (Cooper, 1984a; Johne & Snelson, 1989). A project focus often results in incremental changes only, with resulting low impact on the long-term fortunes of the business. While one-off winners exist in most businesses, the critical issue is to repeat successful performance (Johne & Snelson, 1989).

Our investigation has focused on the intensity of

corporate involvement in the new product development activities of constituent businesses. In defining the corporate centre, the description provided by Kenyon and Mathur (1991) is adopted: the **corporate centre** is the organizational unit responsible for managing a company. A company consists of two or more businesses.

Having reviewed the definitions used, these can now be explained more fully in the practical context of the investigation. The definition of a business ("the organizational mechanism for supplying a single product to a unique set of customers") limits the boundaries of a business to one product market. In practice, however, neither manufacturing, nor financial services companies frequently use such a narrow organizational design for management purposes. Composite insurance companies serve as an example: insurers often divide their organization into two units (or divisions) with profit and loss accountability. The first unit offers life insurance and the second general insurance products. The managers of these individual units manage a number of products, for example unit trusts, life insurance, general annuities and pensions in the case of a life insurance unit; while the general insurance unit may manage accident and health, car, aircraft, ships and goods carrying vehicles, home insurance and general liability products. Clearly, product development practices within a unit or division may differ depending on the product market aimed for. For example,

marine insurance is a highly specialized field, as opposed to car or home insurance.

The management team in charge of one organizational unit (division) also accepts responsibility for each individual product offered by the unit. Our definition of a business is at the level of the individual product. While there may not be a separate organizational unit whose *sole* responsibility is the individual product, there is an unit and management team who carries responsibility for and manages the product (alongside others) in its particular target market.

Sound underwriting requires careful tracking of the claims and premium income of each product offered by the division or unit. The "businesses" included in our investigation represent individual product markets selected from the group of product markets served by the division. Often, divisional managers have direct responsibility for product development in their divisions, including each individual product market (business).

Clearly, managers in charge of a division (and the businesses included in our investigation) are relatively senior managers in their organizations. Sometimes the division is not physically removed from the offices used by corporate centre managers. This is often true of manufacturing companies, such as those included in the studies

by Goold and Campbell (1987). However, divisional managers are accountable for the profitability of their divisions, while corporate centre managers are responsible for the profitability and long-term survival of the company as a whole. The "distance" between corporate centre managers and those at the divisional unit is brought about by the organizational design which assigns different responsibilities and operational tasks to each organizational unit - an organisational relationship.

In their study of the organizational relationship between corporate centre managers and those at business level, Goold and Campbell (1987) found that in some companies corporate centre managers choose not to become frequently involved in the management of divisions (and the businesses contained in them), while in other companies corporate centre managers become more frequently involved. It is this organizational relationship between the corporate centre and division (as well as its constituent businesses) that forms the basis of this investigation.

One business included in the investigation launched a savings plan aimed at providing for future education. The first product was an endowment for funding university fees, with a fixed 20 year term. A second product in the program also allowed savings to be used for school fees, this time with a fixed term of ten years. Later products included

guaranteed maturity options as well as an option to start paying low premiums, which increase over the first five years by a fixed percentage per year.

More than one business targeted the private health insurance market. Many different products were launched over the last few years. At first a hospital cash plan was offered, i.e. a fixed amount of money if a patient was hospitalised. Later the product was augmented with a number of additional benefits, such as accidental injury and permanent disability cover, long-term care insurance and critical illness cover. Later generations of the program offered a number of "bolt-on's", that is services provided by companies other than the insurer, such as telephonic medical advice, emergency evacuation in the case of an accident or serious illness and repatriation of a body in case of death while abroad. The latest versions of this program incorporate life assurance and major medical expenses benefits. Some of these products were marketed through a sales force, while other used direct mail shots to target specific age groups thought to represent substantial market potential. The business, or product market, is clearly identifiable - private health insurance. The management of these business have responsibility for many more markets - the life insurance division in the case of composite insurers. However, since the product market, and thus the product development program, is clearly identifiable, managers had little difficulty in

distinguishing the product development activities relating to this program from other programs. Also, the performance of this particular program was carefully documented for reasons of sound underwriting.

1.5 THE FIELDWORK

The principal sources of information on the intensity of corporate involvement in product development were managers involved in product development in constituent businesses. The research intention was to elicit information from managers at the corporate centre and business levels in order to determine any differences in perceptions concerning the involvement of the corporate centre. Therefore, data collection involved two phases that required two separate approaches: (i) corporate level and (ii) business level data collection.

In order to collect reliable data, great importance was attached to controlling the sample elements and information. The method which provides the greatest sampling control is the personal interview. Similarly, the mail questionnaire provides the best information control. Therefore, these two methods were combined in the first, corporate level phase of the investigation: a personal interview, followed by a self-

administered questionnaire. In the second, business level phase, a mailed questionnaire was used to check the accuracy of the information provided by corporate respondents.

1.6 LIMITATIONS OF THE STUDY

This research focuses only on the constituent businesses of UK financial services companies. Companies of different nationalities have different managerial inheritances and approaches to planning and control. Moreover the population is restricted to the greater London area. This is because differences exist between businesses which are in close proximity to the corporate centre and those which are further away (Bartlett & Ghoshal, 1990; Jones, 1989).

Also, the study is purposively limited to large companies. This is because large companies often lead product development activities (Edgett & Jones, 1991). Also, there is a high concentration in the UK financial services industry. A representative sample of all companies would have included a disproportionate number of small companies.

Finally, the study is limited to the constituent business of greatest strategic importance to the corporate centre. This is because, as Simons (1991) has suggested, variations in the intensity of corporate involvement occurs depending on

whether diagnostic or interactive planning and control systems are used. Interactive systems are used to signal the importance of strategic initiatives to the business.

1.7 AN OVERVIEW OF THE FINDINGS

The ways in which product development is managed from the corporate centre have been investigated in the restricted context of large, London-based, financial services companies. We suspect, however, that although our study was conducted in this limited context it has generated insights which are relevant to managers in a wider multi-business context. The reasons why successful businesses in our sample of complex businesses outperformed less successful businesses are summarized below:

- * Corporate centre managers become intensely involved in the product development activities of constituent businesses. The nature of corporate centre involvement encompasses directing (agreeing objectives throughout the new product development process) and support (provision of expert product development advice).
- * Corporate centre managers do not meddle in the day-to-day operations of businesses. They acknowledge the importance of business involvement in implementing

product development plans. Specifically, the business takes responsibility for gaining a clear understanding of the market and process issues facing the business; drawing support from other businesses in the portfolio; providing the product development skills base as well as marketing staff and creating an innovative culture in the business.

- * Corporate centre managers cooperate with business managers in new product development. Rather than choose between centralization or business autonomy, corporate centres adopt a flexible approach affording autonomy in certain operational tasks, and actively supporting others.
- * By adopting a flexible approach corporate centre managers ensure that constituent businesses benefit from the advantages of big corporations: - vision, leadership, cooperation and financial clout - without meddling in day-to-day operations.
- * Flexible cooperation from the corporate centre also ensures that constituent businesses benefit from the best that small business have to offer - product and market focus, market orientation, flexibility, coordination and entrepreneurship.

- * Corporate centre managers build related portfolios to create synergy between businesses, thus enabling businesses to share skills and resources required for performing product development tasks.

- * Corporate centre managers have a clear vision of future longer-term market developments. Consequently, their vision extends beyond satisfying the short-term objectives of shareholders. Certain projects which may otherwise be shelved are encouraged to utilize future market opportunities.

- * Corporate centres manage process complexity by (i) sharing their product development experience with business managers to increase business level understanding of new products; and (ii) allowing longer payback periods to improve the viability of strategically important projects.

2. CORPORATE CENTRE INVOLVEMENT IN MANAGING NEW PRODUCT DEVELOPMENT: A REVIEW OF THE LITERATURE

2.1 THE CONCERN: CONTROL VERSUS AUTONOMY IN MANAGING FROM THE CENTRE

The critical importance of top management support to achieve new product development success has been clearly demonstrated (Cooper & Kleinschmidt, 1990; Hegarty & Hoffman, 1990; John & Snelson, 1989; Tushman & Nadler, 1986). Changes to the product can be achieved through top-down encouragement, leadership and pressure from corporate management (Hall, 1987; Scarborough & Lannon, 1989). On the other hand, such changes may result from autonomous, bottom-up initiatives taken by business unit managers and even those below them (Burgelman & Sayles, 1986; Pinchott, 1985). Corporate managers need to decide on an appropriate balance between involvement from the corporate centre and granting autonomy to business units. Too much autonomy may negatively impact on the fit of new initiatives with the overall corporate strategy. Too much corporate involvement can discourage commitment and motivation on the part of separate business unit managers (Cooper & Kleinschmidt, 1990; Hendry, 1989).

A wide body of product development research in the services and manufactured goods sectors has identified top management support as critically important. To achieve

success researchers have identified the following factors:

- (i) effecting fit between corporate strategy and product development strategy (Ayal & Rothberg, 1986; Crawford, 1987; Twiss, 1986).
- (ii) active involvement of top management (Cooper & Kleinschmidt, 1990; Hayes & Abernathy, 1980; Hegarty & Hoffman, 1990; Hendry, 1989; John & Snelson, 1989; MacMillan & George, 1985; Maidique, 1980; Rothwell, 1979; Souder, 1981; Tauber, 1979; Tushman & Nadler, 1986).
- (iii) top management support throughout the stages of the development process (Maidique & Zirger, 1984; Utterback, Allen, Holloman & Sirbu, 1976).

However, none of the above studies makes any distinction between the roles of different levels of top management, in particular the role of the corporate centre and the role of senior business unit managers. The only study that explicitly acknowledges the importance of both levels of top management support is that by Hegarty and Hoffman (1990). However, in reporting their findings Hegarty and Hoffman (1990) combine measurement of the two levels of management and make no clear distinction between them. There is, thus, a clear need for research in this important operative issue.

This chapter provides a theoretical overview which serves as a framework for our investigation. In reviewing the role of the corporate centre in assisting in the management of new product development activities of constituent businesses, both the business and corporate strategy literature is invoked. We feel justified in using these complementary literatures since research by Miles and Snow (1978) has shown that companies

adapt to changes in their environment through strategic choices concerning new products, technology and structures. Summarizing the work of previous writers Hegarty and Hoffman (1991) conclude that new product development is a critical element of company strategy. The business and corporate strategy literature provide a considerable body of knowledge relevant to the role of the corporate centre in managing product development in constituent businesses.

For the purpose of studying corporate management of constituent businesses two main perspectives have been adopted: (i) business management and (ii) portfolio management. **Business management** concerns the involvement of the corporate centre in the planning and control system of individual businesses (Goold & Campbell, 1987). **Portfolio management** concerns the decision by the corporate centre to acquire, keep or divest businesses (Porter, 1987). The literature on corporate involvement in managing constituent businesses is reviewed first. Thereafter, the literature concerning portfolio management is reviewed. The chapter concludes with a full discussion of the contribution of corporate management to product development success in constituent businesses based on the extant literature.

2.2 CORPORATE INVOLVEMENT IN MANAGING CONSTITUENT BUSINESSES

Three reasons have been proposed for corporate involvement in managing constituent businesses. The first, (1), is to reach mutual agreement between corporate and business management on objectives and plans. This is particularly important to ensure proper balance between strategic and operational priorities (Anthony, 1988; Cowen & Middaugh, 1990). The second reason, (2), is to motivate business managers by providing personal rewards for achieving goals (Goold, 1991). The third reason, (3), for corporate involvement in business planning and control is to ensure timely intervention if planned results are not achieved (Goold & Quinn, 1990).

Corporate involvement in managing businesses spans (i) the agreement of business objectives between corporate and business managers, (ii) monitoring business performance against objectives, (iii) feedback on achieved results and (iv) decisions on any corrective actions and rewards (Goold & Quinn, 1990). Together these four activities constitute what is widely referred to as the corporate planning and control system (Anthony, 1988; Gage, 1982; Goold & Quinn, 1990). It is to corporate planning and control systems that we now turn.

2.2.1 Types Of Corporate Planning And Control Systems

Anthony (1988) has identified two types of corporate planning and control systems: financial (or budgetary) and strategic. We shall deal with **financial planning and control systems** first and thereafter with **strategic planning and control systems**.

(i) Financial Planning and Control Systems

Financial planning and control systems (referred hereafter as financial systems) are commonly used to plan and monitor short-term budgetary objectives such as profit, sales, return on investment and cash flow (Goold & Quinn, 1990). Financial objectives are often used for short-term planning and control purposes since these objectives are easily defined in terms of cost and revenue (Andrews, 1980; Anthony, 1988; Gage, 1982). A short-term outlook is favoured because managers tend to be motivated more by immediate goals than by distant goals (Hrebieniak & Joyce, 1986). Short-term objectives are common in US and UK public companies because of the widespread requirements to show short-term returns (Pyzdek, 1991).

Many authors criticize financial systems because they disregard long-term progress relative to competitors (Goold &

Quinn, 1990; Goold, 1991). Financial systems are widely regarded as insufficient for achieving long-term competitive advantage. This is because an emphasis on short-term financial results can lead to a misdirection of effort and lack of flexibility by tying business management down with specified plans and rigorous financial management which may cause market changes to be ignored (Andrews, 1980; Dichter, 1991; Eccles, 1991; Evans, 1991; Goold, 1991; Goold & Quinn, 1990; Hayes & Abernathy, 1980; Lorange, 1980; Roush & Ball, 1980). Being flexible requires corporate management to lead the business by providing a sense of long-term direction (Evans, 1991). This is necessary because (i) the time required to implement strategic initiatives is often incompatible with customary budgetary planning cycles (Donaldson & Lorsch, 1983), and (ii) strategic initiatives can be conceived as proceeding in a step-by-step manner (Quinn, 1985; Mintzberg, 1987). To effect lasting competitiveness, a longer-term outlook than that provided by financial systems is now widely regarded as superior for planning and control purposes.

(ii) Strategic Planning and Control Systems

While many companies have financial systems, fewer have systems which cover non-financial long-term objectives aimed at achieving competitive advantage in each business (Anthony,

1988; Gage, 1982; Lorange, 1980). A long-term type of planning and control system (strategic system) is needed at the corporate centre to balance financial systems in order to encourage each constituent business to build long-term competitive advantage (Andrews, 1980; Anthony, 1988; Donaldson & Lorsch, 1983; Gage, 1982; Lorange, 1980; Lorange, Morton & Ghoshal, 1986).

Goold and Quinn (1990) argue that managers can be motivated to achieve long-term aims by setting short-term progress measures or "milestones" to measure performance. Thus the greatest advantage of financial systems - motivating managers with immediate goals - is likely to be an integral part of strategic systems. Nevertheless, breaking long-term aims down into short-term goals is tricky. It requires consensus management based on corporate understanding of the problems involved and constant accommodation and compromise (Uyterhoeven, 1989).

There is widespread agreement that strategic systems are more likely to lead to competitive success than financial systems (Andrews, 1980; Anthony, 1988; Donaldson & Lorsch, 1983; Gage, 1982; Lorange, 1980; Lorange, Morton & Ghoshal, 1986). However, there is a danger in using strategic systems. As Goold (1991) has shown, strategic systems may stifle creativity in constituent businesses and lead to slow decision-making regarding important new initiatives.

Both financial and strategic systems, therefore, have advantages and disadvantages. None is superior to the other. Moreover, once a financial and/or strategic system becomes institutionalized as a standard operating procedure, corporate managers may find it difficult to introduce a new system (Bartlett & Ghoshal, 1990). The reason why corporate managers often encounter resistance to change lies in what some authors call the "administrative heritage" - resistance to abandoning current standardized procedure (Hannan & Freeman, 1984; Powell, 1987; Stinchcombe, 1965).

The mere existence of a company-wide financial and/or strategic system is, therefore, no guarantee of competitive success. It is widely believed that it is the way in which systems are used that matters (Goold & Campbell, 1987; Langley, 1988; Simons, 1991). It is to this issue that we now turn.

2.2.2 Intensity Of Corporate Involvement

The literature concerning the management of constituent businesses suggests that corporate involvement in business level planning and control systems varies in intensity (Goold, 1991; Goold & Campbell, 1987; Goold & Quinn, 1990; Langley, 1988; Simons, 1991). Intensity of corporate centre involvement can be measured through the frequency of corporate

centre participation in planning and control activities
(Simons, 1991).

Goold and Campbell (1987, 1987a) show that corporate participation in business level planning varies in intensity. By comparing the intensity of corporate management attention directed to the planning system for each business with the type of control - financial or strategic, they identify eight different approaches or styles for managing decentralized businesses: (i) holding company, (ii) centralized, (iii) strategic planning, (iv) strategic programming, (v) strategic control, (vi) strategic venturing, (vii) financial control and (viii) financial programming. Each of these styles is commented on below.

With the (i) **holding company style** the corporate centre is passive. The constituent businesses reinvest their own funds autonomously and the corporate centre seldom intervenes. The intensity of corporate centre involvement is low, and financial objectives and controls are commonly used. Goold and Campbell (1987) show that few companies adopt the holding company style. Those which do often move to another style because of problems with controlling non-performance in businesses. While none of the financial services companies in our sample used this style, manufacturing companies which have previously used this style include BOC, ICI and Vickers.

A (ii) **centralized control style** is best suited to small companies (Goold & Quinn, 1990) and uses intense corporate involvement and little business autonomy. The reason for the close cooperation between the corporate centre and business is that the company consists of only a few businesses and corporate management has intimate knowledge of the markets served. The centralized control style is used rarely in large companies and none of our sample companies reported using this style. Large British companies, such as BP, Courtaulds, Plessey and UB have moved away from centralized control styles in recent years.

(iii) **The strategic planning style** affords little autonomy to businesses. The intense corporate contribution is aimed at ensuring that expected changes in the market are reflected in business plans. Performance targets are set in broad strategic terms. Financial targets are deemed less important than long-term strategic objectives. The strategic planning style is one of the most commonly used styles in British companies to-day. It is practised wholly or in part in Aetna Life Insurance, BOC, BP, Cadbury Schweppes, Lex and STC.

With the (iv) **strategic programming style** the corporate centre is not only intensely involved in detailed business planning, but also controls the achievement of business level financial objectives and strategic milestones tightly. The

strategic programming style is uncommon due to the internal conflicts between tight top-down control and autonomous, bottom-up participation. Companies such as Lex and STC attempted strategic programming, but have changed their styles because of the internal conflicts built into this style.

Companies utilizing the (v) **strategic control style** leave planning to business managers, but the corporate centre reviews and criticizes plans. In these companies the corporate contribution is to encourage autonomous, bottom-up participation and commitment to plans. The corporate centre also amends plans to correspond with the corporate view of expected changes in the market and controls results against corporate strategic and financial objectives. In general, though, the intensity of corporate involvement is relatively high. This style is commonly used in large diversified companies. It is found in companies such as Prudential Assurance, Courtaulds, ICI, Imperial, Plessey and Vickers.

In (vi) **strategic venturing style** companies the corporate centre delegates planning to the business, but monitors results and intervenes if problems emerge. The intensity of corporate involvement is relatively low. This style is used for selected businesses but seldom as the dominant style for a whole company, for example, it is used in the Foods Division of UB.

In (vii) **financial control style** companies, corporate participation involves only monitoring financial performance, rather than strategic performance. Stringent financial performance targets are set usually for up to one year, but business managers are given a wide measure of autonomy. Consequently, the intensity of corporate involvement is commonly low. Along with the strategic planning style and strategic control style, a financial planning style is popular. It is to be found in companies such as Hill Samuel Life Assurance and Legal And General Assurance Society in the financial services sector and manufacturing companies such as GEC, Hanson Trust and Tarmac.

The (viii) **financial programming style** is similar to financial control in that the corporate centre is concerned only with financial results. However, the corporate centre becomes more intensely involved in sanctioning budgets and capital expenditures and in dictating financial targets. Companies using this style include Ferranti and BTR.

It is, however, not only the intensity of corporate involvement in the planning activities of constituent businesses that is variable: the intensity of corporate involvement in control activities may also vary. Simons (1991) used intensity of corporate participation in business level decision-making to identify two approaches to management planning and control: (i) diagnostic and (ii) interactive.

Diagnostic systems require approval of plans by corporate management and formal feedback to inform the corporate centre if the outcomes are in accordance with the intended plans. Action is then only taken if results deviate from the intended plans. The intensity of corporate involvement in diagnostic planning and control systems is relatively low. Interactive systems, on the other hand, involve corporate managers personally and regularly in the decisions of business managers. Interactive systems are favoured when corporate management needs to signal the importance of a new strategic initiative to a business. For example, interactive systems are typically used for only short periods of crisis. The significance of the two main ways in which planning and control systems can be used lies in the different levels of intensity of personal involvement of corporate managers in the business (Simons, 1991).

2.2.3 Business Complexity

It is clear from the above review (Section 2.2.2) that the intensity of corporate centre involvement in business planning and control may differ from one company to another. The question that remains unanswered is under which circumstances the different levels of intensity of corporate involvement is appropriate.

When the intensity of corporate attention directed to the planning and control system for a business is low, planning and control activities are commonly conducted autonomously at business level. On the other hand, the corporate centre may decide to become more intensely involved. Cowen and Middaugh (1990); Goold and Campbell (1989) and also Kenyon and Mathur (1991) argue that the decision regarding the intensity of corporate involvement in business level activities may be influenced by the complexity of businesses. The **complexity of a business** is a function of (i) market complexity, (ii) technical complexity, (iii) the lead times between major decisions and their results - called payback period - and (iv) the relative amount of investment required (Alexander, 1991; Goold & Campbell, 1987; Kenyon & Mathur, 1991). Businesses which score low on these attributes are regarded as less complex, while businesses which score high are regarded as complex.

More intense corporate involvement is required if the business is complex, but higher business autonomy (less intense corporate involvement) is warranted for less complex businesses (Goold & Campbell, 1987; Kenyon & Mathur, 1991). It follows that the management styles which allow for more business autonomy (financial control, strategic venturing and holding company) can be adopted when a business is less complex - see Figure 2.1 below. Since managers of less complex businesses have a good understanding of the factors

which influence business complexity, they are less likely to require intense support from the corporate centre. Therefore, management styles using more intense involvement may be inappropriate for managing less complex businesses.

FIGURE 2.1 SUGGESTED INTENSITY OF CORPORATE PLANNING AND CONTROL STYLE FOR DIFFERENT LEVELS OF BUSINESS COMPLEXITY

		INTENSITY OF CORPORATE INVOLVEMENT	
		High	Low
BUSINESS	Complex	<ul style="list-style-type: none"> * Centralized control * Strategic programming * Strategic planning * Financial programming * Strategic control 	
	Less Complex		<ul style="list-style-type: none"> * Strategic venturing * Financial control * Holding company

Read as follows: If a business is complex a management style using more intense corporate involvement is to be preferred, such as centralized control, strategic planning, strategic control, strategic or financial programming.

Note: The two sectors not assigned management styles represent conditions which are deemed inappropriate for any of the management styles: less complex businesses do not require high corporate involvement; more complex businesses require more intense corporate involvement.

Sources: Adapted from Goold & Campbell (1987); Kenyon & Mathur (1991).

Conversely, a management style using more intense corporate involvement (centralized control, strategic planning, strategic programming, financial programming and strategic control) is to be preferred if the business is complex (Figure 2.1). Indeed, management styles using less intense corporate involvement may be inappropriate, since they fail to provide sufficient support to business managers (Kenyon & Mathur, 1991).

2.3 PORTFOLIO LEVEL CORPORATE INVOLVEMENT

The previous section (Section 2.2) has dealt with the ways in which the corporate centre can become involved in business management. We now turn to decisions concerning the structuring of the portfolio of businesses - decisions to buy, keep or sell constituent businesses. There are two types of portfolio relationships which govern portfolio management decisions: (i) the relationship between the corporate centre and the individual business - also called the centre-business link and (ii) relationship between businesses in the portfolio - called synergy (Kenyon & Mathur, 1991). Each will be dealt with in turn.

(i) The Centre-Business Link

The previous section (Section 2.2.3) has shown that the choice of appropriate style for managing a constituent business may be influenced by the complexity of the business. The complexity of businesses also influences the decision to buy or sell businesses. This is because businesses of different degrees of complexity need different types of top managers at the corporate centre (Kenyon & Mathur, 1991). If business level managers lack clear understanding of critical variables which influence business complexity, they may need support from corporate managers in taking operational decisions. It has been argued that corporate managers can only provide the needed support if they understand the competitive features of the business (Hall, 1987; Kenyon & Mathur, 1991). The extent to which corporate centre managers understand the competitive features of all constituent businesses in their portfolio is also known as the "relatedness" of the portfolio (Kenyon & Mathur, 1991). If corporate managers grasp the competitive features intimately, the businesses represent a related portfolio in which business management styles involving more intense corporate involvement is viable (Goold & Campbell, 1987; Kenyon & Mathur, 1991). If, on the other hand, corporate managers do not comprehend the competitive features of businesses, the portfolio is likely to consist of unrelated businesses. In such unrelated portfolios corporate management styles involving less intense

corporate involvement is called for.

The skills of corporate centre managers may determine the nature of the portfolio being built. This is because the corporate understanding of the competitive features of businesses influences the decision to build a related or unrelated portfolio. Once a business is added to the portfolio, however, portfolio decisions do not influence operational decisions of existing businesses in the portfolio. They may, however, influence the relationships between existing businesses in the portfolio. It is to these relationships that we now turn.

(ii) Synergy

Synergy concerns the relationship between businesses in a portfolio. It may result from one or more of the following commonalities between businesses: (i) the sharing of skills or resources; (ii) vertical integration - internalizing contractual relationships with suppliers and/or customers; (iii) the supply of complementary goods (Kenyon & Mathur, 1991). The increase in value resulting from such business-business relationships is commonly called synergy. Synergy represents a second dimension of portfolio relatedness. If businesses in the portfolio share many commonalities, the portfolio is regarded as being related. If, on the other

hand, little synergy can be created, the portfolio is regarded as unrelated.

When making portfolio decisions the corporate centre has to take into account the impact that portfolio relatedness might have on the degree of synergy created. As in the case of centre-business links, portfolio decisions do not impact operational business decisions directly. It is only after a business is acquired that business management decisions need to be taken. Of course, once a business is sold, no further business management decisions are required. However, the relatedness of the portfolio built by the corporate centre may well impact on the ability of a business to develop products successfully. This is because if an existing business shares many commonalities - such as product development skills - with a newly acquired business, this relationship may benefit product development activities in both businesses. It is these potential benefits that need to be assessed when taking portfolio management decisions.

In Section 2.2.2 eight corporate management styles were identified. Of these eight, three reflect less intense corporate involvement: (i) holding company, (ii) strategic venturing and (iii) financial control. Goold and Campbell (1987) suggest that these styles are appropriate for managing a portfolio consisting of less complex, yet unrelated businesses - a portfolio of "manageable businesses" (Figure

2.2). In such less complex businesses, business level managers understand the variables which influence business complexity. Consequently, little corporate support may be required. Also, these businesses may require little synergy with other businesses in the portfolio. Since corporate managers lack clear understanding of the competitive features of businesses belonging to unrelated portfolios, they may be unable to support operational business management decisions. It follows that corporate management styles using less involvement are appropriate for managing less complex, unrelated portfolios. Of the three styles identified, financial control is most commonly used.

Four styles using more intense involvement may be appropriate if businesses are complex and related - also called a portfolio of "core businesses" (Goold & Campbell, 1987). In such portfolios, business managers lack clear understanding of the variables influencing business complexity and may, therefore, require more intense corporate support. Since corporate managers understand the competitive features of businesses belonging to related portfolios, they are able to provide the needed support. Consequently, corporate management styles using more intense involvement may be appropriate. Also, businesses in the portfolio may benefit from synergy created in such related portfolios. Figure 2.2 shows the four styles: (i) centralized control, (ii) strategic planning (iii) strategic programming and (iv) financial

programming. Of these, the strategic planning style is most commonly used.

The final style, strategic control, is suggested for managing a portfolio made up of complex businesses which belong to unrelated portfolios - called a portfolio of "diverse businesses" (Goold & Campbell, 1987). Kenyon and Mathur (1991) suggest that some companies own a mixed portfolio which may include related and unrelated businesses of varying complexity. In such portfolios divisions consisting of related businesses are often created; different divisions are mostly unrelated to one another. Some companies who have owned mixed portfolios, have since divested unrelated businesses, or even whole divisions. This was done to create related portfolios in which the corporate centre can add value to the business. Since these portfolios often change, Kenyon and Mathur (1991) refer to this type of portfolio as a "halfway house".

No single corporate management style is appropriate for managing mixed portfolios. However, the introduction of more than one corporate management style for different businesses or divisions leads to conflicts. This is because a particular management style is often institutionalized as standard operating procedure. The introduction of more management styles is often met with resistance (Hannan & Freeman, 1984). The conflicts arising in what Goold and Campbell (1989) calls

a "culturally complex" portfolio leads to it being treated as a short-term organizational arrangement only - one that is likely to change in order to relieve the conflicts.

FIGURE 2.2 SUGGESTED APPROPRIATENESS OF CORPORATE PLANNING AND CONTROL STYLES

		PORTFOLIO OF BUSINESSES	
		Related	Unrelated
BUSINESS	Complex	<ul style="list-style-type: none"> * Centralized control * Strategic programming * Strategic planning * Financial programming 	<ul style="list-style-type: none"> * Strategic control
	Less Complex		<ul style="list-style-type: none"> * Strategic venturing * Financial control * Holding company

Read as follows: If the businesses in the portfolio are both related and complex, a centralized control, strategic planning, strategic or financial programming style can be adopted.

Note: The sector not assigned an appropriate management style (less complex-related) represents a condition that seldom occurs because less complex businesses require little support from other businesses and the corporate centre - see Section 2.3 below.

Sources: Adapted from Goold & Campbell (1987); Kenyon & Mathur (1991).

It is interesting to note that a sector of Figure 2.2 is not assigned a suggested management style: the sector made up

of less complex businesses which belong to a related portfolio. It makes little sense for the corporate centre to build a portfolio of related, less complex businesses. Less complex businesses require low corporate support of their product development activities, because business managers understand the complexities of the business well. It is for the same reason that less complex businesses require low synergy with other businesses in the portfolio. Since less complex businesses require less intense corporate involvement, no value is added by adding such businesses to related portfolios, which encourage high involvement and synergy. Therefore, such less complex businesses are commonly added to unrelated portfolios where corporate management styles using less intense corporate involvement is used (Kenyon & Mathur, 1991).

2.4 THE CORPORATE CONTRIBUTION

2.4.1 Introduction

Few product development schemas address the intensity of corporate involvement in business level product development. In their model of strategic behaviour, Burgelman & Sayles (1986) distinguish between induced and autonomous behaviour.

While corporate management may induce product development in businesses, in some product development occurs autonomously from within. Induced behaviour is posited as being consistent with the top-down statements of corporate strategy. On the other hand, autonomous behaviour, like internal venturing, represents entrepreneurial initiatives at business level (Burgelman & Sayles, 1986; Pinchott, 1985). For the purpose of investigating the role of the corporate centre in product development most previous research has neglected to distinguish between induced and autonomous product development (Ayal & Rothberg, 1986; Cooper & Kleinschmidt, 1990; Crawford, 1987; Hayes & Abernathy, 1980; Hegarty & Hoffman, 1990; Hendry, 1989; Johnes & Snelson, 1989; MacMillan & George, 1985; Maidique, 1980; Maidique & Zirger, 1984; Rothwell, 1979; Souder, 1981; Tauber, 1979; Tushman & Nadler, 1986; Twiss, 1986; Utterback, Allen, Holloman & Sirbu, 1976). This may suggest that there is one best way for corporate centre involvement, irrespective of business and portfolio conditions. We believe that this is highly unlikely, as it does not concur with the contingency approach to management.

2.4.2 Analytical Framework: The McKinsey 7Ss

In this section the McKinsey 7Ss framework is adopted to provide an overview of managerial factors impacting on new product development success. This framework has been adapted

by Johne and Snelson (1988) and provides a useful checklist of endogenous factors, that is to say, the factors under the direct control of management. These factors are: strategy, structure, skills, shared values, style, staff and systems. Table 2.1 provides a description of each factor. For each of the seven factors, the way in which it is likely to be affected by the degree of business autonomy or corporate involvement in product development initiatives, is discussed. Such a schema is necessary, because as Burgelman and Sayles (1986) have shown, in some companies corporate management involves itself in product development while in others product development occurs autonomously.

TABLE 2.1 THE 7Ss FRAMEWORK FOR ORGANIZATIONAL ANALYSIS

FACTOR	DESCRIPTION
Strategy	the plan leading to the allocation of resources
Shared values	the goals shared by the organization members
Style	the culture style of the organization
Structure	the characteristics of the organization chart
Skills	the distinctive capabilities of key personnel
Staff	the type of functional specialists employed
Systems	the nature of proceduralized control processes

Source: Johne & Snelson, (1988)

2.4.3 Similarities Between Products and Services

In reviewing managerial factors impacting on new product development success in services, and specifically in the context of financial services, we have found it necessary to draw evidence from the manufactured goods product development literature. The purpose of this section is to justify this decision.

Previous research concerning the development and marketing of services has focused on the differences between goods and services (Beckwith & Fitzgerald, 1983; Berry, 1980; Booms, Davis & Guseman, 1984; Cowell, 1984; Gronroos, 1978, 1982; Lovelock, 1991; Shostack, 1977; Zeithaml, Parasuraman & Berry, 1985). Five distinguishing factors have been identified in these research projects:

1. **Intangibility** - customers can not physically touch or examine services.
2. **Simultaneity** - services are frequently produced and consumed simultaneously. The delivery of the service forms part of the service itself.
3. **Perishability** - services can not be stocked as can tangible goods.
4. **Heterogeneity** - as the delivery system forms part of the service, any one service can vary between two purchase occasions.

5. **Ownership** - if production and consumption occur simultaneously, then there is nothing for the consumer to own as a result.

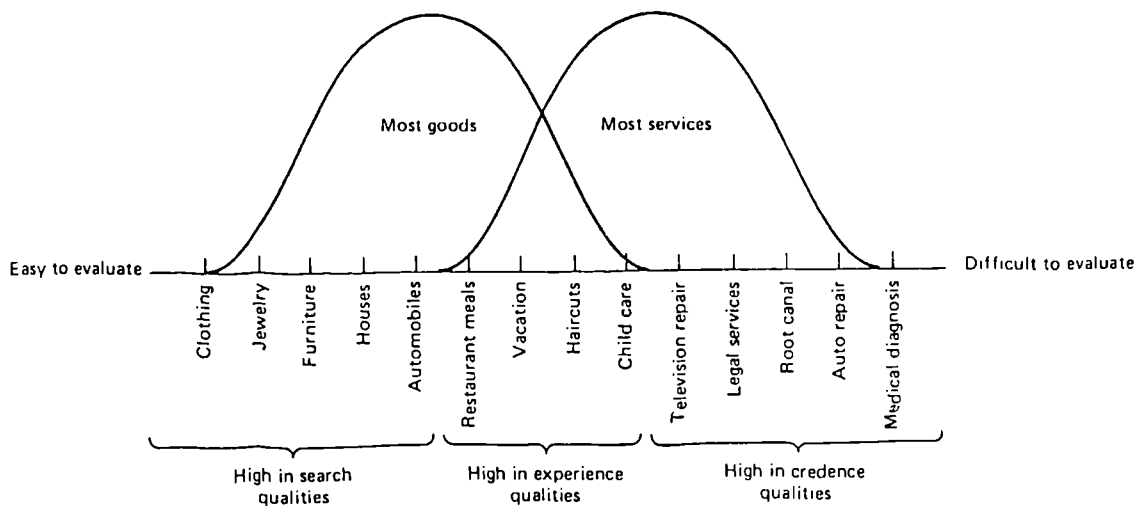
Nelson (1970) categorizes consumer goods in terms of (i) search qualities and (ii) experience qualities. Attributes which consumers can determine prior to purchase, called (i) **search qualities** include colour, style, price, smell and feel. Some goods, like clothing, jewellery and furniture are high in search qualities, because their attributes can be almost completely determined and evaluated prior to purchase (Zeithaml, 1991).

On the other hand, other goods are high in (ii) **experience qualities** because their attributes can only be assessed after purchase. Darby and Karni (1973) add a third category to Nelson's two way classification of goods, namely (iii) **credence qualities**. Credence qualities may be impossible to evaluate even after purchase, such as technical repair work on a car.

Zeithaml (1991) argues that goods and services can be classified according to the ease of evaluating the search, experience and credence qualities. Such a classification result in a continuum ranging from "easy to evaluate" to "difficult to evaluate" - see Figure 2.3. At the left of the continuum are goods high in search qualities, easiest to

evaluate. In the centre are goods and services high in experience qualities. At the right end of the continuum are goods and services high in credence qualities.

FIGURE 2.3 CONTINUUM OF EVALUATION FOR DIFFERENT TYPES OF PRODUCTS



Source: Zeithaml (1991)

Zeithaml (1991) maintains that most goods fall to the left of the continuum and most services to the right. This is because of the five characteristics distinguishing goods from services: they make services more difficult to evaluate than goods, which in turn forces customers to rely on different cues and processes when evaluating services.

It is, however, clear that the differences between goods and services are only a matter of degree and are, therefore, not exclusive to services (Johne & Pavlidis, 1991). Mathur (1986, 1988) argues that all products can be categorized

according to the benefits offered to the customer. The benefits can be differentiated in two dimensions: (i) merchandise, and (ii) support (see Figure 2.4). Features of the product made available to the customer, are known as (i) **merchandise**. **Support**, (ii), is the advice, training or assistance offered. The dimensions of merchandise and support are common to both goods and services (Johne & Pavlidis, 1991). There are four main ways in which merchandise and support can be differentiated in the eyes of customers. By (i) **product purchase** Mathur (1988) denotes a good or service which is differentiated in terms of merchandise, but not in terms of support. **Service purchase**, (ii) denotes a good or services which is differentiated in terms of support, but not in terms of merchandise. A (iii) **system purchase** is differentiated in terms of both merchandise and support. A (iv) **commodity purchase** is undifferentiated, both in terms of merchandise and support.

FIGURE 2.4 PRODUCT CATEGORIZATION ACCORDING TO BENEFITS OFFERED

		MERCHANDISE	
		Differentiated	Undifferentiated
SUPPORT	Differentiated	System	Service
	Undifferentiated	Product	Commodity

Source: Mathur (1988)

It has been asserted that the choice between the perceived merchandise and support features of a good or service has considerable influence over the buying decision (Johne & Pavlidis, 1991). Hence, the so-called unique features of services are largely irrelevant for understanding the factors contributing to success in the development of new services. Working on this assumption, concentrating on the similarities between goods and services, important findings in the manufactured goods sector may be applied in the services sector. This does not mean that differences between goods and services are unimportant. It does mean, however, that it would be foolish to ignore lessons learnt in manufactured goods sectors.

The analytical review of the literature concerning the differences and similarities between products and services in this section has shown that the term "product" can be used in many different ways: (i) to distinguish between manufactured goods (products) and services (Cowell, 1988; Easingwood, 1986; Lovelock, 1991); or (ii) to denote one of four competitive strategies to position an offering in the eyes of customers (Mathur, 1988). In our research, however, the term "product" is used in its widest sense, (iii) as the bundle of benefits offered to the customer (Levitt, 1973).

2.4.4 The Corporate Contribution

In this section the contribution of the corporate centre to achieving new product development program success is reviewed. The McKinsey 7Ss framework introduced earlier (Section 2.4.2) is employed to provide an overview of managerial factors impacting on new product development. For each of these seven factors, the degree to which it is likely to be affected by the degree of business autonomy or corporate involvement is discussed.

2.4.4.1 New Product Strategy

Many different product development strategies have been identified, depending on the degree of market and technological bias (Cooper, 1984a; Cooper, 1985; Foster, 1986; Gluck & Foster, 1975; Johne & Snelson, 1988; Wilkinson, 1983). Further, Ayal and Rothberg (1986), Crawford (1987), Day (1975) and Twiss (1986) have all argued that whatever the product development strategy might be, it should ideally be derived from the corporate strategy. Johne and Snelson (1989) found that explicit, broad objectives set by top management are associated with success. Broad objectives serve as a core driving strategy, and consists of a corporate vision, clear milestones and regular control mechanism (Johne & Snelson, 1990).

The degree of autonomy afforded by the corporate centre influences the type of objectives set by individual businesses (Goold, 1991). In autonomous businesses, with little corporate involvement, short-term objectives can be used to allow for regular feedback. Long-term objectives are frequently used in management styles with more intense corporate involvement, because corporate managers understand the long-term trends of the markets in which the businesses compete (Goold & Quinn, 1990). Also, the corporate centre may choose to become more intensely involved in the product development activities of the business to signal the importance of new strategic initiatives and to ensure that these are reflected in the product development objectives of the business (Simons, 1991).

2.4.4.2 New Product Shared Values

There is a widespread agreement that it is the task of top management to encourage new product development throughout the company (Booz, Allen and Hamilton, 1982; Hall, 1987; John & Snelson, 1989; MacMillan & George, 1985; Scarborough & Lannon, 1989). As Campbell, Devine and Young (1990) have argued, businesses which share values have a common emotional commitment to the (i) purpose, (ii) strategy and objectives, (iii) culture and (iv) values of a business. The purpose of a business can, of course, be expressed through a mission

statement, derived from a more general corporate mission statement (Campbell & Yeung, 1991; Crawford, 1987; Souder, 1981). The mission statement defines the reason for the existence of the business and forms the basis of strategy development and objective setting (Bennis & Nanus, 1985; Campbell, Devine & Young, 1990; Campbell & Yeung, 1991a; Hamel & Prahalad, 1989; Kanter, 1989; Pearson, 1989; Porter, 1987).

Campbell and Yeung (1991) show that expressing the purpose of the business in a mission statement, does not mean that an emotional attachment to this statement exists. Such an attachment can be developed by operationalizing the mission statement in (i) a corporate product development strategy and objectives, (ii) a supportive culture, as well as (iii) complementary employee values.

Objectives, (i), determine the quality of effort the workforce puts out. If standards are vague or low, employee effort is likely to be unfocused (Eccles, 1991; Goold & Quinn, 1990; Schaffer, 1991; Schlesinger & Heskett, 1991). High performance standards which stretch the efforts of employees are likely to result in greater job satisfaction and performance (Cowen & Middaugh, 1990; Goold & Quinn, 1990; Pearson, 1989; Schaffer, 1991).

A supportive culture, (ii), can be developed using common training programs for marketing and technical personnel,

cross-functional job design, job rotation and formal communication systems (Gresov, 1984; Hall, 1987; Rickards, 1985; Schlesinger & Heskett, 1991; Takeuchi & Nonaka, 1986; Tushman & Nadler, 1986). On the other hand, an emotional commitment to the purpose of the business and company can be managed by (iii) developing employee values and beliefs which are complementary to the culture. Such values can be developed by rewarding product development performance, through a central recruitment program, by developing a strong corporate image and through internal marketing of the business mission (Campbell, Devine & Young, 1990; Campbell & Yeung, 1991, 1991a; Cowen & Middaugh, 1990; Hendry, 1989; Pearson, 1989; Schaffer, 1991; Schlesinger & Heskett, 1991).

Corporate management style affects the way in which a common commitment to product development is achieved. Corporate centres allowing more business autonomy are less likely to influence the purpose, strategy, culture and values of individual businesses than those corporate centres choosing to become more involved (Burgelman & Sayles, 1986; Hall, 1987; Pinchott, 1985; Scarborough & Lannon, 1989).

2.4.4.3 New Product Style

Many major studies have shown that top management support, including financing, is of critical importance in

product development (Booz, Allen & Hamilton, 1982; Cooper & Kleinschmidt, 1990; Hegarty & Hoffman, 1991; Johne & Snelson, 1989; Maidique, 1980; Rothwell, 1979; Tushman & Nadler, 1986). However, Cooper and Kleinschmidt (1990) show that top management often push the wrong projects. Indeed, hands-on control and over-meddling often delay product development and is not conducive to success (Booz, Allen & Hamilton, 1982; Foster, 1986; Gardiner & Rothwell, 1985; Maidique & Zirger, 1984; Quinn, 1985; Takeuchi & Nonaka, 1986).

Therefore, a key question for corporate management is under what circumstances corporate involvement in product development is warranted. It has been argued that corporate involvement in business decisions is determined by the complexity of individual businesses (Cowen & Middaugh, 1990; Kenyon & Mathur, 1991). More corporate involvement is required if a business is complex, whereas higher business autonomy is warranted if the business is less complex (Goold & Campbell, 1987; Kenyon & Mathur, 1991).

2.4.4.4 New Product Structure

Many authors have argued that in successful innovator companies the organizational structures adopted fit the company strategy well (Caves, 1980; Chandler, 1962; Hrebieniak, 1988; Hull & Hage, 1982; Kolodny, 1980; Quinn, 1985; Sands,

1983; Smale, 1985). A number of alternative structures, such as matrix structures, flat organic structures and separate permanent or temporary arrangements have been suggested to effect good fit with product development strategy (Burgelman & Sayles, 1986; Hamermesh, 1986; Hull & Hage, 1982; Johne & Harborne, 1985; Johne & Snelson, 1989; Kolodny, 1980; Pinchott, 1985; Quinn, 1985; Sands, 1983; Smale, 1985).

In some companies the corporate centre becomes directly involved in selecting business level product development teams (Kagono, 1981). Bartlett and Ghoshal (1990) show that such centralized involvement facilitates rapid decision-making and results in less conflict between business and corporate centre management. On the other hand greater corporate centralization becomes costly when businesses require more information, guidance, support, decisions and resources from the corporate centre. It has been concluded that complex businesses warrant more intense corporate involvement (Alexander, 1991; Kenyon & Mathur, 1991). Conversely, less complex businesses require less corporate involvement in product development team selection.

2.4.4.5 New Product Skills

Successful product development requires both (i) functional and (ii) interpersonal skills (Hegarty & Hoffman,

1990; Cooper, 1984; Hayes & Abernathy, 1980). The core functional skills required for product development are marketing and technical skills (Hegarty & Hoffman, 1990). These skills include market research skills, namely the ability to determine product advantage relative to competitors as well as the functional ability to develop, test and implement a product launch plan (Cooper, 1985; Crawford, 1987; Parkinson, 1982; von Hippel, 1978).

The ability to coordinate marketing and technical inputs is a key skill which requires interpersonal skills (Cooper, 1984; Hayes & Abernathy, 1980; Hendry, 1989; Tauber, 1979). Baker and McTavish (1979) have argued that interpersonal skills are determined by the extent to which managers have one of four power bases: (i) reward power, due to influential connections or status, (ii) punishment power, stemming from the ability to punish or remove rewards, (iii) expert power, stemming from the respect commanded by the depth of knowledge in specialized areas and (iv) referent power, due to friendships and social expertise. Expert power is shown to be the most effective interpersonal power base, while referent, reward and punishment power are less effective (Ansari, 1990; Baker & McTavish, 1976).

It follows from Ansari's (1990) argument that in corporate centres which direct complex businesses, requiring as some analysts have suggested more corporate involvement,

product development expertise - expert power - is important. Less expert leadership skills are required to build relationships in autonomous, less complex businesses (Ansari, 1990; Baker & McTavish, 1976).

2.4.4.6 New Product Staff

Staff from many functions need to provide inputs in product development, including marketing, technical and manufacturing (Cooper, 1983; Crawford, 1987; Kanter, 1983; Takeuchi & Nonaka, 1986). It has been argued that more corporate involvement is required if the business is complex, but higher business autonomy is warranted for less complex businesses (Goold & Campbell, 1987; Kenyon & Mathur, 1991). It follows that in more complex businesses the corporate centre may ensure that different functional inputs are effectively coordinated, whereas in less complex businesses, coordination may be left to business managers.

2.4.4.7 New Product Systems

Many authors have joined the debate regarding the appropriate level of formality of corporate planning and control systems (Goold, 1991; Goold & Campbell, 1987; Goold & Quinn, 1990; Gresov, 1984; Langley, 1988; Simons, 1991). The

formality of corporate involvement in business level decisions is reflected in (i) the explicitness in which business objectives are reported to the corporate centre, (ii) the rigour in which the corporate centre monitors business results and (iii) the extent to which personal rewards of business managers are tied to the achievements of the planned results (Goold, 1991).

The advantages of more formal corporate planning and control systems are (i) that there are clearly defined performance standards and responsibilities which motivate business managers, (ii) there is clarity and realism in planning and (iii) the corporate centre ensures timely corrective action by business managers if planned results are not achieved (Goold, 1991; Langley, 1988). However, formal planning and control systems have the disadvantage of high costs and bureaucracy with attending slow decision-making. Also, the pursuit of selected objectives can blind managers from seeing new and better opportunities that arise (Uyterhoeven, 1989).

Goold and Quinn (1990) argue that it is preferable to have a more formal planning and control system with clear performance standards, than failing to reflect comprehensively on performance standards. Long-term strategic objectives can be broken down into short-term milestones which allow performance monitoring and quick corrective action. This

approach can serve to motivate business managers with short-term milestones, yet retains long-term objectives aimed at achieving competitive advantage (Goold & Quinn, 1990).

Less formal systems can be used if objectives are not easily quantifiable. The advantages of less formal systems are that the efforts of business managers can be aimed at achieving long-term competitive strength. The disadvantage is that due to the lack of formal performance standards, personal rewards and career prospects are not linked to the achievement of set targets. It is, however, important to stress that less formal planning and control processes can also be the result of failure to think through what will represent good competitive performance, rather than a conscious decision to avoid formal objective setting (Cowen & Muddaugh, 1990; Goold & Quinn, 1990). When this is the case less formal systems can lead to confusion and lack of purpose (Goold & Quinn, 1990).

Such unfocused systems often come into existence if an inappropriate formal planning and control system is used, that is to say, a system whose components have not been adapted to changes in the environment (Cowen & Muddaugh, 1990). The danger of such less formal systems is that they may be institutionalized as standard operating procedures which sometimes may lead to resistance to more formal planning and control (Bartlett & Ghoshal, 1990; Hannan & Freeman, 1984; Powell, 1987; Stinchcombe, 1965). It is for this reason that

Cowen & and Middaugh (1990) argue that corporate management should conduct frequent audits of the fit of their planning and control systems.

While Gresov (1984) has argued that by nature creative product development activities are not suited to more formal corporate involvement, Goold and Quinn (1990) argue that more formal involvement is preferable to failing to reflect on the strategic implications of business initiatives. These issues require further empirical investigation, particularly in relation to the principal phases of the product development process. This is necessary because, as Johne and Snelson (1989) have shown, successful companies apply different levels of formality at different stages of the product development process. It is, therefore, necessary to identify the different stages in the product development process. A review is presented below.

It is common to conceive of the product development process as a series of stages performed in a sequential order. Consequently, a number of product development process models have been suggested by different authors. Interestingly, the models are essentially the same, even though they were studied in the context of a wide variety of products. The model developed by Booz, Allen and Hamilton (1982) is widely accepted. It consists of seven stages:

1. New product strategy development
2. Idea generation
3. Screening and evaluation
4. Business analysis
5. Development
6. Testing
7. Commercialization

Other models, while accepting the basic stages in the Booz, Allen and Hamilton (1982) model, introduce flexibility into the process. In this way Urban and Hauser (1980), using a five stage model, suggests continual evaluation throughout the process:

1. Opportunity identification: Go/no-go decision
2. Design: Go/no-go decision
3. Testing: Go/no-go decision
4. Introduction: Go/no-go decision
5. Profit management: Go/no-go decision

Compared to the previous two models, the model proposed by Wind (1982) suggests that more tasks should be performed in the earlier stages of the process. The resulting process is as follows:

1. Objective setting, taking cognizance of corporate and marketing objectives, situation analysis, environmental conditions and the planned product/market portfolio
2. Idea generation
3. Idea/concept screening
4. Concept/product development
5. Concept/product evaluation
6. Generation and evaluation of product and marketing strategy
7. Design continuous product performance evaluation system
8. Product introduction

In a model which allows for some parallel development activities, Crawford (1983) suggests that product development tasks may not always be performed in a strict sequential order. The resulting model has five stages:

1. Strategic new product planning
2. Concept generation and development
3. Screening
4. Development of product and marketing plan followed by evaluation
5. Launch

Cooper and Kleinschmidt (1986) expand the product development process to include 13 stages. However, in later research, Cooper (1990) reduces the number of analytical stages in the product development process to six. This does not mean that less tasks need to be performed, but that these tasks are performed in parallel in order to reduce development time. After each stage a comprehensive evaluation is required, called gates. The six analytical stages are as follows:

1. Assessment
2. Definition
3. Development
4. Testing
5. Trial
6. Commercialization

All the aforementioned models result from research in manufactured goods sectors. In services sectors, models featuring similar stages are proposed. Examples include the Donnelly, Berry and Thompson (1985) model consisting of six stages:

1. Strategic guidelines
2. Exploration
3. Screening
4. Comprehensive (business analysis)
5. Development and testing
6. Introduction

The model developed by Johnson, Scheuing and Gaida (1986)

is essentially the same as the above mentioned model, but the screening and comprehensive stages are combined into one analysis stage. The development and testing stage is then conceived of as two separate stages. Scheuing and Johnson (1987) propose a multi-stage model consisting of 15 stages:

1. Formulation of objectives and strategy
2. Idea generation
3. Idea screening
4. Concept development
5. Concept testing
6. Business analysis
7. Project authorization
8. Design and testing
9. Process and system design and testing
10. Marketing program design and testing
11. Personnel training
12. Testing and pilot run
13. Test marketing
14. Full-scale launch
15. Post-launch review

Comprehensive listings of stages in the product development process may be helpful in identifying the tasks that need to be performed. However, they provide little help in determining how these tasks should be performed. As Cooper (1990), Crawford (1983) and Smith and Reinertsen (1991) have shown, a parallel approach to product development is more appropriate than a sequential step-by-step approach when speed of development is important. Both Cooper (1990) and Wind (1982) have stressed the importance of "up-front" or "pre-development" activities. Building on this theme Johne and Snelson (1989) have suggested that the product development tasks can be divided into two main activities: (i) initiation and (ii) implementation activities. Initiation activities include all those tasks aimed at initiating product change,

including product planning, idea generation, concept development and exploration. Implementation activities, on the other hand, include all tasks aimed at getting the actual development completed, including technical and marketing development and launch. It is in relation to these two principal activities of product development, that the formality of systems need to be investigated. In their work, Johne and Snelson (1989) show that successful companies apply less formal control procedures in the initiation phase of the product development process, but exercise more formal control of implementation (Johne and Snelson, (1989)). Building on the work of Goold and Campbell (1987) we assert that in more complex businesses the corporate centre exercise more control over the businesses than is required in less complex businesses.

2.5 THE PROPOSED RESEARCH

This chapter has reviewed product development in constituent businesses as a subset of corporate management. Product development scholars agree that top management support is critically important to achieve success. However, none of the previous studies makes a distinction between the roles of different levels of top management, in particular the role of the corporate centre and the role of senior business unit managers.

The corporate literature suggests that the corporate centre becomes involved in business level decision-making through the planning and control systems used. The intensity of corporate involvement in business level decision-making may vary according to the frequency of corporate involvement in the planning and control system for the constituent business.

By invoking the corporate and business literature, it has been possible to show the influence of varying degrees of intensity of corporate involvement in strategic initiatives such as product development. Indeed, as was discussed in Section 2.4, the intensity of corporate involvement in business level product development decision-making varies for a wide range of issues in constituent businesses. These issues have been classified using the 7Ss framework. The factors impacting on product development success identified in this section, are summarized in Table 2.2 below.

The intensity, or style, of corporate centre involvement in new product development programs of constituent businesses may influence success. Yet, this important issue has been neglected in the product development literature. The corporate strategy literature suggests that the appropriate style of corporate involvement is determined by the complexity of the business. This assertion remains untested in the context of new product development. Our study attempts to focus on one industry sector - financial services - to build

a foundation for research into the involvement of the corporate centre in new product development initiatives.

TABLE 2.2 MANAGERIAL FACTORS ASSOCIATED WITH NEW PRODUCT DEVELOPMENT PROGRAM SUCCESS

FACTOR	DESCRIPTION
Strategy	explicit strategy, derived from corporate strategy with long-term and short-term objectives set by top management.
Shared values	top management generates commitment to new product development through explicit mission and goals, strategy, culture and rewarding change.
Style	top management supports and leads new product development using the appropriate style according to the complexity of the business and by providing sufficient resources.
Structure	appropriate level of corporate centralization in new product development team selection.
Skills	experienced staff with ability to change and integrate many functional perspectives.
Staff	coordinated marketing and technical inputs.
Systems	appropriate, loose-tight controls.

Sources: Burgelman & Sayles (1986); Cooper (1984, 1984a, 1985); Crawford (1987); Foster (1986); Hayes & Abernathy (1980); John & Snelson (1989); Pinchott (1985); Rothwell (1979); Tauber (1979); Tushman & Nadler (1986); Twiss (1986).

3. RECENT CHANGES IN THE UK FINANCIAL SERVICES INDUSTRY

3.1 INTRODUCTION

This chapter shows the relevance of the topic - corporate centre involvement - in the changing UK financial services sector. Accordingly, the changes taking place in different UK financial services markets are discussed; followed by an overview of how these changes impact the supply structure and also the demand for financial services. The results of a preliminary fieldwork exercise are reported which shows the importance of involvement in the UK of corporate centres in new product development activities of constituent financial services businesses.

3.2 ENVIRONMENTAL CHANGE AND NEW PRODUCT DEVELOPMENT

Following deregulation, globalization of markets and developments in information technology, the UK financial services sector, which has been one of the fastest growing areas of the UK economy, is becoming increasingly competitive and demand-driven. The quest to remain competitive and profitable in this dynamic environment has led to barriers between banks, building societies and insurers being broken

down as different institutions position themselves to meet customer needs more precisely. The changing environment for financial services is examined under the following headings: (i) legislative change; (ii) technological change; and (iii) supply and demand.

3.2.1 Legislative Change

Historically, the regulation of financial services restricted both the range of products any company could offer, as well as the geographical area in which they could operate. Regulations were aimed at protecting customers. However, regulations often limited market efficiency by excluding companies from certain product markets; and by restricting innovations in new products and distribution systems (Ennew, Watkins & Wright, 1990). For example, National Westminster, a clearing bank, traditionally supplied retail banking products only. Following deregulation it supplies corporate financial services, venture capital and automatic teller machines on a worldwide scale. Also, historical regulations restricted the Abbey National building society to supplying housing finance, retail savings products and some insurance policies associated with house purchase. In response to deregulation, the Abbey National has now developed an extensive range of new products including an estate agency, retail banking products and operations in Spain and France.

Regulation is effected by a host of general and specific Acts of Parliament. There is also self-regulation by controlling associations and organizations. General legislation governs the formation, legal accountability and competitive practices of financial services companies. Examples of general legislation include Annual Finance acts, Friendly Societies Acts, Competition Act 1980, Fair Trading Act 1973, Restrictive Trade Practices Act 1976, Social Security Acts 1986 and EC law. EC law includes many directives aimed at deregulation and creation of free flow of capital and trade in a Single Market for financial services.

Specific legislation governs the trade practices of individual types of financial services suppliers. These include the Building Societies Act 1986, Banking Act 1979, Insurance Companies Act 1982, Policyholders Protection Act 1975, Lloyds Act 1981, Insurance Brokers Act 1977 and the Prevention of Fraud Act 1958.

The Financial Services Act (FSA), 1986, changed the regulatory framework governing UK investment markets from institution-based to market-based regulation. A key feature of the FSA is reliance on self-regulation within the statutory framework. There are five main self-regulating organizations: (i) The Securities Association - TSA; (ii) the Investment Management Regulatory Organization - IMRO; (iii) the Life Assurance and Unit Trust Regulatory Organization - LAUTRO;

(iv) the Financial Intermediaries, Managers and Brokers Regulatory Association - FIMBRA; and (v) the Association of Futures Brokers and Dealers - AFBD.

The (i) Securities Association (TSA) regulates stockbroking and market-making. It replaces the Stock Exchange as monitor of stockbrokers and licensed securities dealers to protect investors. IMRO, (ii), regulates fund management operations by monitoring the adequacy of financial resources available for each product line or trust. The marketing of investment-related life-insurance and unit-trust units is regulated by (iii) LAUTRO. Authorization to market life-insurance is still governed by the Insurance Companies Act, 1982 and undertaken by the Department of Trade and Industry. However, LAUTRO controls the way in which marketing is carried out, including the registration and conduct of salesmen, projections of future benefits of investment products and disclosure of commissions paid. Infringements of LAUTRO rules may lead to DTI authorization being withdrawn. The conduct of independent investment intermediaries is monitored by (iv) FIMBRA. Fimbira requires members to maintain certain practices, including independence, getting to know customer needs, providing best advice, best execution and adequate staff supervision. Any company which practices primarily as a futures and options dealer has to abide by the rules of the AFBD (Association of Futures Brokers and Dealers), who has the authority to monitor computer data and

adequacy of funds.

The implementation of the FSA seeks to protect the customer and improve competition by insisting on best advice and best execution, disclosure of commission payments, by monitoring advertising and by polarizing intermediaries into either tied or independent status.

The Building Societies Act, 1962, closely constrained the activities of societies. Competition between societies was restricted by an interest-rate cartel, which ensured that prices moved closely in the same direction. The new Building Societies Act, 1986, allows building societies to provide a much wider range of products, including full personal banking, money transmission services, life and general insurance broking services.

Other legislation which influence the way financial services companies operate include annual Finance Acts introducing new investment products such as Personal Equity Plans (PEPs) and State Earnings Related Pensions Schemes (SERPS). European Community regulation of financial services encourages free flow of capital and free trade in financial services. This calls for neutrality between buying a service from a domestic institution, importing from another country or buying domestically from a local branch of a foreign institution. Thus financial services markets are becoming

increasingly globalized.

Deregulation has removed many of the barriers which had in the past restricted organizations from offering certain types of product, or from offering their products in certain countries (Arnold, 1990; Schuijjer, 1992). The decision to add new product lines necessitate new product development. Changes in the legislative framework of the financial services sector lead directly to considerably increased new product development activity.

3.2.2 Technological Change

Developments in information technology enabled changes in the relationships between (i) customers and companies; (ii) financial services companies; (iii) information systems and new product development and (iv) corporate centre and constituent businesses. Links between (i) customers and companies aid the distribution of products at either the place of banking - Automatic Teller Machines; at the place of living - EFTPOL home banking, or at the place of shopping - EFTPOS. Many (ii) financial services companies share distribution networks, such as automatic teller machines. Some banks, building societies and insurance brokers operate joint electronic links offering insurance policy quotations. Information systems, (iii), offer databases on potential

customers to which new products may be aimed. Thus, the development of new products and the sophistication of marketing activities are increased.

Some financial services companies regard technology as a key feature determining future competitiveness. Technology is used to manage the (iv) communication between businesses and between the corporate centre and its constituent businesses. For example, Citibank uses technology to add more support and information to its products worldwide. Technology is regarded as an agent of change which allows Citibank's businesses to achieve synergy by integrating many functions across businesses (Beitel, 1990). Chase Manhattan Bank has recently introduced a "Data Centre Management Program" which aims to create synergy between businesses by sharing information and resources; and by improving communication between the corporate centre and business managers (Keefe, 1988). Another US bank, Western Federal Savings & Loan, achieve similar results through a computer-based data base called "Customer Information File".

3.2.3 Supply and Demand

Traditionally, financial services markets were defined along product lines. It is increasingly difficult to make clear-cut product definitions as the traditional boundaries

between different suppliers of financial services break down. In their delineation of financial services customers (Ennew, Watkins & Wright, 1990) distinguish between corporate and personal markets. These markets differ in five respects: (i) the needs of the corporate market tends to be more **complex** than that of the personal market; (ii) corporate customers often have a more **complete understanding** of their financial needs; (iii) corporate customers operate on a much **greater scale** allowing suppliers greater scope for tailoring products; (iv) corporate customers are more susceptible to international and national **economic conditions**; and (v) supplier-customer relationships are of more importance in the corporate market than in the personal market.

The legislative and technological changes reported in earlier sections (3.2.1 and 3.2.2) have direct implications for the (i) supply and (ii) demand structure of the financial services sector. From a (i) **supply** perspective the key influence is that the boundaries of financial services companies are changing. Supplying institutions compete in markets previously reserved for one type of institution only. For example, building societies and banks now offer financial management products, while banks, building societies and insurance companies offer mortgage products. Also, the globalization of markets means that many new competitors enter new geographical markets, previously closed through deregulation. Consequently, the financial services supply

capacity is greater than demand capacity, with resulting greater competition (Brandenberg, 1988). Moreover, financial services companies have traditionally used only one route to their customers. Many new channels are being developed, mostly through new alliances. These alliances, made possible by deregulation and changes in information technology, increase competitiveness by keeping in business companies which may otherwise disappear (Chiplin, 1986; Dinkin, 1989; Gut, 1991). Also, barriers to entry are lowered through prohibition of exclusionary and non-competitive regulations (O'Brien, Howe, Wright & O'Brien, 1979).

As the range of products offered by financial services companies diversifies, the opportunities for cross-selling increases. In order to exploit opportunities fully, management needs to manage the cohesion and coordination between an increasing number of businesses. This may require a shift from functional-based organizational structures to accommodate more flexible structures which focus on market needs (Johne & Harborne, 1985). This has led some writers to suggest that the traditional corporate centre-branch relationship in financial services companies may have to be altered to reflect the need to market different products in different ways (Ennew, Watkins & Wright, 1990).

The nature of the (ii) **customer demand** for financial services has benefitted from the environmental changes shaping

the sector in three important ways. Firstly, EC regulations require greater equality in prices between member countries. This will lead to substantial reductions in prices in some countries. Secondly, deregulation leads to greater choice of products as more companies compete for the same customers.

Perhaps most importantly, many suppliers of financial services need to change their operations-driven approach to a market orientation (Dixon, 1991; Hooley & Mann, 1988). Financial services suppliers are increasingly looking to respond to the particular needs of their customers. Consequently, the product markets served by financial services companies can no longer be described in terms of the supplying institutions - banking, building societies and insurance product markets. Similarly, product market definitions in terms of product categories are unacceptable - current account, deposit account, overdraft. Rather, product markets need to be defined in terms of customer needs. Thus, the need for financial management can be served by a diverse set of products including current accounts; chequebooks; standing orders; direct debits; bank giros; electronic transfer; cheque-, cash-, and credit card facilities; advisory services such as wills, trusts, executorships, tax planning, investment advice, money management and travel services. The need for loans are served through overdrafts; house, car, home improvement and other loans. The need to save is served through deposit accounts; bonus savings; money market

deposits; unit trusts; and life insurance, including term insurance, endowment insurance, life assurance and pensions products. Finally, the need for protection is served through non-life (general) insurance products such as accident, motor, household, marine, aviation and many types of business insurance. Each need category can be further segmented, within personal and corporate markets. From a marketing perspective such segmentation is needed to serve customer needs more precisely.

3.3 RESULTS OF PRELIMINARY FIELDWORK EXERCISE

3.3.1 Corporate Involvement: An Increasingly Important Topic

The previous section (3.2) discussed influences breaking down the barriers between financial services companies. Many financial services companies now compete in markets previously closed to them through regulation. Therefore, the structures of many financial services companies are becoming increasingly complex, as new product ranges are developed to serve these new markets. Ennew, Watkins and Wright (1990) assert that while company structures are becoming more complex, the head office-business relationship may also need to change. The way in which this relationship may change remains untested. Indeed, the involvement of the corporate centre in the prolific new product development activities of constituent businesses remains unclear.

The corporate literature concerning manufactured goods (reviewed in Section 2.2.2) shows² that there is variation in the levels of corporate centre involvement across companies. However, apart from anecdotal articles little evidence has been found to verify this assumption for financial services companies. For example, Ward (1989) reports that "different [financial services] institutions will allow managers a varying amount of authority." Middaugh (1988) argues that environmental changes necessitate changes in management control systems. Cronander (1990) and Landis (1989) assert

that many US banks are currently reversing an historic trend towards branch autonomy, by centralizing administrative "back office" tasks. In the UK, Bevan (1989) confirms a similar trend towards centralization in Midland Bank. Also, Hewitt (1988) reports that Barclays Bank has improved the communication between corporate and business management by eliminating a layer of corporate management. Smith (1987) and Cook (1991) report that US financial services companies regard corporate leadership as important in adapting to change. Also, Nolan (1987) shows that corporate support is required to implement technological changes in financial services companies.

On the other hand, Ward (1989) and Wichman (1989) conclude that the changes in the financial services industry in Europe, necessitates greater branch level responsibility, accountability and initiative. Moreover, Thompson (1987) and Wood (1991) assert that many corporate level bankers are incapable of dealing with the complexities of the changed environment because they rose to executive levels in different market conditions. Similarly, Morrisey (1989) shows that US insurers suffer a lack of managerial ability to lead change at the corporate level.

Within this confused picture a preliminary fieldwork study was conducted with the specific purpose of determining whether the level of corporate centre involvement in the

product development activities of constituent businesses differs across financial services companies.

3.3.2 Approach Adopted

The research objectives of the preliminary fieldwork were threefold:

1. to determine whether there is variation in the levels of corporate involvement in the new product development activities of constituent businesses.
2. to determine the reasons for choosing a particular style of involvement.
3. to identify the functional positions of corporate managers who become involved in business level product development activities.

A convenience sample of 12 banks, insurance companies and building societies was selected. These included: Independent Insurance, Economic Insurance, Orion Insurance, Trinity Insurance, Equity Red Star, Municipal General Insurance, Brown Shipley, Co-operative Bank, First National, Bank of Scotland, Alliance & Leicester Building Society and Greenwich Building

Society. A program of personal interviews was conducted to probe senior business managers and corporate managers on the ways in which the latter become involved in new product development. The personal interview technique was favoured, because it was felt that mail or telephone interviews would fail to provide the required depth of information and understanding. For example, it was found that the level of corporate involvement may vary from one constituent business to another. In the study, respondents were asked to limit their responses to the business that was regarded of the most strategic importance to the corporate centre. Strategic importance was operationalized using three dimensions identified by Bartlett and Ghoshal (1990) namely the size, growth potential and/or profitability of the business.

For the purpose of this preliminary study a new product was defined as one, new to the company, launched over the past three years. The term "new" included all types of new products including major modifications of existing products. However, products that had only minor changes were excluded.

3.3.3 The Findings Of The Preliminary Study

Table 3.1 provides an overview of the level of corporate involvement in the product development activities of

constituent businesses. While eight companies reported low corporate centre involvement, four reported high involvement on a regular basis. The results of a rough and ready preliminary study demonstrate that the level of corporate centre involvement in financial services product development does indeed appear to vary between companies.

**TABLE 3.1 LEVEL OF CORPORATE CENTRE INVOLVEMENT
IN NEW PRODUCT DEVELOPMENT (n=12)**

TYPES OF FINANCIAL SERVICES COMPANY	LEVEL OF INVOLVEMENT	
	HIGH	LOW
Bank	1	3
Building Society	2	2
Insurance company	1	3
TOTAL	4	8

Source: Preliminary field study data.

Table 3.2 below shows specific aspects of corporate centre involvement. All companies reported that the magnitude of investment influenced the intensity of corporate involvement - measured in terms of the frequency of corporate involvement in product development activities. In some companies self-standing businesses develop products autonomously, either using their own resources, or requesting resources from the corporate centre for some major one-off projects only. In other companies the corporate centre supplies the needed funds and so becomes directly involved in product development decisions.

Table 3.2 also shows that some respondents stressed that when business managers are judged to lack the ability to conceptualize the complexity of the market, or to manage a new product development program, corporate involvement appears to be higher. Examples include cases where corporate managers have access to information, or possess experience crucial to the success of the product development program. In some companies the corporate centre routinely gather market information. This information is made available to the product development team, either in the form of a written report or through corporate representation on the product development team. The chosen form of communication was reported to depend on the extent to which business level managers understood market trends.

In insurance companies actuarial services are often centralized. Since actuaries provide considerable technical product development inputs, the corporate centre often becomes more highly involvement in the technical product development phase.

Most respondents reported that it was company policy to recruit corporate level management personnel internally. As a result most corporate managers have served at the business level. Their experience and insights were regarded as important in cases where business level managers lack certain abilities crucial to achieving product development success.

Therefore, we conclude that the abilities of business managers influence the intensity of involvement on the part of corporate managers, as shown in Table 3.2

TABLE 3.2 FACTORS REPORTED TO INFLUENCE CORPORATE CENTRE INVOLVEMENT (n=12)

FACTOR	NUMBER OF RESPONDENTS MENTIONING FACTOR
Amount of corporate investment required	12
Experience/ability of business managers	9
Rationalize activities of portfolio	2

Source: Preliminary field study data.

Two companies reported that they were in the process of reorganizing the company structure. This change was necessitated by the fact that some businesses competed for the same customers through different distribution channels. In order to bring about the required changes, the current level of corporate centre involvement is higher than during the past three years. This is in keeping with the findings of Simons (1991) who argues that the corporate centre may become more intensely involved for short periods of crisis to signal the importance of strategic initiatives.

It was found that corporate centre managers who become involved in business level product development activities are those responsible for market planning. The functional

position held by these managers are either that of marketing manager or corporate planning manager. This finding concurs with that of Scheuing and Johnson (1989) who found that product development responsibilities in financial services companies are assigned to marketing officers.

3.4 THE NEED FOR SPECIFIC RESEARCH

It has been shown that the environment of the UK financial services sector has undergone a period of rapid change in the 1980s. The combined effect of changing legislation, technology and competition is likely continue to generate pressure for the development of new products, evolved company structures and changing relationships between corporate centres and their businesses. Results of preliminary fieldwork reported in this chapter strongly pointed to different approaches to management of new product development in constituent businesses on the part of corporate centres.

4. THE METHOD OF THE INVESTIGATION

4.1 INTRODUCTION

Helmstadter (1970) identifies five sequential steps in the research process: (i) statement of purpose, (ii) description of variables to be researched, (iii) description of instruments for gathering data, (iv) gathering and analyzing data and (v) drawing conclusions. This chapter addresses the first two steps; while the third step is dealt with in Chapter 5 (The Fieldwork). The last two steps are reported in Chapter 6 (Analysis of Results).

The purpose of this chapter is to report on the methodological approach and research strategy adopted to investigate whether certain levels of corporate centre involvement in successful product development programs of constituent businesses are contingent upon their complexity of operations. Research objectives are presented; hypotheses advanced with theoretical support, and finally the primary independent and dependent variables are described.

4.2 METHODOLOGICAL APPROACH

Our research has two main aims:

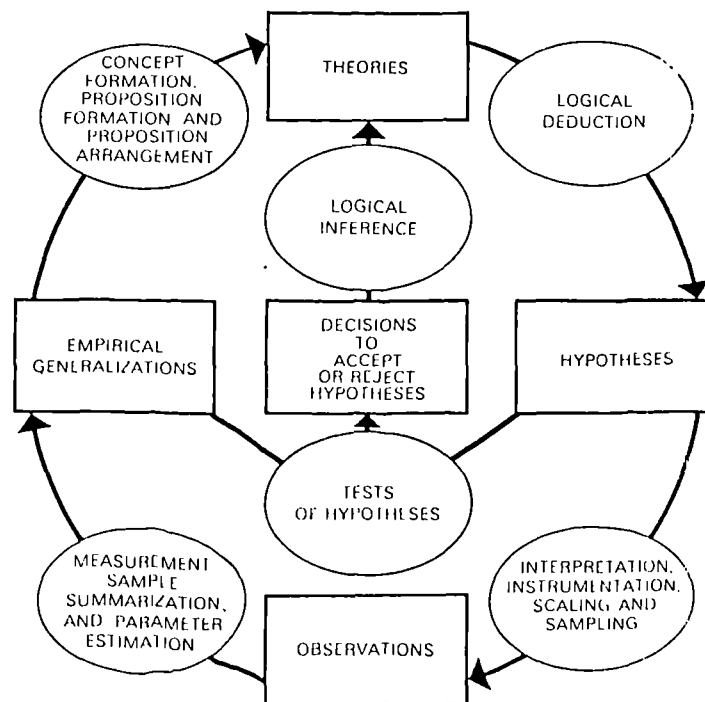
1. To describe how a successful new product development program in a constituent business is influenced by different levels of involvement on the part of the corporate centre, and
2. To test the hypothesized proposition that in winners the corporate centre is involved in ways which takes account of and accommodates the complexity of the business operations.

The first aim is descriptive in nature. The review of the literature presented in Chapters 2 and 3 illustrated that previous product development research has neglected to address the role of the corporate centre in new product development sufficiently. Invoking the corporate and business strategy literature, allows for deduction of hypotheses regarding the ways in which the corporate centre may become involved in new product development in constituent businesses.

The methodology used in this research is the traditional deductive approach. Figure 4.1 contrasts the logic of the (i) deductive approach with the (ii) inductive approach. The (i) **deductive approach** proceeds from the general to the particular. In terms of Figure 4.1, it proceeds from theories to specific hypotheses. Finally, the hypotheses are tested

observation and measurement (Ackroyd & Hughes, 1981). The deductive approach follows the right side of the circle; while the inductive approach is the left side of the circle, starting from observations. In the (ii) inductive approach the researcher proceeds from particular observations to empirical generalizations, and then to theories (Bulmer, 1979). Although the inductive approach of building theory from observation provides a flexible richness which can dramatically advance knowledge, it was deemed inappropriate for this research. We consider it would have been foolish to ignore the considerable body of knowledge provided by literature in related disciplines.

FIGURE 4.1 THE DEDUCTIVE-INDUCTIVE MODEL



Source: Wallace (1971)

4.3 RESEARCH STRATEGY

Research has been defined as a problem solving activity leading to new knowledge using accepted strategies of inquiry (Helmstadter, 1970). Bonoma (1985) has identified seven such scientific research strategies. These are: (i) laboratory experiments; (ii) models; (iii) simulations; (iv) tests; (v) field experiments; (vi) field studies and (vii) case studies. Selection of one of these strategies depends on the extent to which the stated aims can best be achieved through each strategy (Churchill, 1983).

The stated aims reflect the motives of the researcher, namely whether the research is aimed at improving theoretical knowledge or at solving practical problems. **Improving theoretical knowledge** requires fundamental research which is predictive and diagnostic in nature. **Practical problem solving** uses applied research of a descriptive nature (Helmstadter, 1970; Yin, 1984). Fundamental and applied research are each characterized by different (i) types of data used; (ii) levels of control required; and (iii) degrees of data currency.

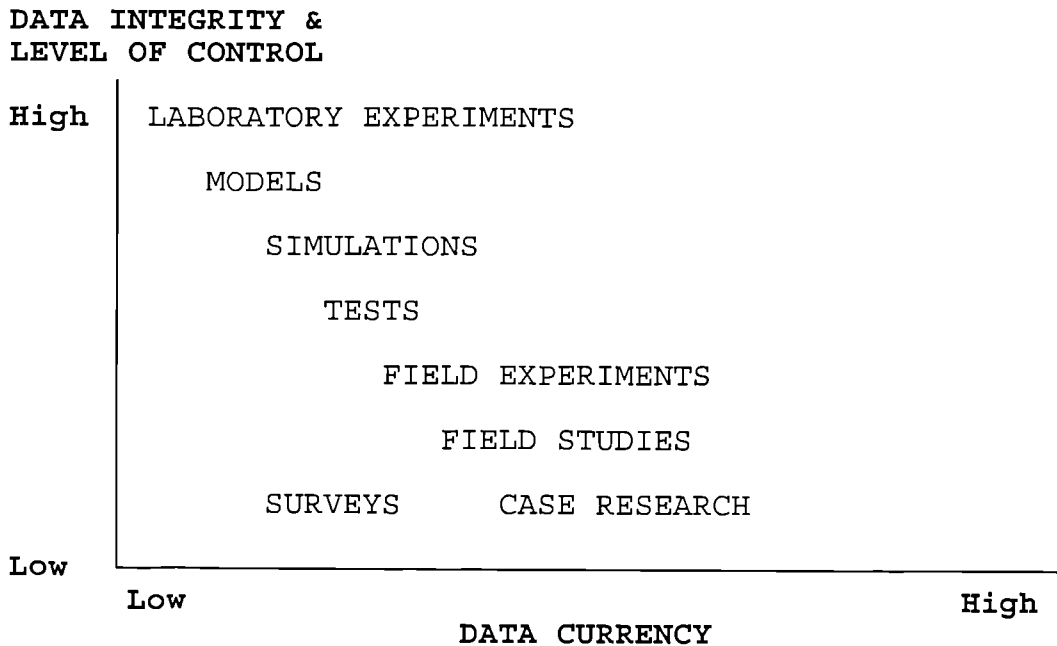
The (i) **type of data** used in fundamental research, such as laboratory experiments, models, simulations and tests is predominantly quantitative. On the other hand, applied research, such as field experiments, field studies, surveys

and case research use data of a mostly qualitative nature (Bogdan & Taylor, 1975; Helmstadter, 1970). Thus the internal validity and reliability - also called data integrity - of fundamental research is higher than in applied research (Bonoma, 1985).

Fundamental research requires (ii) **control over behavioural events** (Yin, 1984; Labovitz & Hagedorn, 1976). That is why experiments are typically performed in laboratories. In field and case studies, however, the only control used involves the selection of the time, place and respondent (Helmstadter, 1970).

Data currency, (iii), is a measure of the generalizability and contextual relevance facilitated by each strategy (Bonoma, 1985). Data currency is inversely related to the types of data and levels of controls required. While researchers seek to maximize all three, there is, therefore, a necessary trade off between the features. It follows from the preceding discussion that high data currency is important in descriptive research; while high data integrity and high levels of control become increasingly important in studies aiming at determining cause and effect (Bulmer, 1979).

FIGURE 4.2 CLASSIFICATION OF RESEARCH STRATEGIES



Sources: Adapted from Bonoma (1985); Labovitz & Hagedorn (1976) and Yin (1984)

In terms of our aims, our requirement was for a research strategy which provides description. Thus, the form of the fundamental questions behind this research is not "what is corporate centre involvement?", or "what is new product development?", but "how is product development in constituent businesses managed by the corporate centre?" As shown in Figure 4.2. the research strategies suited to providing the high data currency required for description include the field experiment, field study, survey and case study.

The important distinction between research methods which provide high data currency lies in the depth and width of the investigation (Churchill, 1983). The case study involves an

in-depth study of a relatively small number of situations (Boyd, Westfall & Stasch, 1981). The field study, experiment and survey, on the other hand, involve a less intensive study of a large number of situations. Indeed, as Yin (1984) and Bonoma (1985) have shown, the case study method provides a real-life description of managerial behaviour through communication with multiple data sources. It reflects the descriptive nature of research questions starting with "how?" and "why?". The case study requires less rigour in control of behavioural events (Yin, 1984).

Since the study of product development programs concerns events that took place over the last three years, thus excluding control over these events, the case study suits the aims of our research well. Moreover, the qualitative data collected through case study research reflects the nature of management behaviour. Although the data integrity of this research is, therefore, relatively low, it is compensated for by the practical problem solving focus of the case study strategy.

Within the case study strategy several design options are available. For design purposes the case study method has been variously classified in terms of the number of (i) measurements taken; (ii) cases and (iii) units of analysis (Churchill, 1983; Yin, 1984). As Churchill (1983) has shown, the (i) **number of measurements** may involve a single or

repeated measurement of sample characteristics. The single, cross-sectional measurement is the most frequently used descriptive design. The emphasis in cross-sectional analysis is on the interrelationship between a number of factors. This is particularly useful when many factors bear on a phenomenon, such as is the case with product development success. The advantage of a cross-sectional measurement lies in its realism and strength of variables (Churchill, 1983). Since the investigation takes place in its natural setting, a large degree of realism is achieved and the effects of variables are typically strong. However, the cross-sectional design provides only ex post facto measurement and involves relatively high cost in terms of time and money.

Taking repeated, longitudinal measures over time reflects changes in the behaviour of individual entities. This allows analysis of current behaviour, rather than past behaviour. However, the time and cost involved in longitudinal measurement is relatively higher than in cross-sectional measurement. The sample used in longitudinal measurement is often non-representative, since many respondents refuse repeated participation in interviews (Churchill, 1983). Therefore, the measurement chosen for this study is the cross-sectional design.

The (ii) **number of cases** included in the investigation influences the time and cost required to complete the

research. While a single case study is relatively cheap, the rationale for using this design is the existence of a critical, extreme or unique case. As Yin (1984) points out, a single case study design can be used if a particular phenomenon occurs so rarely that scientists find it difficult to establish a common pattern. Single case studies can also be used as exploratory design, or as a pilot study of a multiple case study. The danger of a single case study design is that it may prove to be a misrepresentation of the phenomenon (Yin, 1984). It is for this reason that a multiple case study design is preferred in our research. By carefully controlling the population studied, the money and time considerations can be managed to utilize the more robust multiple case design.

The final choice regarding the case study design concerns the (iii) **number of units of analysis**. An embedded case study investigates subunits within a case, such as individual projects within a product development program (Yin, 1984). By contrast, a holistic design studies the global nature of the program. Indeed, the product development literature has long distinguished between project and program success. As discussed in Chapter 1, this study is conducted at the program (holistic) level. While most businesses can point to at least one successful project, the critical issue is to repeat successful performance regularly (Johns and Snelson, 1989; Pearson, 1988).

4.4 THE CHOSEN DESIGN

The research design designates the logical manner in which variables are compared and analyzed (Labovitz & Hagedorn, 1976). In the previous sections the aims of the research and the methodological approach and strategy have been discussed. Within this framework a number of research designs are possible. Labovitz and Hagedorn (1976) identifies four variables of research design: (i) research question; (ii) research hypotheses; (iii) unit of analysis, and (iv) the primary variables. These are presented below.

4.4.1 Research Question

The aims of the research is restated in the fundamental research question of the thesis:

Are certain styles of corporate centre involvement in constituent businesses associated with higher product development success than others?

The question reflects the dual aims of describing how the corporate centre manages product development in constituent businesses and to test for the existence of an association between product development success and the style of corporate

centre involvement used. Moreover, the question limits the scope of enquiry. This is entirely justified given the depth of knowledge gleaned from the corporate and business strategy literature.

4.4.2 Hypotheses

The research hypotheses turn the aims and question into testable propositions by relating two variables, dependent and independent, to one another (Bulmer, 1979). The logic linking these two variables is as follows:

The research question reflects the apparent neglect of the corporate centre in product development literature. Strong support exists among product development scholars to suggest that top management support is critically important to achieve product development success (Ayal & Rothberg, 1986; Cooper & Kleinschmidt, 1990; Crawford, 1987; Hayes & Abernathy, 1980; Hegarty & Hoffman, 1990; Hendry, 1989; Johnes & Snelson, 1989; MacMillan & George, 1985; Maidique, 1980; Maidique & Zirger, 1984; Rothwell, 1979; Souder, 1981; Tauber, 1979; Tushman & Nadler, 1986; Twiss, 1986; Utterback, Allen, Holloman & Sirbu, 1976). However, little empirical evidence has been found on the actual role of corporate management as opposed to senior business management. More specifically, the role of the corporate centre in product development in

financial services companies has been neglected in the literature. The limited empirical evidence that does exist, suggests that product development initiatives can be managed through top-down involvement from the corporate centre; or through a style encouraging bottom-up, autonomous initiatives taken at business level (Burgelman & Sayles, 1986; Hall, 1987; Pinchott, 1985; Scarborough & Lannon, 1989).

To provide a base upon which to explore the extent to which the success of a group of new products is associated with the style of corporate centre involvement, it is necessary to identify the intensity of corporate involvement in the new product development process of constituent businesses. This is because, as Goold and Campbell (1987) have shown, the different styles of corporate involvement can be classified in terms of the intensity of corporate involvement in the planning and control of businesses.

The hypotheses suggest that different levels of corporate involvement may be appropriate in different circumstances. Indeed, as Kenyon and Mathur (1991) have argued, some businesses benefit more from intense corporate involvement than others. Those that do benefit from more corporate involvement are relatively complex from a business management point of view. Businesses which need substantial corporate resources, which face complex market and product conditions and long decision lead times need more corporate involvement.

On the other hand, those businesses which are less complex, need less corporate involvement to achieve product development success. As Cooper and Kleinschmidt (1990) remark: "day-to-day meddling by the top management is not conducive to success".

The **working hypothesis** tested in this study is that:

In businesses which achieve high new product development program success, the corporate centre becomes involved in ways which are more appropriate than in those that achieve lower new product development program success.

The working hypothesis reflects the research design. It suggests an association between product development success (the dependent variable) and the appropriateness of the style of corporate involvement (independent variable). This implies theoretically contrasting associations shown in Figure. 4.3.

FIGURE 4.3 THEORETICAL HYPOTHESIZED ASSOCIATIONS

		DEGREE OF SUCCESS	
		High	Low
STYLE	Appropriate	50%	0%
	Inappropriate	0%	50%

(Proportion of cases in sample)

By splitting the sample in two halves using the mean score on the success measure (high or low), theoretical

prediction is that all successful cases are characterized by the use of an appropriate style of corporate involvement; and that all the unsuccessful cases are characterized by the use of an inappropriate style of corporate involvement. The logic of the contrasting associations is that the same hypothesis is tested in each case (Yin, 1984). The aim is to replicate the results of tests across cases. Distinction between successful and unsuccessful cases requires contrary results explained by theoretical prediction - also called theoretical replication (Yin, 1984). This approach greatly improves the external validity of the research design (Yin, 1984).

The reasoning behind the supporting hypotheses is that if a business is less complex, less intense corporate involvement is required to achieve success. Indeed, high corporate involvement in the product development activities of less complex businesses amounts to over meddling (Cooper & Kleinschmidt, 1990). On the other hand, if a business is complex, more intense corporate involvement is required. In fact, failure to provide the necessary corporate centre support is hypothesized to lead to failure.

The **supporting hypotheses** distinguish between businesses which achieve high product development success at the program level (program winners), and those that achieve low program success (program losers). The supporting hypotheses maintain that:

1. Program winners use the appropriate corporate planning and control style. The corporate centre:
 - (a) is more intensely involved if the business is complex,
but
 - (b) is less intensely involved if the business is less complex.

2. Program losers use an inappropriate corporate planning and control style. The corporate centre:
 - (a) is less intensely involved if the business is complex,
but
 - (b) is more intensely involved if the business is less complex.

The constructs operationalizing the independent variable are the intensity of corporate centre involvement and the complexity of the business. This implies theoretically contrasting associations shown in Figure. 4.4.

FIGURE 4.4 HYPOTHESIZED ASSOCIATIONS AND DEGREE OF PRODUCT DEVELOPMENT SUCCESS

		BUSINESS COMPLEXITY	
		High	Low
CORPORATE INVOLVEMENT	High	HIGH SUCCESS	LOW SUCCESS
	Low	LOW SUCCESS	HIGH SUCCESS

4.4.3 The Unit Of Analysis

The unit of analysis is the **product development program** in the business. The unit being studied is, therefore, the business. The primary research aim is then to describe the style of corporate centre involvement in the product development programs of businesses of varying degrees of complexity; and to test for associations with success.

The chosen unit of analysis - product development program - provides a specific level of analysis at which it is possible to describe the way in which activities are carried out. However, it is necessary to define the unit of study to facilitate clear delimiting boundaries for the unit of analysis. Yin (1984) suggests that the boundaries of the unit of study (the business) be defined in terms of (i) the topic of the case study; (ii) the context of the case study; (iii)

the geographic area covered and (iv) the time boundaries of the case. Definition of the unit of study limits the unit of analysis. The (i) **topic** of the case study is the product development program and how it is influenced by the intensity of corporate involvement in the business. The (ii) **context** in which product development programs are analyzed is the complexity of financial services business unit operations. The (iii) **geographic area** included in the study is the Greater London area. The (iv) **timing** of the case study is limited to the products developed over the last three years - 1989, 1990 and 1991.

4.4.4 The Dependent Variable

In order to determine whether involvement by the corporate centre in the new product development activities of constituent businesses is of value, it is necessary to measure product development success. Despite the attention given to success and failure by researchers in the field, universally accepted definitions have not been developed. Instead, a wide range of interpretations is found in the literature. Hauschildt (1991) summarizes the analytical concepts used by researchers to define success as: (i) the scope, (ii) attributes, (iii) timing, (iv) standards of comparison and (v) participants of the success measure. Each of these will be considered in turn.

4.4.4.1 Scope

Product development success can be measured at two levels: at the micro, i.e. project or product level and at the macro, i.e. program level. As discussed in Chapter 1, this study is conducted at the program level. Program success is a measure of repeated project development success over the long-term (Cooper, 1984; Johne & Snelson, 1989).

While a project focus has certain advantages, it often emphasizes incremental changes only, with resulting low impact on the long-term fortunes of the company. Clearly, this approach is myopic and may result in "winning the battle, but losing the war" (Cooper, 1984). While one-off development winners exist in most firms, the critical issue is to repeat successful performance regularly (Johne and Snelson, 1989; Pearson, 1988).

4.4.4.2 Attributes

The different attributes of product development success used in previous empirical investigations include (i) technical, (ii) market, (iii) profit and (iv) other attributes (De Brentani, 1989; Nystrom & Edvardsson, 1982; Hauschildt, 1991).

Although (i) **technical attributes** are infrequently used, Cooper (1984) has used the proportion of new products killed before launch, while Reinertsen (1983) has used the speed of bringing the product to the market as measures of success. Technical success is a prerequisite for economical success. However, by emphasizing technical attributes, the importance of the outcomes of the product development process are often slighted (Johne & Pavlidis, 1991; Schaffer, 1991).

On the other hand, (ii) **market attributes** are measures which reflect whether a new product was received favourably on the market, such as the relative impact measure used by Cooper (1984) - the proportion of company sales made up by new products, and the market share generated by the program of new products. However, achieving superior market appeal alone is insufficient, because it fails to reflect the ability of the business to exploit market opportunities profitably (Johne, Howard & Davies, 1991; McKenna, 1991).

The measurement of (iii) **profitability** and contribution margins is widespread (Cooper, 1984; Cooper & Kleinschmidt, 1987; Nystrom & Edvardsson, 1982; Rothwell, 1977; Utterback, Allen, Holloman & Sirbu, 1976). However, due to different accounting bases employed by different companies, a subjective rating of profitability is often employed as a substitute for an objective measure (Cooper & Kleinschmidt, 1987).

Other attributes, (iv), such as the scientific reputation and recognition can increase the self-esteem of product development team members. For the business it may be important that social goals, such as reduced ecological damage is achieved (Hauschildt, 1991). Individual and social attributes may lead to success. However, these attributes along with technical attributes are regarded as process issues rather than as outcomes of the product development process.

No universally accepted definitions of success and failure have been developed. Therefore, a limited fieldwork exercise was conducted to aid the researcher in compiling a definition of success which reflects the measures used by managers in the area of financial services. The aim was to assess appropriateness of the identified attributes for measuring product development success in financial services companies.

The Delphi expert assessment method was employed. The exercise sought to generate a comparative ranking of the appropriateness of performance attributes. The Delphi method was employed to achieve consensus among experts. The Delphi method is a system of anonymous polling with feedback consisting of three stages: (i) a group of experts provide opinions with justification; (ii) revision of these opinions in the light of others' arguments; (iii) continuing until consensus is reached (Bryman, 1989). Although the Delphi

method is an unreliable forecasting method, it has been shown to be a useful method for achieving well considered, thoughtful consensus of expert opinion (Sackman, 1975). It is in this second context that the Delphi method was employed in an exercise.

The fieldwork was planned after careful reflection concerning the methodological deficiencies of the Delphi method. These include that (i) aggregate raw opinions may result in unsystematic findings; (ii) less experienced panellists may be influenced by the prestige of more experienced panellists - the halo effect; (iii) group discussion may result in manipulated suggestion rather than real consensus; (iv) panellists may all be from the same background; and (v) results may not be valid in terms of objective theoretical literature (Bryman, 1989; Linstone & Turoff, 1975; Sackman, 1975).

Care was taken to avoid unsystematic findings by using a panel of experts and by resubmitting the findings to the panel for further consideration until consensus was reached. Panellists from different backgrounds - academic and practical - were included. However, the panellists were not brought into personal contact with another, in order to avoid manipulation and the halo effect. Finally, the findings were linked with the product development and strategy literature before finally entering the attributes into the instrument

used for measuring product development program success - the dependent variable.

The convergence process was aided by binding the initial assessment made by experts through defining their frame of reference in a set of instructions. These instructions were aimed at ensuring that all experts assessed the potential attributes in the same way, irrespective of their background. Instructions were given to:

1. assess the appropriateness of a list of performance attributes,
2. relative to each other,
3. with a view to use the more appropriate attributes
4. in comparing the business level product development success achieved by different financial services companies in London.
5. Respondents were asked to consider whether they would be able to make a subjective judgement on each attribute in considering its appropriateness.

20 experts were contacted to participate in the exercise. The potential panel was created using a list of financial service market analysts, academics, practising managers in banks, building societies and insurance companies, and consultants. The list was compiled through personal contacts in City University, consultancy firms and colleagues who are

practising managers in financial services companies.

The overall participation rate was 60%. Those who declined to participate cited time pressure from work (5) and insufficient depth of knowledge (3) as reasons for non-participation. The participation rate of the potential panel is shown in Table 4.1.

TABLE 4.1 DELPHI EXERCISE PARTICIPATION RATE

EXPERT	RESPONSE	
	NUMBER APPROACHED	NUMBER PARTICIPATING
Academic	4	2
Consultant	2	1
Market analyst	2	2
Practising manager	12	7
TOTAL	20	12

Source: Delphi study.

Following a telephone discussion to introduce the fieldwork exercise, a list of 20 success attributes - shown in Table 4.2 below - was mailed to panellists. Panellists were asked to rate the relative appropriateness of the attributes on a 7-point Likert type scale. Panellists were also given the opportunity to add more measures of success.

Interpretation of the scale is as follows:

- 1 - Very inappropriate measure of success
- 7 - Very appropriate measure of success

TABLE 4.2 SUCCESS ATTRIBUTES INCLUDED IN DELPHI ANALYSIS

1.	High growth in market share relative to competitors
2.	High market share relative to competitors
3.	Market share exceeds business objectives
4.	Superior benefits offered relative to competitors
5.	High sales income relative to competitors
6.	High growth in sales income relative to competitors
7.	High sales in absolute terms
8.	Sales income exceeds business objectives
9.	High profitability relative to competitors
10.	High profitability growth relative to competitors
11.	High profitability in absolute terms
12.	Profitability exceeds business objectives
13.	Increased reputation of leader of product development team
14.	High growth in share price relative to that of competitors
15.	High number of new product introduced into the market relative to competitors
16.	High cost effectiveness in providing new products
17.	Experience gained by developing the new products
18.	Positive impact of new products on company image
19.	Opening up opportunities to enter new markets
20.	Speed in bringing new products to market

Source: Developed from Hauschildt (1990)

In the second round the panellists were sent a document listing all the success attributes, showing the highest, lowest and average scores for each attribute, as well as the rating provided by the specific panellist. A selection of comments made by panellists was also attached. Panellists were asked to change their scores if they wished to. A few revisions of scores were made, which necessitated a third round. No panellist changed a score in the third round.

In final analysis the attributes were classified, using the four dimensions identified by Hauschildt (1991) as either technical, market, profit or other. The findings of the

Delphi exercise is presented in Table 4.3.

Profit based attributes were rated as the most appropriate measures of success, followed by market based measures such as sales and market share. Technical and "other" attributes, such as experience, cost effectiveness and speed of development, received substantially lower ratings. Consequently, it was decided to include only profit and market attributes in the final success measurement.

TABLE 4.3 FINDINGS OF DELPHI EXERCISE (%)

ATTRIBUTE	STANDARD OF COMPARISON		TOTAL
	INTERNAL	EXTERNAL	
Technical	66	43	60
Market	72	81	76
Profit	91	91	91
Other	32	43	38
TOTAL	71	75	73

Source: Delphi study

Statistical analyses were deemed unnecessary, since the relative importance of market and profit attributes is confirmed in the strategy literature. As Eccles (1991) asserts, market and profit attributes reflect the outcome of the product development program, rather than the effectiveness of process inputs. Also, it was deemed unnecessary to include only one of market or profit attributes in the final measuring instrument of the dependent variable. Rather, the use of both profit and market measures is warranted. While profit

measures reflect the consequences of previous decisions, rather than forecasting future performance, market measures complement profit measures by serving as leading indicators of performance (Eccles, 1991). By measuring both profit and market attributes the consequences of previous decisions and their impact on future performance is taken into account. Therefore, both profit and market attributes represent important dimensions of product development success and were included in the final measure of success.

4.4.4.3 Timing

Summarizing the work of other authors, Hauschildt (1991) concludes that researchers agree that the outcomes of the product development process can only be measured after the new product is introduced to the market. However, many scholars fail to make clear the time limit used. In keeping with the generalized period chosen by many authors, this study measures the success of all new products launched in the last three years.

Choosing a shorter time limit may improve respondent retention of relevant product development activities. However, respondents to the preliminary fieldwork exercise reported earlier (Section 3.3.2) agreed that a longer time period is required for financial services. This is because

the market and profit effects can only be gauged over a longer period of time. Indeed, some insurers felt that a period of up to ten years may be appropriate. Since many regulatory changes took place in 1986 (Building Societies Act; Financial Services Act) a ten year time frame is impractical. A time frame of five to six years would have included a period of uncertainty during which financial services companies were still assessing the implications of new legislation. Therefore, a three year time frame commonly used in previous product development research was chosen (Cooper & Kleinschmidt, 1987; Johnes & Snelson, 1990).

4.4.4.4 Standards Of Comparison

Since different companies pursue different objectives, and these objectives can be measured in different ways, success is conceptualized in many ways. In the majority of product development investigations management sets the measures of success, thus using the business objectives as basis for comparison (internal comparison). Since business objectives differ, internal performance objectives are incomparable. Moreover, as Eccles (1991) shows, when internal measures are used, achievement of "success" can still lead to loss of competitive advantage. Internal yardsticks can breed complacency and a false sense of security (Eccles, 1991).

Fewer empirical studies of product development compare success with the performance of competitors (external comparison). External comparisons promote the adoption of best industry practice or benchmarks. It shows how the business is doing compared with its current competitors, not with its own past (Eccles, 1991; Pearson, 1988; Tucker, Zivan & Camp, 1987). The importance of external bases of comparison is further emphasized by interpretation of the findings of the Delphi field exercise reported in Section 4.4.4.2. Details are shown in Table 4.4. When deleting technical and other attributes regarded as inappropriate success attributes, it is possible to recalculate the importance of internal and external criteria using only market and profit attributes. The importance of external attributes increases from 75% (see Table 4.3) to 84% (see below).

TABLE 4.4 INTERPRETATION OF DELPHI EXERCISE(%)

ATTRIBUTE	STANDARD OF COMPARISON		TOTAL
	INTERNAL	EXTERNAL	
Market	72	81	76
Profit	91	91	91
TOTAL	78	84	81

Source: Delphi study

Interpretation of the above is that if only market and profit attributes are considered, the relative importance of external attributes is higher compared with internal factors. It was for this reason that the dependent variable selected by us measures performance attributes relative to best competitor

performance.

4.4.4.5 Participants In The Measuring Process

Product development success measures can be provided by insiders to the company - such as managers - or by outsiders - experts such as financial analysts, consultants or leading academics. Such measures can be based on self assessment, peer evaluation or expert assessment (Bryman, 1989; Linstone & Turoff, 1975; Sackman, 1975; Wright, Saunders & Doyle, 1990). The measurement provided by either internal or external participants may vary according to their functional specialisms and expert knowledge. Moreover, external experts may not have sufficient time or knowledge to rate the performance of a large sample. In our study we use insider ratings.

4.4.4.6 Conclusion

Based on the preceding discussion we can now stress that our measure of success - the dependent variable - focuses on the new product development program. The program consists of all new products developed for the business over the last three years. The measures are provided by business and corporate level managers internal to the company. The

attributes used in the measuring instrument are profit and market based. These attributes are measured against external standards of comparison, i.e. how the business is doing compared with its current competitors.

The six criteria of new product development program success included in our dependent variable are shown in Table 4.5. The measure of success has certain disadvantages, but compensates for these in a number of ways. The most important drawback is that the measure is provided by managers - insiders - only. Moreover, the measure is based on subjective assessment. Also, management is not given the opportunity to define success using measures that suit the specific needs of each business.

As Hauschildt (1991) has shown, the majority of previous researchers use unspecified attributes provided by managers. The success measure used in our research represents an important departure from this approach by using a specified set of measures.

TABLE 4.5

ATTRIBUTES OF NEW PRODUCT DEVELOPMENT SUCCESS
TO SCORE THE DEPENDENT VARIABLE

- | | |
|----|---|
| 1. | Level of profits achieved from new products introduced in the years 1989, 1990, 1991 relative to the competitor achieving the highest level of profits. |
| 2. | Rate of increase in profits achieved from new products introduced in the years 1989, 1990, 1991 relative to the competitor achieving the highest rate of increase in profits by this means. |
| 3. | Level of market share achieved from new products introduced in the years 1989, 1990, 1991 relative to the competitor achieving the highest market share. |
| 4. | Rate of increase in market share achieved from new products introduced in the years 1989, 1990, 1991 relative to the competitor achieving the highest rate of increase in market share by this means. |
| 5. | Level of sales achieved from new products introduced in the years 1989, 1990, 1991 relative to the competitor achieving the highest level of sales. |
| 6. | Rate of increase in sales achieved from new products introduced in the years 1989, 1990, 1991 relative to the competitor achieving the highest rate of increase in sales by this means. |

Source: Delphi study

Respondents rated performance using the specified set of measures provided by the researcher (Table 4.5), rather than their own criteria of success. This approach is sensible, because as Crawford (1979) and Hauschildt (1991) have shown, the use of a specified set of measures improves comparability and objectivity. The set of measures shown above has not been arbitrarily selected. It was determined after a preliminary fieldwork exercise reported in Section 4.4.4.2.

It will be noticed that both market and profit attributes are included, and couched relative to best competitor performance. Analysis of the fieldwork exercise shows that external attributes - relative to competitors - are regarded

better success measures than internal attributes. Also, market and profit measures are regarded more important than technical and other process measures. The strategy literature confirms the importance of the mentioned dimensions of success. As Eccles (1991), Pearson (1988) and Tucker, Zivan and Camp (1987) have shown, it is better to outperform competitors, than the past performance of the business. Eccles (1991) also confirm the importance of profit and market measures, which reflect the outcome of the product development program, rather than the process inputs.

The resulting measure of success is a multi-dimensional variable. This is desirable because there are many potential attributes of success. Indeed, Hauschildt (1991) asserts that "it is not possible to effect the measurement of success with the help of a single criterion". On the basis of our preliminary field investigation we concur with this assertion. It is for this reason that our dependent variable is operationalized through the multi-dimensional measure shown in Table 4.5.

4.4.5 The Principal Independent Variable

The definition of the principal independent variable is contained in the hypotheses: the **appropriateness of corporate involvement**. The appropriateness of corporate involvement

comprises the extent to which the corporate planning and control style takes account of the complexity of the business. "Corporate centre involvement" spans planning and control for the business. The concept of "appropriateness" concerns the relationship between:

1. intensity of corporate centre involvement (high or low);
2. the complexity of the business (more or less).

The (i) *intensity of corporate centre involvement* is measured through the frequency of corporate centre participation in key product development activities (Simons, 1991). The (ii) **complexity of the business** is operationalized in terms of the degree of product and market complexity; the length of the lead times between major decisions and their results, and the levels of investment required (Alexander, 1991; Kenyon & Mathur, 1991).

Thus, we argue that if a business scores low on the complexity attributes, a low intensity of corporate centre involvement is appropriate. If, on the other hand, the complexity score is high, a high intensity of corporate centre involvement is appropriate. It is hypothesized that businesses in which the appropriate corporate management style is used, are more likely to achieve product development success.

The opposing viewpoint is that if the intensity of corporate centre involvement is high for less complex businesses, or low for complex businesses, the style used is inappropriate. Therefore, it is hypothesized that businesses in which inappropriate corporate management styles are used, are more likely to be unsuccessful.

4.4.6 Other Independent Variables Used For Control Purposes

A multitude of factors impacts on the product development process. These have been studied from four main analytical perspectives identified by Johne and Snelson (1988): (i) the market and operating environment; (ii) the actions or attributes of the business; (iii) the group of people within the business involved in development; and (iv) particular individuals who are or ought to be involved. The first of these perspectives concern factors external to the business - exogenous factors; while the latter three perspectives are within the control of managers - endogenous factors.

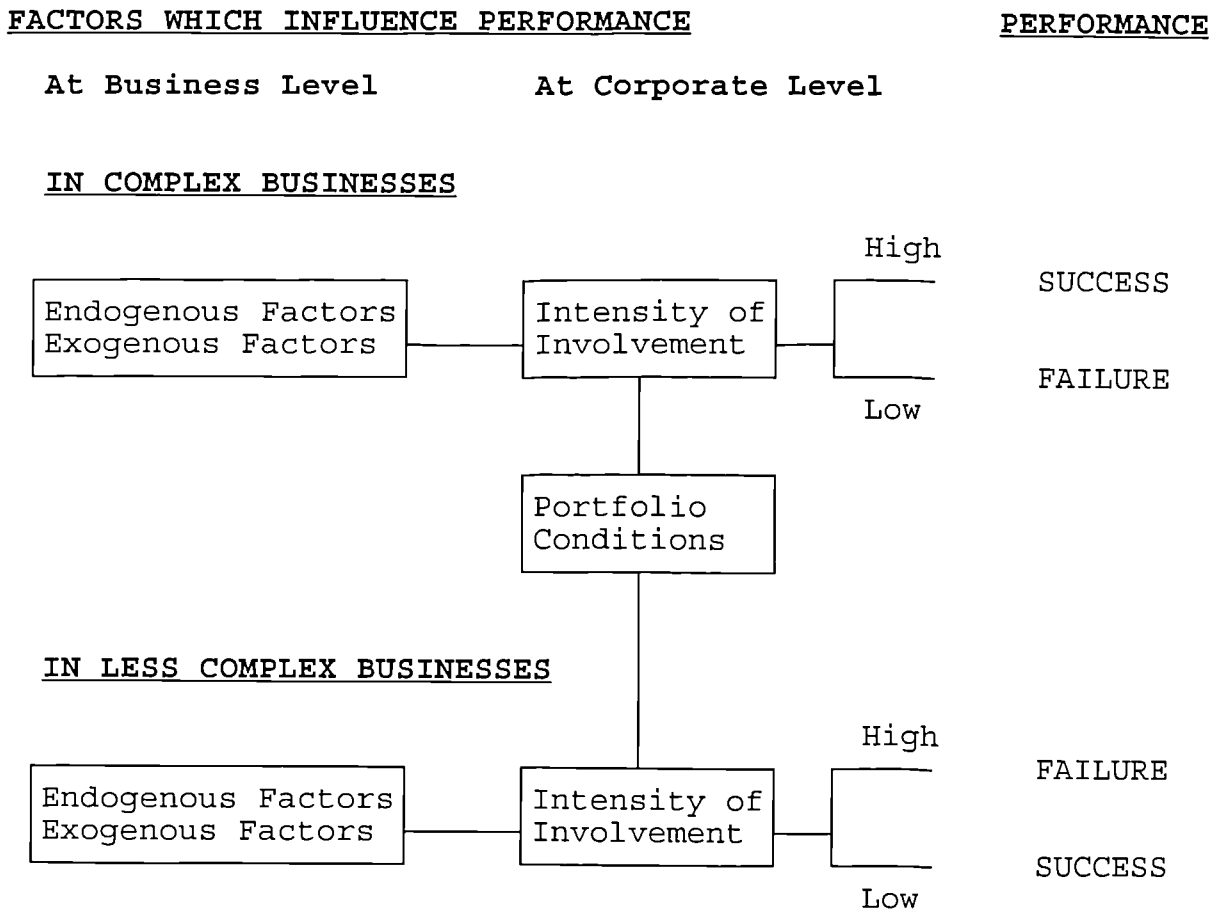
Capturing the complexities of management decision-making in product development is difficult. This is because product development comprises several distinct sub-activities. In our research we have adopted the McKinsey 7Ss framework (Peters & Waterman, 1982) to provide an overview of managerial factors determining product development success. This framework has

been adapted by Johnes and Snelson (1988) and provides a useful overview of endogenous factors: strategy, structure, skills, shared values, style, staff and systems. Table 2.1 (Section 2.4.2 - Analytical Framework: The McKinsey 7Ss) provides a description of each factor. In our research control is exerted for each of these seven factors which may impact the outcome of the product development program. Details of how these controls are measured is provided in Section 5.3.2.2 - The Questionnaire. A visual description of the research model is presented in Figure 4.5.

The reasoning underlying the research model is that for a complex business many endogenous factors may influence product development success. The influence of these factors are operationalized using the McKinsey 7Ss framework discussed above. Since developments outside the task environment may also influence the outcome of the product development program, a framework for analysis of the wider business environment (discussed below) is used. While all these factors may impact on the ability of the business to achieve product development program success, it is our research intention to keep the influences of these factors constant, either through sampling control (see Section 5.2) or through measurement (see Section 5.3.2.2). In this way it is possible to determine the extent to which product development success is influenced by corporate involvement. Since the corporate centre may become involved in many business level managerial activities, the

McKinsey 7Ss framework is once again used to provide an overview of these activities (see Section 2.4.4).

FIGURE 4.5 THE RESEARCH MODEL



The hypothesized outcomes are shown in the right-hand side of the model: intense corporate involvement in the product development program of a complex business is hypothesized to lead to success, while less intense corporate involvement is hypothesized to lead to failure. In the same way, it is our research intention to determine the influence

of corporate involvement on the achievement of product development success in less complex businesses. While the same factors are believed to influence the success, it is hypothesized that less intense involvement is likely to lead to success in less complex businesses. On the other hand, it is hypothesized that more intense involvement is likely to lead to failure.

It is, therefore, necessary to compile a checklist of exogenous factors which may impact on product development program performance. This is because developments outside the task environment of the business may impinge on the business's position in its current markets (Brownlie, 1991). A diverse framework for analyzing the wider business environment was adapted from previous frameworks developed by Kast and Rosensweig (1974) and by Bartlett and Ghoshal (1990). The framework is described in Table 4.6 and includes demography, sociology, economy, political-legal issues, competition, market potential, culture, technology, education, natural resources, and portfolio conditions.

TABLE 4.6

FRAMEWORK FOR ANALYSIS OF THE WIDER
BUSINESS ENVIRONMENT

EXOGENOUS FACTOR	DESCRIPTION
Demography	The type of customer group served by the business
Sociology	The class structure in which the business operate
Economy	Economic framework and fiscal policies
Political-legal	Degree of business regulation
Competition	Intensity of competition in different target markets
Market potential	Sales growth potential and profitability of different businesses
Culture	Values and norms of different nationalities
Technology	Degree to which new knowledge is available to all businesses
Education	Literacy, professional and specialized training of customers and potential workforce
Natural resources	Degree to which natural resources are available to all businesses
Portfolio conditions	Degree to which businesses achieve equal synergy with other businesses in the portfolio

Sources: Adapted from Kast & Rosensweig (1974) and Bartlett & Ghoshal (1990).

4.5 SUMMARY

By using a deductive approach, hypotheses have been put forward. The problem concerning the appropriate extent of corporate centre involvement in the product development operations of businesses is thus restated in terms of testable

variables. The case study method was selected as the appropriate research strategy because it provides an in-depth study of real-life situations, thus enabling description of managerial behaviour. The sample and data collection instrument are discussed in the following chapter (Chapter 5: The Fieldwork).

5. THE FIELDWORK

5.1 INTRODUCTION

This chapter describes the fieldwork undertaken. The chosen sample elements are discussed, as well as the data collection method employed. Data collection involved two phases: corporate level and business level data collection. Each phase is dealt with in turn.

5.2 SAMPLE ELEMENTS

A relatively small number of new product development studies has been conducted in the area of services. Consequently, there is a lack of theoretical support for industry-wide generalizations. Use of the traditional broad, cross-sectional approach makes an assumption that the research findings will be generalizable across all service industries. However, each industry sector deals with unique customer needs and external environment. The generalizations of the findings across all industry sectors, therefore, is unlikely to be valid.

To overcome this limitation, a more controlled approach is desirable to eliminate unwanted sources of variance. It

was for this reason that the sampling framework was narrowed to reflect a more homogeneous service industry sector - financial services. A narrower selection of only one financial services segment is not desirable, since, as Watkins, Ennew and Wright (1990) have shown barriers between banks, building societies and insurers are breaking down as far as their market offerings are concerned.

Twenty-one London based financial services companies that are British controlled and had total assets in excess of £5 billion in the financial year 1990/1991 comprise the population for sampling purposes. All 21 of these large financial services companies were included in the sample and approached in the research; which in effect reflects a census of this particular service sector. A census is feasible given the small number of institutions involved. The financial services companies were identified using annual reports, the Building Societies Association's Directory Of Members; the City Financial 1990/91 Insurance Register; The British Insurance Industry: A Statistical Review by R.L.Carter and S.R. Diacon and Provincial Bank's specialist banking services, the Bank Authorized Institution Information Sheets. The sample frame is presented in Table 5.1 below.

The sample is limited to large companies. This is necessary for three reasons. Firstly, the aim of the research is to describe corporate involvement in multi-business

companies, because the choice of corporate management style becomes increasingly complex as businesses are added in large companies. As Goold and Campbell (1987) have shown, smaller companies tend to use a centralized control style. However, critical variables such as the number of businesses in a company are only fully understood once inside the company (Jones, 1989). An accurate count of the number of businesses cannot be achieved using secondary sources. Size is, therefore, used as an indicator of the likely number of businesses within a company.

A second reason for limiting the sample to large companies is that large financial services companies often lead attempts to adapt to changes in the environment through product development activities (Edgett & Jones, 1991). Thirdly, relatively high concentration in all financial services sectors means that a representative sample would include a disproportionate number of companies with very small market share. Such a sample would underrepresent large companies. Changes made by small and medium sized companies would affect far fewer customers, while changes in large companies can be expected to have a higher impact on the market.

Following the approach of Edgett and Jones (1991), the gross asset value at the end of financial year 1990/1991 is used as a measure of size. Although some companies do have

differing year end dates, the "league table" of size is unlikely to change much in the intervening months.

**TABLE 5.1 POPULATION OF LARGE BRITISH CONTROLLED
FINANCIAL SERVICES COMPANIES IN LONDON**

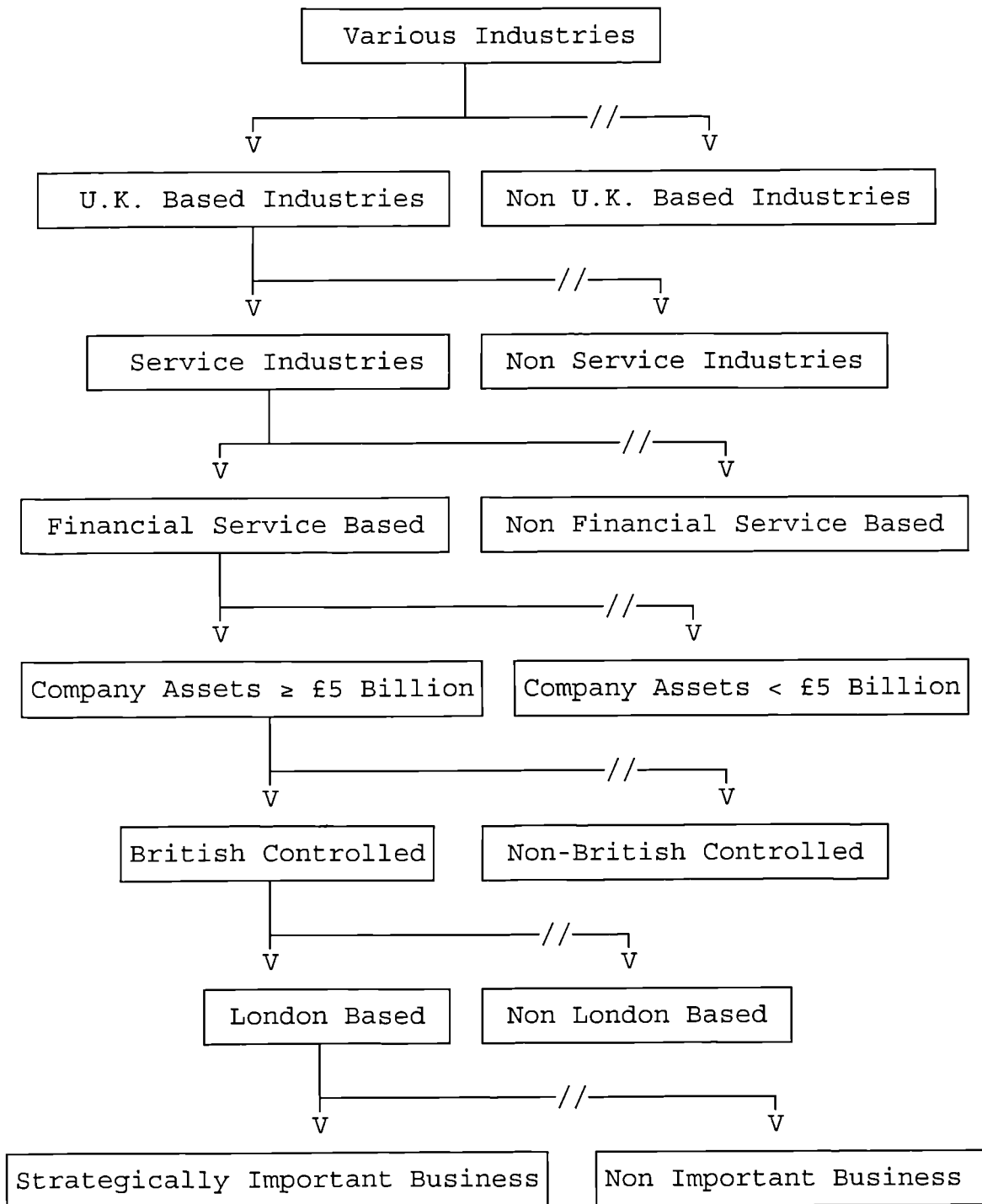
<p><u>BANKS</u></p> <ol style="list-style-type: none">1. Abbey National plc2. Barclays Bank plc3. Kleinwort Benson Ltd4. Lloyds Bank plc5. Midland Bank plc6. The National Westminster Bank plc7. Standard Chartered Bank8. TSB Group plc9. SG Warburg & Co. Ltd <p><u>INSURANCE COMPANIES</u></p> <ol style="list-style-type: none">10. Commercial Union Life Assurance Co Ltd11. The Equitable Life Assurance Society12. Friends Provident Life Office13. Guardian Royal Exchange Assurance plc14. Legal & General Assurance Society Ltd15. Provident Mutual Life Assurance Association16. The Prudential Assurance Co Ltd17. Royal Insurance plc18. Sun Alliance & London Assurance Co Ltd19. Sun Life Assurance Society plc <p><u>BUILDING SOCIETIES</u></p> <ol style="list-style-type: none">20. Nationwide Anglia Building Society21. Woolwich Building Society

In addition, Bartlett and Ghoshal (1990) and Jones (1989) have suggested that in studies of this nature, differences exist between businesses which are in close proximity to the corporate centre and those which are further away. A further sampling control was, therefore, placed upon this type of variance by reducing the sampling frame to a specific region -

the greater London area. Moreover, only British controlled corporate centres and their London based businesses are included in the sample. This is because, as Jones (1989) has shown, companies of different nationalities differ in their approach to planning and control. UK ownership, therefore, ensures a shared managerial inheritance.

Simons (1991) has suggested that variations in the intensity of corporate centre involvement occurs, depending on whether diagnostic or interactive planning and control systems are used to manage the business (discussed in section 2.2.2.). Interactive systems are used to signal the importance of new strategic initiatives to businesses. A further sampling control was, therefore, placed upon this type of variance by reducing the sampling frame to the business of greatest strategic importance to the company. This was operationalized using three dimensions of strategic importance. As has already been mentioned, Bartlett and Ghoshal (1990) have shown that corporate centre involvement in constituent units of the company may be influenced by the size, growth potential and/or profitability of that unit. Figure 5.1 summarizes the selection process.

FIGURE 5.1 SAMPLE SELECTION



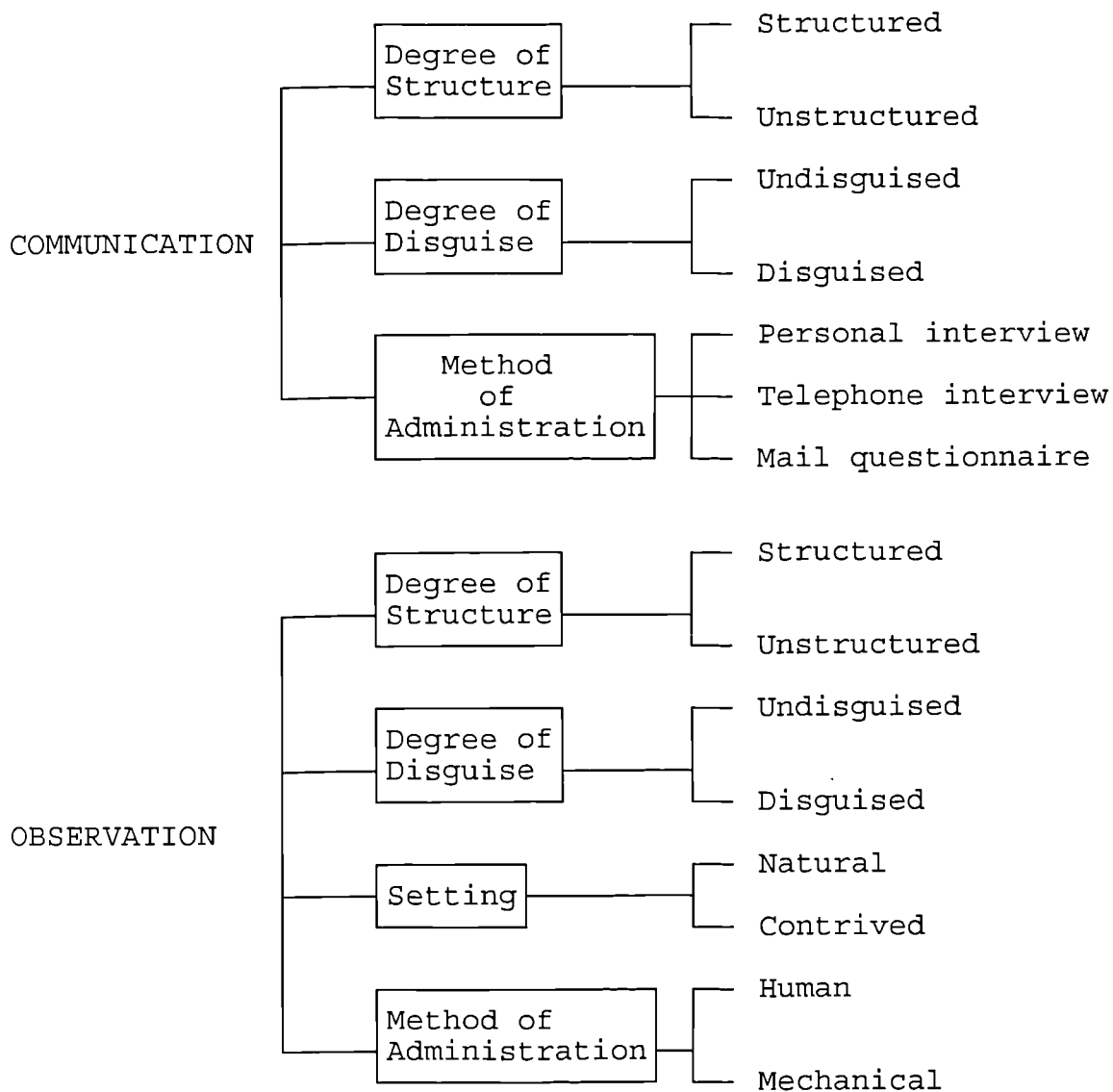
5.3 DATA COLLECTION INSTRUMENT AND METHOD

The principal source of information concerning the intensity of corporate involvement in product development were managers involved in product development at business level. The research intention was to elicit information from managers both at the corporate centre and business levels in order to check any difference in perceptions about the involvement of corporate managers. As Brooke and Remmers (1970) have commented: "The head office will speak glowingly of autonomy and the business managers will protest about the interference from the centre." Data collection involved two phases that required two separate approaches: (i) corporate level and (ii) business level data collection. The approach used in each phase was chosen after careful consideration of the alternatives explained below. Consequently, this section reviews the alternative data collection methods, followed by an overview of the two principal data collection phases.

5.3.1 Data Collection Methods: a Review

In choosing an appropriate data collection method, the researcher is faced with a number of decisions. The scope of these decisions is summarized in Figure 5.2 below.

FIGURE 5.2 BASIC CHOICES AMONG MEANS FOR COLLECTING PRIMARY DATA



Source: Churchill (1983)

The first decision involves the choice of either communication or observation as method of data collection. Given the aims of our research, communication is preferred to observation. Observation was rejected, because, as Churchill (1983) shows, observation is limited in scope to inform about

behaviour. Observation is not only limited to present behaviour, but one can not probe for intentions, opinions and attitudes. As Churchill (1983) asserts: "Attitudes may be said to be the forerunners of behaviour." Since we are interested in describing management behaviour over a past period of three years, the observational method was inappropriate. The communication method is less costly, more time effective and more versatile than the observation method (Churchill, 1983). The most important disadvantage of the communication method is its relative lack of objectivity and accuracy. The objectivity and accuracy can, however, be greatly improved through careful design of the communication phase. This design phase involves yet more decisions concerning the (i) method of administration; (ii) the degree of disguise and the (iii) degree of structure. Each choice is dealt with in turn.

5.3.1.1 Method Of Administration

The available methods of administration include a (i) mail questionnaire, (ii) telephone interview, (iii) personal interview or (iv) combination of methods. The advantages and disadvantages of each method can be compared using three criteria suggested by Churchill (1983) and Helmstadter (1970): (1) sampling control, (2) information control and (3) administrative control (including time, cost and response

rate).

A (i) **mail questionnaire** is the least time consuming and most cost effective approach (Boyd, Westfall & Stasch, 1972). It also allows control of bias caused by interviewer-interviewee interaction. However, loss of control over selection of sample businesses and respondents militated against the use of this method in the first phase - corporate level data collection (Labovitz & Hagedorn, 1976). Moreover, returns on mail questionnaires are typically low - 20 to 40 percent (Helmstadter, 1970). As Helmstadter (1970) concludes: "The safest rule in deciding whether or not to use direct-mail questionnaires is Don't."

While (ii) **telephone interviews** are more expensive than mail questionnaires, they provide more control over respondent and business selection. The response rate is also greater than in mail questionnaires. However, the telephone interview may cause bias because of interviewer-interviewee interaction. The most important reason for using the telephone interview is that it is the quickest way of obtaining information.

The (iii) **personal interview** provides greatest control over sample selection. It is also the most effective way of securing the cooperation of respondents (Boyd, Westfall & Stasch, 1972; Churchill, 1983). Consequently, the response rate is typically very high. The personal interview is,

however, the most expensive and least time effective data collection method. Moreover, the personal relationship between interviewer and interviewee may lead to bias.

Since no method is superior, it was decided to (iv) **combine methods**. Churchill (1983) suggests that combined methods are the only way to gain access to "busy executives...with efficient secretaries...who prescreen executive mail, telephone calls and personal visitors." Of the three criteria identified for selection of a data collection method, sampling control and information control are regarded as the most important. Time and cost considerations were greatly controlled by limiting the sample to the Greater London area. The method which provides greatest sampling control is the personal interview. Similarly, the mail questionnaire provides the best information control. Therefore, these two methods were combined in the first, corporate level phase of the investigation: a personal interview, followed by a self-administered questionnaire. In the second, business level phase, a mail questionnaire was used. This was viable, since the aim of business level questioning was to check the accuracy of information provided by corporate respondents. Information control was, therefore, the most important consideration. Moreover, introductions provided by corporate respondents provided excellent sampling control, and ensured a high response rate.

5.3.1.2 Degree Of Disguise

Disguise denotes the amount of knowledge about the purpose of the study communicated to a respondent (Churchill, 1983). Disguise is infrequently used in management research. The purpose is to reveal subconscious motives and attitudes (Churchill, 1983). It requires projective methods such as word association, sentence completion and story telling. These methods are often better suited to exploratory research. Our study is concerned with past management behaviour, and seeks to find out about the conscious attitudes and opinions that guided behaviour. Disguised motivational research is, therefore, not called for. Consequently, both the corporate and business level data collection phases were undisguised.

5.3.1.3 Degree Of Structure

Structure is the degree of standardization imposed on the method of data collection (Churchill, 1983). A high degree of structure leads to clarity of purpose and frame of reference, as well as ease of administration and analysis. On the other hand, a structured method may not accurately reflect the attitudes of the respondent. For example, a structured questionnaire uses fixed-alternative questions. If none of the response alternatives represents the opinion of the respondent, no accurate response is possible. This problem

can only be countered if all the probable replies are included, which requires that the phenomenon be well defined.

Unstructured questionnaires, on the other hand, use open-ended questions for depth interviews. The insight gained through this method, is offset by the time it takes to complete a program of unstructured interviews. Moreover, depth interviews cause severe problems in analysis because the interviewer's own background and frames of reference may affect interpretation of results. Consequently, the unstructured interview is best suited to exploratory research (Churchill, 1983; Helmstadter, 1970; Labovitz & Hagedorn, 1976).

5.3.2 Data Collection Phase One: Corporate Level

The first phase of data collection employed a structured, undisguised personal interview with a corporate respondent, followed by completion of a structured, undisguised self-administered questionnaire. This dual approach allowed for sampling control as well as information control.

5.3.2.1 The Corporate Interview

An introductory letter on University letterhead was

mailed to all 21 companies in the population. Each company was telephoned in advance to identify the name and position of corporate managers responsible for product development in constituent businesses. The identification of these managers allowed the cover letters to be addressed directly to them. Addresses were individually typed on each envelope. The use of adhesive labels and generically addressed cover letters were avoided to improve the response rate. The letters sent to corporate managers comprised only one page. The aim of the letter was to stimulate interest in the research and secure cooperation. Four issues were addressed: (i) the topic; (ii) a request for participation; (iii) benefits of participation; and (iv) the importance of the research for the student. The benefits offered included a management report summarizing the salient findings of the investigation. Also, complete confidentiality was promised. A copy of the introductory letter is included in Appendix 1.

Three days subsequent to the mailing, all potential respondents were telephoned to arrange a program of personal interviews. The norm was to interview a central staff manager, normally the corporate planning manager, whose insights into the company provided the basis for matching the research criteria and the types of business available for study. As suggested by Boyd, Westfall & Stasch (1972) the personal interview was conducted to ensure accurate control over the sample of businesses and respondents. All interviews

were conducted by the student, because of the many pitfalls and costs involved in the selection, training and supervision of fieldworkers.

During the interview, a short presentation was made using flip charts - see Appendix 2. The aims of the study were discussed, the benefits to the company reemphasized, a business was selected on which to respond and the questionnaire presented. The interview phase was, therefore, structured and undisguised. However, as suggested by Labovitz and Hagedorn (1976) the presentation served as a stimulant to the respondent and led to discussion of the meaning of troublesome questions. A copy of the questionnaire was left with the respondent, for later completion along with a pre-paid return envelope. The name and position of a person responsible for the new product development program in the business was also obtained from the corporate centre manager to be contacted during the second phase.

5.3.2.2 The Questionnaire

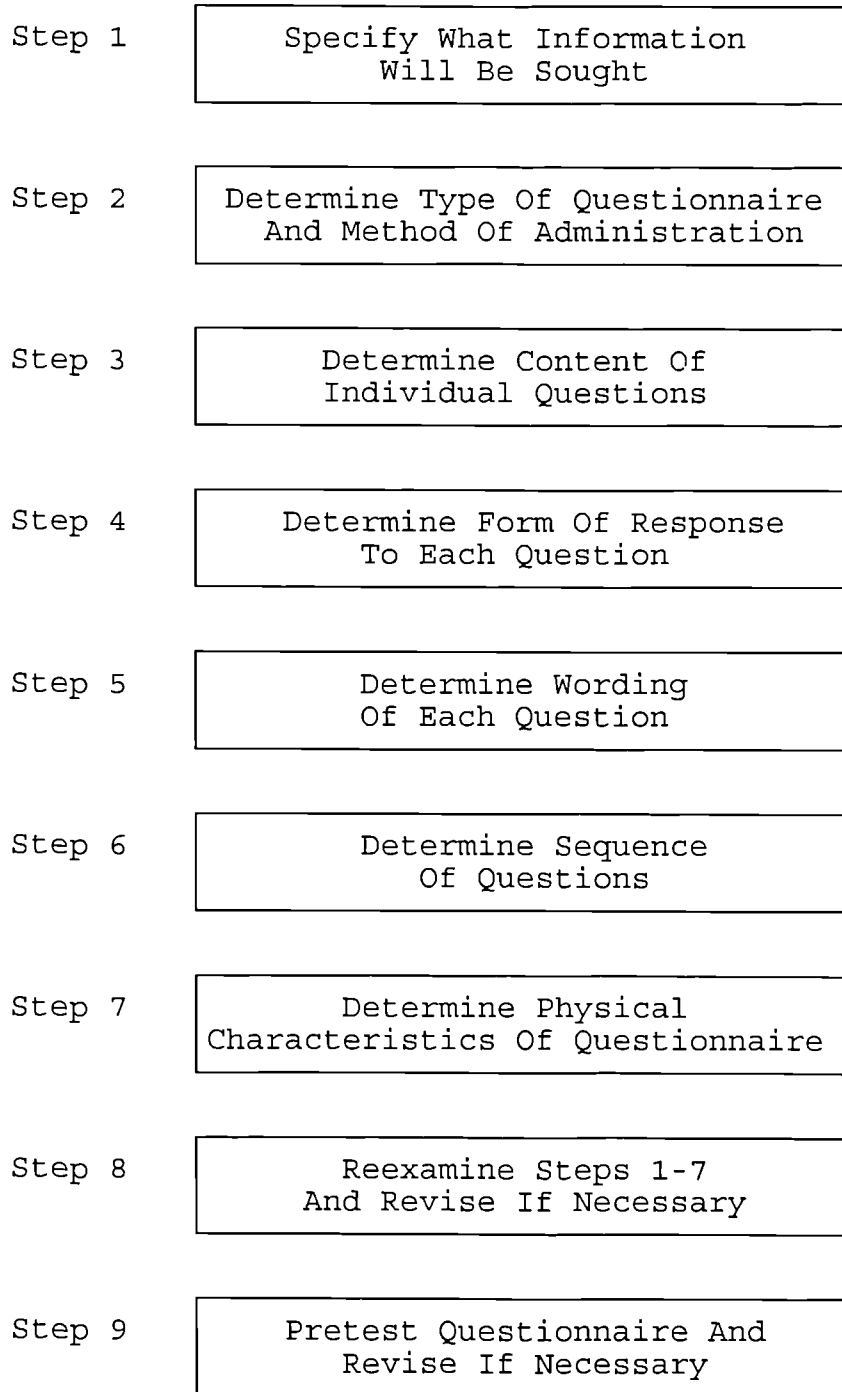
The questionnaire presented in Appendix 4 is divided into two sections. Part 1 is designed to gather general data on the competitive environments, internal environments surrounding the product development program and the success measure. In developing the questionnaire the procedure

suggested by Churchill (1983) was adopted. The procedure consists of 9 steps as outlined in Figure 5.3. Each of the 9 steps are discussed below.

The first step in questionnaire development is to specify what information will be sought. The (i) **information sought** is determined by the definition of the key variables. Churchill (1983) warns against asking questions that are interesting but not vital to the study. Such questions lengthens the questionnaire, complicates administration and analysis, and may increase nonresponse. Consequently, the information sought was limited to the dimensions of the critical variables and other factors which influence success.

With regard the (ii) **type of questionnaire and method of administration** it was decided to use a self-administered questionnaire, introduced during a personal interview. A self-administered questionnaire is more objective than an interview and therefore provides more information control (Boyd & Westfall, 1972).

FIGURE 5.3 PROCEDURE USED FOR DEVELOPING THE QUESTIONNAIRE



Source: Churchill(1983)

Since the phenomenon under investigation is well defined, it is reasonable to assume that all probable responses may be included in the questionnaire. Therefore, it is possible to use a structured, undisguised questionnaire. In doing so, the main advantage of a high degree of structure - information control - can be achieved.

The next step in the development of the questionnaire, was to (iii) **determine individual question content**. The main issues to be considered are (1) whether each question is necessary, (2) whether respondents have the information and (3) whether they will be willing to divulge the information (Boyd & Westfall, 1972; Churchill, 1983). **Ensuring that each question is necessary**, (1), calls for a review of the dimensions of the critical variables. A question was developed to measure each dimension of both the dependent and independent variable. The McKinsey 7Ss framework was used as a guideline of the sub-activities of the independent variable to be covered. As discussed in sections 2.4.2 and 4.4.6 the McKinsey 7Ss framework provides an overview of managerial factors impacting on product development success. Therefore, the involvement of the corporate centre is measured for each of strategy, structure, style, staff, skills, systems and shared values. Also, the McKinsey 7Ss framework was used to operationalize other managerial factors which affect success - control factors discussed in section 4.4.6. Finally, questions had to be asked regarding the influence of exogenous

factors - discussed in section 4.4.6.

By putting the questions to corporate and business level personnel who were involved in the product development process, it was ensured that they **(2) possessed the necessary information**. However, a relatively short period of time - three years - had to be considered. This was necessary to ensure that the appropriate respondents were still employed in companies involved and that they could still recall what happened. The use of the structured questionnaire aided respondents ability to recall past behaviour.

Respondents' willingness to answer questions, (3) depend on the amount of work involved in producing an answer, their ability to articulate an answer and the sensitivity of the issue (Churchill, 1983). The questionnaire limited the amount of work required to answer questions by asking for respondents' opinions on each dimension, rather than for accurate figures. This is wholly defensible given the nature of management behaviour. The use of well tested scales ensured that respondents would be able to articulate answers. These scales are discussed in the next section - Form of Response. The sensitivity of the issue was diminished by assuring respondents complete confidentiality, by giving respondents the opportunity to respond anonymously and by asking opinions rather than exact figures.

Deciding on the (iv) **form of response** involves the choice between fixed-alternative and open-ended questions; and the choice of the appropriate scales. More structured, fixed alternative questions were preferred. Such questions provide a standardized procedure which increases the objectivity of the data collection method. Fixed-alternative questions also aids the respondent's ability to recall historical events. Since the phenomenon under investigation is well defined, exploratory, open-ended questions were not asked for.

A further set of decisions faced by the researcher when choosing the form of response is the **scales** used. The first choice concerns the use of dichotomous as opposed to multichotomous questions. A dichotomous question, forcing choice between two fixed alternatives, suffers from order bias (Churchill, 1983). When the position of operational terms in a question is switched, different responses are often elicited. Moreover, a dichotomous question limits the number of response categories to two. This may not be sufficient to allow accurate expression of management perceptions. Finally, the researcher needs to decide whether the respondents should be given the option to state whether they have no opinion on an issue. Churchill's (1983) advice is followed, namely that it is better to force the respondent to think about the issue, than to provide an easy way out. Most respondents are likely to have an opinion on an issue.

The options presented by a multichotomous question can be quantified by using a graphic, numerical scale (Helmstadter, 1970). The advantage of such a scale is that the descriptors can be presented at the top of the page, and a number of dimensions listed along the left margin. The respondent is then instructed to designate the frequency of use for each dimension. The instruction need only be given once, thus securing a great deal of information in a short period of time. Two types of scales are frequently used in management research: Thurstone type scales and Likert type scales (Churchill, 1983). Thurstone type scales measure central tendency. Development of such a scale requires psychometric scaling by a panel of judges. Likert type scales are more frequently used, because they are more easily constructed than Thurston scales. Likert type scales present the respondent with a set of unscaled items and requests him to indicate the extent to which each item applies to him (or his business) (Helmstadter, 1970). In comparing different types of scales, Churchill (1983) concludes that all scales prove useful, and that the results achieved are not materially affected by the chosen scale. In keeping with an established tradition in product development research, Likert type scales are used in the questionnaire.

In part one of the questionnaire, Likert type scales developed by Bartlett and Ghoshal (1990) were used to compare between different competitive environments. These measure the

importance of environmental features such as the regulations, intensity of competition, market size, growth potential and profitability. The rationale behind inclusion of these questions is that the intensity of corporate involvement may be influenced by some or all of these factors, rather than by the independent variable.

A 5-point Likert-type scale was also used to measure success and to operationalize the Peters and Waterman (1982) 7Ss framework as a set of controls for the influence of internal managerial factors which may influence success. In particular, the Blau and Schoenherr (1971) formalization scale was used to measure the influence of different levels of formalization - the systems dimension of the 7Ss framework.

Part 2 of the questionnaire was designed to gather a detailed profile of corporate centre involvement in the development program using the centralization scale developed by Bartlett and Ghoshal (1990).

The next step in the development of the questionnaire involved a (v) **decision on the question wording**. The literature provides only rules-of-thumb, rather than basic principles for question wording. Care was taken to avoid ambiguous words and questions, leading questions, implicit assumptions and alternatives and double-barrelled questions. A list of words which may have more than one meaning was also

reviewed, including: about, all, always, and, any, bad, could, ever, go, heard, less and like (Churchill, 1983).

The next step in developing the questionnaire involved (vi) **deciding on the question sequence**. The advice of most researchers is to proceed from the general to the specific - the funnel approach (Boyd, Westfall & Stasch, 1972; Churchill, 1983; Helmstadter, 1970; Labovitz & Hagedorn, 1976). Consequently the questionnaire opens with a question about the nature of the business. Then follows a set of questions measuring the control variables, followed by the success measure and, finally, in Part 2, measurement of the independent variable.

Particular attention was paid to the (vii) **physical characteristics** of the questionnaire. Appearance is important to secure acceptance of the questionnaire and to facilitate handling and control. Therefore, Churchill's (1983) advice was strictly adhered to, namely that high quality paper was used, and that each questionnaire was printed individually on laser printer. While questions were clearly numbered, questionnaires were not. This preserved the anonymity of respondents and contributed to a high response rate and, hopefully, to accurate responses.

The questionnaire was subjected to rigorous (viii) **examination and revision**. The help of the supervisor,

colleagues (including practising managers) and a part-time MBA student working in the financial services industry were elicited. At this stage, many questions were restated to reflect the knowledge level of practising managers. Some questions which were regarded as ambiguous were also restated.

Having key informants review the questionnaire in this way, is an important tactic for increasing the construct validity - the extent to which correct operational measures for measuring the concepts being studied have been established (Yin, 1984).

Finally, the questionnaire was (ix) pretested. In a first pretest, the questionnaire was discussed personally with three practising managers. After more ambiguous questions were revised, the whole research design was subjected to a pretest, as discussed in Section 5.4 - Pilot Study.

5.3.3 Data Collection Phase Two: Business Level

The second phase of the data collection employed a mail questionnaire administered at business level. The questionnaire is similar to the corporate centre questionnaire, since it is used as an objective check of the accuracy of the information provided by the corporate centre managers - see Appendix 5. A check was deemed necessary

because the interviewer may influence responses. Also, the perception of corporate and business level respondents may differ (Brooke and Remmers, 1970). Moreover, as Yin (1984) has suggested, using multiple sources of evidence is an important tactic to improve the construct validity. Construct validity reflects the extent to which correct operational measures for measuring the concepts being studied have been established (Yin, 1984).

An introductory letter on University letterhead was mailed to all participating businesses. A copy of the introductory letter is included in Appendix 3. Prior identification of these business managers allowed the covering letters to be addressed directly to them. Addresses were individually typed on each envelope to improve the response rate in the same way as in Phase One.

Two weeks subsequent to the first mailing, a second mailing was forwarded to all non-respondents using the above format. However, a new covering letter was designed. The questionnaires and return envelopes were not coded or numbered, so as to ensure anonymity. Therefore, the second mailing went out to all the businesses, with a request to ignore it if the questionnaire had already been returned.

5.4 PILOT STUDY

Having pretested the questionnaire (see section 5.3.2) and developed a research methodology, it was necessary to undertake a pilot study. In order not to contaminate the sample, the pretest was conducted among medium sized financial service companies only. As test subjects, medium sized financial service companies represents the next closest homogeneous group to large companies. These companies are affected by similar market and environmental conditions; and they have similar product offerings.

The pretest was modelled after the methodology for the principal survey. The pretest yielded an 80% response rate at corporate centre level and a 100% response rate at business level. Since the corporate response was somewhat better than the norm for personal interviews of 75%, no changes in the research design was deemed necessary. The success at business level is attributed to the fact that corporate managers nominated business level respondents. A summary of the research methodology is provided in Table 5.2

No modifications were made to the methodology employed following this phase. Corporate managers emphasized that their time was limited, but conceded that neither the personal meeting, nor the questionnaire was excessively time consuming.

TABLE 5.2 RESEARCH METHODOLOGY ADOPTED

PHASE OF RESEARCH	ACTIVITY
1. Select research topic	Review literature: - Product development
2. Refine research question	Review literature: - Product development - Corporate strategy - Business strategy - Chapter 2
3. Determine working hypothesis	Develop hypothesis - Based on literature review - Refine supporting hypotheses Conduct preliminary field work - Collect financial services industry data - Develop unstructured questionnaire - Arrange access to 12 financial services companies - Conduct interviews - Analyze and write-up results - Chapter 3
4. Select research design	Develop corporate level self-administered questionnaire Develop business level mail questionnaire Pretest both questionnaires Develop and test research design - Select corporate respondents - Mail cover letter - Telephone each respondent and arrange interview - Conduct interview - Receive self-administered questionnaires - Mail business level questionnaires - Telephone non-respondents - Receive questionnaires - Final check - Chapter 4 and 5
5. Collect data	Follow same procedure as in pilot test

5.5 SUMMARY

The research method discussed in Chapter 4 was operationalized through two data collections phases: corporate and business level. In the first phase a personal interview has been complemented by a structured questionnaire. The second phase employed a structured mail questionnaire, similar to the corporate questionnaire. Given the relatively high response rate (80%) and insights gained into the role of corporate managers in new product development in constituent businesses, the research methodology was regarded appropriate.

6. ANALYSIS OF THE RESULTS

6.1 INTRODUCTION

In this chapter the results of the fieldwork are presented. The survey response, method of data analysis and differences between responses given by corporate respondents on the one hand, and business level respondents on the other, are first discussed. As the research model presented in Figure 4.5 (Section 4.4.6) illustrates, the hypotheses suggest that the intensity of corporate involvement is contingent upon different levels of complexity (more or less) of constituent businesses. In order to test these hypotheses, data was drawn from a sample which consisted of constituent businesses with varying degrees of complexity of their operations. Therefore, it was necessary to test the hypotheses pertaining to each of more or less complex businesses independently from one another. After classification of the constituent businesses included in the sample as more or less complex, the influence of the independent variables at the business and corporate levels on achieving product development success in constituent businesses of varying complexity is determined. At the business level the influence of exogenous and endogenous factors is determined; at the corporate level the mediating effect of corporate centre involvement and portfolio

conditions is reported.

This chapter concentrates almost exclusively on univariate analyses. That is, the influence that each individual variable that was measured, has on achieving product development success at the program level, is determined. This analysis employs mostly t-tests designed to determine whether the two groups of surveyed businesses - winners and losers - tend to have differences between their means for all or some of the variables measured. If the means differ, we may conclude that these variables discriminate between the two possible outcomes. There is one exception where multivariate analyses are used: a description of how the different variables measuring corporate centre involvement are related to one another is also shown.

Univariate statistics, however, provide insufficient information about the interrelations that may exist among the variables. Therefore, the analysis of results is concluded in Chapter 7 (The Underlying Relationship Between Variables). There, the underlying relationship between all the different variables measured, is described, using multivariate techniques.

6.2 CASE STUDY RESPONSE

The useable response rate, after reminder telephone calls and follow-up mailings, is 16 (76%) of the population of 21 large financial services companies. Table 6.1 provides a breakdown of the responses.

The three companies which declined to participate in the research (Kleinwort Benson, SG Warburg and Sun Alliance) did so because it was their company policy not to participate in academic research, due to time constraints. The two incomplete cases represent questionnaires returned by the business level manager, but not by the corporate centre manager. Although both these corporate respondents were contacted by phone to solicit response, one (Abbey National) declined because of **time constraints** and the other (Friends Provident) because the information required was regarded as too **confidential** and sensitive. The total response rate of 76% is, however, good since all our respondents regard time and confidentiality as important. Therefore, the five non-respondents are unlikely to represent an important group whose collective views might have yielded new insights.

TABLE 6.1 CASE STUDY RESPONSE

DESCRIPTION	TOTAL	% OF TOTAL
Number of potential cases	21	100
Number of cases returned	18	86
Less: incomplete cases	2	10
TOTAL USABLE CASES	16	76

Source: Field study data.

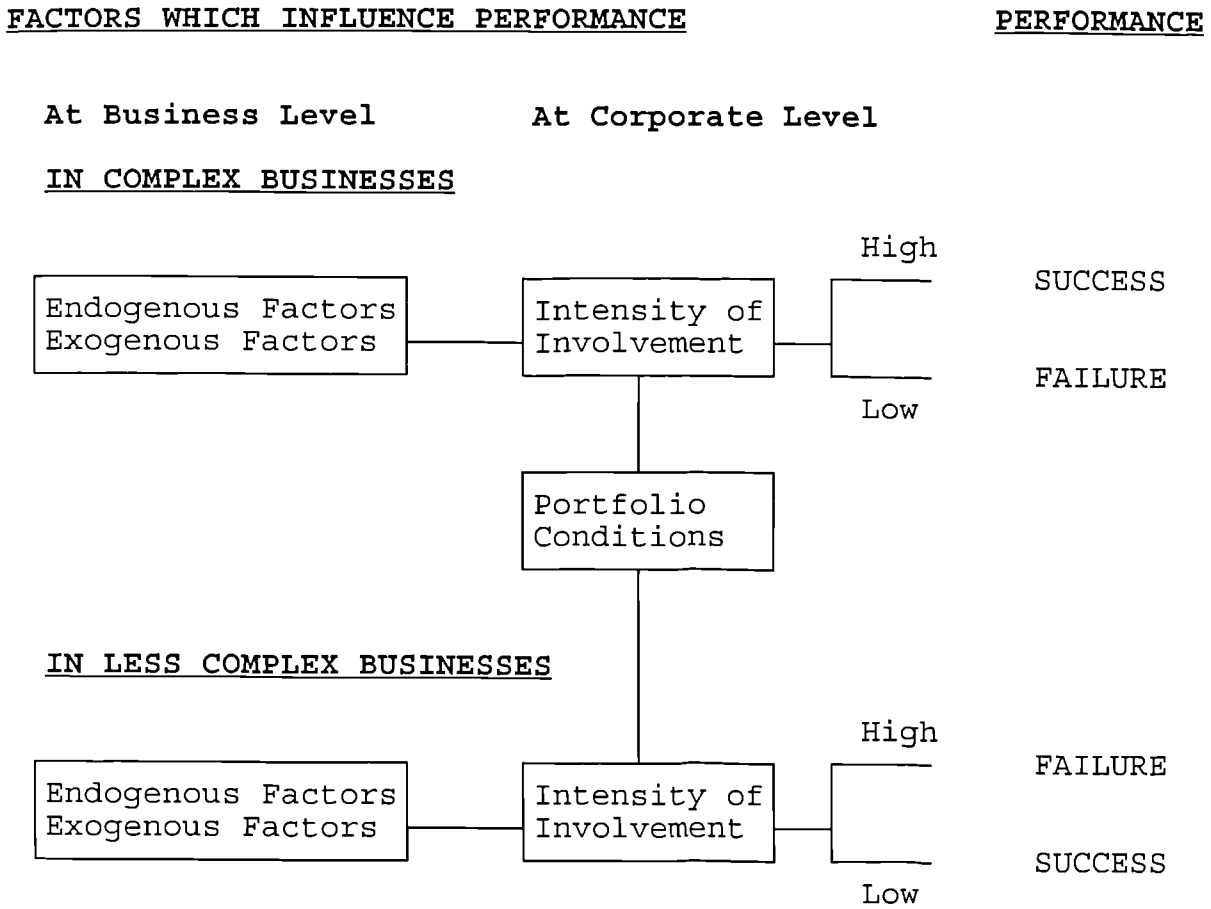
Only 3 (19%) of respondents voluntarily identified themselves by requesting feedback of the results. This is an indication of the sensitive nature of this research.

6.3 DATA ANALYSIS

In order to provide statistical support for the research questions and hypotheses, the data gathered for this study was analyzed using a number of statistical techniques. General descriptive statistics were selected as the appropriate analytical tool. This approach involved the use of frequency tables, chi-squares and tests of significance, such as the t-test.

The research model presented in Figure 4.5 (Section 4.4.6) served as a guide for the analysis. It is repeated below for ease of reference.

FIGURE 6.1 THE RESEARCH MODEL



The research model illustrates our research task: to determine the mediating effect of corporate involvement in achieving product development success in constituent businesses of varying complexity. The influence of other independent variables at business and corporate levels measured for control purposes was also determined. In order to test these various mediating effects it was necessary to conduct the following analyses:

1. Determine the accuracy of corporate responses by checking corporate responses against business level responses.
2. Classify constituent businesses included in the sample as more or less complex.
3. Classify businesses of different complexities as more or less successful.
4. Determine the mediating effect of other independent variables, external and internal to the business. This step was necessary because the literature suggests that a multitude of factors influence product development success. Analysis of these factors served to place in perspective the role of corporate involvement in achieving product development success.
5. Determine the influence of the primary independent variable (intensity of corporate involvement) in order to test the hypotheses.
6. Determine the mediating effect of portfolio conditions.

Each of the analyses is discussed separately below. In accordance with the traditional practice each hypothesis is stated in negative h_0 format. The alternative hypothesis - the statement we shall accept if the null hypothesis is not true - is also presented. For all the statistical tests reported in the balance of this section a **decision rule** of 10% is adopted: *if there is less than a 10% chance that the null hypothesis is true, we will accept the alternative hypothesis.* As Bond and Scott (1988) explain, it is important that the ethical

researcher decide on a decision rule before seeing the results of statistical tests. Failure to do so, may lead to the researcher selecting a decision rule which fits the results - thus proving what the researcher wants to prove, rather than letting the data dictate the findings. Three decisions rules are commonly used: 1%; 5% and 10%. Bond and Scott (1988) maintain that any of these 3 decision rules are acceptable, as long as one is selected before commencing with data analysis. For purposes of this research a 10% decision rule is selected, in keeping with former product development research (Cooper & Kleinschmidt, 1990).

6.4 ACCURACY OF CORPORATE RESPONSES

In each company we identified two senior managers - one at corporate and one at business level - who had direct line responsibilities for the new product development activities of the selected business, or were otherwise knowledgeable about these operations in the business. Managers at both levels of the organization completed similar questionnaires. In order to check the accuracy of information provided by corporate managers, the two sets of responses are compared by determining the coefficient of determination. As Bond and Scott (1988) show, the coefficient of determination measures both the strength and direction of the relationship between two variables. If two variables move in perfect unison with

each other then the strength of the relationship is at its maximum and is calculated to be +1 or -1. Our decision rule is that a strong positive relationship between the two sets of ratings suggests convergence. A comparison of the responses obtained is shown in Table 6.2. It reveals high convergence among all the ratings supplied by corporate and business level managers, as is explained below.

The results of t-tests conducted to compare the means of the two samples (corporate and business level managers) on each variable are also presented. The hypotheses posed for each test were as follows:

H₀: There is no difference between the average rating provided by managers at the corporate and business level (for each of complexity, involvement, performance, external and internal factors).
[mean of corporate sample = mean of business sample]

H_{alt}: There is a difference between the average ratings provided by managers at the corporate and business level.

Result: For each of the variables the null hypothesis cannot be rejected. There is no significant difference between the means of ratings provided by managers at the corporate and business levels. Details are discussed below.

TABLE 6.2 CONVERGENCE OF CORPORATE CENTRE-BUSINESS RATINGS

DESCRIPTION	COEFFICIENT OF DETERMINATION	T-TEST	
		STATISTIC	P
Business Complexity	0.97	-0.48	0.65
Corporate involvement	0.99	-0.12	0.91
External control factors	0.97	0.38	0.71
Internal control factors	0.99	-0.42	0.68
Total performance	0.88	-1.26	0.24

Read as follows: There is a strong positive relationship between the business complexity rating provided by managers from the corporate centre and the business ($r^2 = 0.97$). The convergence is confirmed by the t-statistic (significant only at an 35% level), which shows that the difference between the two means is not significant. Thus the null hypothesis which states that there is no difference between the average complexity ratings provided by corporate and business managers is accepted.

Source: Field study data.

Indeed, there is a strong positive relationship between the corporate and business level ratings. This is confirmed by the t-tests which show that there is no significant differences between the scores provided by corporate respondents on the one hand, and by business level respondents on the other. Given such convergence, we conclude that business level managers agree with the ratings provided by corporate managers, and that corporate responses are accurate.

Similar to the approach used by Bartlett and Ghoshal (1990) only responses from corporate managers were used for

further analysis. This is because the business level responses were only solicited as a check of the accuracy of corporate responses. As Churchill (1983) argues: "Attitudes and perceptions are precursors to behaviour". Since we are interested in the behaviour of *corporate managers*, it is their attitudes and perceptions that we need to analyze and assess. Inclusion of business level responses in further analyses would neither have improved our understanding of corporate behaviour; nor would it have altered any of our findings, since corporate and business ratings are very similar.

6.5 BUSINESS COMPLEXITY

As the research model presented in Figure 6.1 (Section 6.3) illustrates, the hypotheses suggest that the intensity of corporate involvement is contingent upon different levels of complexity of constituent businesses. *In order to test these hypotheses, data was drawn from a sample which may consist of constituent businesses with varying degrees of complexity of their operations. Therefore, it was necessary to test the hypotheses pertaining to each of more or less complex businesses independently from one another.*

In order to test the hypotheses it was firstly necessary to classify each of the 16 cases in the sample as either more or less complex. The complexity measurement consisted of 4

attributes (see Section 4.4.2). Each respondent was asked to rate the complexity of the constituent business under consideration on a 5-point Likert type scale for each attribute (see Question 9, Appendix 4). A total complexity score for each business was calculated by adding the 4 ratings together.

Classification as more or less complex was achieved by calculating the mean complexity score for all 16 cases. Businesses with an above average score were classified as more complex; those with a below average score as less complex. In this way the 16 cases were split into two groups: one consisting of 12 complex businesses; the other consisting of 4 less complex businesses, as is shown in Table 6.3 on the following page.

In the balance of this section clear distinction will be made between more and less complex businesses. This will enable understanding of the influence that the intensity of corporate involvement may have on businesses of different levels of complexity.

TABLE 6.3 CLASSIFICATION OF BUSINESS COMPLEXITY

CASE NUMBER	COMPLEXITY RATING	
	RAW SCORE*	CLASSIFICATION
1	14	Less complex
2	13	Less complex
3	16	More complex
4	16	More complex
5	16	More complex
6	16	More complex
7	16	More complex
8	14	More complex
9	16	More complex
10	16	More complex
11	15	More complex
12	15	More complex
13	15	More complex
14	15	More complex
15	13	Less complex
16	9	Less complex
MEAN	14.75	-

Note: Maximum potential score = 20.

Source: Field study data.

Complexity was measured using four variables: the extent to which business managers understand the (i) market in which the business competes, as well as the (ii) products supplied by the business; (iii) the lead time between major decisions and results and (iv) the extent to which the business is dependent on corporate funds to implement plans. It is

interesting to note that the perception of business complexity held by corporate centre managers is very similar to the perception of business level managers (coefficient of determination = 0.97 - see Section 6.4). Corporate centre managers and business level managers seem to be in agreement on the complexity of the businesses.

A clear distinction should be made between the understanding of business managers of their *individual businesses* (business complexity) as opposed to the understanding that corporate centre managers have of the competitive features of *all businesses* in the company portfolio (portfolio relatedness - addressed in Section 6.10). The business complexity argument goes that if the manager of an individual business lacks sufficient understanding of his business, it may be necessary for corporate centre managers to become more involved in the new product development activities of the business to assist the business level manager. If, on the other hand, corporate centre managers lack sufficient understanding of the competitive features of businesses in the portfolio, they may not be able to assist business managers as well as corporate managers with a comprehensive understanding of competitive features. Business complexity, therefore, reflects whether the business manager needs assistance in developing new products, while portfolio relatedness determines whether corporate centre managers and other business are capable of providing the assistance needed.

6.6 SUCCESS AND FAILURE

In order to test the hypotheses it was first necessary to classify each of the 16 cases as either successful (winner) or less successful (loser). The success measurement - dependent variable - consisted of six attributes (see Table 4.5 in Section 4.4.4.6). Each respondent was asked to rate the new product development performance of the business under consideration on a 5-point Likert-type scale for each attribute (see Question 17, Appendix 4). A total performance score for each product development program was calculated by adding the six ratings together. Details are explained below:

The top half of each sample (more complex and less complex businesses) was classified as winners (successful), while the bottom half of each sample was classified as losers (less successful). Details are shown in Table 6.4 and Table 6.5 below.

TABLE 6.4 CLASSIFICATION OF NEW PRODUCT DEVELOPMENT PROGRAM WINNERS AND LOSERS IN LESS COMPLEX BUSINESSES

CASE NUMBER	PERFORMANCE RATING	
	RAW SCORE*	CLASSIFICATION
1	17	Winner
2	13	Winner
15	12	Loser
16	8	Loser
Mean	12.5	-

Note: Maximum potential score = 30.

Source: Field study data.

TABLE 6.5 CLASSIFICATION OF NEW PRODUCT DEVELOPMENT PROGRAM WINNERS/LOSERS IN MORE COMPLEX BUSINESSES

CASE NUMBER	PERFORMANCE RATING	
	RAW SCORE*	CLASSIFICATION
3	26	Winner
4	26	Winner
5	26	Winner
6	26	Winner
7	26	Winner
8	25	Winner
9	22	Loser
10	22	Loser
11	18	Loser
12	18	Loser
13	18	Loser
14	18	Loser
Mean	22.7	-

Note: Maximum potential score = 30.

Source: Field study data.

It is, however, necessary to determine whether the sample means of the two groups - winners and losers - vary significantly for each of more and less complex businesses. If the performance of the two groups of businesses under consideration is very similar (i.e. not significantly different), conclusions regarding the influence of the corporate centre on achieving new product development success may be of little interest, because it has not led to achievement of significantly higher success. The results of two such 2-sample t-tests are reported below.

Test 1: Performance in More Complex Businesses

H₀: There is no difference between the average performance of winners and losers in more complex businesses.
[mean of winners = mean of losers]

H_{alt}: There is a difference between the average performance of winners and losers in more complex businesses.

Result:

<u>Performance</u>	<u>Mean</u>	<u>T-Statistic</u>	<u>P-Value</u>
Winners	25.8	7.56	0.0006
Losers	19.3		

Read as follows: The mean performance rating of winners (25.8) is significantly higher than the mean performance of losers (19.3). The t-value of 7.56 is significant at a 99.9% level, which means that we can be 99.9% certain that the classification as more or less successful has not occurred by chance.

We **reject** the null hypothesis. The result shows that for the 12 more complex businesses winners outperformed losers significantly. We can, therefore, proceed to investigate the influence of various endogenous and exogenous factors, as well as the influence of corporate centre involvement on achieving success in more complex businesses, because we can be confident that some or all of these factors influenced performance significantly.

Test 2: Performance in Less Complex Businesses

H₀: There is no difference between the average performance of winners and losers in less complex businesses.
[mean of winners = mean of losers]

H_{alt}: There is a difference between the average performance of winners and losers in less complex businesses.

Result:

<u>Performance</u>	<u>Mean</u>	<u>T-Statistic</u>	<u>P-Value</u>
Winners	15.5	1.72	0.34
Losers	10.0		

Read as follows: The mean performance rating of winners (15.5) is not significantly higher than the mean performance of losers (10.0). The t-value of 1.72 is significant only at a 66% level, which means that we can be only 66% certain that the classification as more or less successful has not occurred by chance.

There is only a 66% chance that the alternative hypothesis is true. Therefore, we **accept** the null hypothesis. For the 4 less complex businesses winners are not significantly more successful than losers. Visual inspection of the performance scores shows that more complex businesses - winners and "losers" outperformed less complex businesses considerably. For example, the mean performance score of less complex "winners" is 15.5, whereas more complex "losers" scored 19.3 and more complex winners 25.8. It is because we need to compare like with like -businesses with equal levels of complexity - that more complex businesses with a higher performance score than that of less complex "winners" are, nevertheless, classified as losers when compared with other more complex businesses.

Since the performance of less complex businesses do not

vary significantly, we cannot draw conclusions regarding the influence of corporate involvement on successful product development in less complex businesses with confidence. This is because "winners" failed to significantly outperform "losers". The lack of a clear pattern and also the small sample size denies realistic interpretation. Conclusions regarding the influence of the independent variables on achieving success is, therefore, likely to be misleading. For these reasons less complex businesses were excluded from further analysis. Consequently, the balance of this section will consider the influence of the independent variables identified in the research model on success in more complex businesses only.

6.7 THE INFLUENCE OF EXTERNAL FACTORS

In this section we consider the influence of factors, external to the business, which may have impacted on the performance of the complex businesses under investigation. The factors considered include (i) different markets served (Question 1); (ii) the types of products supplied by the business (Question 2); (iii) the degree of government regulation faced by the business (Question 3); (iv) the competitiveness of markets served (Question 4); (v) the sales growth potential of the market in which the business competes (Question 5) and (vi) the potential profitability of the

market in which the business competes (Question 6).

Any one of these factors may explain why the businesses under consideration are successful or less successful. If the sample means of winners and losers vary significantly on some of these factors, the influence of these factors need to be taken into consideration when drawing conclusions on the importance of corporate involvement on achieving new product development. It is, therefore, necessary to compare the ratings of winners and losers on each of the external factors.

The means of winners and losers in more complex businesses are compared in Table 6.6 below, as well as the results of t-tests for the last four factors. The first two factors (markets served and types of product supplied by the business) require a separate test, since nominal data was employed in their measurement.

The differences between the means of winners and losers are insignificant for each of regulation, competitiveness, sales growth and profit potential. We can, therefore, conclude that none of these factors influence the performance of the businesses under consideration significantly.

TABLE 6.6 THE INFLUENCE OF EXTERNAL FACTORS ON SUCCESS IN MORE COMPLEX BUSINESSES

VARIABLE DESCRIPTION	SAMPLE MEAN		T-TEST	
	WINNER	LOSER	STATISTIC	P
Degree of market regulation	4.83	4.67	0.62	.550
Competitiveness of market	4.83	4.33	1.53	.160
Market sales growth potential	2.17	2.67	-1.53	.160
Profit potential of market	3.83	3.33	1.53	.160

Read as follows: The mean rating for intensity of regulation is not significantly higher in winners (4.83) than in losers (4.67; $t=0.62$; $p=.55$).

Source: Field study data.

Since the results of the other two variables - markets served and types of products supplied - are nominal data, the nonparametric chi-square test is employed. The results of both tests follow:

Test 1: The Influence of Different Markets Served in More Complex Businesses

- H_0 : There is no relationship between the market served and product development success in more complex businesses.
- H_{alt} : Product development success and the market served is related in more complex businesses.

Result:

DEGREE OF SUCCESS

(Number in sample)		DEGREE OF SUCCESS	
		Winner	Loser
MARKET SERVED	Personal	<u>Actual</u> 3	<u>Actual</u> 5
		<u>Predict</u> 4	<u>Predict</u> 4
	Corporate	<u>Actual</u> 3	<u>Actual</u> 1
		<u>Predict</u> 2	<u>Predict</u> 2

CHI-SQUARE = 1.500 WITH D.F. = 1

Read as follows: 3 winners in the sample serve personal customers. The null hypothesis predicts that 4 winners are likely to serve personal customers.

Source: Field study data.

For an alpha of 0.1 the chi-square value must be greater than 2.71 (read from the table of critical values for the chi-square distribution (Bond & Scott, 1988)). Thus our chi-square value of 1.500 is insignificant. Therefore, we **accept** the null hypothesis. The type of market served and product development performance is unrelated.

Test 2: The Influence of Different Types of Product Supplied

H₀: There is no relationship between the product supplied and product development success in more complex businesses.

H_{alt}: Product development success and the product supplied is related in more complex businesses.

Result:

DEGREE OF SUCCESS

(Number in sample)		Winner		Loser	
		Actual	Predict	Actual	Predict
PRODUCT CATEGORY	Financial Management	2	1.9	2	2.2
	Investment	2	1.9	2	2.2
	Long-term Insurance	2	2.3	3	2.7

CHI-SQUARE = 0.124 WITH D.F. = 2

Read as follows: 2 winners in the sample supply financial management products. The null hypothesis predicts that 1.9 winners are likely to supply financial management products.

Source: Field study data.

For an alpha of 0.1 the chi-square value must be greater than 4.61 (read from the table of critical values for the chi-square distribution (Bond & Scott, 1988)). Thus our chi-square value of 0.124 is insignificant. Therefore, we **accept** the null hypothesis. The type of product supplied is unrelated to product development performance.

We conclude that none of the external factors distinguish between winners and losers in more complex businesses. Unless other internal factors influenced the outcome, we may conclude that the style of corporate involvement, or portfolio

conditions influenced the outcome. We now turn our attention to the influence of internal factors on the performance of more complex businesses.

6.8 THE INFLUENCE OF INTERNAL FACTORS

In this section we consider the influence of factors, internal to the business, which may have impacted the performance of the businesses under investigation. The factors considered were derived from the product development literature, using the McKinsey 7Ss framework as a checklist of comprehensiveness. Factors included in the research were: (i) the permanence of organizational arrangements used for product development (structure - Question 10); (ii) the degree of product development experience of business managers (skills - Question 11); (iii) the relative number of marketing staff at the business level (staff - Question 12); (iv) the formality of managerial systems in the business (systems - Question 13); (v) the pervasiveness of shared values in the business (shared values - Question 14); (vi) the supportiveness of leadership (style - Question 15) and (vii) the explicitness of business strategy (strategy - Question 16).

Any one of these 7 factors may describe why the businesses under consideration are successful or unsuccessful. It is, therefore, necessary to compare the ratings of winners

and losers on each of these factors. The means of winners and losers in more complex businesses are compared in Table 6.7 below, as well as the results of t-tests.

TABLE 6.7 THE INFLUENCE OF INTERNAL FACTORS ON SUCCESS IN MORE COMPLEX BUSINESSES

VARIABLE DESCRIPTION	SAMPLE MEAN		T-TEST	
	WINNER	LOSER	STATISTIC	P
Permanence of PD <u>structure</u>	1.83	1.67	0.62	.5500
Experience of <u>skill</u> base	1.83	1.67	0.62	.5500
Number of marketing <u>staff</u>	4.83	2.67	4.78	.0031
Formality of managerial <u>systems</u>	2.17	2.67	-1.10	.3100
Pervasiveness of <u>shared values</u>	3.83	2.67	1.78	.1100
Explicitness of <u>strategy</u>	3.17	2.67	1.10	.3100
Supportive <u>style</u> of leadership	2.17	2.00	0.25	.8100

Read as follows: The mean rating for relative number of marketing staff is significantly higher in winners (4.83) than in losers (2.67; $t=4.78$; $p=.0031$).

Source: Field study data.

The differences between the means of winners and losers are insignificant for each of organizational structure, product development skills, formality of systems, pervasiveness of shared values, explicitness of strategy and supportive style of leadership. We can, therefore, conclude that none of these factors influenced the performance of the businesses under consideration. Scores on only one of the measured factors - relative number of marketing staff - were significantly different between successful and less successful businesses. We conclude that the product development practices of winner and loser businesses were relatively

similar. We believe that the similarity in product development approaches adopted by different businesses reflects what some analysts have called managing to a "recipe theory" (Grinyer & Spender, 1979). According to Grinyer and Spender (1979) businesses in one industry - in this case financial services - often follow remarkably similar approaches or recipes for conducting their business.

However, for the remaining factor - relative number of marketing staff - the sample mean of winners is significantly higher than for losers ($t=4.78$; $p=.0031$). This means that successful businesses employed significantly more marketing staff than less successful businesses. This finding confirms existing product development literature which repeatedly stresses the importance of marketing in achieving product development success (Andrews, 1975; Booz, Allen & Hamilton, 1982; Calantone & Cooper, 1981; Cooper, 1979, 1980, 1982, 1984a, 1985; Cooper & De Brentani, 1984; Cooper & Kleinschmidt, 1990; John & Snelson, 1990; Littler, 1984).

Having now determined that, as far business level product development activities are concerned, we are dealing with relatively homogeneous groups of businesses, (with the exception of the number of marketing staff employed), we proceed in the next section to seek explanations for differences in performance among the approaches adopted by corporate centres in dealing with constituent businesses.

6.9 RESULTS OF HYPOTHESIS TESTS

6.9.1 Appropriateness of Corporate Involvement

Before testing the supporting hypotheses it is necessary to determine whether the style of corporate involvement is appropriate. This is because the hypotheses posit an association between success and the "appropriateness" of corporate involvement. The constructs used to operationalize appropriateness are business complexity (Question 9) and the intensity of corporate involvement (Question 18). Therefore, determination of the appropriateness of corporate involvement requires classification of the intensity of corporate involvement (high or low), using the sample means of corporate involvement. As hypothesized, the intensity of corporate involvement in more complex businesses is deemed "appropriate" if it is high. On the other hand, a low intensity of corporate involvement is regarded as "inappropriate" for managing product development in more complex businesses. The classification of the appropriateness of corporate involvement is detailed in Table 6.8 below.

The above average rating of intensity of corporate involvement (high) is significantly higher than in businesses receiving a below average (low) rating ($t=2.22$; $p=0.077$) - see below. We can, therefore, draw meaningful conclusions regarding the relationship between corporate involvement and

the achievement of success in more complex businesses.

TABLE 6.8 THE APPROPRIATENESS OF CORPORATE INVOLVEMENT IN MORE COMPLEX BUSINESSES

CASE NUMBER	CORPORATE INVOLVEMENT		APPROPRIATENESS	PERFORMANCE
	RAW SCORE*	INTERPRETATION		
3	36	High	Appropriate	Winner
4	36	High	Appropriate	Winner
5	36	High	Appropriate	Winner
6	36	High	Appropriate	Winner
7	36	High	Appropriate	Winner
8	34	High	Appropriate	Winner
9	39	High	Appropriate	Loser
10	39	High	Appropriate	Loser
11	22	Low	Inappropriate	Loser
12	22	Low	Inappropriate	Loser
13	22	Low	Inappropriate	Loser
14	21	Low	Inappropriate	Loser
Mean	31.6	-	-	-

Note: The maximum score is 75 (maximum 5 on each of 15 new product development tasks). A t-test performed on the composite score means of businesses benefitting from high and low involvement indicates that we can be 92.3% certain that the dichotomization into these two categories has not occurred by chance ($t=2.22$; $p=0.077$).

Source: Field study data.

Result of T-Test:

<u>Corporate Involvement</u>	<u>Mean</u>	<u>T-Statistic</u>	<u>P-Value</u>
Winners	35.7	2.22	0.077
Losers	27.7		

The analysis presented in Table 6.8 reveals that successful businesses do, in fact, appear to benefit from a high level of involvement. All 6 winners have benefitted from

the appropriate intensity (high) of corporate involvement. On the other hand, 4 losers have used inappropriate (low) intensity of corporate involvement. This is in accordance with the hypothesised relationships. However, among 6 of the less successful businesses there are two which have received intensive involvement from their corporate centres. All other things being equal one would have expected these businesses to be successful too. This puzzling result requires further investigation of the supporting hypotheses.

6.9.2 Supporting Hypotheses

From the previous section (6.9.2) we know that the successful businesses appear to benefit from appropriate styles of corporate involvement. However, as can be seen from Table 6.8, among 6 of the less successful businesses there are 2 which have received intensive (appropriate) involvement from the corporate centre. In order to explore this relationship further, the supporting hypotheses are analyzed below. These are restated below:

Supporting Hypotheses: More Complex Businesses

- H_0 : In complex constituent businesses success is associated with less intense involvement from the corporate centre.
- H_{alt} : In complex constituent businesses success is associated with more intense involvement from the corporate centre.

The constructs operationalizing the independent variable are the (i) intensity of corporate centre involvement and (ii) the complexity of the business. This implies contrasting associations shown in Figure. 6.2.

FIGURE 6.2 SUPPORTING HYPOTHESES: PREDICTED/ACTUAL OUTCOMES FOR MORE COMPLEX BUSINESSES

		DEGREE OF SUCCESS	
		Winner	Loser
(Number of Winners/ Losers in sample)	High	<u>Actual</u> 6	<u>Actual</u> 2
		<u>Predict</u> 0	<u>Predict</u> 8
	Low	<u>Actual</u> 0	<u>Actual</u> 4
		<u>Predict</u> 4	<u>Predict</u> 0

Note: W = Winners; L = Losers

Read as follows: 6 winners in the sample of more complex businesses have high corporate involvement. However, the null hypothesis predicts that all businesses in this sector will be losers.

Source: Field study data.

Visual inspection of Figure 6.2 suggests little support for the null hypothesis. The null hypothesis predicts that if the corporate centre becomes intensely involved in the new product development activities of a complex business, then the new product development program is likely to be unsuccessful. In fact, the 6 businesses which have benefitted from high intensity of involvement are all winners. Also, the null hypothesis predicts success if the corporate centre becomes less involved in a complex business. However, the 4

businesses in the corresponding cell of the matrix are all losers, suggesting little support for the null hypothesis.

However, the high involvement cell contains 2 losers as predicted in the null hypothesis. It is not clear whether the difference between the actual and predicted outcome is significant. Therefore, it is necessary to conduct a statistical test to determine whether business complexity and intensity of corporate involvement are dependant on one another.

Since the results are nominal - not metric - data, a nonparametric test has to be employed. The appropriate test for determining independence between 2 independent samples of nominal data is the chi-square test (Bond & Scott, 1988). The results are presented in Figure 6.3.

FIGURE 6.3

SUPPORTING HYPOTHESES: RESULTS OF CHI-SQUARE TEST

		DEGREE OF SUCCESS	
		Winner	Loser
CORPORATE INVOLVEMENT	High	<u>Actual</u> 6	<u>Actual</u> 2
		<u>Predict</u> 4	<u>Predict</u> 4
	Low	<u>Actual</u> 0	<u>Actual</u> 4
		<u>Predict</u> 2	<u>Predict</u> 2

CHI-SQUARE = 6.000 WITH D.F. = 1

Read as follows: 6 complex businesses which benefitted from high corporate involvement achieved product development success. However, the null hypothesis predicts 4 losers. The chi-square value is 6.000 with 1 degree of freedom.

Source: Field study data.

Result:

For an alpha of .1 the chi-square value must be greater than 2.71 (read from the table of critical values for the chi-square distribution (Bond & Scott, 1988)). Thus our chi-square value of 6.000 is significant. There is less than a 10% chance that the null hypothesis is true. Therefore, we **reject** the null hypothesis. It appears that in more complex businesses product development success and the intensity of corporate involvement are related.

We conclude that intensity of corporate involvement in new product development activities of complex constituent businesses is, indeed, associated with success. However,

analysis of corporate involvement fails to explain all variation in results. This shortcoming is evident when conducting a visual inspection of the findings. It is clear that among 6 of the less successful businesses there are 2 which have received intense involvement from their corporate centres. All other things being equal one would have expected these businesses to be successful too. This puzzling result is further investigated in the next section: Portfolio Conditions.

6.10 PORTFOLIO CONDITIONS

In an endeavour to explore the discrepancy between expected and actual results we now take a close look at relationships in the portfolio of businesses within which each subject business was administered. Two sets of portfolio relationships were measured: (i) the relationship between the corporate centre and its constituent businesses - also called the centre-business link; and (ii) the relationship between businesses in the portfolio - called synergy. Together these two relationships represent the degree of portfolio relatedness.

The (i) centre-business relationship concerns the extent to which corporate managers have an understanding of the competitive features of all businesses in the company

portfolio. Synergy, (ii), concerns the extent to which constituent businesses in the company portfolio share skills, resources or supply complementary goods. A portfolio is regarded as related if (i) corporate managers have a comprehensive understanding of the competitive features of all businesses; and (ii) the subject business shares many commonalities with other businesses. If, on the other hand, (i) corporate managers lack understanding of the competitive features of all businesses in the portfolio; and (ii) the subject business has little in common with other businesses, then the portfolio is regarded as unrelated.

The results of relatedness analysis show that the 6 successful businesses all belonged to related portfolios. The results also show that the six less successful businesses belonged to unrelated portfolios (Table 6.9). This analysis suggests that success is contingent not only upon intense corporate involvement, but also upon the degree of portfolio relatedness.

TABLE 6.9 PORTFOLIO RELATEDNESS OF COMPLEX BUSINESSES

CASE NUMBER	PORTFOLIO RELATEDNESS		PERFORMANCE
	RAW SCORE*	INTERPRETATION	
3	7	High	Winner
4	7	High	Winner
5	7	High	Winner
6	7	High	Winner
7	9	High	Winner
8	9	High	Winner
9	5	Low	Loser
10	5	Low	Loser
11	4	Low	Loser
12	4	Low	Loser
13	4	Low	Loser
14	4	Low	Loser

* The maximum potential score is 10 (maximum 5 on each of corporate centre-business and business-business relationships).

Source: Field study data.

A t-test performed on the composite score means of businesses benefitting from high and low portfolio relatedness indicates that the dichotomization into these two categories has not occurred by chance ($t=7.61$; $p=0.00$) - see below.

TABLE 6.10 THE INFLUENCE OF PORTFOLIO RELATEDNESS ON SUCCESS IN MORE COMPLEX BUSINESSES

VARIABLE DESCRIPTION	SAMPLE MEAN		T-TEST	
	WINNER	LOSER	STATISTIC	P
Centre-business link	3.20	2.50	1.75	.1000
Synergy	4.20	1.80	9.90	.0000
PORTFOLIO RELATEDNESS	7.30	4.30	7.61	.0000

Read as follows: The mean rating for portfolio relatedness is significantly higher in successful businesses (7.3) than it is in less successful businesses (4.3; $t=7.61$; $p=0.00$).

Source: Field study data.

Our findings show that successful businesses belonged to related portfolios. Less successful businesses, on the other hand, belonged to unrelated portfolios. As far as the centre-business link is concerned the difference between the sample means for winners and losers is significant ($t=1.75$; $p=0.10$). The **centre-business link** was operationalized by measuring the extent to which corporate managers have an understanding of the competitive features of all the business in the portfolio. This is not a surprising finding since it confirms that corporate centre managers of winners had a more comprehensive understanding of the competitive features of their businesses. As Kenyon and Mathur (1991) assert: "All businesses need a corporate centre which understands their critical characteristics".

The sample mean of winners for the **synergy** variable is

also significantly higher than that of losers ($t=9.90$; $p=0.0000$). Building related portfolios offer opportunities to utilize one or more of the following potential commonalities between businesses: (i) the sharing of skills or resources between various businesses; (ii) vertical integration - internalizing contractual relationships with suppliers and/or customers (iii) supplying complementary goods (Kenyon & Mathur, 1991). For example, many banks now offer insurance products through their branch network. This is because many target customers need both insurance products and traditional banking products. Thus the branch network supply complementary products. The implication of these findings is that corporate centre managers can add value to the new product development activities of constituent businesses by creating related portfolios.

6.11 DISCUSSION

6.11.1 The Influence of Business Level Factors on Success

It was surprising to find that the exogenous and endogenous factors had such limited association with success in the case of the sample businesses. A possible cause for this limited association is that the businesses in our sample adopted very similar approaches to product development. This

interpretation is supported by the "recipe theory" of management put forward by Grinyer and Spender (1979). According to the recipe theory businesses in one industry - in this case financial services - often follow remarkably similar approaches or recipes for conducting their business.

One endogenous factor, however, was strongly associated with success: relative number of marketing staff. Successful businesses employed significantly more marketing staff than less successful businesses. This finding confirms existing product development literature which repeatedly stresses the importance of marketing in achieving product development success (Booz, Allen & Hamilton, 1982; Cooper & Kleinschmidt, 1990; Johne & Snelson, 1990).

Our research has investigated the management of product development in complex businesses. Business complexity is determined by market and process complexity. Market complexity reflects the extent to which business managers understand the competitive features of the market (Question 9a). Process complexity, on the other hand, consists of (i) product complexity (Question 9b); (ii) payback period (Question 9c); and (iii) the dependence of the business on corporate centre investment for new product development (Question 9d). Comparison of the complexity ratings given for successful and less successful businesses is shown in Table 6.11.

A striking feature distinguishing successful businesses from their less successful counterparts is the way process complexity is managed. The mean ratings for total complexity ($t=0.85$; $p=0.42$); market complexity ($t=0.62$; $p=0.55$) and process complexity ($t=0.37$; $p=0.73$) are not significantly different between winners and losers. However, senior business managers of successful businesses in our sample had a more comprehensive understanding of the new products developed for the business over the last three years ($t=-5.58$; $p=0.00$). Moreover the length of the payback periods allowed in successful businesses were significantly longer than in less successful businesses ($t=4.34$; $p=0.0019$); despite the fact that the dependence on corporate investment on the part of these constituent businesses was not significantly different ($t=1.10$; $p=0.31$).

Interpretation of Table 6.11 is that corporate centre managers of successful businesses balance the dimensions of process complexity, by (i) minimizing product complexity; and (ii) allowing longer payback periods. Product complexity is minimized by corporate centre managers (1) sharing their product development experience with business managers to increase business level understanding of new products and the development process. Corporate centre managers also (2) create synergy between the subject business and other businesses in the portfolio by building related portfolios. In so doing business managers are enabled to use insights both

from corporate centre managers and senior managers of other businesses in the company to increase their understanding of new products.

TABLE 6.11 DIMENSIONS OF BUSINESS COMPLEXITY

VARIABLE DESCRIPTION	SAMPLE MEAN		T-TEST	
	WINNER	LOSER	STATISTIC	P
Product complexity	2.83	4.33	-5.58	.0000
Length of payback period	4.83	3.67	4.34	.0019
Dependence on investment from the corporate centre	3.17	2.67	1.10	.3100
Subtotal: Process Complexity	10.83	10.67	0.37	.7300
Market complexity	4.83	4.67	0.62	.5500
TOTAL COMPLEXITY	15.67	15.33	0.85	.4200

Read as follows: The mean rating for product complexity is significantly lower in winners (2.83) than in losers (4.33; $t=-5.58$; $p=.0000$). Each variable was measured on a 5-point Likert-type scale.

Source: Field study data.

Corporate centre managers of successful businesses also (ii) allow relatively long payback periods. This increases the viability of strategically important projects. In this way, certain projects which may otherwise be shelved are encouraged to utilize future market opportunities. Balancing the dimensions of process complexity - low product complexity and long payback period - requires of corporate centre managers to have a clear vision of future longer-term market developments. This finding is in accord with the assertion

made by Dixon (1991) and Hooley and Mann (1988) that suppliers of financial services need to adopt a market orientation. Concentrating on process issues such as product complexity and short payback periods may result in strategically important projects being shelved.

In less successful businesses, on the other hand, product complexity is high. Business managers (i) lack a comprehensive understanding of the new products developed. Specifically, product complexity increases because (1) corporate centre managers fail to become involved in business level product development tasks; and (2) synergy is not created between less successful subject businesses and other businesses which belong to their unrelated portfolios. Also, (ii) corporate centre managers insist on short-term financial results. This places undue pressure on business managers involved in projects which may only yield profits in the long-term. The resulting imbalance of process complexity - high product complexity and short payback period - increases the perceived risk of strategically important initiatives to such an extent that the corporate centre declines to invest sufficient funds. Consequently, the provision of financial resources is significantly lower in less successful businesses than in successful businesses (see Section 6.11.2.1 - The Nature of Corporate Involvement). Certain projects may, therefore, be shelved because they are evaluated using process criteria only, thus ignoring the strategic importance of

emerging market opportunities.

Balancing key dimensions of process complexity - product complexity and payback period - also requires of head office managers to become involved in appropriate tasks (which will be identified in Section 11.2.1) without meddling in operational tasks. This is because head office meddling may prevent business managers from gaining a clear understanding of market and process issues. If head office performs operational tasks, business managers may lack experience and motivation to perform these tasks effectively. As Roever (1992) asserts: "Unnecessary overcentralization is an important source of overcomplexity".

6.11.2 The Influence of Corporate Level Factors on Success

As far as corporate level factors are concerned both corporate involvement and portfolio relatedness are associated with success in the sample of complex businesses. In successful businesses corporate centre involvement was significantly higher than in less successful businesses. Also, successful businesses belonged to related portfolios; while less successful businesses belonged to unrelated portfolios. In this section we investigate the nature of corporate centre involvement. The influence of portfolio relatedness is investigated in Chapter 7 (Multivariate

Analysis).

6.11.2.1 The Nature of Corporate Centre Involvement in Complex Businesses

With respect to the nature of corporate centre involvement our findings are that the corporate centres of successful businesses become involved differently in tasks than their less successful counterparts. The intensity of corporate involvement was measured using a set of variables describing different new product development tasks. The McKinsey 7Ss framework was used as a checklist to ensure that a comprehensive set of variables was included. Respondents were asked to rate the set of variables on the five point centralization scale developed by Bartlett and Ghoshal (1990) (Question 18). The scale was anchored as follows:

- 1 = **Total freedom** - the business performs the activity alone. The corporate centre does not give advice or make suggestions.
- 2 = **Supervised freedom** - the business performs the activity, but the corporate centre can and does give advice or suggestions.
- 3 = **Cooperation** - both the corporate centre and the business have roughly equal influence on the activity.
- 4 = **Participative centralization** - the corporate centre performs the activity, but the business can and does give its advice.
- 5 = **Absolute centralization** - the corporate centre performs the activity alone. The business is neither required to participate nor to give any advice or suggestions.

The research objective was to determine which of the seven variables distinguish between success and failure. In order to determine if the differences between the means of

winners and losers in more complex businesses are statistically significant, the two means for each variable were subjected to a t-test. Table 6.12 presents the t-test values and the level of significance for each variable.

Visual inspection of the means suggest that in general the levels of corporate centre involvement is relatively higher in the case of winners, especially in the case of three variables. These are: (i) systems (corporate centre involvement in all stages of the product development process); (ii) strategy (setting especially short, but also long term objectives); and (iii) skills (giving expert advice).

The significance tests confirm that the overall intensity of corporate involvement in winners is significantly higher than in losers ($t=2.22$; $p=0.077$). While the corporate centres of winners establish what some analysts have called the "why and what" of business activities (O'Toole & Bennis, 1991), the business is made responsible for the "how". The type of tasks in which the corporate centre becomes more highly involved are (i) objective setting ($t=2.7$; $p=0.027$); (ii) providing expert advice ($t=2.55$; $p=0.0024$); (iii) rewarding product development performance ($t=3.1$; $p=0.013$); and (iv) providing sufficient financial resources ($t=1.07$; $p=0.032$) throughout (v) the pre-development and implementation stages of the product development process ($t=6.97$; $p=0.0009$). These tasks are those stressed by Tushman and Nadler (1986) when they refer to

"envisioning, enabling and energizing."

Corporate centres are unlikely to contribute to success by becoming intensely involved in the "how" of product development; that is to say (i) the selection of product development team members ($t=-0.62$; $p=0.55$); (ii) coordination of marketing and technical activities ($t=0.62$; $p=0.55$); and (iii) recruitment of personnel who subscribe to the innovative culture of the business ($t=-1.10$; $p=0.31$). These tasks are related to implementation and are the responsibility of senior business managers.

In less successful businesses corporate centre managers were found to be less intensely involved in establishing the "why" and "what" of product development in constituent businesses. Rather, corporate centres of less successful businesses were relatively more involved than their successful counterparts in the "how" of product development. At the extreme, this amounts to over meddling in the operational product development tasks of constituent businesses (Cooper & Kleinschmidt, 1990).

TABLE 6.12 VARIABLE RESULTS FOR WINNERS AND LOSERS IN MORE COMPLEX BUSINESSES

VARIABLE DESCRIPTION	SAMPLE MEAN		T-TEST	P
	WINNER	LOSER		
SYSTEMS				
Planning	3.00	1.17	5.97	.0000
Idea generation	2.00	1.17	2.71	.0270
Concept evaluation	3.00	1.17	5.97	.0000
SUBTOTAL: Up-front stage	8.00	3.17	15.73	.0000
Technical development	3.00	1.14	6.29	.0000
Marketing planning	4.00	1.83	3.61	.0087
Product launch	2.00	1.17	2.71	.0270
SUBTOTAL: Implementation	6.42	4.17	5.84	.0000
NPD PROCESS COMPREHENSIVENESS	17.00	8.00	6.97	.0009
STRATEGY				
Setting long-term objectives	4.00	3.00	2.00	.0770
Setting short-term objectives	2.83	2.33	1.86	.0960
TOTAL: STRATEGY	7.00	5.67	2.70	.0270
STRUCTURE				
Select NPD team	1.17	1.33	-0.62	.5500
STAFF				
Coordinate functional inputs	1.17	1.33	-0.62	.5500
SHARED VALUES				
Development mission statement	2.00	2.33	-1.00	.3400
Reward business managers	2.17	1.33	3.10	.0130
Recruit employees	1.17	1.67	-1.10	.3100
TOTAL: SHARED VALUES	5.17	6.86	-2.93	.0220
SKILLS				
Use expert advice	3.25	2.63	2.55	.0024
STYLE				
Provide financial resources	2.50	2.13	1.07	.0320
TOTAL: CORPORATE INVOLVEMENT	35.67	27.50	2.22	.0770

Note: Each variable was measured on a 5-point scale.

Source: Field study data.

The univariate analysis presented in this section has demonstrated that the two groups of surveyed businesses - winners and losers - tend to have differences between their means for certain variables. The univariate analysis fails to provide sufficient information on the interrelations that may exist among the variables. Therefore, additional multivariate analyses were conducted.

There are two types of multivariate analysis, namely those that (i) identify interdependencies among a number of variables; and (ii) those that use independent variables to characterize respondents falling into different categories defined by the dependent variable (Boyd, Westfall & Stasch, 1981). Each of these two analyses are discussed in the following sections (6.11.2.2: Interdependence Among Variables; and 6.11.2.3: Explaining Variation in Involvement)

6.11.2.2 Interdependence Among Variables in Complex Businesses

Three techniques are commonly used to describe the interdependence among variables. These are (i) cluster analysis; (ii) conjoint analysis and (iii) factor analysis. Cluster analysis, (i), identifies clusters or groups of respondents who have given similar answers to certain combinations of questions. Conjoint analysis, (ii) applies a utility value to features, thus ranking the importance of the

features measured. Factor analysis, (iii) identifies sets of questions on which highly correlated responses were given. Each set represents a different factor. Since it is our aim to determine the interdependence among variables, factor analysis was chosen as the appropriate technique. Before conducting the factor analysis it is necessary to determine the scale reliability.

Reliability

The coefficient (Cronbach's alpha) and correlations are the most appropriate methods of determining reliability of a multi-item scale (Boyd, Westfall & Stasch, 1981). For each set of seven variables in the winners and losers, an initial item-total correlation was calculated. In this way variables which did not have a strong relationship with other variables were identified. According to Boyd, Westfall and Stasch (1981) a correlation coefficient of 0.8 or larger indicates a very strong or high relationship between variables. A correlation coefficient of between 0.4 and 0.8 is considered to indicate a moderate to high relationship between variables. When a correlation analysis results in a coefficient of less than 0.4, evidence indicating a relationship between variables is lacking. After removing those variables which were identified as having poor correlation scores (less than 0.4), the process was repeated for the combined winner and loser cases. Once more, all variables scoring a corrected item-

total correlation value lower than the acceptable minimum of 0.4 were removed. The initial and final figures are shown in Table 6.13. Three variables were retired from the scale, namely (i) coordinating functional inputs (staff), (ii) creating shared values and (iii) providing financial resources (style).

The lowest correlation in the final analysis is 0.4687 scored by both structure (selecting the product development team) and skills (providing expert advice). The Cronbach alpha value of .9141 indicates a relatively high degree of reliability. Also, the final standardized item alpha of .9148 is close to the Cronbach alpha value. Therefore, we conclude that the variables in the scale have comparable variances.

TABLE 6.13 RELIABILITY ANALYSIS

VARIABLE	CORRECTED ITEM-TOTAL CORRELATION	
	INITIAL	FINAL
Systems	0.8076	0.8119
Strategy	0.9681	0.9826
Shared values	0.1665	Retired
Skills	0.4585	0.4687
Structure	0.4630	0.4687
Staff	0.0916	Retired
Style	-0.1527	Retired

Source: Field study data.

Factor Analysis

Following the correlation analysis, a factor analysis was conducted to reduce the number of variables. It was necessary to reduce the number of variables since the acceptable average ratio of cases to variables is four-to-one (Hair, Anderson & Tatham, 1987). In our analysis we have 12 cases and 4 variables - a ratio of three-to-one. Hair, Anderson and Tatham (1987) also show that a ratio of two-to-one is commonly, yet cautiously, used. However, our sample is so small that a further reduction in variables was deemed desirable.

Since the sample size is small (12 cases), it was necessary to determine whether a factor analysis would be appropriate for the data set. Visual inspection of the correlation matrix confirm that the correlations exceed the recommended minimum of 0.4 (Boyd, Westfall & Stasch, (1981). Next the Kaiser-Meyer-Olkin measure of sampling adequacy was used. This measure of sampling adequacy measures the extent to which variables belong together (Berenson and Levine, 1983). If measures do belong together, factor analysis is deemed appropriate. Interpretation of the index is as follows:

0.90 and above = marvellous
0.80+ = meritorious
0.70+ = middling
0.60+ = mediocre
0.50+ = miserable
below 0.50 = unacceptable.

Our resulting measure of sampling adequacy is 0.80861. Therefore, our data set can be described as relatively meritorious. It is concluded that factor analysis may be used.

Next, we need to choose the factor method to be applied. The alternatives are principal component analysis, principal axis factoring, alpha factoring, image factoring and maximum likelihood. Principal component analysis is particularly suited to research problems that are concerned with determining the minimum number of factors explaining the maximum amount of variance (Hair, Anderson & Tatham, 1987) and was, therefore, selected.

Before extracting factors we need to decide on the rotation and extraction method to be used. Extraction methods include the orthogonal and oblique methods (Berenson & Levine, 1983). The orthogonal method extracts factors which are independent of one another. On the other hand, the oblique methods extracts factors which are correlated. We are

concerned with reducing the variables to a smaller set of uncorrelated variables which can be used in a regression analysis. In order to use regression analysis we need to eliminate multi collinearity. Therefore, the orthogonal method is appropriate.

Of the three types of orthogonal rotation methods (VARIMAX, QUARTIMAX and EQUIMAX), VARIMAX is the most widely used, since it improves the interpretability of the factors (Hair, Anderson & Tatham, 1987).

The most commonly used criterion for deciding on the ultimate number of factors to be extracted, is the eigenvalue. An eigenvalue shows the amount of variance accounted for by a factor (Hair, Anderson & Tatham, 1987). Factors with an eigenvalue greater than one are considered significant. On the other hand, factors with an eigenvalue of less than one are excluded from the groups of selected factors. The eigenvalues of the four variables included in the analysis are shown in Table 6.14.

TABLE 6.14 EIGENVALUE AND EXPLAINED VARIANCE OF FACTORS

FACTOR NUMBER	EIGENVALUE	VARIANCE EXPLAINED (%)	
		INDIVIDUAL	CUMULATIVE
1	2.00198	57.1	57.1
2	1.50461	42.9	100

Source: Field study data.

The factor analysis results in a two factor solution. Combined these two factors explain all the common and unique variance in corporate centre involvement. The acceptance of this two factor solution is confirmed by the communalities. A communality is the amount of variance a variable shares with all other variables included in the analysis (Boyd, Westfall & Stasch, 1981). The communalities are shown in Table 6.15.

The communality values range from a low of 0.75606 to a high of 0.95244. Therefore, a degree of confidence is attached to the factor solution.

TABLE 6.15 COMMUNALITY VALUES

FACTOR	COMMUNALITY VALUE
Systems	0.93111
Strategy	0.95244
Structure	0.75606
Skills	0.86699

Source: Field study data.

The final step in the factor analysis is the calculation of factor loadings. Factor loadings show the correlation between the original variables and the factors (Boyd, Westfall & Stasch, 1981). Thus, factor loadings provide the key to interpreting the nature of each factor.

In order to decide which factor each variable should load onto, the factor is rotated. The factor in which each variable has the highest loading is then selected. A factor loading value of higher than 0.5 may be considered as very significant, while a value between 0.3 and 0.5 is significant. The loading values are shown in Table 6.16. Using the criteria for evaluating the significance of the loading, we conclude that all the variables load very significantly onto each factor.

TABLE 6.16 FACTOR LOADINGS

VARIABLE	FACTOR LOADING	CRONBACH'S ALPHA
FACTOR 1		0.9513
Systems	0.95883	
Strategy	0.94737	
FACTOR 2		0.8749
Structure	0.86669	
Skills	0.91250	

The Cronbach alpha values of 0.9513 and 0.8749 are both acceptable. Therefore, the factor analysis is regarded as internally reliable.

An outstanding issue is that of giving names to each factor. This is a subjective decision, based on the variables contained in each factor. Factor 1 consists of systems (corporate centre involvement throughout the pre-development and implementation stages of the product development process) and strategy (setting of long and short term objectives). By

becoming involved in these activities, corporate centre management is "envisioning" (Tushman & Nadler, 1986), that is they are becoming involved in the "why and what" of business activities (O'Toole & Bennis, 1991). In so doing, corporate management is steering the new product development team in the desired direction. For this reason we call this factor "**directing**".

Factor 2 consists of structure (selecting new product development team members) and skills (providing expert advice). By performing these tasks, corporate centre managers illustrate the importance of the new product development activities to all involved. For this reason we call this factor "**support**".

We conclude that the nature of corporate centre involvement in the new product development activities of the business consists of directing and support. However, we are still unsure how these two factors relate to one another. We would also like to know which of these two factors has the greatest bearing on achieving new product development success. In order to determine the underlying relationship between directing and corporate management support, we need to conduct a regression analysis. The factor scores produced by the factor analysis was used in the regression analysis. These factor scores are composite measures which represent all the original variables contained in each of the factors. Factor

scores thus represent the factors, which become the variables to be included in the regression analysis (Boyd, Westfall & Stasch, 1981).

6.11.2.3 Explaining Variation in Involvement in Complex Businesses

In the previous section we have reduced the number of variables relating to corporate centre involvement, in the new product development activities of complex businesses, to two. In order to determine the underlying relationship between these two variables, it is necessary to conduct a multivariate analysis aimed at using the two independent variables to characterize respondents falling into different categories defined by the dependent variable. Four different multivariate techniques are commonly used. These are (i) cross-tabulation; (ii) linear discriminant analysis; (iii) automatic interaction detector; and (iv) regression analysis.

The major difference between the four methods is the type of dependent and independent variable used. In the case of cross-tabulation both the dependent and independent variables are categorical. Linear discriminant analysis is suited to data sets consisting of a categorical dependent variable and a metric independent variable. Conversely, the automatic interaction detector is suited to a metric dependent variable and a categorical independent variable. Regression analysis

is used when a data set consists of both metric dependent and independent variables. Therefore, regression analysis is particularly suited to this type of analysis, since both the dependent and independent variables are metric (Boyd, Westfall & Stasch, 1981).

The dependent variable in this analysis is new product development success, measured on a five point Likert-type scale. The independent variables are the two factor scores derived from the original seven variables. Boyd, Westfall and Stasch (1981) recommends that the sample size be at least two or three times the number of variables (preferably much larger). In our case we have 2 variables and 12 cases. The sample is, however, still relatively small and the findings should be interpreted with caution.

Boyd, Westfall and Stasch (1981) also warns against the danger of using independent variables which are highly correlated with each other. However, the purpose of using the orthogonal extraction method in the factor analysis, was to create uncorrelated variables, so that regression analysis could be conducted.

There are principally two different methods for calculating the regression function. The (i) forced entry method considers all the variables simultaneously. On the other hand, the (ii) stepwise method enters the variables one

at a time, based on each variable's contribution to the regression equation's ability to explain the variance. The primary difference between the two approaches is that the forced entry method produces a model that includes all the variables regardless of their explanatory contribution. The stepwise method eliminates variables that fails to increase the explanatory properties of the equation (Boyd, Westfall & Stasch, 1981). A question arising from using the forced entry method is whether all the variables explain variation observed in the dependent variable. The stepwise method eliminates any possible redundancy and produces an optimal equation. It is for this reason that we chose to use the stepwise method.

The standardized regression function is presented in Table 6. 17. The relative importance of each variable is represented by the standardized coefficients.

TABLE 6.17 STEPWISE REGRESSION COEFFICIENTS

VARIABLE	COEFFICIENT	STANDARD ERROR	t-VALUE	SIGNIFICANCE LEVEL
Constant	31.583333	0.571338	55.2796	0.0000
1. Directing	6.535475	0.583904	11.1927	0.0000
2. Support	2.542598	0.55981	4.5401	0.0014

Source: Field study data.

Both factors are included in the final regression

function. The regression function can be shown as follows:

$$Y = 31.583333 + 6.535475_{\text{directing}} + 2.542598_{\text{support}}$$

The R^2 value is 0.9283. Since 92.8% of the variation is explained we conclude that a good function has been developed. This is supported by the Durbin-Watson statistic (value = 2.087) which indicates that no autocorrelation exists. Also, the t-values show that the individual coefficients are significant in the presence of the other independent variables (regressors).

Interpretation of the regression function uses the magnitude of the standardized coefficients. The larger the value of a coefficient, the greater its contribution to explaining variation. We conclude that the directing activities of corporate management (coefficient = 6.535475) contribute more to achieving new product development success than do the supportive activities (coefficient = 2.542598).

The importance of directing constituent businesses in financial services companies, is in contrast with the literature on manufactured goods. The manufactured goods literature describes the role of top management as providing support only. The directing role of corporate centres in financial services may be ascribed to the structure of financial services companies. In our overview of the research method (1.4: The Method of the Investigation) we have shown

that the distinction between the corporate centre and the business is often less obvious than in manufactured goods companies. The physical distance between corporate centre managers of financial services companies and those from the business is often small. Corporate centre managers are, therefore, relatively aware of and more highly involved in the product development activities of constituent businesses.

6.12 SUMMARY

This chapter has provided an analysis of the data. The hypothesis that a high intensity of corporate involvement is required to achieve new product development program success in complex businesses has been accepted. For less complex businesses, however, the hypothesis could not be tested conclusively. This was because the "winners" in less complex businesses failed to outperform "losers" significantly.

The nature of corporate centre involvement in more complex business was also investigated. It has been shown that corporate centre involvement can be classified into two groups of activities: (i) directing and (ii) support. Directing, (i), consists of (1) agreeing objectives for the new product development team and (2) guiding the team throughout the new product development process. Support, (ii), entails (1) the selection of product development team

members to show the relative importance that corporate centre management attach to the development of new products, as well as (2) providing expert advice when needed.

In the next section (Chapter 7: The Underlying Relationship Between Variables) the nature of corporate centre involvement in both less complex and more complex businesses is investigated (in this chapter only more complex businesses were included in the analyses). This is followed by analysis of the influence of all the endogenous factors, at corporate centre and business level, on achieving product development success.

7. THE UNDERLYING RELATIONSHIP BETWEEN VARIABLES

7.1 INTRODUCTION

In Chapter 6 (Analysis of Results) the data was analyzed using mostly univariate analysis. It was demonstrated that the two groups of **complex** businesses - winners and losers - differ with regard to the means for many of the variables measured. This led us to conclude that these variables may contribute to achieving new product development success in complex businesses. The univariate techniques provide insufficient information about the interrelations which may exist among the variables measured. Moreover, the analysis in Chapter 6 (Analysis of Results) was restricted to more complex businesses (12 cases). This was because the "winners" in less complex businesses (4 cases) failed to outperform "losers" significantly.

This section presents the results of multivariate data analysis. The aim is to explore the interrelations that may exist among the variables measured. Since we need to explore the interrelatedness of all factors measured - including business complexity - all 16 cases are included in this analysis, regardless of their business complexity.

Firstly, the nature of corporate involvement is explored. A similar approach to that used in Section 6.11.2. (The Influence

of Corporate Level Factors on Success) is employed. This time round, however, the four less complex businesses in our sample are included in the analysis. Thereafter, the influence of the endogenous factors measured on achieving new product development success is described. The purpose of this analysis is to place corporate centre involvement in its proper perspective by showing the relative importance of all the factors measured on achieving new product development success.

7.2 THE NATURE OF CORPORATE CENTRE INVOLVEMENT

7.2.1 INTENSITY OF CORPORATE INVOLVEMENT IN WINNERS AND LOSERS

In this section we investigate the nature of corporate centre involvement. The data analysis techniques used are similar to that used in Section 6.11.2.1 (The Nature of Corporate Centre Involvement in Complex Businesses). The only difference is that the four cases of less complex businesses are included in the analysis. In so doing the way in which the corporate centres of less complex businesses manage product development is also taken into account.

In order to determine the influence of the variables used to measure the intensity of corporate involvement on achieving product development success, the sample was divided in two. The top half of the sample was classified as winners (mean

performance score = 23.13), while the bottom half of the sample was classified as losers (mean performance score = 17; $t=1.86$; $p=0.096$).

With respect to the nature of corporate centre involvement our findings are that the corporate centres of successful businesses become involved differently in tasks than their less successful counterparts. The intensity of corporate involvement was measured using a set of variables describing different new product development tasks. The McKinsey 7Ss framework was used as a checklist to ensure that a comprehensive set of variables was included. Respondents were asked to rate the set of variables on the five point centralization scale developed by Bartlett and Ghoshal (1990) (Question 18). The scale was anchored as follows:

- 1 = **Total freedom** - the business performs the activity alone. The corporate centre does not give advice or make suggestions.
- 2 = **Supervised freedom** - the business performs the activity, but the corporate centre can and does give advice or suggestions.
- 3 = **Cooperation** - both the corporate centre and the business have roughly equal influence on the activity.
- 4 = **Participative centralization** - the corporate centre performs the activity, but the business can and does give its advice.
- 5 = **Absolute centralization** - the corporate centre performs the activity alone. The business is neither required to participate nor to give any advice or suggestions.

The research objective was to determine which of the seven variables distinguish between success and failure. In order to determine if the differences between the means of winners and losers of all businesses in our sample are statistically significant, the two means for each variable were subjected to

a t-test. Table 7.1 presents the t-test values and the level of significance for each variable.

Visual inspection of the means suggest that in general the levels of corporate centre involvement is relatively higher in the case of winners, especially in the case of two variables. These are: (i) systems (corporate centre involvement in all stages of the product development process); and (ii) strategy (setting short and long term objectives). These two variables were also identified in our analysis of more complex business only (Section 6.11.2.1: The Nature of Corporate Centre Involvement in Complex Businesses). However, in analysing more complex businesses, we also identified skills (giving expert advice) as a variables in which the corporate centre became more intensely involved.

The significance tests confirm that the overall intensity of corporate involvement in winners is significantly higher than in losers ($t=2.008$; $p=0.064$). While the corporate centres of winners establish what some analysts have called the "why and what" of business activities (O'Toole & Bennis, 1991), the business is made responsible for the "how". The type of tasks in which the corporate centre becomes more highly involved are (i) providing strategic guidance (strategy: $t=1.50$; $p=0.057$); throughout (ii) the pre-development and implementation stages of the product development process (systems: $t=4.74$; $p=0.00$). These tasks are those stressed by Tushman and Nadler (1986) when they refer to "envisioning, enabling and energizing."

Corporate centres are unlikely to contribute to success by becoming intensely involved in the "how" of product development; that is to say (i) the selection of product development team members (structure: $t=-1.13$; $p=0.28$); (ii) coordination of marketing and technical activities (staff: $t=1.13$; $p=0.28$); (iii) creating an innovative culture in the business (shared values: $t=-1.10$; $p=0.31$); (iv) providing financial resources (style: $t=-1.10$; $p=0.31$) and (v) skills ($t=-1.34$; $p=0.20$). These tasks are related to implementation and are the responsibility of senior business managers.

TABLE 7.1 VARIABLE RESULTS FOR WINNERS AND LOSERS

VARIABLE DESCRIPTION	SAMPLE MEAN		T-TEST	P
	WINNER	LOSER		
SYSTEMS Involvement throughout the product development process	15.25	9.00	4.74	.0003
STRATEGY Setting objectives	6.25	5.25	1.50	.0567
STRUCTURE Select the NPD team	1.00	1.375	-1.13	.2782
STAFF Coordinate functional inputs	1.38	1.13	1.13	.2782
SHARED VALUES Create an innovative culture	5.00	6.75	-1.10	.3100
SKILLS Give expert advice	2.75	3.13	-1.34	.2011
STYLE Provide financial resources	2.50	2.75	-1.31	.3100
TOTAL	33.00	26.38	2.01	.064

Note: Each variable was measured on a 5-point scale.

Source: Field study data.

In less successful businesses corporate centre managers were found to be less intensely involved in establishing the "why" and "what" of product development in constituent businesses. Rather,

corporate centres of less successful businesses were relatively more involved than their successful counterparts in the "how" of product development. At the extreme, this amounts to over meddling in the operational product development tasks of constituent businesses (Cooper & Kleinschmidt, 1990).

Our preliminary findings are that corporate managers of winners in our total sample become more involved in setting objectives throughout the product development process. In more complex businesses, however, corporate managers also provide expert advice (skills). We may speculate that the less complex businesses require less advice from corporate managers. Further analysis is, however, required to gain a better understanding of corporate involvement.

The univariate analysis presented in this section has demonstrated that the two groups of surveyed businesses - winners and losers - tend to have differences between their means for certain variables. The univariate analysis fails to provide sufficient information on the interrelations that may exist among the variables. Therefore, additional multivariate analyses were conducted.

Similar to the approach used in (Section 6.11.2.1: The Nature of Corporate Centre Involvement in Complex Businesses) two types of multivariate analysis were conducted. The first was factor analysis, conducted to identify interdependencies among the measured variables. The second multivariate analysis used

was regression analysis, which uses the independent variables to characterize respondents falling into different categories defined by the dependent variable (Boyd, Westfall & Stasch, 1981). Each of these two analyses are discussed in the following sections (7.2.2: Interdependence Among Involvement Variables; and 7.2.3: Explaining Variation in Involvement)

7.2.2 INTERDEPENDENCE AMONG INVOLVEMENT VARIABLES

Factor analysis identifies sets of questions on which highly correlated responses were given. Each set represents a different factor. Before conducting the factor analysis, however, it is necessary to determine the scale reliability.

Reliability

The coefficient (Cronbach's alpha) and correlations are the most appropriate methods of determining reliability of a multi-item scale (Boyd, Westfall & Stasch, 1981). For each set of seven variables in the winners and losers, an initial item-total correlation was calculated. In this way variables which did not have a strong relationship with other variables were identified. According to Boyd, Westfall and Stasch (1981) a correlation coefficient of 0.8 or larger indicates a very strong or high relationship between variables. A correlation coefficient of between 0.4 and 0.8 is considered to indicate a moderate to high

relationship between variables. When a correlation analysis results in a coefficient of less than 0.4, evidence indicating a relationship between variables is lacking. After removing those variables which were identified as having poor correlation scores (less than 0.4), the process was repeated for the combined winner and loser cases. Once more, all variables scoring a corrected item-total correlation value lower than the acceptable minimum of 0.4 were removed. The initial and final figures are shown in Table 7.2. Four variables were retired from the scale, namely (i) coordinating functional inputs (staff), (ii) creating shared values and (iii) providing financial resources (style) and (iv) selecting the product development team (structure).

TABLE 7.2 RELIABILITY ANALYSIS

VARIABLE	CORRECTED ITEM-TOTAL CORRELATION	
	INITIAL	FINAL
Systems	0.8481	0.9703
Strategy	0.8465	0.9348
Shared values	0.2066	Retired
Skills	0.5249	0.4565
Structure	0.3185	Retired
Staff	0.2318	Retired
Style	-0.1009	Retired

Source: Field study data.

The lowest correlation in the final analysis is 0.4565 scored by skills (providing expert advice). The Cronbach alpha

value of .9235 indicates a relatively high degree of reliability. Also, the final standardized item alpha of .9155 is close to the Cronbach alpha value. Therefore, we conclude that the variables in the scale have comparable variances.

Factor Analysis

Following the correlation analysis, a factor analysis was conducted to reduce the number of variables. It was necessary to reduce the number of variables since the acceptable average ratio of cases to variables is four-to-one (Hair, Anderson & Tatham, 1987). Although we have 16 cases and 3 variables - a ratio of five-to-one, our sample is so small that a further reduction in variables was deemed desirable.

Since the sample size is small (16 cases), it was necessary to determine whether a factor analysis would be appropriate for the data set. Visual inspection of the correlation matrix confirm that the correlations exceed the recommended minimum of 0.4 (Boyd, Westfall & Stasch, (1981). Next the Kaiser-Meyer-Olkin measure of sampling adequacy was used. This measure of sampling adequacy measures the extent to which variables belong together (Berenson and Levine, 1983). If measures do belong together, factor analysis is deemed appropriate. Interpretation of the index is as follows:

0.90 and above = marvellous
0.80+ = meritorious
0.70+ = middling
0.60+ = mediocre
0.50+ = miserable
below 0.50 = unacceptable.

Our resulting measure of sampling adequacy is 0.81644. Therefore, our data set can be described as relatively meritorious. It is concluded that factor analysis may be used.

The alternative factor methods, as well as methods of extracting and rotation is discussed in Section 6.11.2.2 (Interdependence Among Variables). The discussion is not repeated here. In summary, principal component analysis, using orthogonal rotation (VARIMAX) is the chosen method.

The most commonly used criterion for deciding on the ultimate number of factors to be extracted, is the eigenvalue. An eigenvalue shows the amount of variance accounted for by a factor (Hair, Anderson & Tatham, 1987). Factors with an eigenvalue greater than one are considered significant. On the other hand, factors with an eigenvalue of less than one are excluded from the groups of selected factors. The eigenvalues of the four variables included in the analysis are shown in Table 7.3.

TABLE 7.3 EIGENVALUE AND EXPLAINED VARIANCE OF FACTORS

FACTOR NUMBER	EIGENVALUE	VARIANCE EXPLAINED (%)	
		INDIVIDUAL	CUMULATIVE
1	2.19548	74.9	74.9
2	1.73720	25.1	100

Source: Field study data.

The factor analysis results in a two factor solution. Combined these two factors explain all the common and unique variance in corporate centre involvement. The acceptance of this two factor solution is confirmed by the communalities. A communality is the amount of variance a variable shares with all other variables included in the analysis (Boyd, Westfall & Stasch, 1981). The communalities are shown in Table 7.4.

The communality values range from a low of 0.75606 to a high of 0.95244. Therefore, a degree of confidence is attached to the factor solution.

TABLE 7.4 COMMUNALITY VALUES

FACTOR	COMMUNALITY VALUE
Systems	0.97584
Strategy	0.95433
Skills	0.96250

Source: Field study data.

The final step in the factor analysis is the calculation of factor loadings. Factor loadings show the correlation between the original variables and the factors (Boyd, Westfall & Stasch,

1981). Thus, factor loadings provide the key to interpreting the nature of each factor.

In order to decide which factor each variable should load onto, the factor is rotated. The factor in which each variable has the highest loading is then selected. A factor loading value of higher than 0.5 may be considered as very significant, while a value between 0.3 and 0.5 is significant. The loading values are shown in Table 7.5. Using the criteria for evaluating the significance of the loading, we conclude that all the variables load very significantly onto each factor.

TABLE 7.5 FACTOR LOADINGS

VARIABLE	FACTOR LOADING	CRONBACH'S ALPHA
FACTOR 1 Systems Strategy	0.98305 0.76728	0.89
FACTOR 2 Skills	0.97090	0.97

Source: Field study data.

The Cronbach alpha values of 0.8925 and 0.9716 are both acceptable. Therefore, the factor analysis is regarded as internally reliable.

An outstanding issue is that of giving names to each factor. This is a subjective decision, based on the variables contained in each factor. Factor 1 consists of systems (corporate centre involvement throughout the pre-development and implementation

stages of the product development process) and strategy (setting of long and short term objectives). By becoming involved in these activities, corporate centre management is "envisioning" (Tushman & Nadler, 1986), that is they are becoming involved in the "why and what" of business activities (O'Toole & Bennis, 1991). In so doing, corporate management is steering the new product development team in the desired direction. For this reason we call this factor "**directing**". This factor is exactly the same as the first factor identified in the factor analysis regarding complex business only (See Section 6.11.2.2: Interdependence Among Variables).

Factor 2 consists of skills only (providing expert advice). By giving advice, corporate centre managers are providing "**support**". The nature of support given differs somewhat from that discussed in Section 6.11.2.2 (Interdependence Among Variables). In managing product development in complex businesses corporate centre managers are also involved in selecting product development team members (structure). This task is, however, excluded from this factor in the current analysis. Our interpretation is that in less complex businesses, the selection of product development team members is left to senior business managers.

We conclude that the nature of corporate centre involvement in the new product development activities of the business consists of directing and support. However, we are still unsure how these two factors relate to one another. We would also like

to know which of these two factors has the greatest bearing on achieving new product development success. In order to determine the underlying relationship between directing and corporate management support, we need to conduct a regression analysis. The factor scores produced by the factor analysis was used in the regression analysis. These factor scores are composite measures which represent all the original variables contained in each of the factors. Factor scores thus represent the factors, which become the variables to be included in the regression analysis (Boyd, Westfall & Stasch, 1981).

7.2.3 EXPLAINING VARIATION IN INVOLVEMENT

In the previous section we have reduced the number of variables relating to corporate centre involvement, in the new product development activities of constituent businesses, to two. In order to determine the underlying relationship between these two variables, it is necessary to conduct a multivariate analysis aimed at using the two independent variables to characterize respondents falling into different categories defined by the dependent variable. The four different multivariate techniques that are commonly used to categorize respondents have been discussed in Section 6.11.2.3 (Explaining Variation In Involvement In Complex Businesses). It was also shown that regression analysis is particularly suited to this type of analysis, since both the dependent and independent variables are metric (Boyd, Westfall & Stasch, 1981). Specifically, the

stepwise method is used to eliminate variables that fail to increase the explanatory properties of the equation.

The dependent variable in this analysis is new product development success, measured on a five point Likert-type scale. The independent variables are the two factor scores derived from the original seven variables. Boyd, Westfall and Stasch (1981) recommends that the sample size be at least two or three times the number of variables (preferably much larger). In our case we have 2 variables and 16 cases (eight times larger). The sample is, however, still relatively small and the findings should be interpreted with caution.

Boyd, Westfall and Stasch (1981) also warns against the danger of using independent variables which are highly correlated with each other. However, the purpose of using the orthogonal extraction method in the factor analysis, was to create uncorrelated variables, so that regression analysis could be conducted.

The standardized regression function is presented in Table 7.6. The relative importance of each variable is represented by the standardized coefficients.

TABLE 7.6 STEPWISE REGRESSION COEFFICIENTS

VARIABLE	COEFFICIENT	STANDARD ERROR	t-VALUE	SIGNIFICANCE LEVEL
Constant	29.6875	0.86855	34.1805	0.0000
1. Directing	5.72569	0.887048	6.4548	0.0000
2. Support	2.939578	0.881551	3.3346	0.0054

Source: Field study data.

Both factors are included in the final regression function. The regression function can be shown as follows:

$$Y = 29.6875 + 5.72569_{\text{directing}} + 2.939578_{\text{support}}$$

The R^2 value is 0.7695. Since almost 77% of the variation is explained we conclude that a good function has been developed. This is supported by the Durbin-Watson statistic (value = 1.859) which indicates that no autocorrelation exists. Also, the t-values show that the individual coefficients are significant in the presence of the other independent variables (regressors).

Interpretation of the regression function uses the magnitude of the standardized coefficients. The larger the value of a coefficient, the greater its contribution to explaining variation. We conclude that the directing activities of corporate management (coefficient = 5.72569) contribute more to achieving new product development success than do the supportive activities (coefficient = 2.939578).

The importance of directing constituent businesses in financial services companies, is in contrast with the literature on manufactured goods. The manufactured goods literature describes the role of top management as providing support only. The directing role of corporate centres in financial services may be ascribed to the structure of financial services companies. In our overview of the research method (1.4: The Method of the Investigation) we have shown that in financial services companies the distinction between the corporate centre and the business is often less obvious than in manufactured goods companies. The physical distance between corporate centre managers of financial services companies and those from the business is often small. Corporate centre managers are, therefore, relatively aware of and more highly involved in the product development activities of constituent businesses.

7.2.4 SUMMARY

This section has provided an analysis of the nature of corporate centre involvement in all 16 constituent businesses included in our sample. It has been shown that a high intensity of corporate involvement is required to achieve new product development success.

It has also been shown that corporate centre involvement can be classified into two groups of activities: (i) directing and (ii) support. Directing, (i), consists of (1) agreeing

objectives for the new product development team and (2) guiding the team throughout the new product development process. Support, (ii), entails providing expert advice when needed. The nature of support given differs somewhat from that given to complex businesses (discussed in Section 6.11.2.2: Interdependence Among Variables). In managing product development in complex businesses corporate centre managers are also involved in selecting product development team members (structure). This task is, however, excluded in the current analysis. Our interpretation is that in less complex businesses, the selection of product development team members are left to senior business managers. On the other hand, corporate managers select product development team members of more complex business. In this way, corporate managers illustrate the relative importance of new product development activities.

7.3 THE INFLUENCE OF ENDOGENOUS FACTORS ON NEW PRODUCT DEVELOPMENT SUCCESS

7.3.1 BACKGROUND TO THE ANALYSIS

Comparison of the mean scores on business level (endogenous) factors (Section 6.8: The Influence Of Internal Factors) in complex businesses, revealed that the internal factors had limited association with success. A possible cause for this limited association is that the businesses in our sample adopted very similar approaches to product development. This

interpretation is supported by the "recipe theory" of management put forward by Grinyer and Spender (1979). According to the recipe theory businesses in one industry - in this case financial services - often follow remarkably similar approaches or recipes for conducting their businesses.

Up to now, we have investigated the influence of factors internal to the business, as well as portfolio related factors and corporate involvement, independently from one another. The influence of each of these factors on achieving product development success, has been analyzed, using t-tests. These tests show whether the two groups of complex businesses - winners and losers - differ between their means for each individual variable. The univariate analyses fails to provide sufficient information on the interrelations that may exist among the variables. Also, these analyses ignore the four less complex businesses in our sample. Therefore, additional multivariate analyses were conducted, using all 16 cases. The findings are presented in the following sections. The interdependence among the business and corporate level variables are discussed in the next section (7.3.2: Interdependence Among Business And Corporate Level Variables). The influence of these factors on variations in product development success (the dependent variable) is discussed in Section 7.3.3: Explaining Variation In Product Development Success).

7.3.2 INTERDEPENDENCE AMONG BUSINESS AND CORPORATE LEVEL VARIABLES

Factor analysis identifies sets of questions on which highly correlated responses were given. Each set represents a different factor. Before conducting the factor analysis, however, it is necessary to determine the scale reliability.

Reliability

The coefficient (Cronbach's alpha) and correlations are the most appropriate methods of determining reliability of a multi-item scale (Boyd, Westfall & Stasch, 1981). For each set of seven variables in the winners and losers, an initial item-total correlation was calculated. In this way variables which did not have a strong relationship with other variables were identified. According to Boyd, Westfall and Stasch (1981) a correlation coefficient of 0.8 or larger indicates a very strong or high relationship between variables. A correlation coefficient of between 0.4 and 0.8 is considered to indicate a moderate to high relationship between variables. When a correlation analysis results in a coefficient of less than 0.4, evidence indicating a relationship between variables is lacking. After removing those variables which were identified as having poor correlation scores (less than 0.4), the process was repeated for the combined winner and loser cases. Once more, all variables scoring a corrected item-total correlation value lower than the acceptable minimum of 0.4 were removed. The initial and final figures are

shown in Table 7.7. Two variables were retired from the scale, namely (i) formality of managerial systems and (ii) permanence of product development structure.

The lowest correlation in the final analysis is 0.456219 scored by skills (providing expert advice). The Cronbach alpha value of .9074 indicates a relatively high degree of reliability. Also, the final standardized item alpha of .9121 is close to the Cronbach alpha value. Therefore, we conclude that the variables in the scale have comparable variances.

TABLE 7.7 RELIABILITY ANALYSIS

VARIABLE	CORRECTED ITEM-TOTAL CORRELATION	
	INITIAL	FINAL
STRATEGY		
Explicitness of strategy	0.528803	0.521541
STRUCTURE		
Permanence of PD structure	-0.12689	Retired
SKILLS		
Experience of skill base	0.463709	0.456219
STAFF		
Number of marketing staff	0.966925	0.973166
SYSTEMS		
Formality of managerial systems	0.390256	Retired
STYLE		
Supportive style of leadership	0.546258	0.890237
SHARED VALUES		
Pervasiveness of shared values	0.89963	0.566446
COMPLEXITY		
of business	0.658	0.64626
RELATEDNESS		
of portfolio	0.804	0.816138
INVOLVEMENT		
Intensity of corporate centre involvement	0.973185	0.972384

Source: Field study data.

Factor Analysis

Following the correlation analysis, a factor analysis was conducted to reduce the number of variables. It was necessary to reduce the number of variables since the acceptable average ratio of cases to variables is four-to-one (Hair, Anderson & Tatham, 1987). In our analysis we have 16 cases and 8 variables - a ratio of two-to-one. Although Hair, Anderson and Tatham (1987) show that a ratio of two-to-one is commonly, yet cautiously, used, our sample is so small that a further reduction in variables was deemed desirable.

Since the sample size is small (16 cases), it was necessary to determine whether a factor analysis would be appropriate for the data set. Visual inspection of the correlation matrix confirm that the correlations exceed the recommended minimum of 0.4 (Boyd, Westfall & Stasch, (1981). Next the Kaiser-Meyer-Olkin measure of sampling adequacy was used. This measure of sampling adequacy measures the extent to which variables belong together (Berenson and Levine, 1983). If measures do belong together, factor analysis is deemed appropriate. Interpretation of the index is as follows:

0.90 and above = marvellous

0.80+ = meritorious

0.70+ = middling

0.60+ = mediocre

0.50+ = miserable

below 0.50 = unacceptable.

Our resulting measure of sampling adequacy is 0.83514. Therefore, our data set can be described as relatively meritorious. It is concluded that factor analysis may be used.

The alternative factor methods, as well as methods of extracting and rotation is discussed in Section 6.11.2.2 (Interdependence Among Variables). The discussion is not repeated here. In summary, principal component analysis, using orthogonal rotation (VARIMAX) is the chosen method.

The most commonly used criterion for deciding on the ultimate number of factors to be extracted, is the eigenvalue. An eigenvalue shows the amount of variance accounted for by a factor (Hair, Anderson & Tatham, 1987). Factors with an eigenvalue greater than one are considered significant. On the other hand, factors with an eigenvalue of less than one are excluded from the groups of selected factors. The eigenvalues of the four variables included in the analysis are shown in Table 7.8.

TABLE 7.8 EIGENVALUE AND EXPLAINED VARIANCE OF FACTORS

FACTOR NUMBER	EIGENVALUE	VARIANCE EXPLAINED (%)	
		INDIVIDUAL	CUMULATIVE
1	4.53922	59.3	59.3
2	1.95802	25.6	84.9

Source: Field study data.

The factor analysis results in a two factor solution. Combined these two factors explain 84.9% of the common and

unique variance in the dependent variable (product development success). The acceptance of this two factor solution is confirmed by the communalities. A communality is the amount of variance a variable shares with all other variables included in the analysis (Boyd, Westfall & Stasch, 1981). The communalities are shown in Table 7.9.

The communality values range from a low of 0.5856 to a high of 0.98513. Therefore, a degree of confidence is attached to the factor solution.

TABLE 7.9 COMMUNALITY VALUES

FACTOR	COMMUNALITY VALUE
Business complexity	0.61866
Portfolio relatedness	0.72515
Corporate involvement	0.98379
Experience of skill base	0.58560
Number of marketing staff	0.96629
Supportive style of leadership	0.98513
Explicitness of strategy	0.95785
Pervasiveness of shared values	0.77476

Source: Field study data.

The final step in the factor analysis is the calculation of factor loadings. Factor loadings show the correlation between the original variables and the factors (Boyd, Westfall & Stasch, 1981). Thus, factor loadings provide the key to interpreting the nature of each factor.

In order to decide which factor each variable should load

onto, the factor is rotated. The factor in which each variable has the highest loading is then selected. A factor loading value of higher than 0.5 may be considered as very significant, while a value between 0.3 and 0.5 is significant. The loading values are shown in Table 7.10. Using the criteria for evaluating the significance of the loading, we conclude that all the variables load very significantly onto each factor.

TABLE 7.10 FACTOR LOADINGS

VARIABLE	FACTOR LOADING	CRONBACH'S ALPHA
FACTOR 1		0.7716
Business complexity	0.75621	
Portfolio relatedness	0.77353	
Experience of skill base	0.69096	
Number of marketing staff	0.77621	
Pervasiveness of shared values	0.86096	
FACTOR 2		0.9119
Corporate involvement	0.86297	
Supportive style of leadership	0.95333	
Explicitness of strategy	0.91935	

Source: Field study data.

The Cronbach alpha values of 0.7716 and 0.9119 are both acceptable. Therefore, the factor analysis is regarded as internally reliable.

An outstanding issue is that of giving names to each factor. This is a subjective decision, based on the variables contained in each factor. Factor 1 consists of (i) business complexity, (ii) portfolio relatedness, (iii) experience of skill base (skills), (iv) number of marketing staff (staff) and (v) pervasiveness of shared values (shared values). It appears that in order to develop new products, the business requires (i)

managers with a clear understanding of the market and process issues confronting the business; (ii) support from other businesses in the portfolio (synergy) and from corporate managers (centre-business link); (iii) business level managers who are experienced at developing new products; (iv) marketing staff who may assist in gaining a thorough understanding of the market and (v) a personnel corps who shares an innovative culture. Since these mostly variables reflect cooperation between managers and other personnel at business level, we call this factor "**business involvement**". By looking at factor 1 from this perspective, it is possible to contrast the role of the business in product development, with that of the corporate centre. It is interesting to note that all the variables included in factor 1 are internal to the business, with the exception of one - portfolio relatedness. However, portfolio relatedness represents the degree to which the product development team draws support from other businesses in the portfolio. While it represents business level involvement, corporate centre managers can influence the degree of portfolio relatedness. It is up to corporate centre managers to build a related portfolio of businesses, where individual businesses benefit from synergy between constituent businesses.

Factor 2 consists of corporate involvement, supportive style of corporate leadership and explicitness of strategy. We call this factor "**corporate involvement**". It contrasts with the first factor, which represents the product development task performed at business level.

We conclude that achieving product development success in constituent businesses is contingent upon involvement from both the business and corporate centre. However, we are still unsure how these two factors relate to one another. We would also like to know which of these two factors has the greatest bearing on achieving new product development success. In order to determine the underlying relationship between business level and corporate involvement, we need to conduct a regression analysis. The factor scores produced by the factor analysis was used in the regression analysis. These factor scores are composite measures which represent all the original variables contained in each of the factors. Factor scores thus represent the factors, which become the variables to be included in the regression analysis (Boyd, Westfall & Stasch, 1981).

7.3.3 EXPLAINING VARIATION IN INVOLVEMENT

In the previous section we have reduced the number of variables relating to new product development success, in the new product development activities of constituent businesses, to two. In order to determine the underlying relationship between these two variables, it is necessary to conduct a multivariate analysis aimed at using the two independent variables to characterize respondents falling into different categories defined by the dependent variable. The four different multivariate techniques that are commonly used have been discussed in Section 6.11.2.3 (Explaining Variation In Involvement In Complex Businesses). It

was also shown that regression analysis is particularly suited to this type of analysis, since both the dependent and independent variables are metric (Boyd, Westfall & Stasch, 1981). Specifically, the stepwise method is used to eliminate variables that fail to increase the explanatory properties of the equation.

The dependent variable in this analysis is new product development success, measured on a five point Likert-type scale. The independent variables are the two factor scores derived from the original seven variables. Boyd, Westfall and Stasch (1981) recommends that the sample size be at least two or three times the number of variables (preferably much larger). In our case we have 2 variables and 16 cases. The sample is, however, still relatively small and the findings should be interpreted with caution.

Boyd, Westfall and Stasch (1981) also warns against the danger of using independent variables which are highly correlated with each other. However, the purpose of using the orthogonal extraction method in the factor analysis, was to create uncorrelated variables, so that regression analysis could be conducted.

The standardized regression function is presented in Table 7.11. The relative importance of each variable is represented by the standardized coefficients.

TABLE 7.11 STEPWISE REGRESSION COEFFICIENTS

VARIABLE	COEFFICIENT	STANDARD ERROR	t-VALUE	SIGNIFICANCE LEVEL
Constant	20.0625	0.363481	34.1805	0.0000
1. Business level involvement	5.11224	0.371548	6.4548	0.0000
2. Corporate involvement	2.146219	0.374605	3.3346	0.0001

Source: Field study data.

Both factors are included in the final regression function. The regression function can be shown as follows:

$$Y = 20.0625 + 5.11224_{\text{business involvement}} + 2.146219_{\text{corporate involvement}}$$

The R² value is 0.9359. Since almost 93.6% of the variation is explained we conclude that a good function has been developed. This is supported by the Durbin-Watson statistic (value = 1.853) which indicates that no autocorrelation exists. Also, the t-values show that the individual coefficients are significant in the presence of the other independent variables (regressors). The correlation between the two coefficient estimates is 0.0065 - which is very small. This indicates that very little correlation exists between the factor variables.

Interpretation of the regression function uses the magnitude of the standardized coefficients. The larger the value of a coefficient, the greater its contribution to explaining variation. We conclude that business involvement (coefficient = 5.11224) contributes more to achieving new product development success than do corporate involvement (coefficient = 2.146219).

The relative importance of corporate centre involvement (second to business involvement) in achieving product development success) comes as no surprise. The manufactured goods literature describes the role of top management as providing support only. Our findings are in accord with the supportive role of corporate managers, relative to operational product development activities. However, we have also shown that the nature of corporate involvement differs from that described in the manufactured goods literature. In financial services companies, it seems, corporate managers actively direct the product development activities of constituent businesses. This directing role remains, however, secondary to the operational activities conducted at business level. The business level tasks have now been contrasted with that of corporate management. Business level tasks include (i) gaining a clear understanding of the market and process issues facing the business; (ii) drawing support from other businesses in the portfolio; (iii) providing the product development skills base as well as (iv) marketing staff and (v) creating an innovative culture in the business.

7.4 DISCUSSION

7.4.1 THE NATURE OF CORPORATE INVOLVEMENT

It was surprising to find that corporate centre managers in financial services companies, direct product development activities in constituent businesses to a larger extent than their counterparts in manufactured goods companies. The importance of directing constituent businesses in financial services companies, is in contrast with the literature on manufactured goods. The manufactured goods literature describes the role of top management as providing support only. The directing role of corporate centres in financial services may be ascribed to the structure of financial services companies. In our overview of the research method (1.4: The Method of the Investigation) we have shown that in financial services companies the distinction between corporate centre and business is often less obvious than in some manufactured goods companies. The physical distance between corporate centre managers of financial services companies and those from the business is often small. Corporate centre managers are, therefore, relatively aware of and more highly involved in the product development activities of constituent businesses.

7.4.2 THE INFLUENCE OF ENDOGENOUS FACTORS ON NEW PRODUCT DEVELOPMENT SUCCESS

Factors internal to the company - both at business and corporate centre level - may impact product development success in constituent businesses. It has been shown that business level involvement, contributes more to achieving success than does involvement from the corporate centre. Also, the businesses in our sample received varying degrees of corporate involvement.

In order to describe the role of corporate centre involvement in product development more fully, a cluster analysis was conducted. The aim with cluster analysis is to identify clusters or groups of respondents who have given very similar answers to certain questions (Boyd, Westfall & Stasch, 1981). In the context of our research the aim was to identify groups of businesses who received similar types of corporate involvement, given similar types of business involvement.

We have shown that product development success is influenced by (i) business and (ii) corporate involvement. In the factor analysis (Section 7.3.2: Interdependence Among Business And Corporate Level Variables) two measures were constructed, using factor scores. We then clustered all the businesses in our sample on these two variables (business involvement and corporate involvement). McQueen's K-means clustering method was used. Since the data set is not a matrix, the euclidian distance measure was used (Boyd, Westfall & Stasch, 1981). The stopping rule used was the C-ratio developed by Calinski and Harabasz.

It has been shown that the C-ratio is the best stopping rule available (Milligan & Cooper, 1985). The stopping rule is used to determine the best number of clusters to accept. The number of clusters was varied from two to six. The corresponding C-ratio varied from 582, 636, 554, 459, and 528. The maximum at the three-cluster solution indicates the existence of three different categories of businesses. The three cluster combinations are illustrated in Figure 7.1 below.

FIGURE 7.1 CLUSTERS OF BUSINESSES

CORPORATE INVOLVEMENT	HIGH	Cluster 1 N = 6	Cluster 2 N = 2
	LOW		Cluster 3 N = 8
		HIGH	LOW
		BUSINESS INVOLVEMENT	

Source: Field study data.

From the cluster analysis we conclude that corporate centres manage product development in constituent businesses in three different ways. In order to explain these differences, the means of each of the three clusters of businesses are compared on the two variables (business and corporate involvement), as well as their product development performance (dependent variable). Details are shown in Table 6.12.

TABLE 7.12 SCHEFFÉ TESTS FOR BUSINESS CLUSTERS

VARIABLE	CLUSTER			F RATIO	P	SCHEFFÉ TEST
	NUMBER 1	NUMBER 2	NUMBER 3			
Business involvement	35.67	29.00	24.38	4.2062	0.0194	1-2, 1-3
Corporate involvement	40.67	47.00	26.38	7.7377	0.0010	1-3, 2-3
Product development success	25.83	22.00	15.25	3.9064	0.0252	1-2, 1-3

Source: Field study data.

We conclude that the score for business level involvement is significantly higher in cluster number 1, than in the other two clusters. Both clusters number 1 and 2 scored significantly higher on corporate involvement than cluster number 3. On the other hand, cluster number 1 outperformed both clusters number 2 and 3 on the dependent variable (product development success).

Our research has investigated the management of product development in the context of businesses complexity. Business complexity is determined by market and process complexity. Market complexity reflects the extent to which business managers understand the competitive features of the market (Question 9a). Process complexity, on the other hand, consists of (i) product complexity (Question 9b); (ii) payback period (Question 9c); and (iii) the dependence of the business on corporate centre investment for new product development (Question 9d). Comparison of the complexity ratings given for businesses belonging to each cluster is shown in Table 7.13.

The overall complexity scores of the three clusters are not significantly different. Therefore, we are unable to draw

meaningful conclusions regarding the influence of corporate centre involvement on clusters with differing complexity.

A striking feature distinguishing the successful businesses in cluster 1 from their less successful counterparts in clusters 2 and 3 is the way process complexity is managed. The mean ratings for total complexity (F ratio=1.1845; p=0.3483); market complexity (F ratio=0.1.1412; p=0.2205) and process complexity (F ratio=1.16755; p=0.1194) are not significantly different between the three clusters. However, senior business managers of the successful businesses in cluster 1 had a more comprehensive understanding of the new products developed for the business over the last three years (F ratio=-15.7171; p=0.00; 1-2; 1-3). Moreover the length of the payback periods allowed in successful businesses were significantly longer than in less successful businesses (F ratio=4.4978; p=0.015; 1-2; 1-3); despite the fact that the dependence on corporate investment on the part of these constituent businesses was not significantly different (F ratio=1.1666; p=0.3201).

Interpretation of Table 7.13 is that corporate centre managers of the successful businesses in cluster 1 balance the dimensions of process complexity, by (i) minimizing product complexity; and (ii) allowing longer payback periods. Product complexity is minimized by corporate centre managers (1) directing and (2) supporting business managers to increase business level understanding of new products and the development process. Corporate centre managers also (3) create synergy

between the subject business and other businesses in the portfolio by building related portfolios. In so doing business managers are enabled to use insights both from corporate centre managers and senior managers of other businesses in the company to increase their understanding of new products.

TABLE 7.13 SCHEFFÉ TESTS FOR DIMENSIONS OF BUSINESS COMPLEXITY

VARIABLE	CLUSTER			F RATIO	P	SCHEFFÉ TEST
	NUMBER 1	NUMBER 2	NUMBER 3			
Product complexity	2.83	4.51	4.33	-15.7171	0.0000	1-2, 1-3
Length of payback period	4.83	3.85	3.58	4.4978	0.015	1-3, 2-3
Dependence on investment from the corporate centre	3.17	2.76	2.62	1.1666	0.3201	1-2, 1-3
Subtotal: process complexity	10.83	11.53	10.24	1.6755	0.1194	
Market complexity	4.83	4.30	4.86	1.1412	0.2205	
TOTAL COMPLEXITY	15.67	16.00	11.75	1.1845	0.3483	

Source: Field study data.

Corporate centre managers of the successful businesses in cluster 1 also (ii) allow relatively long payback periods. This increases the viability of strategically important projects. In this way, certain projects which may otherwise be shelved are encouraged to utilize future market opportunities. Balancing the dimensions of process complexity - low product complexity and long payback period - requires of corporate centre managers to have a clear vision of future longer-term market developments. This finding is in accord with the assertion made by Dixon (1991) and Hooley and Mann (1988) that suppliers of financial services need to adopt a market orientation. Concentrating on process

issues such as product complexity and short payback periods may result in strategically important projects being shelved.

In the less successful businesses in cluster 2 and 3, on the other hand, product complexity is high. Business managers (i) lack a comprehensive understanding of the new products developed. Specifically, product complexity increases because (1) corporate centre managers fail to become involved in business level product development tasks (in the case of cluster number 3); and (2) synergy is not created between less successful subject businesses and other businesses which belong to their unrelated portfolios (in the case of both clusters number 2 and 3). Also, (ii) corporate centre managers insist on short-term financial results. This places undue pressure on business managers involved in projects which may only yield profits in the long-term. The resulting imbalance of process complexity - high product complexity and short payback period - increases the perceived risk of strategically important initiatives to such an extent that the corporate centre declines to invest sufficient funds. Consequently, the provision of financial resources is significantly lower in less successful businesses than in successful businesses. Certain projects may, therefore, be shelved because they are evaluated using process criteria only, thus ignoring the strategic importance of emerging market opportunities.

The three different ways in which corporate centres in our sample manage product development in constituent businesses, is

discussed in the balance of this section.

Our findings revealed that rather than choose between centralization or business autonomy in performing product development activities, corporate centres of the six successful businesses in cluster number 1 adopt a flexible approach. This affords autonomy in certain operational tasks, and active support for others. This is what some analysts have called federalism (O'Toole & Bennis, 1992). Federalism is a flexible approach requiring: (i) balanced centralization and decentralization; (ii) shared decision making between corporate centre and constituent businesses; and (iii) balance of power between businesses.

In such flexible but non-centralized companies the corporate centre is what Dumaine (1992) calls an "**organizational centre.**" Such a centre directs and supports constituent businesses; business managers are free to implement plans in a flexible fashion. In these companies, business managers are creative, motivated and market oriented.

In an **organizational centre** corporate and senior business managers cooperate in performing new product development tasks. Some new product development decisions are taken by corporate managers, other by senior business managers and others jointly. The organizational centre adds value to the product development activities of constituent businesses by (i) becoming intensely involved in appropriate product development tasks (directing and support); (ii) building a related portfolio in which constituent

businesses benefit from synergy with each other and (iii) by allowing business managers to conduct operational tasks.

Specifically, corporate managers in organizational centres cooperate strongly with senior business managers in (i) objective setting (strategy) and by (ii) providing expert advice (skills) throughout the new product development process (systems). However, organizational centre managers afford business managers autonomy in implementing new product development plans. These tasks can be left to business managers because (i) they are skilled at product development, (ii) marketing staff reduces uncertainty by providing market information, (iii) all employees in the business share a commitment to innovation, (iv) business managers benefit from synergy created in related portfolios of businesses and (v) have a better all round understanding of the complexities facing the business.

The non-centralized approach followed in organizational centres is well suited to solving the big company vs small company dilemma - the choice between the advantages offered by big companies as opposed to the advantages of small companies. Large companies can offer vision, leadership, cooperation and financial clout; whereas small companies can offer product and market focus, market orientation, flexibility, coordination, motivation and entrepreneurship (Dumaine, 1992). The non-centralized approach enables a business to draw strength from both sets of advantages.

In the two less successful businesses in cluster number 2 the corporate centre became intensely involved in product development. However, corporate involvement alone is not enough to ensure success. It has been shown that business level involvement contributes more to achieving product development success, than does corporate involvement. These two businesses scored significantly lower on business level involvement than those in cluster number 1. We call a corporate centre which becomes intensely involved in the product development activities of constituent businesses, while the constituent businesses themselves become relatively less involved, a "**head office**". This is because the head office fulfils its obligation of directing and supporting the business. At the same time, however, business managers fail to conduct business level tasks as intensely as in the case of businesses belonging to cluster number 1.

One business level variable can, however, be influenced by the corporate centre: the relatedness of the portfolio. Head office managers fail to create synergy between constituent businesses. As Goold and Campbell (1987) have shown, growth in unrelated portfolios is commonly achieved through acquisitions - not organic growth. The corporate centres of such companies often avoid situations of rapid growth, unstable environments, and rapidly changing markets. They further suggest that unrelated portfolios are best suited to specialist, niche businesses, rather than to international businesses. These features do not fit current conditions in the UK financial

services market. The UK financial services market is fast changing, is becoming more competitive and businesses are increasingly defined in international terms (Ennew, Watkins & Wright, 1990). It is, therefore, to be expected that businesses belonging to related portfolios will be more successful than those belonging to unrelated portfolios.

In the 8 less successful businesses in cluster number 3 the corporate centre was found to perform the role of what some analysts have called a "**central banker**" (Dumaine, 1992) or "corporate bank" (Roever, 1992). Such corporate centres (i) become less intensely involved in the product development activities of constituent businesses and (ii) afford business managers autonomy in performing product development tasks. Once again, the corporate centres fail to create related portfolios in which business managers can share product development skills and resources.

The **central banker** manages an unrelated portfolio of businesses. New product development decisions are delegated to the decentralized business. Senior business managers are given complete independence and autonomy. The central banker provides very little support for new product development activities in the business. When the business lacks resources to fund new product development, it turns to the central banker for financial assistance. However, very strict financial control is exercised to ensure that an acceptable return on investment is achieved. The central banker merely sets stringent financial performance

targets and monitors business performance against these targets.

On the other hand, business involvement in businesses managed by a "central banker" is relatively low. It should be borne in mind that the dependent variable used in this research - new product development program success - compares the new product development programs of sample businesses on the same set of criteria. If a business attaches less importance to one or more of the success criteria, the business itself may be satisfied with the performance of the new product program, while in our research it may be classified as a relatively less successful program (loser). It is this strategic consideration, which may explain why some corporate centres and businesses prefer low involvement.

However, we speculate that in the case of cluster number 2 (high corporate involvement, but low business involvement), corporate centre managers and business managers lack a shared product development vision. Corporate centre managers may become more highly involved to illustrate the relative importance of new product development initiatives to business management. Once business managers develop a shared vision, their involvement becomes relatively higher. In such an instance, the business moves to cluster number 1 - high corporate and business involvement. As such, belonging to cluster number 2, may be a temporary phase of transition from cluster 3 (low corporate and business involvement), to cluster 1 (high corporate and business involvement).

We conclude that product development activities of constituent businesses is managed in three different ways. Three types of corporate centre has been identified in this section: (i) organizational centre; (ii) central banker and (iii) head office. The different ways in which the types of corporate centre become involved in product development are shown in Figure 7.2.

Since all the cases in our sample belonged to three clusters illustrated in the corporate centre/business involvement matrix, one sector is not assigned a type of corporate centre. The sample contained no businesses receiving low involvement from the corporate centre, but high business level involvement. The reason for this may be that the sample is not representative of such businesses. However, one of the variables used to measure business involvement is portfolio relatedness. In a related portfolio, corporate centre managers have an understanding of the competitive features of their businesses. This understanding facilitates intense involvement in the product development activities of constituent businesses. Therefore, it is unlikely that a business belonging to a related portfolio will need less intense corporate involvement.

FIGURE 7.2 TYPOLOGY OF CORPORATE CENTRES

CORPORATE INVOLVEMENT	HIGH	Organizational centre	Head office
	LOW		Central banker
		HIGH	LOW
		BUSINESS INVOLVEMENT	

Read as follows: The organizational centre becomes intensely involved in the product development activities of its constituent businesses, while the businesses themselves become highly involved as well.

* Our sample contained no businesses using low corporate and business involvement.

Source: Field study data.

The advantages of low corporate involvement remain unclear. Similarly, the advantages of low business involvement remain unclear. Our findings suggest that in order to achieve new product development success it is necessary for both the corporate centre and the business to become more highly involved.

7.5 SUMMARY

This chapter has provided mostly multivariate analyses of the data. The nature of corporate centre involvement has been shown to consist of two groups of activities: (i) directing and (ii) support. Directing consists of agreeing objectives throughout the product development process; support is given by providing expert advice.

It was also shown that two factors influence new product development program success: (i) corporate and (ii) business

involvement. Business involvement contributes more to achieving product development success, than does corporate centre involvement. The regression function also suggests a positive relationship between business and corporate involvement. Business involvement includes the understanding that business managers have of the difficulties facing their businesses - business complexity. We conclude that more corporate involvement is conducive to achieving product development success, in both more and less complex businesses.

Corporate centres become involved in product development in three different ways. In each case the corporate centre fulfils a different role. These roles are that of organizational centre, head office and corporate banker. Each of these may be appropriate for different portfolio and business conditions. However, the organizational centre is shown to add most value to the new product development activities of constituent businesses. This is because both (i) organizational centre and (ii) business becomes intensely involved in appropriate new product development tasks.

8. MANAGERIAL IMPLICATIONS

8.1 INTRODUCTION

This research has important implications for scholars of new product development, for managers involved in new product development and for financial services institutions. The managerial implications are dealt with in this chapter. Academic implications are dealt with in Chapter 9.

8.2 CRITICAL FINDINGS

The ways in which product development in constituent businesses is managed from the corporate centre, have been investigated in the controlled context of large, London-based, financial services companies. We suspect, however, that although our study was conducted in this somewhat limited context it has generated insights which are relevant to managers in a wider multi-business context. We have distilled these insights into the following list of key operational factors for achieving success in complex businesses; each of which is discussed in turn:

1. Involvement, not meddling.
2. Cooperation, not centralization.
3. Market-driven, not process-driven approach.
4. Flexible involvement, not business autonomy.

8.3 CORPORATE INVOLVEMENT - NOT MEDDLING

To achieve success in constituent businesses, intense corporate involvement in appropriate product development tasks is required. While the corporate centres of winners establish what some analysts have called the "why and what" of business activities (O'Toole & Bennis, 1991), the business is made responsible for the "how". The type of tasks in which the corporate centre becomes highly involved are (i) directing and (ii) support. Directing, (i), consists of (1) agreeing objectives for the new product development team and (2) guiding the team throughout the new product development process. Support, (ii), entails providing expert product development advice. These tasks are those stressed by Tushman and Nadler (1986) when they refer to "envisioning, enabling and energizing."

Active directing and support require frequent contact between corporate and business managers. In Barclays Bank, for example communication and information sharing between corporate and business management was improved after the

elimination of a layer of corporate management. Technology, such as electronic mail, is increasingly being used to improve corporate-business information sharing.

Corporate centres are unlikely to contribute to success by becoming intensely involved in the "how" of product development; that is to say (i) selection of product development team members; (ii) coordination of marketing and technical activities; (iii) creating shared values and (iv) providing financial resources. These are operational tasks and are the responsibility of business managers.

In less successful businesses corporate centre managers were found to be less intensely involved in establishing the "why" and "what" of product development in constituent businesses. Rather, corporate centres of less successful businesses were relatively more involved than their successful counterparts in the "how" of product development. At the extreme, this amounted to what Cooper & Kleinschmidt (1990) refer to as over meddling in operational product development tasks.

8.4 COOPERATION, NOT CENTRALIZATION

To achieve success in constituent businesses, intense corporate involvement in appropriate product development tasks

is required. However, our research has shown that the role of corporate centre managers remains secondary to the operational activities conducted at business level. The business level tasks contrast with that of corporate management. Business level tasks include (i) gaining a clear understanding of the market and process issues facing the business; (ii) drawing support from other businesses in the portfolio; (iii) providing the product development skills base as well as (iv) marketing staff and (v) creating an innovative culture in the business.

Corporate centre managers cooperate with business managers by becoming involved in appropriate tasks (directing and support), as well as building related portfolios in which business managers share skills and resources required for performing product development tasks. For example, many banks now offer insurance products through their branch network. This is because many target customers need both insurance products and traditional banking products. Thus the branch network supply complementary products. In 1989 the Abbey National became the first building society to convert to a public quoted company. Now Abbey National Bank offers a wider range of products than before through its existing network of branches. In doing so its different businesses share both the skills and resources available in the branch network, and supply complementary goods. Also, the Prudential is currently reviewing its structure, since it is felt that certain

businesses are competing with one another, rather than creating synergy.

8.5 MARKET-DRIVEN, NOT PROCESS DRIVEN APPROACH

A striking feature which distinguishes successful businesses from their less successful counterparts is the way process complexity is managed. The mean ratings for total process complexity are not significantly different between winners and losers. However, the balance between key dimensions of process complexity varies between winners and losers. For example, senior business managers of successful businesses in our sample had a more comprehensive understanding of the new products developed for the business. Moreover the payback periods allowed in successful businesses were significantly longer than in less successful businesses; despite the fact that the dependence on corporate investment on the part of these constituent businesses was not significantly different.

Interpretation of the above is that corporate centre managers of successful businesses balance the dimensions of process complexity, by (i) minimizing product complexity; and (ii) allowing longer payback periods. Product complexity is minimized by corporate centre managers (1) directing and (2) supporting business managers to increase business level

understanding of new products and the development process. Corporate centre managers also (3) create synergy between the subject business and other businesses in the portfolio by building related portfolios. In so doing business managers are enabled to use insights both from corporate centre managers and senior managers of other businesses in the company to increase their understanding of new products.

Corporate centre managers of successful businesses also (ii) allow relatively long payback periods. This increases the viability of strategically important projects. In this way, certain projects which may otherwise be shelved are encouraged to utilize future market opportunities. Balancing the dimensions of process complexity - low product complexity and long payback period - requires of corporate centre managers to have a clear vision of future longer-term market developments. This finding confirms the assertion made by Dixon (1991) and Hooley and Mann (1988) that suppliers of financial services need to adopt a market orientation. Concentrating on process issues such as product complexity and short payback periods may result in strategically important projects being shelved.

In less successful businesses, on the other hand, product complexity is high. Business managers (i) lack a comprehensive understanding of the new products developed. Specifically, product complexity increases because (1)

corporate centre managers either fail to become involved in business level product development tasks; or (2) synergy is not created between less successful subject businesses and other businesses which belong to their unrelated portfolios. Also, (ii) corporate centre managers insist on short-term financial results. This places undue pressure on business managers involved in projects which may only yield profits in the long-term. The resulting imbalance of process complexity - high product complexity and short payback period - increases the perceived risk of strategically important initiatives to such an extent that the corporate centre declines to invest sufficient funds. Consequently, the provision of financial resources is significantly lower in less successful businesses than in successful businesses. Certain projects may, therefore, be shelved because they are evaluated using process criteria only, thus ignoring the strategic importance of emerging market opportunities.

Thus, corporate managers add value to the new product development activities of constituent businesses by managing process complexity. This focuses the efforts of business managers on the product and the market - 2 major components of complexity. Thus, the efforts of business managers are focused on satisfying customer needs competitively, containing costs and reaping acceptable profits.

8.6 FLEXIBLE INVOLVEMENT, NOT BUSINESS AUTONOMY

Corporate centres become involved in product development in three ways. In each case the corporate centre fulfils a different role. These roles are that of:

1. Central banker
2. Head office
3. Organizational centre

The features of each type is summarized in Table 8.1. and are discussed below.

TABLE 8.1 TYPOLOGY OF CORPORATE CENTRES

DESCRIPTION	CORPORATE CENTRE		
	CENTRAL BANKER	HEAD OFFICE	ORGANIZATIONAL CENTRE
Level of corporate involvement	Low	High	High
Nature of corporate involvement	Funding	Directing Support	Directing Support Portfolio management
Level of business involvement	Low	Low	High
Locus of NPD decisions	Business	Shared by business and corporate centre	Shared by business and corporate centre
Sample	n=8: losers	n=2: losers	n=6: winners

Central Banker

In a cluster of 8 businesses found to be less successful, the corporate centre was found to perform the role of what some analysts have called a "central banker" (Dumaine, 1992)

or "corporate bank" (Roever, 1992). Such corporate centres (i) provide financial resources and (ii) afford business managers autonomy in performing product development tasks. Corporate centre managers failed to create synergy by building related portfolios in which constituent businesses share product development skills and resources. Also, these 8 businesses received low business involvement.

The **central banker** delegates new product development decisions to the decentralized business. Senior business managers are given complete independence and autonomy. The central banker provides very little support for new product development activities in the business. When the business lacks resources to fund new product development, it turns to the central banker for financial assistance. However, very strict financial control is exercised to ensure that an acceptable return on investment is achieved. The central banker merely sets stringent financial performance targets and monitors business performance against these targets.

Head Office

Head office managers become more intensely involved by actively directing and supporting the product development activities of constituent businesses. However, corporate involvement alone is not enough to ensure success: high

business involvement is also needed. Businesses managers lack in product development experience, marketing support, a shared vision, understanding of the market and process complexities facing the business and the opportunity to gain insights from other businesses in a related portfolio of businesses. Belonging to an unrelated portfolio is not conducive to success, because synergy is not created between constituent businesses. As Goold and Campbell (1987) have shown, growth in unrelated portfolios is commonly achieved through acquisitions - not organic growth. The corporate centres of such companies often avoid situations of rapid growth, unstable environments, and rapidly changing markets. They further suggest that unrelated portfolios are best suited to specialist, niche businesses, rather than to international businesses. These features do not fit current conditions in the UK financial services market. The UK financial services market is fast changing, is becoming more competitive and businesses are increasingly defined in international terms (Ennew, Watkins & Wright, 1990). It is, therefore, to be expected that businesses belonging to related portfolios will be more successful than those belonging to unrelated portfolios.

The most important difference between businesses controlled by head offices and those controlled by central bankers is that the intensity of corporate involvement is higher in head offices. However, both businesses controlled

by head offices and those controlled by central bankers suffer from insufficient business involvement.

Organizational Centre

Our findings revealed that rather than choose between centralization or business autonomy, corporate centres of successful businesses adopt a flexible approach. This affords autonomy in certain operational tasks, and active support for others. This is what some analysts have called federalism (O'Toole & Bennis, 1992). Federalism is a flexible approach requiring: (i) balanced centralization and decentralization; (ii) shared decision making between corporate centre and constituent businesses; and (iii) balance of power between businesses.

In such flexible but non-centralized companies the corporate centre is what Dumaine (1992) calls an **"organizational centre."** The organizational centre is selective in affording autonomy to business managers. In certain key tasks corporate managers cooperate strongly with senior business managers - the centre directs and supports constituent businesses. Business managers are free to implement plans in a flexible fashion. In these companies, business managers are creative, motivated and market oriented.

The **organizational centre** is suited to managing product development in a constituent business benefitting from intense business involvement. Corporate and senior business managers cooperate in performing new product development tasks. Some new product development decisions are taken by corporate managers, other by senior business managers and others jointly. The organizational centre adds value to the product development activities of constituent businesses by (i) becoming intensely involved in appropriate product development tasks; and (ii) building a related portfolio in which constituent businesses share skills and resources for product development.

The non-centralized approach followed in organizational centres is well suited to solving the big company vs small company dilemma - the choice between the advantages offered by big companies as opposed to the advantages of small companies. Large companies can offer vision, leadership, cooperation and financial clout; whereas small companies can offer product and market focus, market orientation, flexibility, coordination, motivation and entrepreneurship (Dumaine, 1992). The non-centralized approach enables a business to draw strength from both sets of advantages. It is not surprising that all 6 businesses benefitting from the direction, support and portfolio management provided by the organizational centre, were successful.

8.7 SUMMARY

This chapter has provided a managerial overview of key findings. The reasons why successful businesses in our sample of outperformed less successful businesses are summarized below:

- * Corporate centre managers become intensely involved in the product development activities of constituent businesses. The nature of corporate centre involvement encompasses directing (agreeing objectives throughout the new product development process) and support (provision of expert product development advice).

- * Corporate centre managers do not meddle in the day-to-day operations of businesses. They acknowledge the importance of business involvement in implementing product development plans. Specifically, the business takes responsibility for gaining a clear understanding of the market and process issues facing the business; drawing support from other businesses in the portfolio; providing the product development skills base as well as marketing staff and creating an innovative culture in the business.

- * Corporate centre managers cooperate with business managers in new product development. Rather than choose

between centralization or business autonomy, corporate centres adopt a flexible approach affording autonomy in certain operational tasks, and actively supporting others.

- * By adopting a flexible approach corporate centre managers ensure that constituent businesses benefit from the advantages of big corporations: - vision, leadership, cooperation and financial clout - without meddling in day-to-day operations.
- * Flexible cooperation from the corporate centre also ensures that constituent businesses benefit from the best that small business have to offer - product and market focus, market orientation, flexibility, coordination and entrepreneurship.
- * Corporate centre managers build related portfolios to create synergy between businesses, thus enabling businesses to share skills and resources required for performing product development tasks.
- * Corporate centre managers have a clear vision of future longer-term market developments. Consequently, their vision extends beyond satisfying the short-term objectives of shareholders. Certain projects which may otherwise be shelved are encouraged to utilize future

market opportunities.

- * Corporate centres manage process complexity by sharing their product development experience with business managers to increase business level understanding of new products and the development process. Corporate managers also allow longer payback periods to improve the viability of strategically important projects.

9. CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

9.1 INTRODUCTION

This research has important implications for scholars of product development, for managers involved in new product development and for financial services institutions. The managerial implications were discussed in Chapter 8. We now turn our attention to the academic implications of the research.

9.2 PURPOSE OF THE STUDY

This study has its origin in the product development and corporate literature. A review of these literatures showed that although product development scholars agree that top management support is critically important to achieve product development success, little empirical evidence exist on the actual role of corporate management as opposed to senior business management. Despite many far-reaching changes in the financial services sector, the role of the corporate centre in product development in financial services companies has been neglected in the literature. The primary goal of the research has been to address this shortcoming in the literature by

achieving an increased understanding on how the corporate centres of financial services companies manage product development in constituent businesses.

This has been accomplished by examining the intensity of corporate involvement in product development activities. A comparative methodology has been employed to describe the extent to which different levels of corporate involvement contribute to success or failure in businesses of varying complexity.

The principal research question addressed in the research is: Are certain styles of corporate centre involvement in product development in constituent businesses associated with higher success than others?

Contributions to the existing knowledge emerge at three levels:

1. The management of product development programs in constituent businesses.
2. Corporate management of constituent businesses and portfolios.
3. The contribution of manufactured goods literature to the services literature.

9.3 CONTRIBUTIONS TO NEW PRODUCT DEVELOPMENT PROGRAM LITERATURE

Most product development research in the services and manufactured goods sectors has identified top management support as critically important. However, none of these studies makes any distinction between the roles of different levels of top management, in particular the role of the corporate centre and the role of senior business unit managers. The findings of this investigation clearly distinguishes the role of corporate centre managers from that of senior business unit managers.

The study firstly shows the type of corporate centre involvement which can contribute to product development program success in complex businesses. The tasks performed by the corporate centres of program winners include (i) directing and (ii) support. Directing, (i), consists of setting objectives throughout the product development process. Support, (ii), is given by providing expert product development advice. These tasks are those stressed by Tushman and Nadler (1986) when they refer to "envisioning, energizing and enabling".

Business managers are made responsible for implementing product development plans. The scope of business level tasks encompass (i) gaining a clear understanding of the market and process issues facing the business; (ii) drawing support from

other businesses in the portfolio; (iii) providing the product development skills base as well as (iv) marketing staff and (v) creating an innovative culture in the business. Most importantly, it has been shown that business level tasks contribute more to achieving product development success, than do corporate level tasks.

The third contribution to the product development program literature concerns the importance of business complexity. A measure of business complexity has been put forward. It has been shown that total business complexity is determined by market and process complexity. Market complexity reflects the extent to which the business managers understand the competitive features of the market. Process complexity, on the other hand, consists of (i) product complexity, (ii) lead time between major decisions and their results - called payback period - and (iii) the relative dependence of the business on corporate investment for new product development.

It has also been shown that winners manage business complexity better. Corporate centre managers of successful businesses (i) minimize product complexity; and (ii) allow longer payback periods. Product complexity is minimized by corporate centre managers (1) directing and (2) supporting business managers to increase business level understanding of new products and the development process. Corporate centre managers also (3) create synergy between the subject business

and other businesses in the portfolio by building related portfolios. In so doing business managers are enabled to use insights both from corporate centre managers and senior managers of other businesses in the company to increase their understanding of new products.

Corporate centre managers of successful businesses also (ii) allow relatively long payback periods. In this way, certain projects which may otherwise be shelved are encouraged to utilize future market opportunities. Balancing the dimensions of process complexity - low product complexity and long payback period - requires of corporate centre managers to have a clear vision of future longer-term market developments. Concentrating on process issues such as product complexity and short payback periods may result in strategically important projects being shelved.

9.4 CONTRIBUTIONS TO THE CORPORATE LITERATURE

The corporate literature suggests that different degrees of corporate involvement may be appropriate in different circumstances (Kenyon & Mathur, 1991). Complex businesses require more corporate involvement than less complex businesses. Specifically, businesses which need substantial corporate resources, which face complex market and product conditions and long payback periods need more corporate

involvement. On the other hand, those businesses which are less complex, need less corporate involvement to achieve product development success. As Cooper and Kleinschmidt (1990) remark: "day-to-day meddling by the top management is not conducive to success".

This research confirms the importance of a high intensity of corporate involvement in achieving product development success in more complex businesses. With regard less complex businesses, our findings suggest that the intensity of corporate involvement is not contingent upon business complexity. More research is, however, needed to explain this relationship more fully.

It has been found that achieving product development success is influenced by two factors: (i) intensity of corporate involvement and (ii) the intensity of business involvement. We concluded that product development activities of constituent businesses is managed in three different ways. In each type, the corporate centres performs a different role. These roles are:

1. Central banker
2. Head office
3. Organizational centre.

Each role is used in different conditions. The organizational centre, allows a high intensity of involvement on the part of corporate centre managers and personnel from the business. This approach is shown to contribute most to the achievement of product development program success in constituent businesses.

The organizational centre style of corporate management balances centralization and decentralization. It has been found that the key issue is not whether to decentralize or centralize businesses level activities. Rather, the key issue is to centralize the appropriate tasks; while affording sufficient autonomy in the execution of business level tasks. In fact, business level tasks were found to contribute more to achieving success, than corporate involvement.

9.5 CONTRIBUTIONS TO THE SERVICE LITERATURE

Previous research concerning the development and marketing of services has focused on the differences between goods and services (Beckwith & Fitzgerald, 1983; Berry, 1980; Booms, Davis & Guseman, 1984; Cowell, 1984; Gronroos, 1978, 1982; Lovelock, 1991; Shostack, 1977; Zeithaml, Parasuraman & Berry, 1985). Five distinguishing factors have been identified in these research projects: intangibility; simultaneity; perishability; heterogeneity; and ownership.

Zeithaml (1991) argues that goods and services can be categorized on a continuum of "ease of evaluation". It is argued that most goods fall to the left of the continuum and most services to the right.

In this research we have found it necessary to draw evidence from the manufactured goods product development literature. We felt justified in doing so, because some analysts have argued that the so-called unique characteristics of services are not exclusive and that the differences are only a matter of degree. (Johne & Pavlidis, 1991).

The manufactured goods literature, allowed us to use the considerable body of knowledge provided by literature in related disciplines. While this study was conducted in the context of financial services companies, the findings of

previous studies conducted in manufactured goods companies are confirmed.

This finding is important because it shows that by concentrating on the similarities between goods and services, important findings in the manufactured goods sector may be applied in the services sector. This does not mean that the differences between goods and services are unimportant. It does mean, however, that it would be foolish to ignore the lessons learnt in manufactured goods sectors.

9.6 LIMITATIONS OF THE STUDY

9.6.1 Conceptual Limitations

New product development involves a complex mixture of sequential and interactive events. This complexity is supported in the product development literature for manufactured goods as well as services. It is, therefore, not surprising to find some unexplained variance in the regression analyses.

Some of this unexplained variance may be the result of different competitive and economic climates occurring over the time frame of the new product development programs included in

the sample. Some variance may also be attributable to the possibility of excluded factors that may be influencing the development process.

It is recognized that products of various degrees of novelty ("newness") may have a bearing on the successful outcome of a new product development program. Moreover, the definition of a new product is relatively arbitrary and calls for subjective assessment. Constructs which may result from the product's degree of newness, which may affect the difficulty of the development process, have been played down in this study.

In consideration of the lack of empirical and theoretical evidence on a definition for a successful or unsuccessful new product development program a new definition of a new product development program has been introduced. This measurement is unproven. Little attempt was made to validate the success measurement through objective statistical analyses. Statistical analyses were not conducted because the importance of the variables included in the success measure is confirmed by the strategy literature. Moreover, the measure was developed by product development experts.

The nature of individual new product development programs may differ substantially in terms of the number of new products developed in each, as well as the difficulty in

developing individual products and the features of the target markets. Little attempt was made to control for these differences. The features of target markets were addressed in a subjective manner (Questions 3, 4 and 5 in the questionnaire). Many businesses use surprisingly similar approaches to product development. This is the type of interpretation suggested in the "recipe theory" of management advanced by Spender (1989). According to this theory, businesses in particular industries - in our case financial services - follow similar approaches (or recipes) for managing. This is confirmed in our findings which show that the exogenous factors have limited association with our composite measure of success.

The success measure - dependent variable - used in this study compares the new product development programs of sample businesses on the same set of criteria. If a business attaches less importance to one or more of the success criteria, the business itself may be satisfied with the performance of the new product program, while in our research it may be classified as a relatively less successful program (loser). It is this strategic consideration, which may explain why some corporate centres and businesses prefer low involvement. However, the expectations of business and corporate managers, regarding their new product development programs, were not captured in this research.

9.6.2 Methodological Limitations

The design of the study places boundaries on the conclusions that can be drawn. The sample itself restricts the generalisability of the findings. This research focuses only on the constituent businesses of UK financial services companies. Companies of different nationalities have different managerial inheritances and approaches to planning and control. Moreover the population is restricted to the greater London area. This is because differences exist between businesses which are in close proximity to the corporate centre and those which are further away (Bartlett & Ghoshal, 1990; Jones, 1989).

Also, the study is purposively limited to large companies. This is because large companies often lead product development activities (Edgett & Jones, 1991). Also, there is a high concentration in the UK financial services industry. A representative sample of all companies would have included a disproportionate number of small companies.

The study is limited to the constituent business of greatest strategic importance to the corporate centre. This is because, as Simons (1991) has suggested, variations in the intensity of corporate involvement occurs depending on whether diagnostic or interactive planning and control systems are used. Interactive systems are used to signal the importance

of strategic initiatives to the business.

A major limiting factor is the size of the sample. For example, Hair, Anderson and Tatham (1987) suggest that the appropriate number of cases to variables is four-to-one. They do later point out that a four-to-one ratio is conservative. Many researchers are forced to analyze a set of variables with only two-to-one ratio of observations to variables. Findings drawn from such small samples should, however, be interpreted with caution. Therefore, this research is regarded as an exploratory investigation.

Allied to the problem of sample size is the fact that a structured questionnaire was used. While the sample size limits the depth of quantitative insights that can be gained, the fact that a structured questionnaire was used limits the depth of qualitative insights that can be gained. Moreover, there is a relative lack of prior qualitative research in the new product development area on which to base conclusions and findings.

With the benefit of hindsight the student has to recommend that future research in this area combine an inductive approach with a deductive approach. Such an approach will allow for a less structured research phase during which propositions can be developed and rich qualitative insights be gained. Thereafter, the propositions

developed can be tested in a more structured approach. It is also recommended that the more structured phase of such research not be limited to a narrow sector of the financial services market. By including companies of different sizes and regions, the potential sample size will be much bigger. Moreover, the depth of quantitative insight gained will be increased. Using a larger sample will also allow the development of a predictive model that may effectively predict new product development success and failure in financial services companies.

The actual survey also raises *possible limitations*. First, there may be response bias due to ambiguous questions in the questionnaire. Also, there is always the risk that an unanswered question might have provided information that was not captured by the other questions in the survey. We tried to counter this potential problem by using the 7S framework as a basis for questioning. This framework provides a useful checklist of factors under the control of management. However, using only seven variables to capture the complex mixture of sequential and interactive events involved in the new product development process may lead to useful information not being captured.

Certain limitations are inherent in the use of structured questionnaires, as opposed to unstructured interviews. While we tried to identify the correct respondents, potential

problems exist with the knowledge level and area of expertise of respondents, as well the effort each respondent has put into answering the questions. The low number of missing values in our completed questionnaires, as well as the high correlation between corporate and business level responses suggest that these are not significant concerns.

9.6.3 Summary

While due consideration of the conceptual and methodological limitations must be given, it is suggested that the findings of this study have merit for academics and marketing practitioners alike. While the findings have either met or exceeded the research objective originally outlined in Chapter 1, the study must be seen as an exploratory investigation into a very complex phenomenon. Consequently, the research raises more questions than answers. Some of these questions are mentioned in the following section (Section 8.6: Suggestions for further research).

9.6 SUGGESTIONS FOR FURTHER RESEARCH

Our research has established that product development program success is influenced by the nature of corporate involvement. Strong potential for future research exists in this subject area.

This study focuses narrowly upon large, London based financial services companies. It raises interesting questions as to the potential for generalizing the findings to other financial services companies, and to services industries in general. Cross-cultural comparisons may be useful, given the deregulation in the European financial services markets and globalization of competition.

Still other research may examine how the corporate centre manages businesses of less strategic importance to the corporate centre. Also, the role of senior business level managers need further investigation. Such studies may be conducted at both program and project level.

While it was found that all winner businesses benefitted from a high intensity of corporate involvement, many corporate centres choose to become less intensely involved. Further research is needed to show how becoming less intensely involved can add value to the activities of constituent businesses. In particular, this approach needs to be investigated in the context of less complex businesses.

Finally, the determinants of success and failure used in this research, need to be tested in other financial services sectors. This will help in arriving at a more generic approach to measuring and eventually predicting success or failure.

APPENDIX 1: LETTER SENT TO POTENTIAL CORPORATE RESPONDENTS



Frobisher Crescent
Barbican Centre
London EC2Y 8HB

Switchboard 071-477 8000
Direct Line 071-477
Fax: 071-477 8880

Dear Sir

**DOCTORAL RESEARCH: HOW CAN THE CORPORATE CENTRE BEST HELP
CONSTITUENT BUSINESSES DEVELOP BETTER PRODUCTS?**

The Innovation Research Unit, as part of a continuing research program into the product development practices of financial services companies, is currently investigating the influence of the corporate centre on successful new product development in constituent businesses.

The research cannot be completed without your help and the purpose of this letter is to seek your company's participation in the research. I would like to meet with you to discuss my research.

In return for your participation we will be pleased to give you a management report summarizing the salient findings of the investigation. Complete confidentiality is guaranteed. No individual company will be identified in the research or report. All results will be used only in an industry aggregate format.

This research will increase the Innovation Research Unit's understanding of product development practices and its ability to contribute to management practices in the financial services sector. The research will also enable me to complete the requirements for a PhD degree and, thus, is very important to me. The research is not sponsored by any individual company.

I shall contact your office in a few days to pursue the matter. You may wish to pass this letter on to a senior marketing/planning manager with whom I can discuss my request in detail.

Yours sincerely

Leon Vermaak

APPENDIX 2: CORPORATE INTERVIEW: FLIP CHARTS USED

**THE ROLE OF
THE CORPORATE CENTRE
IN NEW PRODUCT DEVELOPMENT**

FOCUS IS ON:

- **LARGE**
- **FINANCIAL SERVICES COMPANIES**

**WE ARE INVESTIGATING:
CORPORATE MANAGEMENT STYLES
WHICH LEAD TO ACHIEVING
NEW PRODUCT DEVELOPMENT SUCCESS**

METHODOLOGY:

- 1. IDENTIFY BUSINESS**
- 2. DESCRIBE CORPORATE
MANAGEMENT STYLE**

CONFIDENTIALITY:

- 1. REMAIN ANONYMOUS**
- 2. NO SPECIFICS**
- 3. INDUSTRY AGGREGATE FEEDBACK**

APPENDIX 3: LETTER SENT TO BUSINESS LEVEL RESPONDENTS



Frobisher Crescent
Barbican Centre
London EC2Y 8HB

Switchboard 071-477 8000
Direct Line 071-477
Fax: 071-477 8880

Dear Sir

**DOCTORAL RESEARCH: HOW CAN THE CORPORATE CENTRE BEST HELP
CONSTITUENT BUSINESSES DEVELOP BETTER PRODUCTS?**

The Innovation Research Unit, as part of a continuing research program into the product development practices of financial services companies, is currently investigating the influence of the corporate centre on successful new product development in constituent businesses.

Your company has kindly agreed to participate in the investigation. A corporate centre manager has nominated your business for the research. A questionnaire, similar to the one attached, has been completed by the corporate manager. The research cannot be completed without your help and the purpose of this letter is to seek your participation. Please complete the questionnaire and return it using the attached self-addressed envelope.

In return for your participation we will be pleased to give you a management report summarizing the salient findings of the investigation. Complete confidentiality is guaranteed. No individual company will be identified in the research or report. All results will be used only in an industry aggregate format.

This research will increase the Innovation Research Unit's understanding of product development practices and its ability to contribute to management practices in the financial services sector. The research will also enable me to complete the requirements for a PhD degree and, thus, is very important to me. The research is not sponsored by any individual company.

Yours sincerely

Leon Vermaak

APPENDIX 4: CORPORATE QUESTIONNAIRE

THE CITY UNIVERSITY BUSINESS SCHOOL

CORPORATE INVOLVEMENT IN
NEW PRODUCT DEVELOPMENT

This questionnaire is part of a study of product development practices in financial services companies undertaken by The Innovation Research Unit. Your company has kindly agreed to participate in this study.

The objective of the study is to develop a practical understanding of an issue, critical for successful management of product development in constituent businesses. The issue concerns:

The involvement of the corporate centre in business level product development in financial services companies.

Please complete the questionnaire and return it using the attached self-addressed envelope.

Complete confidentiality is guaranteed. Your responses will be coded by the researcher personally and all statistical analyses will be conducted at a level of aggregation that will prevent identification of individual responses. You may remain anonymous.

THANK YOU FOR YOUR COOPERATION!

NEW PRODUCT DEVELOPMENT

Thank you for taking the time to complete this questionnaire.

We would now like to ask you questions about the constituent business that you consider to be of the most strategic importance to your company. Please select and refer to this **one** business for all the questions in the questionnaire.

Throughout this survey the term "new product program" refers to all products, new to your company, developed over the last three years. "New" refers to all types of new products including significant modifications of existing products. However, products that have undergone only minor changes are not considered new.

PART 1: ABOUT YOUR BUSINESS

1. Please tick **one** of the following customer groups that best describes the market served by the business?
 - a. Personal customers _____
 - b. Corporate customers _____

2. Please tick one category which best describes the types of product provided by the business.

- a. Loans (including home, overdraft, personal, business credit) _____
- b. Financial management (including current account, credit cards, A.T.M's. and advisory services such as wills, tax planning and trusts) _____
- c. Investment (including savings, deposits, shares and unit trusts) _____
- d. General insurance (including accident & health, cars, aircraft, ships & goods carrying vehicles home insurance and general liability) _____
- e. Long-term insurance (including life insurance, general annuities, pensions, and capital redemption) _____
- f. Other (please specify) _____

3. How extensively is the business environment regulated?

Low
government
regulation
of business

High
government
regulation
of business

1

2

3

4

5

4. How intense is the competition faced by the business?

Not much
competition

Extremely
intense
competition

1

2

3

4

5

5. How high is the sales growth potential of the market in which the business competes?

Not much
sales growth
potential

Very high
sales growth
potential

1 2 3 4 5

6. How high is the profit potential of the market in which the business competes?

Low profit
potential

High profit
potential

1 2 3 4 5

7. In some companies, the corporate managers have an intimate understanding of the competitive features of all the businesses that make up the corporate portfolio. In other companies, the competitive features of different businesses in the portfolio may be so diverse that corporate managers do not grasp the complexity of the competitive features of all the businesses in the portfolio.

How well do corporate managers understand the competitive features of all the businesses in the company's portfolio?

Very low
understanding

Extremely good
understanding

1 2 3 4 5

8. In some companies, businesses share resources, skills or distribution networks, thus achieving synergy.

To what extent does the chosen business benefit from synergy with other businesses in the portfolio?

Little
benefit

Highly
beneficial

1 2 3 4 5

10. Some businesses employ permanent organizational arrangements for product development (such as a new venture team, new product committee or new product department), while others employ temporary arrangements (such as an ad hoc group, temporary new product committee or a product (brand) manager).

How frequently are permanent organizational arrangements for product development used in the business?

Never permanent arrangement

Always permanent arrangement

1 2 3 4 5

11. **How experienced are business managers at product development?**

Very little experience

Highly experienced

1 2 3 4 5

12. **Are there persons at the business who have specific responsibilities for marketing?**

Very few persons

Many persons

1 2 3 4 5

13. **How formal is the control that business managers exercise over the product development team?**

Very informal

Very formal

1 2 3 4 5

14. How strong are the shared values in the business under consideration?

Low shared values

High shared values

1

2

3

4

5

15. How much do corporate centre managers influence business operations?

Low corporate influence

High corporate influence

1

2

3

4

5

16. To what extent is business strategy precisely and fully expressed?

Not at all

Very explicit

1

2

3

4

5

17. In reviewing all the new products the business has launched onto the market over the previous three years, to what extent do you feel that the new products outperformed those of the best competitor in the market under consideration? (please circle the appropriate number for each criterion):

a. Market share (in absolute terms) over the last three years relative to the best competitor.

Not at all

To a large extent
- we are the best

1

2

3

4

5

b. Growth in market share over the last three years relative to the best competitor.

Not at all
1 2 3 4 5
To a large extent
- we are the best

c. Profitability (in absolute terms) over the last three years relative to the best competitor.

Not at all
1 2 3 4 5
To a large extent
- we are the best

d. Growth in profitability over the last three years relative to the best competitor.

Not at all
1 2 3 4 5
To a large extent
- we are the best

e. Sales (in absolute terms) over the last three years relative to the best competitor.

Not at all
1 2 3 4 5
To a large extent
- we are the best

f. Growth in sales (in absolute terms) over the last three years relative to the best competitor.

Not at all
1 2 3 4 5
To a large extent
- we are the best

PART 2: CORPORATE INVOLVEMENT IN NEW PRODUCT DEVELOPMENT

We would now like to ask you questions about the ways in which the corporate centre becomes involved in new product development. All the questions refer to your business. Some of the questions may refer to issues with which you may not be personally involved. Please answer them based on your overall experience and best judgement.

18. For each of the following activities, please tick the mode that best describes how such activities are performed in the business. Each mode is briefly explained below:

1. TOTAL FREEDOM: The business performs the activity alone. The corporate centre does not give advice or make suggestions.
2. SUPERVISED FREEDOM: The business performs the activity, but the corporate centre can and does give advice or make suggestions.
3. COOPERATION: Both the corporate centre and the business have roughly equal influence on the activity.
4. PARTICIPATIVE CENTRALIZATION: The corporate centre performs the activity, but the business can and does give its advice.
5. ABSOLUTE CENTRALIZATION: The corporate centre performs the activity alone. The business is neither required to participate nor to give any advice or suggestions.

	TOTAL FREEDOM	SUPERVISED FREEDOM	COOPERATION	PARTICIPATIVE CENTRALIZATION	ABSOLUTE CENTRALIZATION
a. Preparation of new product development plans	1	2	3	4	5
b. Generation of ideas for new product development	1	2	3	4	5
c. Assessing new product concepts	1	2	3	4	5

	TOTAL FREEDOM	SUPERVISED FREEDOM	COOPERATION	PARTICIPATIVE CENTRALIZATION	ABSOLUTE CENTRALIZATION
d. Technical development of new products	1	2	3	4	5
e. Preparing marketing plans for new products	1	2	3	4	5
f. Introducing new products onto the market	1	2	3	4	5
g. Setting long-term product development objectives for the business	1	2	3	4	5
h. Setting short-term product development objectives for the business	1	2	3	4	5
i. Selecting product development team members	1	2	3	4	5
j. Coordinating marketing and technical inputs into the product development process	1	2	3	4	5
k. Developing a mission statement for the business	1	2	3	4	5
l. Rewarding business managers achieving planned results	1	2	3	4	5
m. Recruiting employees with values compatible to the mission statement	1	2	3	4	5
n. Using expert product development advice	1	2	3	4	5
o. Providing sufficient product development resources	1	2	3	4	5

Please return this questionnaire in the enclosed prepaid envelope.

THANK YOU FOR YOUR KIND COOPERATION!

If you would like to receive a copy of the findings of this research please provide your name and address in the space below. If you prefer to remain anonymous then detach this page and return it separately.

NAME : _____
COMPANY : _____
ADDRESS : _____

APPENDIX 5: BUSINESS LEVEL QUESTIONNAIRE

THE CITY UNIVERSITY BUSINESS SCHOOL

CORPORATE INVOLVEMENT IN
NEW PRODUCT DEVELOPMENT

This questionnaire is part of a study of product development practices in financial services companies undertaken by The Innovation Research Unit. Your company has kindly agreed to participate in this study.

The objective of the study is to develop a practical understanding of an issue, critical for successful management of product development in constituent businesses. The issue concerns:

The involvement of the corporate centre in business level product development in financial services companies.

Please complete the questionnaire and return it using the attached self-addressed envelope.

Complete confidentiality is guaranteed. Your responses will be coded by the researcher personally and all statistical analyses will be conducted at a level of aggregation that will prevent identification of individual responses. You may remain anonymous.

THANK YOU FOR YOUR COOPERATION!

NEW PRODUCT DEVELOPMENT

Thank you for taking the time to complete this questionnaire.

We would now like to ask you questions about the influence of the corporate centre on new product development activities in your business.

Throughout this survey the term "new product program" refers to all products, new to your company, developed over the last three years. "New" refers to all types of new products including significant modifications of existing products. However, products that have undergone only minor changes are not considered new.

PART 1: ABOUT YOUR BUSINESS

1. Please tick one of the following customer groups that best describes the market served by your business?
 - a. Personal customers _____
 - b. Corporate customers _____

2. Please tick one category which best describes the types of product provided by your business.

- a. Loans (including home, overdraft, personal, business credit) _____
- b. Financial management (including current account, credit cards, A.T.M's. and advisory services such as wills, tax planning and trusts) _____
- c. Investment (including savings, deposits, shares and unit trusts) _____
- d. General insurance (including accident & health, cars, aircraft, ships & goods carrying vehicles home insurance and general liability) _____
- e. Long-term insurance (including life insurance, general annuities, pensions, and capital redemption) _____
- f. Other (please specify) _____

3. How extensively is your business environment regulated?

Low
government
regulation
of business

High
government
regulation
of business

1 2 3 4 5

4. How intense is the competition faced by your business?

Not much
competition

Extremely
intense
competition

1 2 3 4 5

5. How high is the sales growth potential of the market in which your business competes?

Not much
sales growth
potential

Very high
sales growth
potential

1 2 3 4 5

6. How high is the profit potential of the market in which your business competes?

Low profit
potential

High profit
potential

1 2 3 4 5

7. In some companies, the corporate managers have an intimate understanding of the competitive features of all the businesses that make up the corporate portfolio. In other companies, the competitive features of different businesses in the portfolio may be so diverse that corporate managers do not grasp the complexity of the competitive features of all the businesses in the portfolio.

In your view, how well do corporate managers understand the competitive features of all the businesses in the company's portfolio?

Very low
understanding

Extremely good
understanding

1 2 3 4 5

8. In some companies, businesses share resources, skills or distribution networks, thus achieving synergy.

To what extent does your business benefit from synergy with other businesses in the portfolio?

Little
benefit

Highly
beneficial

1 2 3 4 5

10. Some businesses employ permanent organizational arrangements for product development (such as a new venture team, new product committee or new product department), while others employ temporary arrangements (such as an ad hoc group, temporary new product committee or a product (brand) manager).

How frequently are permanent organizational arrangements for product development used in your business?

Never permanent arrangement

Always permanent arrangement

1 2 3 4 5

11. **How experienced are business managers at product development?**

Very little experience

Highly experienced

1 2 3 4 5

12. **Are there persons at the business who have specific responsibilities for marketing?**

Very few persons

Many persons

1 2 3 4 5

13. **How formal is the control that business managers exercise over your product development team?**

Very informal

Very formal

1 2 3 4 5

14. How strong are the shared values in your business?

Low shared values

High shared values

1 2 3 4 5

15. How much do corporate centre managers influence your business operations?

Low corporate influence

High corporate influence

1 2 3 4 5

16. To what extent is business strategy precisely and fully expressed?

Not at all

Very explicit

1 2 3 4 5

17. In reviewing all the new products the business has launched onto the market over the previous three years, to what extent do you feel that the new products outperformed those of the best competitor in the market under consideration? (please circle the appropriate number for each criterion):

a. Market share (in absolute terms) over the last three years relative to the best competitor.

Not at all

To a large extent
- we are the best

1 2 3 4 5

b. Growth in market share over the last three years relative to the best competitor.

Not at all To a large extent
- we are the best

1 2 3 4 5

c. Profitability (in absolute terms) over the last three years relative to the best competitor.

Not at all To a large extent
- we are the best

1 2 3 4 5

d. Growth in profitability over the last three years relative to the best competitor.

Not at all To a large extent
- we are the best

1 2 3 4 5

e. Sales (in absolute terms) over the last three years relative to the best competitor.

Not at all To a large extent
- we are the best

1 2 3 4 5

f. Growth in sales (in absolute terms) over the last three years relative to the best competitor.

Not at all To a large extent
- we are the best

1 2 3 4 5

PART 2: CORPORATE INVOLVEMENT IN NEW PRODUCT DEVELOPMENT

We would now like to ask you questions about the ways in which the corporate centre becomes involved in new product development. Again, the questions refer to the business of most strategic importance to your company as identified at the outset. Some of the questions may refer to issues with which you may not be personally involved. Please answer them based on your overall experience and best judgement.

18. For each of the following activities, please tick the mode that best describes how such activities are performed in the business. Each mode is briefly explained below:

1. TOTAL FREEDOM: The business performs the activity alone. The corporate centre does not give advice or make suggestions.
2. SUPERVISED FREEDOM: The business performs the activity, but the corporate centre can and does give advice or make suggestions.
3. COOPERATION: Both the corporate centre and the business have roughly equal influence on the activity.
4. PARTICIPATIVE CENTRALIZATION: The corporate centre performs the activity, but the business can and does give its advice.
5. ABSOLUTE CENTRALIZATION: The corporate centre performs the activity alone. The business is neither required to participate nor to give any advice or suggestions.

	TOTAL FREEDOM	SUPERVISED FREEDOM	COOPERATION	PARTICIPATIVE CENTRALIZATION	ABSOLUTE CENTRALIZATION
a. Preparation of new product development plans	1	2	3	4	5
b. Generation of ideas for new product development	1	2	3	4	5
c. Assessing new product concepts	1	2	3	4	5

	TOTAL FREEDOM	SUPERVISED FREEDOM	COOPERATION	PARTICIPATIVE CENTRALIZATION	ABSOLUTE CENTRALIZATION
d. Technical development of new products	1	2	3	4	5
e. Preparing marketing plans for new products	1	2	3	4	5
f. Introducing new products onto the market	1	2	3	4	5
g. Setting long-term product development objectives for the business	1	2	3	4	5
h. Setting short-term product development objectives for the business	1	2	3	4	5
i. Selecting product development team members	1	2	3	4	5
j. Coordinating marketing and technical inputs into the product development process	1	2	3	4	5
k. Developing a mission statement for the business	1	2	3	4	5
l. Rewarding business managers achieving planned results	1	2	3	4	5
m. Recruiting employees with values compatible to the mission statement	1	2	3	4	5
n. Using expert product development advice	1	2	3	4	5
o. Providing sufficient product development resources	1	2	3	4	5

Please return this questionnaire in the enclosed prepaid envelope.

THANK YOU FOR YOUR KIND COOPERATION!

If you would like to receive a copy of the findings of this research please provide your name and address in the space below. If you prefer to remain anonymous then detach this page and return it separately.

NAME: _____
COMPANY: _____
ADDRESS: _____

REFERENCES

- Ackroyd, S. & J.A. Hughes (1981) Data Collection In Context. London: Longman.
- Alexander, J.A. (1991) Adaptive change in corporate control practices. Academy Of Management Journal, 34,1: 162-193.
- Andrews, B. (1975) Creative Product Development: an approach to new product innovation and revitalization. London: Longman.
- Andrews, K.R. (1980) The Concept of Corporate Strategy. Homewood, Illinois: Richard D. Irwin.
- Ansari, M.A. (1990) Managing People at Work: Leadership Styles and Influence Strategies. London: Sage Publications.
- Ansoff, I. & E. McDonnell (1990) (2nd Ed.) Implanting Strategic Management. London: Prentice Hall.
- Anthony, R.N. (1988) The Management Control Function. Boston: Harvard Business School Press.
- Arnold, J. (1990) Banks, insurers to form alliances. National Underwriter, 94,36: 53.
- Ayal, I. & R.G. Rothberg (1986) Strategic control of R&D resource allocations in diversified businesses. Journal of Product Innovation Management, 3: 238-250.
- Baker, M.J. & R. McTavish (1976) Product Policy and Management. London: Macmillan Press.
- Bank Authorised Institution Information Sheets. (1991) London: Provincial Bank.
- Bartlett, C.A. & S.S. Ghoshal (1990) Managing Across Borders: The Transnational Solution. London: Hutchinson Business Books.
- Beckwith, E.N. & J.T. Fitzgerald (1983) Marketing of Services: Meeting of Different Needs. Chicago, Illinois: American Marketing Association.
- Beitel, G.P. (1990) Technology and the service equation in a changing industry. Banking Software Review, 15,2: 42-53.
- Bennis, W. & B. Nanus (1985) Leaders: The Strategies for Taking Charge. New York: Harper & Row.
- Berenson, M.L. & D.M. Levine (1983) Basic Business Statistics: Concepts And Applications. (2nd Ed.) London: Prentice-Hall.

- Berry, L.L. (1980) Services marketing is different. Business, 30,3: 24-29.
- Bevan, S. (1989) Midland Bank's Brian Goldthorpe. Banking World, 7,8: 9-11.
- Blau, J. & R.A. Schoenherr (1971) The Structure of Organizations. New York: Basic Books.
- Bogdan, R. & S.J. Taylor (1975) Introduction to Qualitative Research Methods. London: John Wiley & Sons.
- Bond, K.M. & J.P. Scott (1988) Essential Business Statistics: a Minitab Framework. Boston: PWS-Kent.
- Bonoma, T.V. (1985) Case research in marketing: opportunities, problems and a process. Journal of Marketing Research, 22,2: 199-208.
- Booms, B.; D. Davis & D. Guseman (1984) Participants' Perspectives on Developing a Climate for Innovation of New Services. Chicago, Illinois: American Marketing Association.
- Booz, Allen & Hamilton (1982) New Products Management for the 1980's. New York: Booz Allen & Hamilton.
- Boyd, H.W.; R. Westfall & S.F. Stasch (1981) Marketing Research: Text and Cases. (5th Ed.) Homewood, Illinois: Richard D. Irwin.
- Brandenberg, M. (1988) Financial services: winners and losers in the wake of the Big Bang. Accountancy, 102,1142: 67-69.
- Brooke, M.Z. & H.L. Remmers (1970) The Strategy of Multinational Enterprise. New York: American Elsevier.
- Brownlie, D. (1991) In: Baker, M.J. (1991) The Marketing Book. Oxford: Butterworth-Heinemann Ltd.
- Bryman, A. (1989) Research Methods and Organizations Studies. London: Unwin Hyman.
- Bulmer, M. (1979) Research Questions and Hypotheses. Milton Keynes: The Open University Press.
- Burgelman, R.A. & L.R. Sayles (1986) Inside Corporate Innovation: Strategy, Structure and Managerial Skills. New York: The Free Press.
- Buttle, F. (1986) Marketing services. In Jones, P. (1986) Management in Services Industries. London: Pitman.

- Calantone, J.R. & R.G. Cooper (1981) New product scenarios: prospects for success. Journal of Marketing, 45: 48-60.
- Campbell, A; M. Devine & D. Young (1990) A Sense of Mission. London: Hutchinson Business Books.
- Campbell, A. & S. Yeung (1991) Creating a sense of mission. Long Range Planning, 24,4: 10-20.
- Campbell, A. & S. Yeung (1991a) Brief case: mission, vision and strategic intent. Long Range Planning, 24,4: 145-147.
- Carter, R.L. & S.R. Diacon (1991) The British Insurance Industry: a statistical review. London: Croner.
- City Financial 1990/91 Insurance Register. (1991) London: Buckley Press Ltd.
- Caves, R.E. (1980) Industrial organization, corporate strategy and structure. Journal of Economic Literature, 18: 64-92.
- Chandler, A.D. (1962) Strategy and Structure: Chapters in the History of American Industrial Enterprise. Cambridge, MA: MIT Press.
- Chiplin, B. (1986) Information technology and personal financial services. In Carter, R.L.; Chiplin, B. & M.K. Lewis (1986) Personal Financial Markets. Oxford: Philip Allan.
- Churchill, G.A. (1983) Marketing Research: Methodological Foundations. Chicago: The Dryden Press.
- Cook, M. (1991) Leadership the key to 90s management. Texas Banking, 80,1: 25.
- Cooper, R.G. (1979) The dimensions of industrial new product success and failure. Journal of Marketing, 43: 93-103.
- Cooper, R.G. (1980) Project NewProd: factors new product success. European Journal of Marketing, 14: 277-292.
- Cooper, R.G. (1982) New product success in industrial firms. Industrial Marketing Management, 11: 215-233.
- Cooper, R.G. (1983) A process model for industrial new product development. IEEE Transactions in Engineering Management, 1: 2-11.
- Cooper, R.G. (1984) How new product strategies impact on performance. Journal of Product Innovation Management, 1,1: 5-18.

- Cooper, R.G. (1984a) New product strategies: what distinguishes the top performers? Journal of Product Innovation Management, 1,2: 151-164.
- Cooper, R.G. (1985) Overall corporate strategies for new product programs. Industrial Marketing Management, 14: 179-193.
- Cooper, R.G. (1990) Stage-gate systems: a new tool for managing new products. Business Horizons, 33,22: 44-54.
- Cooper, R.G. & U. De Brentani (1984) Criteria for screening new industrial products. Industrial Marketing Management, 13: 149-156.
- Cooper, R.G. & E.J. Kleinschmidt (1986) An investigation into the new product process: steps, deficiencies and impact. Journal of Product Innovation Management, 3,2: 71-85.
- Cooper, R.G. & E.J. Kleinschmidt (1987) New products: what separates winners from losers? Journal of Product Innovation Management, 4,3: 169-184.
- Cooper, R.G. & E.J. Kleinschmidt (1990) New Products: The Key Factors in Success. Chicago, Illinois: American Marketing Association.
- Cowell, D. (1984) The Marketing of Services. Oxford: Heinemann.
- Cowell, D. (1988) New service development. Journal of Marketing Management, 3,3: 296-312.
- Cowen, S.S. & J.K. Middaugh (1990) Matching an organization's planning and control system to its environment. Journal of General Management, 16,1: 69-84.
- Crawford, C.M. (1979) New product failure rates - facts and fallacies. Research Management, (Sept): 9-13.
- Crawford, C.M. (1983) New Products Management. Homewood, Illinois: Irwin.
- Crawford, C.M. (1987) New Products Management. (2nd ed.) Homewood, Illinois: Irwin.
- Cronander, J.H. (1990) Centralization vs. decentralization: what to do with back office operations. Texas Banking, 79,10: 29-33.
- Darby, M.R. & E. Karni (1973) Free competition and the optimal amount of fraud. Journal of Law and Economics, 16,4: 7-86.

- Day, G.S. (1975) A strategic perspective on product planning. Journal of Contemporary Business, 4: 1-34.
- Day, G.S. (1984) Strategic Market Planning: The Pursuit of Competitive Advantage. St. Paul: West Publishing Co.
- De Brentani, U. (1989) Success and failure in new industrial services. Journal of Product Innovation Management, 6: 239-258.
- Dichter, S.F. (1991) The organization of the '90's. The McKinsey Quarterly, 1: 146-155.
- Dinkin, E.N. (1989) Winning the battle for top management talent. Bankers Magazine, 172,2: 57-60.
- Directory of Members. (1991) London: The Building Societies Association.
- Dixon, R. (1991) The effect of the Single European Market on the UK banking industry. Management Accounting, 69,1: 36-38.
- Donaldson, G. & J.W. Lorsch (1983) Decision Making at the Top. New York: Basic Books.
- Donnelly, J.H.; L.L. Berry & T.W. Thompson (1985) Marketing Financial Services. Illinois: Dow Jones-Irwin.
- Dumaine, B. (1992) Is big still good? Fortune International, 125,8: 38-46.
- Easingwood, J.C. (1986) New product development for service companies. Journal of Product Innovation Management, 4: 264- 275.
- Eccles, R.G. (1991) The performance measurement manifesto. Harvard Business Review, 69,1: 131-137.
- Edgett, S. & S. Jones (1991) New product development in the financial services industry: a case study. Journal of Marketing Management, 7: 271-284.
- Ennew, C.; T. Watkins & M. Wright (1990) Marketing Financial Services. London: Heinemann.
- Evans, J.S. (1991) Strategic flexibility for high technology manoeuvres: a conceptual framework. Journal of Management Studies, 28,1: 69-89.
- Foster, R.N. (1986) Innovation: The Attacker's Advantage. London: MacMillan.

- Gage, G.H. (1982) On acceptance of strategic planning systems. In: Lorange, P. (ed.) Implementation of Strategic Planning. Englewood Cliffs: Prentice-Hall.
- Gardiner, P. & R. Rothwell (1985) Innovation: A Study of the Problems and Benefits of Product Innovation. London: Design Council.
- Gluck, F.W. & R.N. Foster (1975) Managing technological change: a box of cigars for Brad. Harvard Business Review, 53: 139-150.
- Goold, M. (1991) Strategic control in the decentralized firm. Sloan Management Review, (Winter): 69-81.
- Goold, M. & A. Campbell (1987) Strategies and Styles. Oxford: Basil Blackwell.
- Goold, M. & A. Campbell (1987a) Many best ways to strategy. Harvard Business Review, 65,6: 70-76.
- Goold, M. & A. Campbell (1989) Managing diversity: strategy and control in diversified British companies. In: Denning, B. (1989) Making Strategic Planning Work in Practice. Oxford: Pergamon Press.
- Goold, M. & J.J. Quinn (1990) Strategic Control: Milestones for Long-Term Performance. London: Hutchinson Business Books.
- Gresov, C. (1984) Designing organizations to innovate and implement: using two dilemmas to create a solution. Columbia Journal of World Business, (Winter): 63-67.
- Gronroos, C. (1978) A service orientated approach to marketing of services. European Journal of Marketing, 12,8: 588-601.
- Gronroos, C. (1982) An applied theory for marketing industrial services. European Journal of Marketing, 16,7: 30-41.
- Gut, R.E. (1991) EC 92: its impact on international banking and on Swiss finance. World of Banking, 10,5: 22-25.
- Hair, J.F.; R.E. Anderson & R.L. Tatham (1987) Multivariate Data Analysis with Readings. New York: Macmillan.
- Hamel, G. & C.K. Prahalad (1989) Strategic intent. Harvard Business Review, 67,3: 63-72.
- Hall, G.E. (1987) Reflections on running a diversified company. Harvard Business Review, 65,1: 84-92.
- Hammermesh, R.G. (1986) Making planning strategic. Harvard Business Review, 4: 115-120.

- Hannan, M. & J. Freeman (1984) Structural inertia and organizational change. American Sociological Review, 49: 149-164.
- Hauschildt, J. (1991) Towards measuring success. Conference Proceedings: First European Summer School of Technology. Kiel: Kiel University.
- Hayes, R.H. & W.J. Abernathy (1980) Managing our way to economic decline. Harvard Business Review, 58: 67-77.
- Hegarty, W.H. & R.C. Hoffman (1990) Product/market innovativeness: a study of top management involvement among four cultures. Journal of Product Innovation Management, 7: 186-199.
- Helmstadter, G.C. (1970) Research Concepts in Human Behaviour. New York: Meredith Corporation.
- Hendry, J. (1989) Barriers to excellence and the politics of innovation. Journal of General Management, 15,2: 20-31.
- Hewitt, G. (1988) Barclays Bank is fighting back. Banking World, 6,1: 8-11.
- Hooley, G.J. & S.J. Mann (1988) The adoption of marketing by financial institutions in the UK. Services Industries Journal, 8,4: 488-500.
- Hrebieniak, L.G. & W.F. Joyce (1986) The strategic importance of managing myopia. Sloan Management Review, (Fall): 5-14.
- Hull, F. & J.Hage (1982) Organizing for innovation: beyond Burns and Stalker's organic type. Sociology, 16: 563-577.
- Johne F.A. & P. Harborne (1985) How large commercial banks product innovation. International Journal of Bank Marketing, 3,1: 54-70.
- Johne, F.A.; T. Howard & R. Davies (1991) Product development practices in British based insurance companies. Working Paper No 119. London: City University Business School.
- Johne F.A. & P. Pavlidis (1991) Product development success in banking: a review of the literature. Working Paper No 118. London: City University Business School.
- Johne, F.A. & P.A. Snelson (1988) Success factors in product innovation: a selective review of the literature. Journal of Product Innovation Management, 5: 114-128.
- Johne, F.A. & P.A. Snelson (1989) Product development approaches in established firms. Industrial Marketing Management, 18: 113-124.

- Johne, F.A. & P.A. Snelson (1990) Successful Product Development: lessons from British and American firms. Oxford: Basil Blackwell.
- Johnson, E.M.; E.E. Scheuing & K.A. Gaida (1986) Profitable Service Marketing, Homewood, Illinois: Dow-Jones Irwin.
- Jones, P. (1989) (Ed.) Management in Services Industries. London: Pitman Publishing.
- Kagono, T. (1981) Structural design of headquarters-division relationships and economic performance: an analysis of Japanese firms. In: The Management of Headquarters-Subsidiary Relationships in Multinational Corporations. Otterbeck, L. (Ed.) Aldershot: Gower Publishing.
- Kanter, R.M. (1989) The new managerial work. Harvard Business Review, 67,5: 85-92.
- Kast, F.E. & J.E. Rosensweig (1974) Organization and Management: A Systems Approach. (2nd Ed.) New York: McGraw-Hill Book Company.
- Keefe, P. (1988) Chase nurtures global data centre grapevine. Computerworld, 22,3: 85-91.
- Kenyon, A. & S.S. Mathur (1991) Corporate strategy: deciding the scope of the company. Working Paper Series. London: City University Business School, London.
- Kolodny, H.F. (1980) Matrix organization design and new product success. Research Management, 23: 29-33.
- Labovitz, S. & R. Hagedorn (1976) Introduction to Social Research. (2nd Ed.) New York: McGraw-Hill Book Company.
- Landis, K. (1989) Implementing a strategic plan. Banking Software Review, 14,1: 24-27.
- Langley, A. (1988) The roles of formal strategic planning. Long Range Planning, 21,3: 40-50.
- Levitt, T. (1973) Marketing for Business Growth. New York: McGraw-Hill.
- Linstone, H.A. & M. Turoff (1975) The Delphi Method: Techniques and Applications. London: Addison Wesley.
- Littler, D. (1984) Marketing and Product Development. London: Phillip Allan.
- Lorange, P. (1980) Corporate Planning: an Executive Viewpoint. Englewood Cliffs: Prentice-Hall.

- Lorange, P.; M.S.S. Morton & S.S. Ghoshal (1986) Strategic Control. St.Paul: West Publishing.
- Lovelock, C.H. (1991) Services Marketing. (2nd Ed.) London: Prentice-Hall International.
- MacMillan, I. & R. George (1985) Corporate venturing: challenges for senior managers. The Journal of Business Strategy, 5: 34-43.
- Maidique, M.A. (1980) Entrepreneurs, champions and technological innovation. Sloan Management Review, (Winter): 59-76.
- Maidique, M.A. & J.B. Zirger (1984) A study of success and failure in product innovation: the case of the US electronics industry. IEEE Transactions on Engineering Management, 4: 192-203.
- Makridakis, S.; S.C. Wheelwright & V.E. McGee (1983) Forecasting: methods and applications. (2nd Ed.) Toronto: John Wiley & Sons Inc.
- Mathur, S.S. (1986) Strategy: framing business intentions. Journal of General Management, 12,1: 77-97.
- Mathur, S.S. (1988) How firms compete: a new classification of generic strategies. Journal of General Management, 14,1: 30-57.
- McKenna, R. (1991) Marketing is everything. Harvard Business Review, 68,1: 65-79.
- Meidan, A. (1984) Bank Marketing Management. London: MacMillan.
- Middaugh, J.K. (1988) Management control in the financial services industry. Business Horizons, 31,3: 79-86.
- Miles, R.E. & C.C. Snow (1978) Organizational Strategy, Structure and Process. New York: McGraw-Hill.
- Milligan, G.W. & M.C. Cooper (1985) An examination of procedures for determining the number of clusters in a data set. Psychometrica, 50: 159-179.
- Mintzberg, H. (1987) Crafting strategy. Harvard Business Review, 56,4: 66-75.
- Morrisey, J. (1989) Why is there so little talent at the top? National Underwriter, 93,26: 25-27.
- Nelson, P. (1970) Advertising as information. Journal of Political Economy, 81, 4: 729-754.

- Nolan, R.L. (1987) Finding new ways to use technology. Institutional Investor, (Dec): 55-56.
- Nystrom, H. & B. Edvardsson (1982) Product innovation in food processing: a Swedish survey. R&D Management, 12,2:67-72.
- O'Brien, D.P.; W.S. Howe; M. Wright & R. O'Brien (1979) Competition Policy, Profitability and Growth. London: MacMillan.
- Ohmae, K. (1982) The Mind of the Strategist: Business Planning for Competitive Advantage. London: Penguin.
- O'Toole, J. & W. Bennis (1992) Our federalist future: the leadership imperative. California Management Review, 34,4: 73-90.
- Parkinson, S.T. (1982) The role of the user in successful new product development. R&D Management, 12: 123-131.
- Pearson, A.E. (1988) Tough-minded ways to get innovative. Harvard Business Review, 66,3: 99-106.
- Pearson, A.E. (1989) Six basics for general managers. Harvard Business Review, 67,4: 94-101.
- Peters, T.J. & R.H. Waterman (1982) In Search of Excellence: lessons from America's best-run companies. New York: Harper & Row.
- Pinchott, G. (1985) Intrepreneuring: Why You Don't Have to Leave The Corporation to Become an Entrepreneur. New York: Harper & Row.
- Porter, M.E. (1987) From competitive advantage to corporate strategy. Harvard Business Review, 65,3: 43-59.
- Powell, W. (1987) Hybrid organizational arrangements. California Management Review, (Fall): 67-87.
- Pyzdek, P. (1991) What Every Manager Should Know About Quality. New York: Marcel Dekker.
- Quinn, J.B. (1985) Managing innovation: controlled chaos. Harvard Business Review, 53: 73-84.
- Rickards, T. (1985) Stimulating Innovation: a Systems Approach. London: Francis Pinter.
- Roever, M. (1992) Curing the disease of overcomplexity. The McKinsey Quarterly, 2: 97-104.

- Rothwell, R. (1977) The characteristics of successful innovators and technically progressive firms. R&D Management, 7,3: 191-206.
- Rothwell, R. (1979) Successful and unsuccessful innovators. Planned Innovation, 2:126-128.
- Roush, C.H. & B.C. Ball (1980) Controlling the implementation of strategy. Managerial Planning, 29,4: 3-12.
- Sands, S. (1983) Problems of organizing for effective new product development. European Journal of Marketing, 17: 18-33.
- Sackman, H. (1975) Delphi Critique. London: Lexington Books.
- Scarborough, S.C. & R. Lannon (1989) The management of innovation in the financial services sector: a case study. Journal of Marketing Management, 5,1: 51-62.
- Schaffer, R.H. (1991) Demand better results - and get them. Harvard Business Review, 69,2: 142-149.
- Scheuing, E.E. & M.E. Johnson (1987) New product management in service industries. In Surprenant, C. (1987) Add Value to your Service. San Diego, California: American Marketing Association.
- Scheuing, E.E. & M.E. Johnson (1989) New product development and management in financial institutions. International Journal of Bank Marketing, 7,2: 17-21.
- Schlesinger, L.A. & J.L. Heskett (1991) The service-driven service company. Harvard Business Review, 69,5: 71-81.
- Schuijjer, J. (1992) Banks under stress. OECD Observer, 173: 19-22.
- Shostack, G.L. (1977) Breaking free from product marketing. Journal of Bank Marketing, 4: 73-80.
- Smale, J. (1985) Behind the brands at P&G. Harvard Business Review, 63: 79-90.
- Souder, W.E. (1981) Encouraging entrepreneurship in the large corporations. Research Management, 26,3: 18-22.
- Simons, R. (1991) Strategic orientation and top management attention to control systems. Strategic Management Journal, 12,1: 49-62.
- Smith, F.B. (1987) Leadership: meeting the challenge of a competitive environment. Credit, 13,6: 12-14.

- Smith, P. & D. Reinertsen (1991) Developing Products in Half the Time. London: Van Nostrand Reinhold.
- Stinchcombe, A. (1965) Social structure and organizations. In: Handbook of Organizations, by J. March (Ed.) Chicago: Rand McNally.
- Takeuchi, H. I Nonaka (1986) The new new product development game. Harvard Business Review, 64,1: 137-146.
- Tauber, E.M. (1979) How market research discourages major innovation. Business Horizons, 22: 22-26.
- Thompson, T.W. (1987) Top management's tasks. United States Banker, 98,9: 64-66.
- Tucker, F.G.; S.M. Zivan & R.C. Camp (1987) How to measure yourself against the best. Harvard Business Review, 65,1: 8-10.
- Tushman, M.L. & D.A. Nadler (1986) Organizing for innovation. California Management Review, 28,3: 74-92.
- Twiss, B. (1986) Managing Technological Innovation. (3rd Ed.) London: Longman.
- Urban, G.L. & J.R. Hauser (1980) Design and Marketing of New Products. Englewood Cliffs, N.J.: Prentice-Hall Inc.
- Utterback, J.M.; T.J. Allen; J.H. Holloman & M.H. Sirbu (1976) The process of innovation in five industries in Europe and Japan. IEEE Transactions in Engineering Management, 3-9.
- Uyterhoeven, H. (1989) General managers in the middle. Harvard Business Review, 67,5: 136-135.
- Von Hippel, E. (1978) Success industrial products from customer ideas. Journal of Marketing, 42: 39-49.
- Wallace, W. (1971) The Logic of Science in Sociology. Chicago: Aldine.
- Ward, N.H. (1989) Training branch managers to be entrepreneurial. Financial Manager's Statement, 11,6: 36-38.
- Watkins, T. & M. Wright (1986) Marketing Financial Services. Guildford: Butterworths.
- Wichman, W.J. (1989) Insurers pick up tactics from packaged goods companies. National Underwriter, 93,7: 25-26.

- Wilkinson, A. (1983) Technology - an increasingly dominant factor in corporate strategy. R&D Management, 13: 245-259.
- Wind, Y.J. (1982) Product Policy: concepts, methods and strategy. Reading, Mass: Addison-Wesley.
- Wood, S.B. (1991) Using service to outperform the competition. Bank Marketing, 23,9: 37-38.
- Wright, L.T.; J. Saunders & P. Doyle (1990) Japanese headquarters' control over the marketing strategies of their UK subsidiaries. Journal of Marketing Management, 6,3: 209- 224.
- Yin, R.K. (1984) Case Study Research: Design and Methods. London: Sage Publications.
- Zeithaml, V.A. (1991) How consumer evaluation processes differ between goods and services. In Lovelock, C. H. (1991) Services Marketing, London: Prentice-Hall International.
- Zeithaml, A.V.; Parasuraman, A. & L.L. Berry (1985) Problems and strategies in services marketing. Journal of Marketing, 49: 33-46.