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MANAGING MARKETING INFORMATION IN FINANCIAL SERVICES PRODUCT DEVELOPMENT

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Submitted For the Award
Of Doctor Of Philosophy

Vol I

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November 1995

TABLE OF CONTENTS

Page

VOLUME I

TABLE OF CONTENTS 1

ACKNOWLEDGEMENTS 16

DECLARATION 17

ABSTRACT 18

GLOSSARY 19

1. INTRODUCTION

1.1 Introduction 21
1.2 The Phenomenon Of Product Development . . . 22
1.3 The Business Problem Defined 24
1.4 The Analytical Perspective 25
1.5 Aims Of The Research. 26
1.6 Research Design 27
1.7 Originality Of The Research 27
1.8 Summary Of Findings 28

2. THE PHENOMENON OF PRODUCT DEVELOPMENT: A REVIEW OF THE LITERATURE

2.1 Introduction 30
2.2 The Nature Of Product Development 32
2.3 The Importance Of New Products 36
2.4 Product Development Activities 37
2.4.1 Idea Generation 38
2.4.2 Idea Screening 39
2.4.3 Analysis 40
2.4.4 Development 41
2.4.5 Testing. 44
2.4.6 Launch. 45
2.4.7 Post Launch 46
2.5 Measuring Success In Product Development . . . 48
2.6 Associated Factor Studies 49
2.7 A Decision Making Perspective. 53
2.8 Marketing Philosophy 56
2.9 Conclusion 57

3. MANAGEMENT OF MARKETING INFORMATION WITHIN PRODUCT DEVELOPMENT: CONCEPTUALISING THE ANALYTICAL PERSPECTIVE

3.1 Introduction 59
3.2 The Nature Of Marketing Information. . . . 60
3.2.1 A Conceptualisation Of Marketing Information. . 62
3.2.2 Sources Of Marketing Information . . . 63
3.2.3 Users Of Marketing Information . . . 67
3.3 Importance Of Marketing Information. . . . 69
3.3.1 Multiple Roles Of Marketing Information . . 69
3.3.2 Marketing Information In Product Development Activities 73
3.3.2.1 Idea Generation 73
3.3.2.2 Idea Screening. 74
3.3.2.3 Analysis 75
3.3.2.4 Development 76
3.3.2.5 Testing 77
3.3.2.6 Launch. 78
3.3.2.7 Post Launch 79
3.4 Relative Importance Of Marketing Information . . 80
3.5 Management Of An Important Corporate Asset. . . 84
3.6 Past Research Into Marketing Information Management . 87
3.7 Research Problem 90
3.8 Managerial Actions For Marketing Information Management. 92
3.9 Frequency And Proficiency 108
3.10 Model Of The Research Problem 110
3.11 Conclusion And The Need For Research . . . 112

4. THE RESEARCH CONTEXTS AND RESULTS OF A PRELIMINARY FIELD STUDY

4.1 Introduction 114
4.2 Importance Of Financial Services 114
4.3 Past Research Into New Financial Services Product Development 116
4.4 Overview Of Research Contexts 117
4.5 Background To Pensions 119
4.6 New Individual Pensions Market 120
4.7 Growth In The Individual Pensions Market . . . 120
4.8 The Nature Of Personal Equity Plans 121
4.9 Types Of PEPs. 122
4.10 Growth In PEP Market 123
4.11 Objectives Of Preliminary Field Study. . . . 124
4.12 Respondents In The Preliminary Field Study . . . 125
4.13 Preliminary Field Study Approach 126
4.14 Preliminary Field Study Findings 127
4.15 Conclusion 130

5. RESEARCH DESIGN

5.1 Introduction 132
5.2 The Principal Research Question 133
5.3 Objectives Of The Research 133
5.4 Methodological Approach 134
5.5 Principal Independent Variable 135
5.6 Measurement Of Variation In The Principal Independent Variable 136
5.7 Product Development Tasks 136
5.8 Principal Hypothesis 139
5.9 Supporting Hypotheses 139
5.10 Dependent Variable 143
5.11 Measures Of The Dependent Variable 144
5.12 Methodological Considerations 148
5.12.1 Units Of Study & Analysis. 148
5.12.2 Rationale For Program Level Research . . 149
5.13 Data Collection Approach 150
5.14 Interview Schedule 152
5.14.1 Construction Of Interview Schedule. . . . 152
5.14.2 Testing Of Interview Schedule . . . 154
5.15 Adjustment For Confounding Variables . . . 155
5.15.1 McKinsey 7s Framework 157
5.15.2 Subject Adjustments 158
5.16 Situational Adjustments. 161
5.17 Causality Effect 163
5.18 Conclusion 164

6. THE FIELD INVESTIGATION & PRELIMINARY DATA VALIDATION

6.1 Introduction 165
6.2 Population And Response Rates 165
6.3 Scope Of Samples 169
6.4 Application Of Interview Schedule 170
6.5 Procedure For Determining The Dependent Variable Measure 174
6.5.1 Market Related Measure 174
6.5.2 Competitor Relative Measure . . . . 176.
6.5.3 Combined Dependent Variable Measure . . 177
6.6 Pseudonyms And Data Transcription 177
6.7 Analytical Objectives 178
6.8 Statistical Methodology 179
6.9 Data Validation 180
6.10 Conclusion 189

7. DATA ANALYSIS AND RESULTS

7.1 Introduction 190
7.2 Analytical Procedures 190
7.3 Operationalising Our Data 192
7.4 Methodological Considerations 192
7.5 Analysis Of Variance 193
7.6 One-Tailed Tests 194
7.7 Comparison Procedures 195
7.8 Principal Hypothesis: Analysis & Results . . . 195
7.9 Supporting Hypotheses: Analysis & Results . . . 197
7.10 Task Analyses 202
7.11 Adjustments To ANOVA Findings 206
7.12 Conclusion 206

8. DISCUSSION OF RESULTS

8.1 Introduction 208
8.2 Proficiency Testing Results 208
8.3 Frequency Testing Results 209
8.4 Supporting Hypotheses Results 210
8.4.1 Multiple Uses Of Marketing Information . . 211
8.4.2 Network Between Development Participants . . 214
8.4.3 Plan The Sources Of Marketing Information . . 216
8.4.4 Undertake Structured Analytical Methods . . 219
8.5 Supplementary Findings 221
8.5.1 Ensure Timely Utilisation 221
8.5.2 Utilise Informal Communication Channels . . 222
8.5.3 Ensure Sufficiency Of Data 223
8.5.4 Share Sourcing Responsibility. . . . 224
8.5.5 Utilise Formal Collection Systems . . . 226
8.6 Residual Findings 227
8.7 Results Of Activity Analyses 228
8.8 Conclusion 219

9. MANAGERIAL IMPLICATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

9.1 Introduction 233
9.2 Managerial Implications 233
9.3 Limitations Of This Research 234
9.3.1 Conceptual Limitations 234
9.3.2 Methodological Limitations 236
9.4 Suggestions For Future Research 237
9.5 Conclusion 239

APPENDICES

Appendix I	-	Product Development Models . . .	240
Appendix II	-	Measures Of Product Development Success .	249
Appendix III	-	Factors Associated With Success In Product Development	251
Appendix IV	-	Analytical Matrix	254
Appendix V	-	Letter Requesting Initial Assistance In Research Project	255
Appendix VI	-	Letter Declining Participation In Research Project	257
Appendix VII	-	Letter Confirming Interview Appointment .	258
Appendix VIII	-	Interview Questionnaire . . .	259

TABLES

Table 1	-	Purposive Roles Of Marketing Information . .	72
Table 2	-	Managerial Actions For Managing Marketing Information	107
Table 3	-	Manufacturing & Services As % Of GNP . .	115
Table 4	-	Individual Pensions Market: New Business . .	121
Table 5	-	Field Study Participants	125
Table 6	-	Levels Of Frequency & Proficiency Of Managerial Actions	128
Table 7A	-	Survey Results: Common Tasks In Financial Services Product Development . . .	130
Table 7B	-	Common Tasks In Product Development. . .	137
Table 8	-	Derivation of Research Samples. . . .	167
Table 9	-	Levene Tests: Significance Level Results . .	187

Table 10 - Aggregated Data Analysis Results: F Ratios . . 197

Table 11 - Contrasted Mean Scores From Supporting Hypotheses 198

Table 12 - Results Of Analyses Of Supporting Hypotheses . 199

Table 13 - Results Of Analyses Of Supporting Hypotheses . 200

Table 14 - Results Of Analyses Of Supporting Hypotheses . 201

Table 15 - Contrasted Mean Scores From Product Dev. Tasks . 203

Table 16 - Results Of Analyses By Product Development Task . 205

Table 17 - Mean Frequency Ratios: Multiple Uses of Marketing Information. 212

Table 18 - Mean Proficiency Ratios: Multiple Uses of Marketing Information. 213

Table 19 - Mean Frequency Ratios: Network Between Participants 215

Table 20 - Mean Proficiency Ratios: Network Between Participants 216

Table 21 - Mean Frequency Ratios: Planning The Sources Of Marketing Information. 217

Table 22 - Mean Proficiency Ratios: Planning The Sources Of Marketing Information. 218

Table 23 - Mean Frequency Ratios: Undertake Structured Analyses 219

Table 24 - Mean Proficiency Ratios: Undertake Structured Analyses 220

Table 25 - Mean Frequency Ratios: Ensure Timely Utilisation . 221

Table 26 - Mean Proficiency Ratios: Utilise Informal Communication Channels 223

Table 27 - Mean Proficiency Ratios: Ensure Sufficiency Of Data 224

Table 28 - Mean Frequency Ratios: Share Sourcing Responsibility 225

Table 29 - Mean Proficiency Ratios: Utilise Formal Collection Systems 226

FIGURES

Figure 1 - Model Of The Research Problem 111

Figure 2 - Hypothesised Associations Between The Management Of Marketing Information and The Success Of New Products . 113

Figure 3 - Hybrid Hypothetico-Deductive Inductive Approach . . 135

Figure 4 - Distribution Chart Of Proficiency Scores (Pensions Context) . 182

Figure 5 - Distribution Chart Of Frequency Scores (Pensions Context) . 183

Figure 6 - Distribution Chart Of Proficiency Scores (PEP Context) . 184

Figure 7 - Distribution Chart Of Frequency Scores (PEP Context) . 185

VOLUME II

Contents 1

Bibliography 9

Data Tables

Data Tables 1 - 18	Hypotheses 1A - 18A: Pensions Losers Group .	76
Data Tables 19 - 36	Hypotheses 1B - 18B: Pensions Losers Group .	94
Data Tables 37 - 54	Hypotheses 1A - 18A: Pensions Winners Group .	112
Data Tables 55 - 72	Hypotheses 1B - 18B: Pensions Winners Group .	130
Data Tables 73 - 90	Hypotheses 1A - 18A: PEPs Losers Group . .	148
Data Tables 91 - 108	Hypotheses 1B - 18B: PEPs Losers Group . .	165
Data Tables 109 - 126	Hypotheses 1A - 18A: PEPs Winners Group . .	184
Data Tables 127 - 144	Hypotheses 1B - 18B: PEPs Winners Group . .	202
Data Table 145	Frequency of Frequency Scores (Pension Losers) .	220
Data Table 146	Frequency of Proficiency Scores (Pension Losers) .	221
Data Table 147	Frequency of Frequency Scores (Pension Winners) .	222
Data Table 148	Frequency of Proficiency Scores (Pension Winners) .	223
Data Table 149	Frequency of Frequency Scores (PEP Losers) .	224
Data Table 150	Frequency of Proficiency Scores (PEP Losers) .	225
Data Table 151	Frequency of Frequency Scores (PEP Winners) .	226
Data Table 152	Frequency of Proficiency Scores (PEP Winners) .	226
Data Table 153	Analysis Of Variance Calculation (Aggregated Frequency Data: Pensions context) .	228
Data Table 154	Analysis Of Variance Calculation (Aggregated Proficiency Data: Pensions context) .	228
Data Table 155	Analysis Of Variance Calculation (Aggregated Frequency Data: PEP context) . .	229

Data Table 156 Analysis Of Variance Calculation (Aggregated Proficiency Data: PEP context) . . 229

Data Table 157 One-Way ANOVA Calculation (Hypothesis 1A - Pensions context) . . . 230

Data Table 158 One-Way ANOVA Calculation (Hypothesis 2A - Pensions context) . . . 230

Data Table 159 One-Way ANOVA Calculation (Hypothesis 3A - Pensions context) . . . 231

Data Table 160 One-Way ANOVA Calculation (Hypothesis 4A - Pensions context) . . . 231

Data Table 161 One-Way ANOVA Calculation (Hypothesis 5A - Pensions context) . . . 232

Data Table 162 One-Way ANOVA Calculation (Hypothesis 6A - Pensions context) . . . 232

Data Table 163 One-Way ANOVA Calculation (Hypothesis 7A - Pensions context) . . . 233

Data Table 164 One-Way ANOVA Calculation (Hypothesis 8A - Pensions context) . . . 233

Data Table 165 One-Way ANOVA Calculation (Hypothesis 9A - Pensions context) . . . 234

Data Table 166 One-Way ANOVA Calculation (Hypothesis 10A - Pensions context) . . . 234

Data Table 167 One-Way ANOVA Calculation (Hypothesis 11A - Pensions context) . . . 235

Data Table 168 One-Way ANOVA Calculation (Hypothesis 12A - Pensions context) . . . 235

Data Table 169 One-Way ANOVA Calculation (Hypothesis 13A - Pensions context) . . . 236

Data Table 170 One-Way ANOVA Calculation (Hypothesis 14A - Pensions context) . . . 236

Data Table 171 One-Way ANOVA Calculation

(Hypothesis 15A - Pensions context) . . . 237

Data Table 172 One-Way ANOVA Calculation
(Hypothesis 16A - Pensions context) . . . 237

Data Table 173 One-Way ANOVA Calculation
(Hypothesis 17A - Pensions context) . . . 238

Data Table 174 One-Way ANOVA Calculation
(Hypothesis 18A - Pensions context) . . . 238

Data Table 175 One-Way ANOVA Calculation
(Hypothesis 1B - Pensions context) . . . 239

Data Table 176 One-Way ANOVA Calculation
(Hypothesis 2B - Pensions context) . . . 239

Data Table 177 One-Way ANOVA Calculation
(Hypothesis 3B - Pensions context) . . . 240

Data Table 178 One-Way ANOVA Calculation
(Hypothesis 4B - Pensions context) . . . 240

Data Table 179 One-Way ANOVA Calculation
(Hypothesis 5B - Pensions context) . . . 241

Data Table 180 One-Way ANOVA Calculation
(Hypothesis 6B - Pensions context) . . . 241

Data Table 181 One-Way ANOVA Calculation
(Hypothesis 7B - Pensions context) . . . 242

Data Table 182 One-Way ANOVA Calculation
(Hypothesis 8B - Pensions context) . . . 242

Data Table 183 One-Way ANOVA Calculation
(Hypothesis 9B - Pensions context) . . . 243

Data Table 184 One-Way ANOVA Calculation
(Hypothesis 10B - Pensions context) . . . 243

Data Table 185 One-Way ANOVA Calculation
(Hypothesis 11B - Pensions context) . . . 244

Data Table 186 One-Way ANOVA Calculation
(Hypothesis 12B - Pensions context) . . . 244

Data Table 187 One-Way ANOVA Calculation (Hypothesis 13B - Pensions context) . . . 245

Data Table 188 One-Way ANOVA Calculation (Hypothesis 14B - Pensions context) . . . 245

Data Table 189 One-Way ANOVA Calculation (Hypothesis 15B - Pensions context) . . . 246

Data Table 190 One-Way ANOVA Calculation (Hypothesis 16B - Pensions context) . . . 246

Data Table 191 One-Way ANOVA Calculation (Hypothesis 17B - Pensions context) . . . 247

Data Table 192 One-Way ANOVA Calculation (Hypothesis 18B - Pensions context) . . . 247

Data Table 193 One-Way ANOVA Calculation (Hypothesis 1A - Pep context). . . . 248

Data Table 194 One-Way ANOVA Calculation (Hypothesis 2A - Pep context). . . . 248

Data Table 195 One-Way ANOVA Calculation (Hypothesis 3A - Pep context). . . . 249

Data Table 196 One-Way ANOVA Calculation (Hypothesis 4A - Pep context). . . . 249

Data Table 197 One-Way ANOVA Calculation (Hypothesis 5A - Pep context). . . . 250

Data Table 198 One-Way ANOVA Calculation (Hypothesis 6A - Pep context). . . . 250

Data Table 199 One-Way ANOVA Calculation (Hypothesis 7A - Pep context). . . . 251

Data Table 200 One-Way ANOVA Calculation (Hypothesis 8A - Pep context). . . . 251

Data Table 201 One-Way ANOVA Calculation (Hypothesis 9A - Pep context). . . . 252

Data Table 202 One-Way ANOVA Calculation (Hypothesis 10A - Pep context) . . . 252

Data Table 203 One-Way ANOVA Calculation (Hypothesis 11A - Pep context) . . . 253

Data Table 204 One-Way ANOVA Calculation (Hypothesis 12A - Pep context) . . . 253

Data Table 205 One-Way ANOVA Calculation (Hypothesis 13A - Pep context) . . . 254

Data Table 206 One-Way ANOVA Calculation (Hypothesis 14A - Pep context) . . . 254

Data Table 207 One-Way ANOVA Calculation (Hypothesis 15A - Pep context) . . . 255

Data Table 208 One-Way ANOVA Calculation (Hypothesis 16A - Pep context) . . . 255

Data Table 209 One-Way ANOVA Calculation (Hypothesis 17A - Pep context) . . . 256

Data Table 210 One-Way ANOVA Calculation (Hypothesis 18A - Pep context) . . . 256

Data Table 211 One-Way ANOVA Calculation (Hypothesis 1B - Pep context) 257

Data Table 212 One-Way ANOVA Calculation (Hypothesis 2B - Pep context) 257

Data Table 213 One-Way ANOVA Calculation (Hypothesis 3B - Pep context) 258

Data Table 214 One-Way ANOVA Calculation (Hypothesis 4B - Pep context) 258

Data Table 215 One-Way ANOVA Calculation (Hypothesis 5B - Pep context) 259

Data Table 216 One-Way ANOVA Calculation (Hypothesis 6B - Pep context) 259

Data Table 217 One-Way ANOVA Calculation (Hypothesis 7B - Pep context) 260

Data Table 218 One-Way ANOVA Calculation

(Hypothesis 8B - Pep context) 260

Data Table 219 One-Way ANOVA Calculation (Hypothesis 9B - Pep context) 261

Data Table 220 One-Way ANOVA Calculation (Hypothesis 10B - Pep context) . . . 261

Data Table 221 One-Way ANOVA Calculation (Hypothesis 11B - Pep context) . . . 262

Data Table 222 One-Way ANOVA Calculation (Hypothesis 12B - Pep context) . . . 262

Data Table 223 One-Way ANOVA Calculation (Hypothesis 13B - Pep context) . . . 263

Data Table 224 One-Way ANOVA Calculation (Hypothesis 14B - Pep context) . . . 263

Data Table 225 One-Way ANOVA Calculation (Hypothesis 15B - Pep context) . . . 264

Data Table 226 One-Way ANOVA Calculation (Hypothesis 16B - Pep context) . . . 264

Data Table 227 One-Way ANOVA Calculation (Hypothesis 17B - Pep context) . . . 265

Data Table 228 One-Way ANOVA Calculation (Hypothesis 18B - Pep context) . . . 265

Data Table 229 ANOVA Calculation within Idea Generation Tasks (Frequency data: pensions context) . . . 266

Data Table 230 ANOVA Calculation within Idea Screening Tasks (Frequency data: pensions context) . . . 266

Data Table 231 ANOVA Calculation within Analysis Tasks (Frequency data: pensions context) . . . 267

Data Table 232 ANOVA Calculation within Development Tasks (Frequency data: pensions context) . . . 267

Data Table 233 ANOVA Calculation within Testing Tasks (Frequency data: pensions context) . . . 268

Data Table 234 ANOVA Calculation within Launch Tasks (Frequency data: pensions context) . . . 268

Data Table 235 ANOVA Calculation within Idea Generation Tasks (Frequency data: PEP context). . . . 269

Data Table 236 ANOVA Calculation within Idea Screening Tasks (Frequency data: PEP context). . . . 269

Data Table 237 ANOVA Calculation within Analysis Tasks (Frequency data: PEP context). . . . 270

Data Table 238 ANOVA Calculation within Development Tasks (Frequency data: PEP context). . . . 270

Data Table 239 ANOVA Calculation within Testing Tasks (Frequency data: PEP context). . . . 271

Data Table 240 ANOVA Calculation within Launch Tasks (Frequency data: PEP context). . . . 271

Data Table 241 ANOVA Calculation within Idea Generation Tasks (Proficiency data: pensions context) . . . 272

Data Table 242 ANOVA Calculation within Idea Screening Tasks (Proficiency data: pensions context) . . . 272

Data Table 243 ANOVA Calculation within Analysis Tasks (Proficiency data: pensions context). . . . 273

Data Table 244 ANOVA Calculation within Development Tasks (Proficiency data: pensions context) . . . 273

Data Table 245 ANOVA Calculation within Testing Tasks (Proficiency data: pensions context) . . . 274

Data Table 246 ANOVA Calculation within Launch Tasks (Proficiency data: pensions context) . . . 274

Data Table 247 ANOVA Calculation within Idea Generation Tasks (Proficiency data: PEP context) . . 275

Data Table 248 ANOVA Calculation within Idea Screening Tasks (Proficiency data: PEP context) . . . 275

Data Table 249 ANOVA Calculation within Analysis Tasks (Proficiency data: PEP context) . . . 276

Data Table 250 ANOVA Calculation within Development Tasks (Proficiency data: PEP context) . . . 276

Data Table 251 ANOVA Calculation within Testing Tasks (Proficiency data: PEP context) . . . 277

Data Table 252 ANOVA Calculation within Launch Tasks (Proficiency data: PEP context) . . . 277

ACKNOWLEDGEMENTS

This thesis would not have been completed without the encouragement and support of the following people,

My wife Clare, who occasionally complained about the amount affection and time that I lavished upon this research study over the past five and a half years. Her support made this thesis possible.

Professor Martin Collins, who injected much needed psychological support and who provided guidance on the methodological approach and statistical procedures implemented in this thesis.

Professor Axel Johne, who provided the founding inspiration behind this research project and whose extensive knowledge of product development was invaluable in conceptualising the phenomenon and the analytical perspective.

DECLARATION

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

Abstract

This thesis reports on the findings of an investigation into how **superior product developers** manage their **marketing information** during the creation of their highly successful new products.

Arising from a review of the marketing and product development literature we analyse and discuss the critically important role of **marketing information** in product development activities, in the factors underlying successful new products and in product development decision making. Although marketing information is increasingly recognised as a key corporate asset by scholars and practitioners, we find theoretical and empirical evidence concerning its poor management during key product development tasks. Our review of the literature identifies eighteen individual managerial actions concerned with the management of marketing information. These actions are proffered by the literature as important to the way in which outstanding firms distinguish their management of marketing information from the approach of their less successful counterparts. Collectively these eighteen managerial actions suggest a conceptual framework for **managing marketing information** within product development.

Arising from a preliminary field study we find evidence of diversity in the frequency and proficiency with which these eighteen key managerial actions are undertaken in two new and exciting program level development contexts; the creation of new individual pension products and Personal Equity Plans (PEPs). Using a hybrid hypothetico-deductive/inductive research technique we formulate a principal hypothesis and eighteen supporting hypotheses which postulate that superior product developers manage their marketing information in ways which are significantly more skilful than less successful developers. By skilful we mean with significantly greater frequency and proficiency of execution.

Our findings indicate that skilful management of marketing information is an important variable associated with highly successful new products. In particular our findings, confirmed by replication in a secondary research context, suggest that during product development, superior product developers invoke significantly greater frequency and proficiency in the execution of the following four managerial actions.

: They more frequently and proficiently implement marketing information for a greater number of purposes and
: They exchange marketing information more frequently and proficiently between product development participants and
: They more frequently and proficiently implement structured analyses of their marketing information and
: They more frequently and proficiently plan the sources of their marketing information.

These research findings represent new knowledge concerning **how to manage a key corporate asset (marketing information)** during an important business function **(product development)** which is essential for future corporate survival and growth.

GLOSSARY

The following words are ascribed the definitions shown hereafter in this Glossary. Unless otherwise defined in the body of this thesis all other words used are deemed to take definitions given within The Concise Oxford Dictionary (7th Edition) and should be applied in the context of the paragraph in which they appear.

Aggregated: Assemblage of all parts.

Endogenous: Within the control of management (Johne & Vermaak, 1993).

Exogenous: Outwith the control of management (Johne & Vermaak, 1993).

Financial Services Products: The offerings of firms engaged in the financial services industry (Edgett & Parkinson, 1994).

Formal: Recognised as standard within the firm's rules or procedures (Cooper, 1991a).

Information: Factual or non-factual data which has been subject to processing (Drummond, 1990).

Informal: Lacking the recognition of formality.

Innovation: Concerned with new processes, new technology or new products (Foxall & Johnston, 1991).

Isolated: Insulate; free from combination with others.

Knowledge: Practical understanding gained from experience and information (Drummond, 1990).

Marketing Information: Processed data concerning markets and competitors. A full conceptualisation of this term appears in Chapter Three.

Networking: Two way information flow (Anthony & MacKay, 1992).

New Products: Offerings by suppliers which may be a) new to the world, industry or market or b) amended or updated offerings. A full conceptualisation is given in Chapter Two.

Offering:	A term used by Mather, (1986a/b) to describe a product which may combine a commodity with some form of service.
Operationalise:	To bring into effect (Baker, 1991a).
Primary:	Concerned with being first in sequence (not most important).
Postulate:	To make untested assumptions.
Product Development:	A formal blue print, roadmap, template or thought process for driving a new product project from the idea stage through to market launch (Cooper, 1994).
Proficient:	Diligent.
Satisficer:	That which satisfies minimum requirements (Drummond, 1990).
Skilful:	Having high levels of frequency and proficiency.
Sourcing:	Obtaining from a point of origin (Morgan, 1989).
Strategic:	Having long term and large resource implications.
Structured:	Having an organised foundation.
Superior Product Developers:	Those firms who have an above median measure of commercial success in terms of their new products. This term is fully covered in Chapter Six.
Suppositional:	Based on theoretical assumptions.
Unstructured:	Lacking an organised basis; merely superficial.

MANAGING MARKETING INFORMATION IN FINANCIAL SERVICES PRODUCT DEVELOPMENT

CHAPTER 1: INTRODUCTION

1.1 Introduction

> " Anyone who has the habit, or the duty, of following the academic marketing journals will find it difficult to refute the view that much of what passes for knowledge on the subject of marketing management has been written by researchers for other researchers. Little of it is contributed by practising marketing managers and rarely do their problems seem to provide the subject or the object for discussion. And while prescriptions for better marketing management practice are often eschewed, it is seldom that any clear commitment to managerial action is provided". Brownlie, (1991a)

The motivation for this thesis is drawn from the author's desire to make a significant contribution to knowledge for the benefit of those scholars who are interested in, and managers who are vested with the critically important responsibility for, creating new and updating extant products. Developing commercially successful new products is not an easily realised objective and those persons whose responsibility it is to achieve this objective need empirically tested paradigms to guide their actions. Additionally, scholars of product development have expressed an interest in understanding better if managing marketing information can facilitate successful new products.

Within existing research studies, information concerning markets and competitors has been conceptualised as a marketing specific input: a functional information type which is used exclusively by and is regarded as the sole responsibility of the marketing department [Cooper, (1991); Piercy, (1989a/b); Cooper & Kleinschmidt, (1988) and Johne & Snelson, (1988a/b)]. Our analytical approach in this research considers marketing information and its management as

the responsibility of those managers charged with creating successful new products. This approach is consistent with the more recently advocated view that marketing information is not the exclusive responsibility of the marketing function [McKenna, (1991); Shapiro, (1988) and Porter, (1985)]. Hence this study is not concerned only with how marketers manage their marketing information as a functional tool, but rather with how it is managed by persons responsible for product development activities.

This research study considers the frequency and proficiency with which eighteen managerial actions concerning marketing information were carried out during six product development tasks. Our objective in this thesis is to identify and report on findings derived from a rigorous scientific study, designed to provide **practical guidance** for those managers involved in product development. Scholars of information management, marketing and product development will also find this thesis to have merit from a theoretical perspective since it provides new knowledge concerning an empirical conceptualisation of personal financial services product development and an unique paradigm for marketing information management.

1.2 The Phenomenon Of Product Development

The creation of wholly new and the enhancement of extant products is a critically important business issue for corporate survival and growth [Baker, (1989); McCarthy, (1989); Kotler, (1989); Calantone & Cooper, (1981); Porter, (1980 & 1985); Cooper, (1980, 1982 & 1988c); Johne & Harborne, (1985); Johne & Snelson, (1990a) and Cooper & Kleinschmidt, (1991)]. However, the achievement of commercially successful new products arising from the process of product development has become increasingly difficult as the pace of market evolution increases and rival developers introduce increasingly more competitive products.

Understanding how to achieve successful new products is now a major concern for both scholars and practitioners [Dumaine, (1989); Abernathy & Utterback, (1988); Adler et al, (1989); Ancona & Caldwell, (1990); Cooper & de Brentani, (1984); Cooper & Kleinschmidt, (1986); Cooper, (1982); Littler, (1984) and Heil & Walters, (1993)]. It is from this recognition of the necessity to understand and respond to environmental change that we embark upon our thesis.

Previous research studies into product development have focused in the main on determining the **factors** associated with successful new products and delineating prescriptive and descriptive product development paradigms [Cooper, (1984a/b)] which facilitate the accomplishment of this important business process. Given that research into the success of new products and the process of product development is a relatively new investigative perspective, theory development has tended to predominate over practical guidance for managerial action.

In this thesis we conceptualise product development from several perspectives and argue that since it is an important business process for the future prosperity of commercial organisations, the success of its output (new products) cannot be left to chance. We present descriptive statistics which illustrate that new products have suffered significantly high failure rates and we articulate empirical examples of poor management of marketing information which contributed to unsuccessful new products. The need for further research in this critically important area is substantiated from our review of the marketing and product development literature.

1.3 The Business Problem Defined

> "Information management is as central to marketing as the marketing mix. The management of information is at the very centre of the status of marketing management." Piercy, (1991a)

Arising from a review of the marketing literature we postulate that **marketing information** is a key variable underlying many of the endogenous factors previously found to be associated with successful new products, in facilitating the tasks within the product development process and in product development decision making. However during our review of the literature and in our preliminary field study we found that marketing information was often **"poorly used"** [Johnson & Woodward, (1988)]. The findings of our literature review and field study investigation suggest that some firms invoke significantly different managerial approaches concerning their **marketing information** and reap the rewards in terms of commercially successful new products. These preliminary findings allow us to postulate that **managing marketing information** during key product development tasks can influence the success of new products. We consequently hypothesise that superior developers invoke a more skilful managerial approach in their management of this key corporate resource; **marketing information.**

The extant product development, marketing, information science and strategic management literature does not provide guidance to resolve the concerns of scholars and practitioners on fundamental questions such as,

a) What information management paradigms do highly successful product developers invoke?

b) During which product development activities should managers focus their efforts to improve the likelihood of achieving commercially successful new products?

This research project is concerned with identifying and reporting on what managerial actions concerning marketing information contribute to the creation of superior new products at the program level. From the results of this study we are able to resolve concerns raised in the product development and marketing information literature and provide empirically based knowledge with respect to the management of marketing information during product development.

1.4 The Analytical Perspective

Previous research into the management of marketing information has focused on managing the facilitating technology, managing the structure and organisation of the marketing information system (MkIS) and understanding and controlling the variables which influence the use of marketing data. Glazer, (1991) argues that "The real issue, however, is the need to go beyond the technology per se and consider the output of the technology - the information itself". Our analytical perspective, based on assertions derived from our review of the marketing and product development literature, builds upon Glazer's arguments and considers whether those firms which achieve outstandingly successful new products manage their marketing information in ways which are significantly more skilful than the approach of less successful developers. By skilful we mean the execution of higher levels of frequency and proficiency in carrying out managerial actions. Our review of the literature identifies imposing arguments which suggest that marketing information is an important corporate asset that needs to be managed. However our review also indicates an absence of a comprehensive paradigm which can provide guidance on how to manage this important corporate asset during the creation of new and the improvement of extant products.

In earlier studies marketing information has been conceptualised as a marketing specific input: a functional information type which is owned and used by the marketing department [Cooper, (1991); Piercy, (1989a/b); Cooper & Kleinschmidt, (1988) and Johne & Snelson, (1988a/b)]. Our approach in this research study is to consider the management of marketing information within product development activities as the responsibility of all managers involved in this important business function. This approach accords with the view that operationalising marketing information is not the exclusive responsibility of the marketing function [Kohli & Jaworski, (1990) & Glazer, (1991)]. Consequently our analytical perspective is not concerned with how only marketers manage their marketing information, but rather with how it is managed by those persons who are responsible for product development tasks.

1.5 Aims Of The Research

Our review of the literature and observations from our preliminary field study lead us to posit that the ways in which the management of marketing information is undertaken during product development has an effect on the commercial success of new products. This leads us to pose the question "Do superior product developers manage their marketing information in ways which are distinctly different from less successful product developers?" The specific aims of this research project are,

1) To <u>investigate</u> and <u>determine</u> if superior product developers are more skilful in their management of marketing information than less successful developers and

2) To <u>identify</u> and <u>report</u> in what ways the managerial approach of superior developers is significantly more skilful from the managerial approach of less successful developers and

3) To provide empirically based and significantly new knowledge with respect to the management of marketing information during the critically important business function of product development.

1.6 Research Design

Our research methodology involves a rigorous comparative study utilising an independent groups research design. After implementation of a scientific and structured control policy to negate the effect of other random independent variables, market related and competitor relative measures are used to categorise superior developers and less successful developers. This study then measures and compares the managerial actions of superior developers with the actions of less successful developers in the context of new individual pension products. Our data analysis procedures invoke robust and recognised statistical techniques which permit us to infer a significant level of confidence in our findings. In order to validate and contrast our findings in the primary research context we replicate the study in a secondary personal financial services context; Personal Equity Plan products.

1.7 Originality Of The Research

This research study is original in the following ways.

: It is the first scientific study into the **management of marketing information "per se"**during the important business procedure of **financial services product development** and

: It is the first scientific study into the program level development of individual pension and PEP products and

: It is the first scientific study to differentiate between superior developers and less successful developers at the program level in the personal financial services context and

: It is the first scientific study in the context of personal financial services to find validation of its findings by replicating the same research design within a secondary research context.

1.8 Summary Of Findings

This research study provides significant new knowledge concerning the management of marketing information during the important business process of product development. The nature of this new knowledge spans several key issues viz.,

: It empirically validates assertions derived from theory based marketing and management literature concerning the need to manage a key corporate resource (marketing information) during a critically important business operation (product development) and

: It identifies four salient managerial actions concerning marketing information, the frequent and proficient execution of which are significantly different between superior product developers and less successful developers. These managerial actions are,

(a) Superior developers more frequently and proficiently use their marketing information for a greater number of purposes and

(b) Superior developers undertake more frequent and proficient exchange of marketing information between development participants and

(c) Superior developers undertake more frequent and more proficient structured analyses of their marketing information.

(d) Superior developers more frequently and proficiently plan the sources of marketing information and

: It has advanced our understanding of the salient tasks involved in the critically important business process of developing new personal financial products and

: It has provided new knowledge concerning **program level** product development in two service contexts which will assist practitioners in focusing their managerial actions in ways that are likely to facilitate superior new financial services products.

In determining the above new knowledge we have eliminated a significant gap in the understanding of both scholars and practitioners. The resultant application of these findings will permit those managers responsible for future product development to focus their managerial efforts in ways which will facilitate outstanding new products. This new knowledge will also assist those persons responsible for product development to reduce the unacceptably high rates of new product failures and engender a managerial approach concerning a key corporate resource that will facilitate commercially successful new products.

CHAPTER 2: THE PHENOMENON OF PRODUCT DEVELOPMENT: A REVIEW OF THE LITERATURE

2.1 Introduction

> "The future economic health of a company is dependent upon its successful management of existing and new products. The importance of new products has long been recognised." Fletcher, (1990b)

> "An organisation needs a flow of new products in order to compete in today's free markets. New products are essential to growth and long term profits. What they (management) do is a management decision, but there really is no choice of whether or not to do it." Crawford, (1987)

> "If a firm is not prepared to do this (product development) it will be overtaken by competitors from its own industry or, as has happened increasingly in recent years, by entrants from another industry." Foster, (1986)

There is a growing body of literature concerned with the creation of new products which has been fostered by the increasing need of academics and practitioners to understand better how to satisfy customer wants [Ali, (1994); Cooper & Kleinschmidt, (1993); Hopkins, (1981); Johne, (1983a/b and 1990); Baker, (1991a,b,c); Meyer & Roberts, (1986); Taylor, (1990); Hill & James, (1991); Wheelwright & Sasser, (1989); Moore, (1987) and Sanchez & Elola, (1991)] and how to gain advantage over competing products [Pavia, (1990); Clark, (1991); Porter, (1980 & 1985) and Chakrabarti, (1988)]. As both markets and rival products evolve so product providers need to respond to these changes or face the prospect of uncompetitive products and unresponsive markets.

Product development is recognised in the marketing, management and innovation literature to be a critically important business process for corporate survival and growth [Baker, (1989); McCarthy, (1989); Lovelock, (1991); Kotler, (1989); Pettigrew, (1988); Peters, (1990); Cooper, (1980, 1982 & 1988c); Johne & Harborne, (1985); Johne & Snelson, (1990a) and

Cooper & Kleinschmidt, (1991)]. Stasch et al, (1992) contend that product development "**is the lifeblood**" of firms, while Goulding, (1985) argues that it is an important process even in obscure sectors such as the UK trout industry. However, Bruce, (1988); Achrol & Stern, (1988); Lonsdale & Stasch, (1986); Gupta & Wilemon, (1990); Mitsch, (1990) and Fritz, (1989) suggest that the achievement of successful products has become increasingly difficult as the pace of market evolution increases and rival developers introduce increasingly more competitive products. Understanding why earlier products were commercially successful [Willigan, (1992)] and how this knowledge can be applied to create future successful products [Parker, (1980 & 1982)] is now a major universal concern for both scholars and practitioners [Parry & Song, (1994); Day, Gold & Kuczmarski, (1993); Herbig & Day, (1992); Dumaine, (1989); Cooper, (1982); Littler, (1983) and Heil & Walters, (1993)]. In pursuit of new knowledge concerning how to create commercially successful new products many authors have sought guidance from the experience of the Japanese [Dace, (1988); Nishikawa, (1990); Nonaka & Yamanouchi, (1989); Nakahara & Isono, (1992); Pyzdek, (1991); Gerstenfeld et al, (1980) and Schroeder & Robinson, (1991)]. Although these studies have added valuable knowledge Johne, (1993) contends that much further work needs to be undertaken on this important business issue.

Based on a review of the product development and marketing literature this chapter conceptualises the important business phenomenon of product development. In this review we discuss the key activities (tasks) that are contained in many prescriptive and descriptive models, consider the managerial factors which have been found to be associated with successful new products and provide an alternative conceptualisation of product development as an important managerial decision making process. Arising from our review of the literature we identify a key

endogenous variable that ostensibly has an important influence over the success of wholly new and amended products. That endogenous variable is **marketing information.**

2.2 The Nature Of Product Development

Saren, (1984); Johne & Snelson, (1990a/b); de Brentani, (1988, 1989a/b); Sands, (1983); Crawford, (1980, 1984 & 1987) and Cooper, (1979a/b, 1980, 1982 & 1990) conceptualise product development as an operational process (i.e. a series of inter-linked tasks/activities) through which a nascent product must pass during its formation, on its way to the market. Drucker, (1992) envisions product development in the United States as implementing "a baseball style" approach: a sequence of linked functional activities. Chakrabarti & Hauschildt, (1989) adopt a more simplistic view, suggesting that product development is a business "process" consisting of actionable "phases". We have identified from the product development literature 34 prescriptive and descriptive product development paradigms which illustrate many diverse and elaborate processes for the creation and updating of products. These process paradigms are scheduled in Appendix I. A large number of the processes shown in Appendix I demonstrate concordance in many of their generic activities. For example, common activities such as idea generation, idea screening, business/commercial analysis, testing, development and launch occur in many development paradigms. Some paradigms contain specific stages or phases which are inherently unique to their industrial sector or product type. For example, Howley, (1990) introduces two discrete stages of **taste testing** during the creation of a new beverage and Edgett, (1991) records **personnel training** as an integral activity within the product development process for new products of building societies.

The purpose of prescriptive and descriptive product development models is to provide a procedure within which firms can initiate, develop, amend or reject new products, through a system of inter-linked tasks [Cooper & Kleinschmidt, (1993)]. Each of the product development paradigms illustrated in Appendix I contains sequential (and sometimes concurrent) inter-linked tasks which collectively constitute a process for developing new products. Quinn, (1985); McTavish, (1984) and Moriarty & Kosnik, (1989) suggest that the conventional perception of product development as a linear process of sequential tasks is inappropriate and that in some firms product development is a haphazard and uncoordinated group of activities. Studies by Takeuchi & Nonaka, (1986); Millson et al, (1992); Crawford, (1987); Cooper & Kleinschmidt, (1990a/b & 1991) and de Brentani, (1988 & 1989a/b) provide support for this assertion and argue that linearity is not always an accurate paradigm. They demonstrate from their empirical studies that many tasks frequently overlap one another and that some tasks are often undertaken concurrently.

According to Johne & Harborne, (1985) and Johne & Snelson, (1990a/b) product development can be of two different types; **Old Product Improvement (OPI)** which consists of incremental adjustments to existing products and **New Product Development (NPD)** which is a procedure that concentrates on the creation of products that are new to the world, the industry or the market. OPI has been conceptualised under many different guises: Easingwood & Mahajan, (1989) refer to OPI as a business function concerned with "augmentation of extant products" while O'Hare, (1988) and Schroeder & Robinson, (1991) consider this particular development approach to be "continuous innovation". Tushman & Moore, (1988) and Foxall & Johnson, (1991) consider adjustments to existing products to be "incremental innovation", while Andrews, (1975) considers OPI to be a method of "revitalising" existing products. Mabert et al,

(1992) adopt a more simplistic definition of OPI as the grouping of managerial tasks responsible for "improvements to existing products". Ali, (1994) defines "incremental innovation" as modification of existing products and "pioneering" products as those which are "truly innovative" in market and competitive terms. According to Cooper & Kleinschmidt, (1990a/b & 1991) the most prolific type of product development involves adjustments to existing products. Josty, (1990); Rickards, (1991) and Barker & Gimpl, (1988) consider "discontinuous innovation" to be a synonym for NPD. They recognise that wholly new products represent unique opportunities to enter new markets and often change the fundamental basis of competition within industries. According to Johne & Snelson, (1990a) NPD is less common than OPI, has a higher risk but its output (wholly new products) can achieve a greater market impact if successful. In his study into the development approaches of ten Dutch firms Douma, (1991) interprets the term "new venture" as referring to the outcome of either OPI or NPD.

Booz, Allen & Hamilton, (1982) and Cooper, (1988b) suggest that product development can result in six discrete categories of new products viz.,

a) New to the world products: these products generate entirely new markets. For example video-recorders and computers stimulated previously latent market segments [Shanklin & Ryans, (1984)].

b) New product lines: these products complement a supplier's existing product range and address extant markets.

c) Additions to existing product lines: these products supplement the existing product range.

d) Improvements to existing products: these products tend to be the result of incremental adjustments often as a result of process innovations or customer feedback.

e) Repositioning of existing products: these products are essentially unchanged but are targeted to different market segments. An example of this is the BMW 3 series which is currently being repositioned in the perception of the public as a robust family vehicle rather than as a powerful coupe.

f) Cost reductions: strictly speaking these are not new products but existing products provided at a lower cost. Economies of scale and improved process technology permit cost reductions.

Johne, (1994) questions whether the latter two categories are true outcomes of product development. Johne argues that repositioning and cost reductions "are not distinct types of new products in their own right" but are managerial approaches which can be applied to the preceding four categories of new products.

Hauschildt, (1991) and Johne & Snelson, (1990a) differentiate between product development at the **program level** and product development at the **project level**. They suggest that program level development is concerned with the creation of a range (a suite) of new products while project level development is concerned with the creation of an individual product. Notwithstanding the importance of successfully developing individual products, Johne & Snelson, (1990a) and Hauschildt, (1991) argue that it is program level success which leads to long term corporate survival and growth. Johne & Snelson, (1990a/b) further argue that success at the project level may be subject to one-off flukes and consequently findings from this type of study may have limited value in explaining how to achieve consistently successful new products. Bennett & Cooper, (1981) support this view and argue that research at the product (project) level is myopic in focus and of limited value in identifying how to achieve consistent success in new products.

2.3 The Importance Of New Products

Product development has been identified by Rothwell, (1976a/b); Gresov, (1984); Grossman & Helpman, (1991); Cooper, (1982, 1983, 1984a & 1984b); Burgleman & Sayles, (1986); Nystrom, (1979 & 1990); Botkin et al, (1986); Borrow & Shafer, (1987) and Johne, (1984 & 1985) to be an important business function out of which new products emerge to facilitate long term corporate survival and growth. This view is also endorsed by the more recent innovation and marketing literature [Ali, (1994); Day, Gold & Kuczmarski, (1994); Parry & Song, (1994); Cooper & Kleinschmidt, (1993); Ram & Sheth, (1991); Dougherty, (1989); Johne, (1990 & 1991); McGuinness & Conway, (1989); Cooper, (1990 & 1991) and Mahajan & Wind, (1992)] which reports on the growing reliance by firms on the success of new products to attain and sustain competitive advantage and market share, in what is an increasingly intense competitive environment. Kotabe, (1990) contends that "many US firms recognise that their growth and profits come largely from new products". Surveys by Coopers & Lybrand, (1985) support this assertion and confirm that a large proportion of companies foresee product development as an important business process for future profitability and growth.

Cooper, (1988a) in his North American studies estimated that 32% of corporate profit was derived from products that were made available to the market within the previous 5 years. Ansoff, (1987) has estimated that upwards of 40% of sales of manufactured goods in the USA emanated from products that the firm did not provide 5 years previously. Cooper, (1991) estimates that new products account for 40% of annualised corporate sales and this figure is increasing. More recently Ali, (1994) suggests that "by the year 2000, 50% of corporate profits will come from products that are five years old or less". It is not surprising therefore that Crawford, (1987) suggests that firms which ignore product development do so at their peril.

In spite of the acknowledged need to attain and sustain successful new products de Brentani, (1991); de Brentani & Cooper, (1992); Booz, Allen & Hamilton, (1982), Cooper & Kleinschmidt, (1990a & 1990b) and Crawford, (1987) report that a large number of firms still fail to achieve consistent success in this important business phenomenon. For example, in 1968 Booz, Allen & Hamilton approximated that up to 40% of new industrial and consumer goods would not be commercially successful. Crawford, (1979) assessed that in some cases failure rates as high as 90% of total new product launches had occurred. In the UK Johne & Harborne, (1985) suggest the average failure rate of 35% of new commercial banking products is unacceptably high. More recently Cooper, (1991) cautions that research figures suggest that 50% of development resources are spent on "losers", while only one in four new products succeed. The empirical findings of Edgett, (1991) suggest that in excess of 43% of new financial services products fail shortly after launch. Given the foregoing information it is understandable that much of the product development literature concurs on the need for further research into this highly important topic.

2.4 Product Development Activities

It is self-evident even from a cursory review of the product development paradigms illustrated in Appendix I that there is no universally accepted process for all types or levels of product development. However, some product development tasks are more prevalent than others. For example, almost all of the 34 product development paradigms in Appendix I specify idea generation, idea screening, commercial/business analysis, testing, prototype/systems development, launch or post launch tasks as core activities within their structure. The following

review of the product development literature conceptualises the nature of these tasks and identifies an important variable common within each.

2.4.1 Idea Generation

" Idea generation for new products should not be left to chance or accident."

Stasch, Lonsdale & LaVenka, (1992)

Rochford, (1991); McGuinness & Conway, (1989); Udell et all, (1993) and Booz, Allen & Hamilton, (1982) suggest that idea generation is an activity concerned with stimulating new product concepts. However, Hamel & Prahalad (1991) argue that " searching for new ideas" is far from simple. Popular techniques for stimulating new product concepts include synectics [Sowrey, (1990)], morphological analysis [Majaro, (1988)], delphi analysis and the use of focus groups [Rochford, (1991) and Tynan & Drayton, (1988)], brainstorming [Sanchez & Elola, (1991)] and quality circles [Pascale & Athos, (1982)]. Sowrey, (1990) suggests that synectics consists of analysis of a particular product problem by a designated team. This particular idea generation technique relies upon the team identifying market and competitive opportunities that are compatible with the firms' existing or potential technology. Majaro, (1988) contends that morphological analysis is a technique based on splitting the problem into segments. These problem segments are then analysed for partial solutions that lead to new product benefits/features. According to Rochford, (1991) delphi and focus group analyses rely on experts feeding back information which is then filtered and used to focus attention on the most promising product ideas. Pascale & Athos, (1982) suggest that brainstorming and quality circles can consist of wide-ranging group reviews and discussions by staff of the most promising product concepts.

In their review of idea generation techniques Rochford, (1991); Majaro, (1988) and Sowrey, (1990) demonstrate that notwithstanding the different approach adopted within each technique, they all require extensive use of market and competitor information as the basis for generating new product concepts. Cooper & Kleinschmidt, (1991) support this view and argue that generating new product ideas which lack a foundation in known or potential customer demand or competitive advantage have little commercial future. Johne, (1994); Pavia, (1990); Sowrey, (1987); Urban, Hauser & Dholakia, (1987) and Crawford, (1991) assert that information derived from enquiry into customer needs is often a primary stimulus for new product ideas. von Hippel, (1978, 1986 & 1988) goes further and advocates that customers, having initiated a new product idea, should proactively inform producers of the required satisficers.

The innovation and marketing literature also suggests that apart from customers, the most common stimuli of new product ideas include joint ventures and collaboration with competitors [Rothwell & Dodgson, (1991)], managerial expertise [Purser, (1991)], competitor products, employees, marketing consultants' reports, research institutes, universities and trade exhibitions [Rochford, (1991)]. Rochford, (1991) also asserts that each of these salient sources relies extensively on market and competitor product information as a catalyst for generating new product concepts.

2.4.2 Idea Screening

Idea screening is the product development task whose purpose is to initially evaluate new product concepts. Those product ideas which have a low probability of success can be eliminated early in the process and those with a higher probability of success can progress [Rochford, (1991)]. Crawford, (1987) contends that time spent during screening activities will

reduce the later wastage of valuable corporate resources. Graham, (1989) and Crawford, (1987) suggest that during screening activities new product ideas can be evaluated against rival products for relative competitive advantage. Cooper, (1991) and Cooper & Kleinschmidt, (1991) further assert that the proposed benefits of a new product idea should be screened against identified customer needs and the extent of any synergy with existing marketing capabilities. Cooper, (1990) contends that if the new product idea can satisfy the screening criteria it will progress, if not it will be "killed" (i.e. dropped from the process). Appropriate control of marketing information is therefore critical to avoid over-stringent or inadequate screening criteria. Empirical studies by Cooper & Kleinschmidt, (1993) and Parry & Song, (1994) have found that early idea screening is a key factor associated with successful new products.

2.4.3 Analysis

Crawford, (1987) suggests that once a new product idea has satisfied preliminary screening criteria it is subjected to more rigorous evaluative procedures. Analysis activity consists of an investigation into the commercial or financial viability of a proposed new product. Cooper, (1985a/b) suggests that this activity often includes a structured investigation into the potential of a new product idea to satisfy both internal (e.g. financial and technological) and external (e.g. market and competitor related) criteria.

Of the 34 product development paradigms illustrated in Appendix I only Urban & Hauser, (1980); Shostack, (1984); Anthony & McKay, (1992); Dickenson & Gainsley, (1988); Pahl, (1988); Cooper, (1990) and Brockhoff, (1988) do not advocate a discrete analysis stage. A priori 27 descriptive and normative product development models positively recognised the importance of a discrete analysis stage. Arising from their empirical investigations Neale, Johnson & Reid, (1988) conclude that a structured appraisal of any new product concept ought

to be a key constituent of every product development process, but caution that in their field studies "65% of projects lacked any pre-commercialisation business analysis and 35% failed to include a business/financial analysis prior to the development stage". They also advise that "when business analysis was undertaken, it was poorly done".

Marketing information is used in several important capacities during the analysis of nascent products. For example Howley, (1990); Sasaski, (1991) and Donnelly, Berry & Thompson, (1985) demonstrate how market data is used in i) a strategic capacity (e.g. forecasting future sales, planning possible channels of distribution and formulating advertising and distribution policies) and ii) in an evaluative capacity (e.g. setting standards such as minimum sales levels, maximum price discounts and determining competitor reaction). Cheese et al. (1988); Bowers, (1986a/b) and Cooper, (1988b) also emphasise the importance of undertaking commercial analysis of a nascent product idea. They emphasise that the life span of a new product concept during commercial analysis often depends on the new idea demonstrating a perceived ability to achieve and sustain a large market share and significant competitive advantage. Cooper & Kleinschmidt, (1991) provide empirical examples of marketing research and internal market reports used during the analysis stage to evaluate new products for profitability, future revenues, return on investment, payback period and future "opportunity windows".

2.4.4 Development

Cooper, (1988b) conceptualises this stage as the activity wherein customer needs are translated into product benefits and the physical and service attributes of the new product are created. Walleigh, (1989) and Crawford, (1987) consider this phase to be the "assembly stage"

where ideas become reality and product characteristics are shaped to reflect competitive imperatives and customer needs or preferences.

The development stage during the creation of new financial services products has been suggested in earlier marketing literature [Langeard et al, (1981); Enis & Roering, (1981); Levitt, (1981 & 1986); Langeard & Eiglier, (1983); Cowell, (1985 & 1988) and Lovelock, (1984)] to be a manifestly different activity as a consequence of the inherent attributes of this product type. For instance Ennew, Watkins & Wright, (1990); Thomas, (1987); Stevenson, (1989); Johnston, (1988); Edgett, (1991) and Edgett & Thwaites, (1990a/b) suggest that the **intangibility** (lack of a physical presence) requires a different approach during development tasks. Instead of creating physical product features, they suggest that financial service developers concentrate during this stage on other issues such as training sales and support personnel, preparation of policy documents, developing sales and advertising and publicity literature and system support development. Edgett & Jones, (1991) suggest that these factors are surrogate attributes in place of tangible product characteristics. Other studies into the creation of new financial services [Boons et al, (1984); Nicolaud, (1988); Bateson, (1989); Berry, (1980); Klivans, (1988) Boons & Bitner, (1981) Wyckham et al, (1975) and Kerns, (1988)] have included discussions on the effect of three further traits of financial services **(problems of homogeneity, inseparability and perishability)**. In a comprehensive review concerning the effects of these characteristics on the development of financial services, Edgett, (1991) concludes that homogeneity (consistency of quality) is no longer a significant issue unique in developing financial services products since the introduction of improved staff training and the use of automated technology, both of which have considerably standardised the quality of new financial services products. Additionally, Miles, (1990); Quinn et al, (1990a/b) and Quinn & Paquette, (1990) conclude that perishability

(lack of ability to store the service) and inseparability (inability to separate the delivery of the service from key personnel) have been addressed by the use of sophisticated IT systems, standard product literature and intensive staff training during the development stage of new services.

Marketing information has also been identified by Cooper, (1988a); Zirger & Maidique, (1990) and de Brentani, (1989a/b) as a critical information type frequently utilised during development tasks. For example, Cooper, (1990) demonstrates that the results of market research and marketing intelligence are often implemented in designing performance characteristics during the development stage. Cooper & Kleinschmidt, (1990a) provide further empirical examples of characteristics and benefits identified in rival products which have been replicated by their respondent firms during the development of prototypes. Nevens, Summe & Uttal, (1990) relate an empirical example concerning working prototypes of a new printer which were enhanced during development tasks by the application of marketing research and marketing intelligence derived from potential consumers. This led to the creation of a highly "market oriented" product and subsequent sales of the printer far in excess of those originally anticipated. Duke, (1990) cites the case of Philips' Laservision system which, during the development stage, failed to incorporate recording features required by users and inherent in competitive products. Consequently Laservision although technologically sophisticated did not meet market requirements as appropriately as substitute offerings. In their case study into one high-tech product developer Anthony & McKay, (1992) found that during the development stage "customer input and feedback were ignored because the insulated engineering team felt that their product would be obviously superior to anything on the market". The product was eventually cancelled and more than US$80 million spent in its creation.

2.4.5 Testing

In addition to many of the process models listed in Appendix I, much of the marketing literature [Cadbury, (1975); Klompmaker et al, (1976); Urban & Hauser, (1980) and Thomas, (1988)] explicitly advocates testing the nascent product against market and competitive criteria. Given that markets evolve and competitive circumstances change while nascent products are being created, the rationale for testing is to determine whether the emerging product continues to reflect market needs and remains competitive.

Gorry & Scott Morton, (1989) assert that marketing information from formal marketing research (internal and external) and informal marketing intelligence is essential for testing whether new products are likely to be successfully received by the market and whether they are still competitive when compared to rival or substitute products. According to Cooper, (1985a/b) some firms view testing not only as a means of confirming the appropriateness of previous applications of marketing information but as a method of gathering further data for fine-tuning prototypes. Zurn, (1991) suggests that product testing is of such importance that "it should continue until the new problem discovery falls off and further testing becomes not economically viable". Easingwood & Percival, (1990) contend that the practical objective of testing is to gauge the market suitability and competitiveness of the nascent product prior to full scale launch. Test marketing the new product provides customer demand information that can be fedback into the product development process thus ensuring any evolved customer needs result in modifications which are incorporated prior to full scale production. Dickenson & Gainsley, (1988) also provide practical evidence of testing a new package tour which resulted in more accurate forecasts of future demand.

Testing represents an opportunity to acquire and apply further marketing information before the commitment of strategic resources to the remaining product development tasks. Subsequent product amendments arising from data derived from testing activities may themselves require to be tested before incorporation into the final product, particularly in environments where demand is volatile and competition is intense.

The empirical findings of Morgan & Piercy, (1990) indicate that they found some difficulty in obtaining marketing information during testing of new financial services products. They found that some respondents were unwilling to reveal personal financial details and often could not fully appreciate the benefits of complex intangible products. Nevertheless, testing represents an opportunity to obtain and apply contemporary marketing data: a key variable in ensuring a market oriented and competitive product.

2.4.6 Launch

According to Houston, (1989); Choffray & Lilien, (1986) and Cooper & Kleinschmidt, (1987a/b) launch is the activity whereby the product is made available to target markets. Past research studies [Cooper, (1988a/b/c)] empirically substantiate the launch stage to be a critical task in product development. According to Rogers, (1983) and Olesen, (1990) marketing information at the launch stage can provide salient data concerning initial market impact, particularly where early market acceptance of the new product is important. Cooper, (1988a/c) suggests that the skilful application of marketing information in the preceding product development tasks could be nullified if the management of market and competitive data during the launch stage is deficient.

The innovation literature [Booz, Allen & Hamilton, (1982); Wind, (1982); Johne & Harborne, (1985); Johne & Snelson, (1990a/b); Howley, (1990); Scheuing & Johnson, (1989);

Biemans & Shaw, (1990); Biemans, (1991); Kennard, (1991); Cooper & Kleinschmidt, (1991) and Bingham, Quigley & Charles, (1989)] contends that utilising marketing information at the launch stage continues to be a key determinant for successful new products. For example, Cooper, (1991) suggests that new product launches should be supported by the latest available marketing data in the form of a **"marketing plan"** and this should clearly specify **"the marketing objectives, the marketing strategies and the marketing programmes"** to be implemented. Marketing objectives, strategies and programmes require marketing information!

Whether the launch strategy is "first to the market" or "follower" [DeWoote, 1990)] the involvement of marketing information continues to be important. For example, by adopting a strategy of following the market leader a firm can observe the progress of rival new products and then use feedback on customer demand or competitors' reaction to perfect the launch strategy of its own new products. If a strategy of first to the market is adopted then the firm will be first to receive feedback on issues such as demand shifts or alternative product uses.

2.4.7 Post Launch

Post launch tasks are considered by Shostack, (1984); Pahl, (1988) Scheuing & Johnson, (1989) and Edgett, (1991) to be principally a managerial control and review activity. Even after a new product has been made available to the market, marketing information was regarded in the product development literature to be important for monitoring its progress. For example Rogers, (1983) suggests that marketing information can be obtained during post launch activities and used to monitor market take up rates. Robertson & Gatignon, (1986) contend that firms must maintain post launch vigilance over industry reaction to the new product. Souder, (1987) advises that post launch information concerning new uses for the product can also be of pertinent interest to the firm for future product development purposes. Snelson & Hart, (1991)

draw their readers' attention to the need to monitor market segmentation shifts in the post launch review of new products. They suggest that post launch market data often forms the basis for product portfolio reviews. Fundamental changes to new products are virtually impossible after launch due to cost constraints. However incremental adjustments to the core benefits or characteristics may be more feasible for future product models. The use of marketing information in post launch activity is therefore more likely to result in minor incremental amendments (OPI) to the newly launched product range rather than innovative product developments (NPD).

The powerful influence of marketing information is evident in the case of Honda [Clark & Fujimoto, (1991)] who refused to become complacent by their initial launch successes and recognised that the market for motor vehicles was evolving. Product development managers at Honda implemented formal marketing research and informal marketing intelligence to identify new market trends in respect of motor vehicles and subsequently amended and successfully repositioned their Accord model. Further empirical evidence of the influence of marketing information is also evident in the findings of Cheese et al. (1988) who present examples of revised pricing policies and incremental design modifications which resulted from the application of post launch marketing information. Rayner, (1991) and Herstatt & von Hippel, (1992) advocate that developers proactively seek out market data through post launch visits to product users. Berry & Cooper, (1990) also contend that post launch surveys of consumers are a valid method of securing customer input for future OPI and NPD. Karlsson, (1989) relates the lack of post launch customer awareness shown by American car manufacturers as the Japanese began utilising formal post launch marketing research and informal marketing intelligence to expand their product range and increase their market share in the 1970s.

2.5 Measuring Success In Product Development

The marketing and product development literature provides evidence that success in product development can be measured using two independent dimensions, either a) during product development activities or b) in terms of the output of the process. Cooper & Kleinschmidt, (1987a/b & 1990a) recognise that the progress of nascent products in passing from task to task within product development can be a valid measure of the proficiency of the process as well as an internal measure of the success of the nascent product. For example, Ettlie & Bridges, (1982) used "speed of development" as one of several measures of the effectiveness of product development in their study. Cooper, (1984a) implements a "kill and failure rate" as his principal measure of successful product development. Alternatively Hauschildt, (1991); Johne, (1991) and Johne & Snelson, (1988d & 1990a) contend that product development success can also be evaluated using the success of the new product as a surrogate measure. For example, Johne & Snelson, (1988a) implemented "sales revenue growth" of new products as their measure of how successful their respondents were in undertaking the business function of product development.

During our review of the product development literature we found many examples of different measures used to evaluate success in product development. These measures are scheduled in Appendix II. Although Appendix II indicates many measurement criteria they should not be considered as contradictory or mutually exclusive. Johne, (1994) suggests that whatever measures of product development success are invoked they must be relevant to the objectives set by the developers and appropriate to the point in time when the success is adjudged to have taken place. In our review of product development studies we found that the dilemma of adjudicating on product development success was often delegated to interviewees.

For example, Cooper, (1988c, 1990 & 1991); Cooper & de Brentani, (1991) and Cooper & Kleinschmidt, (1990b & 1991) base their measures of product development success on internal subjective criteria determined by individual respondents. While determination of success evaluated against internal objectives is a valid measure, each respondent will invoke their own subjective internal criteria which will reflect the unique objectives of each developer. Thus new products considered to be a failure in some firms may have been considered to be a success in another. Unspecified internal measures of product development success also depend on the observations of the respondent at that moment in time, assume that clear internal objectives were initially set and that the interviewee was fully cognisant of the results of the project or program development in relation to those objectives. Subjective evaluation by one interviewee from each respondent firm, using market or industry based measures assumes also that each individual interviewee was fully cognisant of the relevant market or industry variables: an unrealistic proposition. However, in the absence of a truly objective and common measure, subjective evaluation by individual respondents was the most frequently adopted criteria in many earlier product development studies.

2.6 Associated Factor Studies

Pavia, (1991) differentiates between the product development literature which concentrates on studies that focus on the process of creating new products and those studies which focus on the factors associated with successful new products. In this section we review the literature concerned with the endogenous factors (those under the control of management) which have been found to be associated with successful new products.

Seminal work by Rothwell, (1976a/b and 1977) in Project SAPPHO; Cooper, (1979a/b, 1980 & 1982) in Project NewProd; Kulvik, (1977) in the Hungarian SAPPHO; Maidique & Zirger, (1984) in the Stanford Innovation Studies; Utterback et al, (1976); Rubenstein et al, (1976); Cooper & Kleinschmidt, (1990a/b); Cooper, (1990); Cooper & de Brentani, (1991); de Brentani & Cooper, (1992); Zirger & Maidique, (1990); Easingwood & Storey, (1991); de Brentani, (1991) and Edgett & Jones, (1991) has identified many common endogenous factors associated with successful new products. We have scheduled the key findings of the above seminal studies and these are shown in Appendix III. Further work by Abeele & Christiaens, (1986); Romano, (1990); Meyer & Roberts, (1986 & 1988); Rinholm & Boag, (1987); Johne & Harborne, (1985); Johne & Snelson (1989); Parry & Song, (1994); Dwyer (1990); Barclay & Benson, (1990a & 1990b); Roberts & Burke, (1974) and Steiner & Solem, (1988) has reaffirmed many of these key endogenous factors and added others. It is significant that each of these studies has identified many endogenous factors which require the extensive utilisation of marketing information. For example, Rothwell, (1976a/b & 1977); Rubenstein et al, (1976); Utterback et al, (1976) and Maidique & Zirger, (1984) have independently identified that **knowledge of customer needs/preferences** is a significant factor in achieving successful new products. de Brentani & Cooper, (1992); Cooper & Kleinschmidt, (1990a/b); Zirger & Maidique, (1984); Utterback et al, (1976); Easingwood & Storey, (1991) and Edgett & Jones, (1991) found that **product differential** had a significant association with commercially successful new products. Differentiating one's new product requires a knowledge of the features and benefits of competing products. Edgett & Jones, (1991); Maidique & Zirger, (1990) and de Brentani, (1991) also contend that information concerning the **market environment** is essential for the success of new products. Knowledge of market segments and their underlying dynamics

requires market information. The **execution of marketing activities** has been cited by Cooper, (1990); Cooper & Kleinschmidt, (1990a/b); de Brentani & Cooper, (1992); Rothwell, (1976a/b & 1977) and de Brentani, (1991) as an important managerial variable in achieving new product success. Here again, contemporary information concerning market and competitive circumstances is essential for the proficient execution of marketing activities. Extant research studies by Cooper & Kleinschmidt, (1990a/b & 1991); Bonnet, (1985 & 1986); Johne & Vermaak, (1993) and Johne & Snelson, (1990a/b) have also identified that **marketing inputs** are a significant body of variables which have been found to have a direct causal effect on the success of new products. Cooper, (1985b & 1988b) has also identified that firms which proficiently developed and executed **well researched launch strategies** tended to achieve greater market success with their new products. Cooper & de Brentani, (1991) and Cooper & Kleinschmidt, (1990a) found that the efficient **allocation of marketing resources** was of paramount importance in facilitating successful new products. In earlier studies Rubenstein et al. (1976) found that **collecting market data** was of significant importance to successful developers. Unfortunately Rubenstein does not prescribe in detail what methods of data collection facilitate success. de Brentani & Cooper, (1992) and Maidique & Zirger, (1984) provide empirical evidence demonstrating that the achievement of synergy between **market expectations** and the firm's technological base is correlated to new product success. Achieving synergy assumes that the developers have obtained and used information concerning market expectations. Notwithstanding that the above studies illustrate that a great many variables contribute to successful new products they also suggest that **marketing information** is a fundamental requirement in executing many of these key variables.

During our review of the product development literature we have found that many of the key factors associated with less successful new products were also found to be related to a deficiency or lack of utilisation of marketing information. For example, Edgett, (1991) has empirically determined that poor use of market research is associated with rejection by consumers of new financial services products. Zirger & Maidique, (1990) also suggest that developers of less successful products failed to make "conscious efforts" to obtain marketing information capable of supporting product development throughout its various activities. These findings concur with the conclusions of Myers & Marquis, (1969); Hill, (1988) and Pinto & Mantel, (1990) who identified that a deficiency in adopting ongoing marketing information was a factor associated with less successful new products. Marks, (1988) provides practical validation of this point when he relates the case of the infamous Sinclair C5 electronic vehicle which failed to achieve market acceptance despite its advanced technological base. Marks identifies key deficiencies in the use of marketing information which he suggests contributed to the failure of this innovative new product.

The foregoing review demonstrates that marketing information is a significant variable underlying the factors associated with successful new products. The managerial factors found to be associated with less successful new products also indicate a deficiency in utilising market and competitor data. This leads us to postulate that the success or failure of new products may be a function of the operationalisation of marketing information during product development.

2.7 A Decision Making Perspective

We also find further support for our assertions concerning the importance of marketing information within product development by adopting a third conceptual perspective: by envisioning product development as a managerial decision making process. The product development and marketing literature suggests that managerial decision making has three key roles within product development tasks. These key roles are,

i) **Decision making links product development tasks.**

In advocating a "stage gate" approach Urban & Hauser, (1980) and Cooper, (1990) suggest that product development is a business operation concerned with **a series of discrete go or no-go judgements.** They suggest that during each task the nascent product is subjected to a decision whether to proceed or not. The concept of product development tasks linked by decision making suggests that judgements taken during initial product development activities influence what subsequent tasks may be undertaken. For example, decisions taken at the idea generation stage (e.g. what product concepts appear to have some initial appeal to known market segments) lead to screening decisions wherein new ideas are evaluated on criteria such as product/market fit [de Brentani, (1991)] and marketing proficiency [Utterback et al, (1976)].

When making development decisions Fletcher, Wheeler & Laverie, (1989) and Whittaker, (1990) suggest that managers rely on **experiential information** (intuition, past experience and bias) and **objective information** (factual or near factual data) as the foundation for rational choice selection [Mowen & Gaeth, (1986) and Bazerman, (1990)]. Marketing information reduces uncertainty in decision making and provides product development decision makers with a basis for more informed choices.

Positive decisions taken during each task lead to subsequent product development tasks. For example, affirmative decisions at the testing stage [Donnelly, Berry & Thompson, (1985)] lead to pre-launch activities and decisions taken at this stage lead to launch activities. Positive decisions arising from business analysis tasks (using sales forecasts and competitive pricing levels) lead to prototype development [Crawford, (1987)]. Feedback from test marketing activities has been shown by Edgett, (1991) to result in positive decisions which subsequently lead to launch activities. Negative decisions cause the abandonment of the project under development and eliminate linkages with later product development tasks. Whatever the outcome, marketing information acts as an important criterion during the many decisions inherent in product development.

Cooper, (1982) contends that product development decision making begins in pre-development activities wherein senior management decide whether the firm will undertake product development, and if so the nature of the process i.e. Old Product Improvement or New Product Development. Information concerning potential customer demand, changing market trends, extant and future rival products plays an important role in the decision to commence product development [Cooper, (1982)].

Product development decisions based on marketing information also influence lateral linkages when parallel activities are being undertaken [Takeuchi & Nonaka, (1986)]. For example Crawford, (1987) suggests that alterations to sales revenue projections not only influence decisions taken during the development stage but can influence decisions during the simultaneous construction of business and marketing plans.

ii) Decisions taken during product development directly **influence the characteristics and benefits of the nascent product.** For example, Walker, (1993) demonstrates how

decisions based on marketing research derived from conjoint analysis resulted in incremental adjustments to the features of a nascent product. Decisions concerning packaging, distribution and pricing also affect the competitive posture of the new product. Decisions concerning the quality of service required to support a new offering contribute to its responsiveness to various market segments [Mather, (1986a/b, 1988 and 1990)]. These types of product development decisions require information on the benefits sought by customers and the nature of competing products. Marks, (1988) demonstrates how a product development decision made with little marketing data led to the creation of the Sinclair C5 with the characteristics and benefits with which it was finally launched. Marks concludes that if marketing information had been more fully operationalised, the outcome of decisions concerning styling and targeted market segments may have resulted in the C5 being a more market oriented product.

iii) Product development decisions **lead to the success or failure of a new product.** Although many measures of success have been invoked (see Appendix II), Hauschildt, (1991) and Johne & Snelson, (1990a) assert that future corporate survival and growth depends on **market and competitive success**. Kleinschmidt & Cooper, (1991) suggest that product development decisions should therefore engender market and competitive success and discourage failure. Hence, development decisions that implement marketing data as the key decision criteria appear more likely to engender commercial success for new products. In his comprehensive study of four Fortune 500 companies Ronkainen, (1985) conceptualised product development as a business process concerned with strategic decision making. Ronkainen considers the longer term survival problems for new products and concludes that marketing information is a critically important criterion within strategic product development decision making. Cooper, (1979b) presents evidence of product development decisions that were taken

on the basis of the developers assuming that they knew and understood customer needs. Cooper cautions that the presumption of market knowledge is often different from the reality of customer needs. Hence to avoid making development decisions that lead to unsuccessful products developers need to avoid using inaccurate or irrelevant marketing data.

2.8 Marketing Philosophy

Much of the theory based marketing literature argues that the adoption of a **marketing philosophy** is also associated with business success. For example, Shapiro, (1988); Hooley et al, (1990); Glazer, (1989) and Narver & Slater, (1990) suggest that those firms which are market oriented (driven by customer needs) tend to be more successful. Baker, (1989), Glazer, (1989 & 1991) and Kohli & Jaworski, (1991) argue that the philosophy of marketing is concerned with every member of the firm being "knowledgeable of and responding to customer needs". Hence the adoption of the marketing philosophy in product development activities requires participants to adopt an attitude of mind that recognises the ultimate power of the customer.

According to Shapiro, (1988), McKenna, (1991); Ruekert & Walker, (1987); Evans, (1988a); Hooley et al, (1990) and Gronroos, (1990) the adoption of a **marketing philosophy** requires the developer to focus primarily on market needs and not be driven primarily by internal concerns. Barabba & Zaltman, (1991), von Hippel, (1986 & 1988); Cooper, (1979); Littler, (1984); Sellers, (1991) and Johne & Snelson (1990a) have stressed that highly successful developers are **market oriented** (i.e. they are highly responsive to customer demand rather than led by their existing technology or asset base). In a study into new industrial financial services Cooper & de Brentani, (1991) found that a strong market orientation is a common philosophy amongst successful product developers. Less successful developers have been found by Cooper,

(1980) and Schnaars, (1991) to be **asset led** (i.e. they develop new products based on their existing technology rather than based on customer preferences). Crawford, (1991) takes a more pragmatic view by advocating that placement of the customer's needs and preferences above the core technology and capabilities of the firm may have a strong appeal to marketing theorists, but not all firms may be capable of re-directing their resources in full satisfaction of market and competitive criteria. Crawford, (1991 & 1992) recognises this dilemma and advocates a **dual drive** approach which argues for a compromise between what the customer wants and what firms can economically develop. Notwithstanding the logic of Crawford's hybrid philosophy both it and the adoption of the purists' marketing philosophy are still extensively reliant upon marketing information.

2.9 Conclusion

In this chapter we have reviewed the literature concerned with product development. In undertaking this review we have conceptualised the business phenomenon of product development and considered generic development tasks extracted from an extensive cross-section of product development paradigms. We have also reviewed the endogenous factors associated with product development success, conceptualised product development as a managerial decision making activity and considered the literature which advocates the adoption of a marketing philosophy.

The findings of this literature review provide strong evidence that the presence of **marketing information** is a key variable in achieving success in the important business phenomenon of product development. However, notwithstanding the strengths of the foregoing argument, we have thus far only suggested that the **presence** of marketing information is

associated with success in product development. We postulate that the presence of marketing information during product development is a **necessary but insufficient condition** and that marketing information needs to be managed in order to achieve successful new products.

CHAPTER 3: MANAGEMENT OF MARKETING INFORMATION WITHIN PRODUCT DEVELOPMENT: CONCEPTUALISING THE ANALYTICAL PERSPECTIVE.

3.1 Introduction

"Information is a resource like any other and needs to be managed if it is to be used to its full advantage. The efficient management of information flows is thus essential in today's business environment, with marketing being at the forefront". Fletcher, (1990a)

Baker, (1985 & 1989) notes that marketing is an eclectic concept with much of its founding tenets drawn from other business disciplines (e.g. economics, business management and the social sciences). It is both a business function and a growing philosophy built on evolving practice and theory [Bangs, (1989); Kohli & Jaworski, (1990); Brooksbank, (1990a & 1991a/b); Whyte, (1988) and Gummesson, (1991)] that "seeks to harmonise the interests of sellers and buyers". Kotler, (1989) defines marketing as a "social and managerial process by which individuals and groups obtain what they need and want through creating and exchanging products and value with others". Baker, (1991c) opts for a more succinct interpretation of marketing as "mutually satisfying exchange relationships". Implicit in the execution of any philosophy or business function is the operationalisation of information. Information is the base medium of communication [Buttle, (1988) & (1990)]. It permits its users to understand problems and consequently develop solutions. It is an axiom that both the function and philosophy of marketing require information concerning markets and competitors.

Kotler, (1989); Buckingham & Penford, (1990); Moutinho, (1989 & 1991); Piercy, (1991a) and Hansen, Gronhaug & Warneryd, (1990) postulate that marketing information is the medium whereby firms become aware of the needs of customers and the actions of competitors.

The adoption of a market oriented philosophy [Shapiro, (1988); McKenna, (1988) and King, (1985)] cannot be achieved without information concerning customer needs and preferences. Neither the philosophy nor the function of marketing can be operationalised without utilising marketing information.

In the foregoing chapter we postulated that information concerning markets and competitors was an important variable in creating successful new products. In this chapter we conceptualise **marketing information** and examine in detail its importance and multiple roles within product development activities. We argue that marketing information is a **key corporate asset** and demonstrate that is often mis-managed. Arising from our review of the marketing information and product development literature we postulate that **the skilful management of marketing information can facilitate superior new products.**

3.2 The Nature Of Marketing Information

" Information is essential to marketing." Fletcher & Wheeler, (1989)

The information science and decision making literature [Kroeber, (1982); Feldman & March, (1987); Katzer et al, (1978); Chandler & Holtzer, (1988); Thorne, (1988); Gray, King, McLean & Watson, (1989); Davis & Olson, (1985) and Curtis, (1989)] concur that information is "**processed data**". According to Dickson & Wetherbe, (1985); Machup & Mansfield, (1983); Debons & Larson, (1983) and Scott, (1986) information can be factual or non-factual processed data, an ingredient of human knowledge [Ajzen, (1985)], exchanged in communications between humans/computers [Harry, (1990)], sought for its intrinsic value [Brownlie, (1991b)] and the power that it confers [Davenport et al, (1992) and Piercy, (1989b)]. Mitchell & Sparks, (1988); Hill, (1987); Birks, (1987 & 19991) and Kochen, (1975) contend that the optimal

attributes of information are i) Availability, ii) Reliability, iii) Validity, iv) Sufficiency, v) Accuracy and vi) Timeliness. This prescriptive typology of information attributes presents an idealistic conceptualisation that Piercy & Evans, (1983) and Fletcher, (1990b) question as rarely fulfilled in reality. Hill, (1987) suggests that many of the attributes of information are a function of its collection, analysis and reporting process rather than naturally inherent qualities of the data per se.

Information can exist in documented or audible form and represents a raw material for decision making [Drummond, (1991)]. Information is continually evolving [Punset & Sweeney, (1989)], is regarded as a resource/asset [Meidan & Minhas, (1990) and Piercy, (1991a)] and has been suggested by Galliers, (1987); Curren et al, (1992); Luck, (1982); Anthony, (1965) and Ahituv & Newmann, (1987) to be an important variable in all managerial decision making processes. Drummond, (1991) argues that the primary purpose of information is "to inform". Drummond further counsels that being informed does not always result in managerial decision making, albeit this action may follow as a consequence of being informed. Drucker, (1985 & 1991) suggests that business managers perceive information to have grown in importance as an essential resource for business management.

The value of information has been suggested by King & Grover, (1991) and Glazer, (1991) to be the subjective assessment of its worth to a recipient and its opportunity cost as the value of decisions taken without the benefit of the information [Nichols, (1987); Haeckel, (1985); Harry, (1990) and Kroeber, (1982)]. However information or its value are conceptualised, the mere <u>collection</u> and <u>possession</u> of information are insufficient actions per se for business management purposes. Information needs to be **operationalised** if it is to be of use for business management purposes. Glazer, (1991) and Kohli & Jaworski, (1990) assert that

information has value for managers only when they recognise and are responsive to the power of information for managing key business activities.

3.2.1 A Conceptualisation Of Marketing Information

According to Qualls & Puto, (1989); Curren et al, (1992) and Mowen & Gaeth, (1992) information for decision making consists of **experiential and objective information.** Fletcher, Wheeler & Laverie, (1988) and Fletcher & Wheeler, (1989) suggest that experiential information is composed of personal beliefs, subjective knowledge, bias and intuition. Objective information, according to Perkins & Rao, (1990) and Fletcher, Buttery & Deans, (1988) can consist of factual and forecast data. Drummond, (1991); Turner, (1991); Ajzen, (1985); Katzer et al, (1978) and Ahituv & Newman, (1987) suggest that experiential information is often unreliable and contend that objective information should form the principal basis for effective managerial actions.

Song & Parry, (1992); King & Grover, (1991); Deshpande, Farley & Webster, (1993); Mowen & Gaeth, (1992); Jobber, (1977); Gatignon et al, (1989); Herbig et al, (1993); Fletcher, Wheeler & Wright, (1990); Birks & Southan, (1990); Baker, (1991a); Mitchell & Sparks, (1988); Moutinho, (1991); Fletcher, (1991); Piercy & Evans, (1983); Meidan & Minhas, (1990) and Piercy, (1981, 1987 & 1991b) suggest that **marketing information** is processed data concerning present and future customer needs or preferences **(market information)** and competitor strategies and products **(competitor information)**. Marketing information can consist of data on customer buying behaviour [Howard & Moore, (1988)], purchase intentions [Jamieson & Bass, (1990)] and consumption patterns, [Henthorne et al, (1993); McCann & Reibstein, (1985) and Adamson, (1982)], product benefits or characteristics [Rushton & Carson, (1989)], customer preferences [Allen, (1991) and Gupta & Kohli, (1990)], packaging and

servicing support [Murray, (1991) and Mather, (1986a)], competitor actions or rival products [O'Shaughnessy, (1990); Schoemaker, (1992) and Constantineau, (1992)], substitute products [Baker, (1983)], distribution channels [Nickolaus, (1990)], pricing [Goldstein, (1990) & Bourden, (1992)], advertising/sales promotion and publicity [Kotler, (1989)]. Wyner et al. (1984) suggest that marketing information can also consist of "forecast product demand at various price levels and sales goals".

Piercy, (1981 & 1983); Graf, (1979); Brooksbank, (1990b); Pappas, (1984) and Meidan & Minhas, (1990) view **marketing information** as a corporate resource. Chandler & Holzer, (1988) and Fletcher, Wheeler & Wright, (1990) envision marketing information as a sub-set of management information: the latter being perceived as a "federation" of information types. According to Baker, (1991a); Piercy & Evans, (1983); McLeod & Rogers, (1982 & 1985); Mitchell & Sparks, (1988) and Moutinho, (1991) marketing information is processed data primarily concerning sales, market characteristics, competitor activity and customer requirements or preferences. Fletcher, Wheeler and Laverie, (1988) and Ghoshal & Seok, (1986) contend that an important purpose in obtaining marketing information is to reduce the uncertainty surrounding marketing decision making.

3.2.2 Sources Of Marketing Information

Marketing information can be obtained from many sources. Longnecker, McKinney & Moore, (1989) have identified cases where market and competitor data was obtained by hiring employees of competitors. Johnson & Kuehn, (1987) and Eisenhart, (1991) identified that some large corporations have a preference for formal external information sources such as ad hoc market research by independent consultants. Nystrom, (1990) further suggests that "joint product development" can be a valuable source of marketing information. Other common base

sources for marketing information have been identified as customers [Thomas, (1988)], competitor's employees [Folsom, (1991); Hamel et al, (1989) and Anderson & Narus, (1991)], suppliers [Paszter & Wartzman, (1990)], marketing research agencies [Carson, (1989)] and trade papers [Fann & Smeltzer, (1989)]. The marketing and information science literature provide a limited amount of guidance as to how these information sources, having been identified, were best utilised to achieve optimal benefit from the information obtained. The importance of one data source relative to another was rarely commented upon by the literature and it was often inferred that all sources were equally useful. From the standpoint of the practitioner this lack of clarity and guidance leads to confusion.

Kotler, (1989) and Brooksbank, (1990a/b) categorise four generic sources of marketing information which they describe as

: **Marketing Research.** This is the source responsible for reporting on specific problems and opportunities concerned with both customer demand and competitor actions [Umesh et al, (1992)]. Marketing research can be undertaken in-house or delegated to external researchers [Warren & Cragg, (1991)], primary or secondary (desk) research [Birn, (1992) & Thompson, (1974)] and is either ad hoc or continuous [Moutinho & Evans, (1992)]. In earlier marketing literature [Beckwith & Fitzgerald, (1983); Bonama & Shapiro, (1983) and Gronroos, (1982)] the term "market research" was frequently used to encapsulate research which included not only data concerned with customer demand but data on competing products, industry factors, technological, economic, cultural, social and legislative variables. More recent marketing literature tends to recognise the wider definitional scope of "marketing" research [McDaniel et al, (1985)].

: **Marketing Intelligence**. Evans, (1988b) suggests that marketing intelligence is the source responsible for obtaining "happening" or everyday information about pertinent developments in the firm's environment. For example the trade press, meetings between colleagues or dialogue with suppliers and customers may yield topical and unofficial information on marketing related issues.

: **Internal Reports**. This source incorporates standardised reports concerned with communicating issues such as actual versus target sales figures, levels of customer service, distribution costs, advertising effectiveness, customer orders and product profitability based on captured transaction and product/competitor data.

: **Analytical Marketing**. This source provides supplementary information obtained from the application of analytical techniques to extant marketing data. Amos, (1986); Treadgold, (1988) and Fletcher, (1990a) present examples of analytical marketing techniques wherein customer and product databases are systematically interrogated and data re-analysed to provide additional information used in product development activities. Pottruck, (1988) empirically demonstrates how banks analyse their existing customer databases to devise new product ideas suitable for known market segments. Pottruck also advocates the use of other sources of marketing information such as internal reports to identify new product initiatives, product penetration levels and cross-selling opportunities.

Lambert et al, (1990) and Wills et al, (1991) report on the high degree of formal and informal feedback that can be achieved from salespeople (a source of marketing intelligence) although they recognise that "only a handful of studies have examined the validity of the (marketing) information that might be obtained from this source". Morgan, (1989); Fuld, (1991); Taylor, (1992) and Folsom, (1991) advocate "sourcing marketing information" from

marketing intelligence by suggesting that industrial espionage and competitive intelligence can be similar sources of new product ideas, but founded on differing legal bases. Mangan, (1988); Paine, (1991) and Herring, (1988) also approve of the use of marketing intelligence, but recognise that the subtle difference between competitor intelligence and business espionage is based on ethics and technique. Ghoshal & Westney, (1991) relate their investigations into the multi-sourced intelligence gathering activities of BP, General Motors and Eastman Kodak and the practical problems experienced by all three firms in managing multiple and complex marketing information sources. Empirical research by Gelb, (1991); Zinkham & Gelb, (1985) and Taylor, (1990) has demonstrated that senior corporate executives appear more interested in marketing intelligence which focuses on competitor sales and distribution strategies than on rival product development or operating data. Gib & Marguiles, (1991) and Tibbert, (1987) also demonstrate that many multi-national corporations such as McDonnell Douglas Corporation and Du Pont have used marketing intelligence sources to obtain and monitor intimate competitor operating strategies and product development initiatives. Sharratt & McMurdo, (1991) report that marketing intelligence derived from non-customers can also be constructive in generating new product concepts. Kodama, (1992) suggests that in Japan obtaining marketing intelligence has become "second nature, just another aspect of the job" for most Japanese managers.

Lorenz, (1982) reports on how the Japanese have been successful in managing their marketing research, market intelligence and supporting analytical analysis of captured and new market data to enable them to develop new products. Mitchell, (1991a) articulates the competitive merits of implementing "globalised" marketing research while Sasaki, (1991) reports on his more recent findings which indicate that Japanese product developers have achieved greater sophistication in their management of marketing research techniques than their

international rivals. Phillips, (1990) also recognises the importance of obtaining marketing information as he recounts the extensive marketing research carried out by Gillette during the creation of their range of new shaving products. Eisenhart, (1991) and McCandless, (1991) also endorse the importance of undertaking managerial action based on marketing research and highlight the many primary and secondary sources that are available.

3.2.3 Users Of Marketing Information

Brownlie, (1991a) argues that marketing information should not be used exclusively by marketers. This view accords with the adoption of marketing as a business wide philosophy noted in our earlier discussion in Chapter 2. Piercy, (1983); Schlesinger & Heskett, (1991a/b); Proctor, (1991); Birks, (1991) and Graf, (1979) support this perspective by asserting that marketing information is a cross-functional management tool and not the sole responsibility of those persons located within the marketing function. Nevertheless, marketing information is principally perceived by the marketing and management literature to be a support tool for use in marketing operations [Kotler, (1989); Turner, (1991); Baker, (1983); Slater, (1990); Bellenger, (1979); O'Shaughnessy, (1990); McCarthy, (1989); Oliver, (1990); Piercy & Evans, (1983); McLeod & Rogers, (1982 & 1985); Piper, (1980) and Bailey, (1990)]. The functional usage of marketing information is also further endorsed in the empirical studies of Pottruck, (1988); Lambert, Marmorstein & Sharma, (1990) and Stone & Clarkson, (1989) who report that life offices, banks and building societies regarded their marketing information primarily as a resource used by the marketing function rather than as a critical information type for use by all business functions. Further support for this functional specific view arises from Byers & Morris, (1991) who advocate the use of marketing information derived from a firm's database to support

sales management operations and Goldstein, (1990) who reports on the implementation of marketing information in traditional marketing functions such as sales processing, sales force management and managing advertising campaigns.

Notwithstanding the more common tactical uses of marketing information King & Grover, (1991); Davidson, (1991); Fisk, (1974); Kay, (1990) and King, (1987) report on the **strategic** use of marketing information in marketing and non-marketing activities. At the strategic level marketing information based on the dynamics of customer buying patterns, end user needs, forecasts of customer preferences, changing trends and fashions, substitute products and market segmentation shifts can form the basis for the development of long range marketing and production plans [McDonald, (1990); O'Shaughnessy, (1990) and Hutt & Speh, (1985)]. Chisnall, (1989) contends that marketing information can also be applied for strategic purposes during the development of corporate and business plans. Kennard, (1991) reports on the emphasis placed by all sectors of Japanese industry on the strategic management of marketing information, highlighting their ongoing philosophy of continually listening to the customer and always scanning for new market and product opportunities. Higgins, (1980) and Pettigrew, (1988) cite examples wherein marketing research and marketing intelligence helped to resolve non-marketing (but nevertheless strategic) issues such as long term capital requirements, production and corporate investment decisions.

3.3 Importance Of Marketing Information

"Information should be regarded as a marketing asset i.e. an intangible, but value producing resource." Piercy, (1991a).

In Chapter 2 we argued that marketing information was an important constituent in the execution of the tasks inherent in product development, a key variable supporting many of the factors which facilitate successful new products and a vitally important data type for product development decision making. We have thus far only evidenced that the **presence of marketing information** rather than its **management** is ostensibly important for product development purposes. It may be that the **presence** of marketing information during product development is a **necessary but insufficient condition** for successful new products. Glazer, (1991) and Johnson & Woodward, (1988) suggest that the ways in which marketing information is managed during business tasks can have a **causal effect** on the outcome of these tasks. We have thus far not considered if, and in what ways, marketing information can facilitate successful new products nor have we considered how it can be operationalised during product development tasks. The purpose of the following sections is to address these issues.

3.3.1 Multiple Roles Of Marketing Information

We have reviewed the product development and marketing literature and have identified three important roles for marketing information in product development. We suggest that these important roles are,

(i) Catalytic Role: Marketing information in this posture stimulates or is influential in effecting change in a nascent product. Sowrey, (1990); Tynan & Drayton, (1988) and Rochford, (1991) contend that when viewed as a catalyst marketing information's purpose

is to alter the status quo. In this role marketing information facilitates the execution of product development tasks and encourages practitioners to adopt alternative initiatives.

(ii) Evaluative/Confirmatory Role: When invoked for evaluative/confirmatory purposes marketing information communicates market and competitor data for use as criteria for managerial control purposes [Piercy, (1991b)]. For example Baker, (1989 & 1991c) suggests that internal marketing reports frequently contain processed data concerning actual sales achieved evaluated against planned figures. In its evaluative role marketing information can provide a standard against which variance from actual results can be measured. Marketing information used in a confirmatory role ratifies or refutes the appropriateness of previous catalytic applications of earlier marketing information. If products under development continue to address consumer needs then validation of this fact can be **confirmed** using market information and no remedial action by managers is required [Easingwood & Percival, (1990)]. If marketing information cannot **confirm** the appropriateness of nascent products then it may be used to **evaluate** the extent of any variances from the optimal target product. Subsequent **catalytic** action may then be instituted to better align the emerging product closer to customer needs and to compete more favourably against rival products.

(iii) Strategic Role: Chisnall, (1989); Laudon, (1988); Reinertsen & Smith, (1991); Thompson, (1990); Whipp et al, (1988 & 1989) suggest that marketing information can also be applied for strategic purposes. In this posture marketing information is used to impact on longer term business activities and influence resource planning. Examples of marketing information used in a strategic capacity include projecting major changes in market segmentation caused by future demographic shifts [Brooks, (1987)] or forecasting revolutionary product innovations which destabilise existing competitive postures [Mather, (1986a/b & 1988)]. Kawai, (1992)

suggests that the recognition and anticipation of "the long term needs and wants of customers" is a common example of the strategic use of marketing information during the development of new products.

The above important roles of marketing information in product development are set out overleaf in Table I. We emphasise however, that the foregoing typology of the purposive roles of marketing information should not be mis-interpreted as a conceptualisation of the attributes of different types of marketing information. Rather, our typology presents ways in which the same marketing data may be utilised for different purposes.

TABLE I

PURPOSIVE ROLES OF MARKETING INFORMATION

1) **Catalytic Role**
2) **Evaluative/Confirmatory Role**
3) **Strategic Role**

Sources: Adapted from Pottruck, (1988); Sharratt & McMurdo, (1991); Birks, (1991); Booz, Allen & Hamilton, (1968 & 1982); Carson, (1989); Chandler & Holzer, (1988); Cooper, (1982, 1984a, 1984b, 1988a, 1988c, 1988b & 1991); Cooper & Kleinschmidt, (1990a & 1990b); Kotler, (1989); Chisnall, (1989); Birks & Southan, (1990); Johne & Vermaak, (1992); Fletcher, (1990a & 1990b); Cooper & de Brentani, (1984 & 1991); Fern, (1982); Proctor, (1991); Flax, (1984); Curtis, (1989); Gelb, (1991) and Morgan, (1989).

3.3.2 Marketing Information In Product Development Activities

" By using the knowledge gained of market, customer and distributor the product or service can be enhanced to give added benefits to the customer." Fletcher & Wheeler, (1989)

Using the preceding role typology we have reviewed the marketing and product development literature to identify the important roles of marketing information during key product development activities viz.,

3.3.2.1 Idea Generation

The principal role of marketing information at the idea generation stage is to stimulate new ideas. Parasuraman et al, (1991) suggest that stimulating new ideas requires an "understanding of customer expectations of service". Pavia, (1990); Fann & Smeltzer, (1989); Sowrey, (1987); Urban, Hauser & Dholakia, (1987); Johne & Pavlides, (1991) and Crawford, (1987) assert that information based on customer needs should be the primary **catalyst** for new product ideas. The important role of marketing information as a catalyst in idea generation is also to be found in the empirical findings of Biemans & Shaw, (1990) and Biemans, (1991). They suggest that many product developers are becoming increasingly cognisant of the catalytic effect provided by market and competitor data during this important activity and hence they proactively seek out marketing information. von Hippel, (1978, 1986 & 1988) goes further and advocates that customers, having initiated a new product idea, should provide product developers with catalytic information on the necessary satisficers required of a new product concept.

Apart from customers, the most common stimuli of new product ideas include marketing information from joint ventures and collaboration [Rothwell & Dodgson, (1991)], managerial expertise [Purser, (1991)], competitor products, employees, marketing consultants' reports,

research institutes, universities and trade exhibitions [Rochford, (1991]. Synectics [Sowrey, (1990)], morphological analysis [Majaro, (1988)], focus groups [Tynan & Drayton, (1988)], brainstorming [Sanchez & Elola, (1991)] and quality circles [Pascale & Athos, (1982)] have been proffered as techniques suitable for the inception of new product ideas. However within each of the above idea generation methodologies there is a fundamental requirement to use marketing information for catalytic purposes. Chisnall, (1989) suggests that marketing information can also be extremely powerful in a strategic capacity during idea generation when used to anticipate demand shifts and to identify segments of latent demand.

3.3.2.2 Idea Screening

Screening is designed to eliminate those ideas which have a low probability of success and time spent at this phase should reduce the later wastage of valuable resources. The concept of screening suggests that marketing information will be applied as an "**evaluative**" criterion [Johne & Vermaak, (1992)] rather than to promote catalytic change as in idea generation. The marketing literature [Booz, Allen & Hamilton, (1982); Graham, (1989) and Cooper, (1994)] supports this perception and prescribes that new product ideas should be **evaluated** against the firm's product development strategy for consistency and to rival products for relative competitive advantage. Baker & Albaum, (1986) prescribe an empirically based modelling system for new product screening and in so doing advocate simplistic "evaluative criteria" based on market and competitive data.

The potential benefits and characteristics of new product ideas can also be evaluated against identified market needs and the extent of any synergy with the firm's existing and potential marketing capabilities [Muncaster, (1981)]. Cooper, (1990) argues that if an idea can satisfy market related screening criteria it will progress. If not it will be killed. The empirical

marketing literature [Biemans, (1991); Langeler, (1992); Edgett, Shipley & Forbes, (1992) and Bertrand, (1991)] also provide examples of the evaluative role of marketing information in idea screening. For example Bertrand, (1991) cites the case of Xerox who evaluated the proposed characteristics of their potential new copying product against potential and known market needs. Langeler, (1992) also provides empirical evidence of poor evaluation utilising competitive criteria, during idea screening by Mentor Graphics. Poor evaluation constrained their creation of new products and ultimately led to serious business problems. Managing marketing information would therefore appear to be important to avoid exacting or inappropriate evaluative screening criteria.

3.3.2.3 Analysis

Crawford, (1987) suggests that analysis activities are **evaluations** of the viability of proposed new products. During our review of the marketing literature [Wind, (1982); Donnelly, Berry & Thompson, (1990); Cheese et al, (1988); Rochford, (1991) and Cooper, (1988b)] we found that within analysis tasks marketing information was subject to multiple uses viz.,

i) in a strategic role (forecasting future sales, predicting required marketing resources, anticipating potential channels of distribution, estimating pricing levels and advertising costs) and

ii) in an evaluative role (setting minimum sales levels, determining maximum price discounts, estimating competitor reaction and assessing market size/segments).

Marketing information was also recognised by Crawford, (1980) and Booz, Allen & Hamilton, (1982) to be used to a lesser extent in a **confirmatory role** (i.e. it was utilised in re-affirming or refuting the market and competitive validity of the original product concept) during commercial analysis activities. The empirical findings of Johne & Harborne, (1985); Johnson,

Scheuing & Guida, (1986); Sasaski, (1991); Kennard, (1991) and Howley, (1990) also support the view that marketing information can be used for multiple purposes during analysis activities. For example, Howley, (1990) suggests that soft drinks manufacturers invoke marketing data in an evaluative capacity (e.g. estimating sales figures) during commercial analysis of new products.

3.3.2.4 Development

Crawford, (1987) considers this stage to be the "assembly stage" within which new product concepts are transformed into characteristics that reflect competitive and market imperatives. Cooper & Kleinschmidt, (1986) suggest that during this stage marketing information is often sought for its **catalytic** effect. For example, Cooper, (1988c) suggests that customer preferences should be the primary stimulus for crafting product features and benefits. Cooper, (1979) further contends that product features and benefits created by reference to internal related information (i.e. based on the developers' own preferences) are more likely to result in a new product that fails to find market acceptance. Duke, (1990) cites the case of Philips' Laservision system which, during the development stage, failed to invoke marketing data in a catalytic capacity (i.e. by failing to incorporate recording features required by users and inherent in competitive products). Consequently Laservision, although based on the most sophisticated technological information available, did not meet strategic market requirements as appropriately as rival audio-visual systems.

Marketing information's other main role during the development stage is to **evaluate and confirm** the continued appropriateness of earlier assumptions of market and industry conditions made through the application of marketing information in an earlier catalytic role in the preceding stages. For example, Edgett, (1991) demonstrates how the National & Provincial

Building Society used marketing information to confirm the continued suitability of the easy cash withdrawal facility on its new MAX Account during the systems development stage. Nevens, Summe & Uttal, (1990) relate an empirical example in which working prototypes of a new printer were enhanced during the development stage by the application of marketing research and marketing intelligence in a strategic capacity. This amendment to the prototypes led to significantly greater market penetration far in excess of that originally anticipated at the earlier analysis stage.

3.3.2.5 Testing

The principal rationale underlying testing activities is to obtain data which will permit developers to **evaluate** whether the nascent product satisfies evolving market needs and remains competitive [Klompmaker et al, (1976)]. Testing operationalises marketing information in both an **evaluative** role; providing revised measurement criteria and in a **confirmatory** capacity: reaffirming (or refuting) that prior applications of marketing information remain appropriate. Crawford, (1987); Cadbury, (1975) and Klompmaker, Hughes & Haley, (1976) explicitly advocate testing product prototypes against market and competitive criteria. According to Cooper, (1988c) some firms view testing not only as a means of **evaluating** and **confirming** the continued appropriateness of previous applications of marketing information but as a method of obtaining data for further **catalytic** and **strategic** purposes (e.g. for fine-tuning the attributes of the prototype or amending sales forecasts). Easingwood & Percival, (1990) and Watkins, (1984) also support the view that the objective of product testing is to **evaluate and confirm** the market suitability and competitive standing of the new product prior to full scale launch. Product testing provides marketing information that can be fedback into the development process thus ensuring any performance or feature modifications are incorporated prior to full

scale production. Test marketing represents a major opportunity to incorporate changed customer preferences or needs into the nascent product before the final commitment of strategic resources.

Morgan, (1989) and Edgett, (1991) found from their studies that testing was infrequently implemented in the development of some new financial services: particularly in volatile markets where the timing of market entry was important for short term success (i.e. interest rate products). The main reason cited for this lack of product testing was a reluctance to provide competitors with advance notice of the nascent product and hence an opportunity to replicate any competitive benefits. The empirical findings of Morgan & Piercy, (1990) also recognise the difficulty in obtaining marketing information from test marketing new financial services. They found that some respondents were unwilling to reveal personal financial details and often could not fully appreciate the benefits of an intangible product.

Tang & Collar, (1992); Moutinho, (1989) and Clark & Fujimoto, (1991) present examples of marketing research and marketing intelligence arising from testing activities that provided information which was subsequently operationalised as a **catalyst** for product design amendments prior to launch. Dickenson & Gainsley, (1988) report on the results of testing a new package tour that provided pertinent market information which **confirmed** the accuracy of earlier consumer demand projections.

3.3.2.6 Launch

Cooper & Kleinschmidt, (1990a & 1990b) define the launch stage as the phase wherein the product is made available to target markets. Initial market impact can provide key marketing data particularly when early diffusion is important [Mason, 1990)]. Davidson, (1989) and Tang & Collar, (1992) confirm the multiple roles of marketing information during the launch stage.

Firstly in a **confirmatory** capacity by reaffirming the appropriateness of earlier execution of marketing information in a catalytic role. Secondly, in an **evaluative** role by communicating more precise measurement criteria i.e. firming up on demand levels and the suitability and performance of distribution channels. Thirdly in a **catalytic** role by communicating data that requires corrective action to the new product, perhaps as a result of a dramatic market shift or a newly launched rival product. If at the launch stage the product no longer addresses customer needs and has become uncompetitive then applications of marketing information in a catalytic role may be necessary. However the opportunity to apply marketing information in a catalytic role to engender significant product amendments at the launch stage may be limited given the time lag [Doyle & Saunders, (1985)] between the execution of marketing information in a catalytic capacity and its manifestation in the amended product.

3.3.2.7 Post Launch

Robertson & Gatignon, (1986); Rogers, (1983); Bucklin & Sangupta, (1993) and Tang & Collar, (1992) suggest that even after a product has been launched marketing information is important in reporting long-term diffusion rates and industry reaction, new uses for the product [Souder, (1987)] and new/ latent markets [Shanklin & Ryans, (1984) and Snelson & Hart, (1991)]. During post launch activities marketing information can be used for **catalytic purposes** by instigating incremental improvements (OPI) to the current product range as well as stimulating new future innovative developments (NPD). Clark & Fujimoto, (1991) and Insley, (1989) relate the case of Japanese motor vehicle manufacturers who refused to become complacent by their initial launch successes and recognised that the global market for motor vehicles was evolving. They used formal marketing research and informal marketing intelligence to **evaluate** new market trends, amend and reposition their product ranges.

Much of the marketing information used during post launch activities is used for **confirmatory purposes**. For example, Rogers, (1983) and Tang & Collar, (1992) assert that managers often seek confirmation that the new product's attributes still remain appropriate against contemporary market conditions. Fundamental changes to the core benefits and performance characteristics for many new products are virtually impossible during post launch activities. However minor incremental adjustments to a new product's features/benefits may be more feasible [Rushton & Carson, (1989)] at this stage.

From the empirical product development literature Simon, (1992) and Wheelwright & Clark, (1992) present examples of incrementally revised pricing policies and minor product design modifications which resulted from operationalising post launch marketing research and marketing intelligence. Rayner, (1991) and von Hippel, (1988) advocate operationalising marketing intelligence from post launch visits to product users. Berry & Cooper, (1990) contend that post launch marketing research surveys of consumers are a valid method of securing customer input for incremental product adjustments. Karlsson, (1989) relates the lack of post launch customer awareness shown by American car manufacturers as their Japanese rivals began utilising formal marketing research, analytical marketing and informal marketing intelligence for strategic product development purposes; principally to amend and enhance their product range and increase market share in the 1970s.

3.4 Relative Importance Of Marketing Information

The foregoing sections have argued that marketing information is an important information type in absolute terms during product development activities. However our

conceptualisation of marketing information would be incomplete if we did not consider the importance of marketing information **relative to other functional information types.**

Product development as a management process [Abernathy & Utterback, (1988)] is influenced by many functional information types which are utilised within it. In our review of the product development literature we have found very little evidence that the role of these other functional information types has been extensively explored through empirical studies. To more fully consider the relative importance of marketing information we have therefore reviewed the product development literature to determine what other functional information types are prescribed for use during the creation of new products. Analysis of the information science and decision making literature suggests that information is conventionally categorised on the basis of its functional origins [Ganley & Ganley, (1989)]. For example **financial information** is derived primarily from the organisation's financial department [Morden, (1989)]. **R & D information** is derived from the research function [Parry & Song, (1993); Carroad & Carroad, (1982) & Carlsson, (1991)]. **Technological information** principally originates from technical support units. **Production/process information** is derived from the engineering/manufacturing departments and **market and competitor information** conventionally originate from the marketing function. In adopting this "functional origins" conceptualisation it follows that the types of information used in any one organisation can be related to the number of different functions within that organisation. The functional origination of information is especially prolific in the financial services sector. For example Hansell, (1985) demonstrates that actuarial, financial, administration, IT, claims and underwriting information all influence the development of new insurance products. In developing new pension products Trebilcock & Reeve, (1990); Oldfield, (1987); Hodge, (1989); Hodge & Ellis, (1991) show how managerial actions

concerning design issues involve the use of other functional information such as actuarial data, IT systems data, service administration data, customer needs and competing products data.

Clark & Fujimoto, (1990 & 1991) and Bingham & Quigley, (1990) identify specific functions such as Research & Development, Planning, Product/Process Engineering and Design as important providers of functional information inputs during new automobile development. Bingham, Quigley & Charles, (1989) also recognise engineering data as an important information type. They further suggest that collective venture team knowledge is a form of aggregated functional information. Rahmanseresht, (1988) suggests that administrative information can also shape nascent products by providing data concerning customer support capability. Eppen, Hanson & Martin, (1991) emphasise maintenance information as a valid source of feedback into product development activities to further enhance current product ranges. Carroll, (1991) draws our attention to accounting and financial information and their role particularly during analysis tasks in product development. Earlier research by Neale, Johnson & Reid, (1988) indicates that capital allocation information from the financial function impacts on product development, particularly during evaluation activities such as commercial analysis. In their study into speeding up the development of new products Rabino & Wright, (1993) identify that financial (cost) information is especially important in the technology sector. More recent research by Cooper & Kleinschmidt, (1990a/b) recognises technological information as a critical information type often associated with successful new products, particularly during high-tech and pharmaceutical product development [Larson, (1991)].

Functional information types used in development tasks have different degrees of relative importance during each task. For example Clark & Fujimoto, (1991); Clark, (1991) and Foxall & Johnson, (1991) suggest that within motor vehicle development, technological

information is especially important during idea screening and in prototype development activities. However they also imply that technological data is of lesser importance during the launch stage where marketing information was considered to assume greater importance. Johne & Rowntree, (1990 & 1991) and Ayal & Raban, (1990) also found that technological information was important during design activities in high-tech industries and was essential for the competitive success of new electronic products. Manufacturing information with respect to possible production synergies is cited by de Brentani, (1989a/b) and de Brentani & Cooper, (1992) as a relatively important influence during the screening of new fast moving consumer goods (fmcg) and new pharmaceutical product ideas. Devinney, (1992) & Carroll, (1991) articulate the key role of financial information for evaluation purposes during commercial analysis tasks. Gupta, Brockhoff & Weisenfield, (1992); Clark & Fujimoto, (1991); Rahmanseresht, (1988); Bingham, Quigley & Charles, (1989) and Eppen, Hanson & Martin, (1991) assert that R & D, design, financial, planning, manufacturing, product and process technology information significantly facilitate managerial actions during prototype development tasks.

Although we have identified other functional information types as important during specific product development tasks, we repeatedly found that **marketing information** was regarded as critically important during **all** tasks. As we demonstrated in the previous section, data concerning customer preferences is highly important as evaluation criteria in idea generation and screening decisions [Majaro, (1991) and Sowrey, (1987)]. During business analysis tasks data concerning future sales and target markets is essential in determining if a nascent product should proceed to prototype development [Crawford, (1987)]. During development activities, developers need to be informed of how the attributes of rival products

can be improved upon to allow a nascent product to obtain a competitive advantage [O'Shaughnessy, (1990)]. During design tasks the envisioning of features/benefits of a new product requires forecasts of customer preferences and needs [Baker, (1989)]. During post-launch activities feedback on new product diffusion rates [Rogers, (1983)] is essential for control purposes.

Although other information types are also important for product development purposes, marketing information is special because it conveys market needs **(market information)** and industry issues **(competitor information).** Notwithstanding the importance of other functional information types during **specific** development tasks, we have shown marketing information to have a high **relative importance** during all key development activities. Cooper, (1979a) supports this view by suggesting that even the most technologically sophisticated, most diligently manufactured, adroitly financed and proficiently designed new products will fail unless they incorporate benefits which satisfy customer needs and have a competitive advantage over rival products.

3.5 Management Of An Important Corporate Asset

> "Information as a resource represents the view that information has become of such importance that it needs to be planned, acquired, developed and used effectively like any other major business resource. It needs to be managed as a major resource which can make or break competitive performance." Thorne, (1988)

The above quotation illustrates an increased cognisance of the importance of managing information for business success. This awareness also stems from increased recognition by the management and information literature that many businesses continue to mis-manage this key corporate asset [Johnson & Woodward, (1988); Glazer, (1991); Barabba & Zaltman, (1991);

McDonough & Kinnunen, (1984) and Fletcher, Buttery & Deans, (1988)]. Given the growing number of publications concerning the value of marketing information for product development purposes, awareness of the importance of marketing information does not appear to be a critical issue. Glazer, (1991); Barabba & Zaltman, (1991) and Kohli & Jaworski, (1990) suggest that of significant concern is the need to know how the management of marketing information can be improved. Extant literature provides little guidance on how the management of marketing information **per se** can be undertaken more effectively and efficiently [Glazer, (1991)].

Although many other types of information have been shown to be influential in product development, marketing information is unique. Piercy, (1980 & 1991) suggests that marketing information is an exceptional corporate asset because it conveys customer needs **(market information)** and industry data **(competitor information)**. Failure to utilise customer and industry data during product development tasks may result in an otherwise proficiently manufactured, adequately financed and technologically sophisticated new product becoming a commercial failure [Cooper, (1979a/b) & Kohli & Jaworski, (1990)]. Commercial success leads to long term corporate survival and growth [Cooper & Kleinschmidt, (1990a)], hence the **skilful** management of a corporate asset that facilitates commercial success is of critical importance to firms.

Although marketing information is recognised in the product development literature to be an important variable it has been found in practice to be **"poorly used"** [Johnson & Woodward, (1988)]. The writings of Cooper & Kleinschmidt, (1986); Turner, (1991) Jobber & Watts, (1988) and Gupta & Wilemon, (1988 & 1990) suggest that marketing information is not always implemented after collection and is often mis-managed during key business operations. These assertions are further supported by the empirical studies of Reidenbach & Moak, (1986);

Edgett & Thwaites, (1990a/b); Davison, Watkins & Wright, (1989); Edgett, (1991); Moore, (1987) and Edgett et al, (1992) who found that despite sophisticated collection, processing and reporting systems marketing information was often badly managed by practitioners during salient functional operations. Marks, (1988); Howley, (1990) and Thomas, (1988) present further empirical examples of poor analysis and implementation of customer needs information, while Oakey, (1991) argues that planning and control of marketing information is a frequently overlooked activity in many firms, particularly during product development.

The writings of Glazer, (1991); Davenport et al, (1992); Kohli & Jaworski, (1990) and Barabba & Zaltman, (1991) concur with the above empirical findings and suggest that despite its increasing recognition as an important corporate asset, marketing information continues to be mis-managed. They also contend that practitioners need to manage their marketing information more skilfully if they are to achieve success in key business activities such as product development.

The importance of **managing marketing information** in product development activities is also evident from the many concerns expressed in the marketing and product development literature. For example Edgett, (1991); Lee, Acito & Day, (1987); Glazer, (1991); Johnson & Woodward, (1988); Brownlie, (1987); Uhl, (1966); Proctor, (1991); Gartner & Thomas, (1993) and Johne & Snelson, (1990a/b) identify the concerns of both scholars and practitioners to understand how they can better analyse, plan, implement and control their marketing information. Mitchell & Volking, (1993) suggest that since the advent of information technology (IT) there has been "an increasing need to manage information". However they conclude that guidance on this issue is scant and further work into information management needs to be undertaken.

In previous studies [Rothwell, (1976a, 1976b & 1977); Cooper, (1980, 1984a & 1984b); Kulvik, (1977); Maidique & Zirger, (1984 & 1985); Abeele & Christiaens, (1986); Rinholm & Boag, (1987); Johne & Rowntree, (1990 & 1991) and Steiner & Solem, (1988)] the management of marketing information has been suggested to be a key variable underlying many of the primary factors associated with successful new products. Creating new products that successfully address customer needs and compete favourably against substitutes is suggested by Pavia, (1990); Dwyer, (1990); Hoddock, (1990) and Barclay & Benson, (1990a & 1990b) to be a function of managing marketing information during product development. Pappas, (1984); Meidan, (1983 & 1984) and Meidan & Minhas, (1990) further suggest that those firms which skilfully manage their marketing information can gain a long term competitive advantage and acquire improved market share. Much of the marketing literature [Teare, Moutinho & Morgan, (1990); Anderson & Hoyer, (1991); Stewart, (1991); Reynolds, (1991), Buttery & Buttery, (1991); Millett & Leppanen, (1991) and Reid, (1988 & 1989)] recognises that marketing information is a **key corporate resource** and as such **needs to be managed** in order to facilitate many of the factors found to be associated with successful new products.

3.6 Past Research Into Marketing Information Management

Extant studies into managing marketing information have concentrated on the following analytical perspectives,

i) **Managing the interaction of marketing information and information technology**. The information technology, processing, management and operational research literature [Angell & Smithson, (1991); Davenport et al, (1989); Capon & Glazer, (1987); Earl, (1987 & 1989); Willcocks, (1992); Hicks, (1990); Dickson & Wetherbe, (1985); Bailey, (1987); Hodge

et al, (1984); Moss-Jones, (1987); Dover, (1987 & 1988); Longton, (1988); Fletcher, Wheeler & Wright, (1990); Punset & Sweeney, (1989) and Kallman & McKinnon, (1989)] have investigated and reported on managing the information technology (IT) used for collection, analysis, storage, retrieval, production and reporting of marketing information. The past emphasis on this analytical perspective is not surprising given the advances in technology which have made information processing more accessible and efficient [Ives & Mason, (1990); Marshall & Heslop, (1988); Higby & Farah, (1991); Wills & Wills, (1992); Twiss & Goodridge, (1990); Moutinho & Meidan, (1989); Revell, (1987); Cowan, (1987); Wilkinson, (1983); Lynch, (1990) and Heffernan, (1984)]. As a consequence of the many advances in information technology and rapid changes in competitive and market postures the necessity for product developers to implement more sophisticated and formal marketing information systems has also increased [Martell, (1987 & 1988); Lock & Hughes, (1989); Feeny, (1987); Warner, (1987); Ward et al. (1990); Proctor, (1991) and Watkins, (1990)]. Mitchell & Sparks, (1988) and Pottruck, (1988) provide empirical examples illustrating the use of sophisticated IT systems that have improved the frequency, timeliness, accuracy, quality and volume of marketing information for use in non-marketing functions. King & Grover, (1991) suggest that "the existence of IT is often a precursor to the effective use of information". However, managing the collection, storage, retrieval, analysis and production of marketing information does not of itself ensure appropriate implementation. Indeed, Deshpande & Zaltman, (1982) contend that the utilisation of marketing information is frequently inversely related to its formality, source and technical complexity.

ii) **Managing the organisation and structure of the marketing information system (MkIS).** Mitchell, (1991b); Birks, (1991); Anderson & Hoyer, (1991); Reynolds, (1991);

Brown & Goslor, (1988); Shapiro, (1988) and Buttery & Buttery, (1991) contend that marketing information is the output of the MkIS. Hence good management of the MkIS should lead to high quality and quantity marketing data. Morgan & Piercy, (1990); Arinze, (1987 & 1990); Gummesson, (1990 & 1991); Mitchell, (1991a) and Morgan, (1989) suggest that the most successful firms in their studies recognised the need to manage the personnel, structure and internal organisation underlying the MkIS. The rationale behind this view is that the MkIS, as the principal system for processing and delivering marketing information to managers cannot be left to chance and needs to be controlled. In their discursive management texts Galbraith, (1982) and Tushman & Nadler, (1986) speculate on how managing the systems which provide information to corporate innovators, and in particular to product development, can be optimally organised. However their focus inclines towards managing structure and personnel related variables. More recently Piercy & Morgan, (1989, 1990 & 1991) have reported an increasing cognisance by scholars and practitioners of the need to manage the flow of marketing information during the exercise of both the function and philosophy of marketing within financial services firms.

iii) **Managing the factors underlying the use of marketing information.**

Deshpande & Zaltman, (1982, 1983, 1984, 1985 & 1987); Deshpande & Jeffries, (1981); Luck; (1982); Jobber & Rainbow, (1977); Jobber & Watts, (1988) and Machlup & Mansfield, (1983) have undertaken studies in this mode specifically investigating the managerial motivations for adopting, rejecting and utilising marketing information. These studies have provided new knowledge concerning how to manage the factors which influence the acceptance and interpretation of marketing information by those persons responsible for business operations.

Kohli & Jaworski, (1990), King & Grover, (1991) and Glazer, (1991) imply that many of these earlier marketing information management studies focused on managing **the motivation, generation and dissemination elements** of marketing information, rather than on the management of marketing information **per se.** Barabba & Zaltman, (1991); Tull & Kahle, (1990) and Sood, (1980) suggest that although managing the possession, processing, organisation and distribution of marketing information are important they are insufficient actions to facilitate business success. They suggest that instead of continuing to focus on management of the systems which deliver data to managers, future research should focus on the **management of marketing information "per se"**, as it is the ways in which marketing information is managed during business activities, rather than its pre-operational processing or possession that determine its effect. Glazer, (1991) supports this view by advocating further research into **"the management of information itself as an asset to gain competitive advantage".**

3.7 Research Problem

> " Benchmarks of best management practice do not yet exist which could guide individual firms and their executives towards more effective marketing practice. There is a wealth of material telling us **what to do**, but rarely **how to do it**. In the 1990s what management will need of marketing is not new analytical techniques to answer questions about strategy formulation, but increased attention to marketing practice". Brownlie, (1991a)

The aforementioned managerial perspectives in Section 3.6 add to our understanding of the nature and relationships between marketing information and MkIS. However they concentrate on the motivation, organisation and processing elements of managing marketing information in a general business context. They do not advise in what ways marketing information **"per se"** can be managed to facilitate successful new products. Glazer, (1991)

argues that "despite the wealth of evidence that information has rapidly transformed all phases of economic and business activity, relatively little formal attention has been paid to the effects of the transformation on marketing theory and practice".

Notwithstanding that the foregoing research into marketing information management is unquestionably important, both practitioners and scholars [Barabba & Zaltman, (1991); Kohli & Jaworski, (1990) & Glazer, (1989 & 1991)] have indicated a need to understand better in what ways marketing information **per se** can be managed to facilitate successful new products. King & Grover, (1991) suggest that the paucity of marketing information theory makes it difficult for practitioners to determine what constitutes skilful management of this key resource. The marketing and information literature provides limited guidance on the actions that will assist firms in determining a managerial strategy for competently analysing, planning, implementing and controlling their marketing information.

This knowledge deficiency has been recognised by the marketing and product development literature. Johnson & Woodward, (1988) provide empirical support for their assertion that firms could "**improve the quality and quantity of the information, but could not improve the problem of poor usage**". Piercy, (1991) contends that "**one of the most significant frontiers for marketing is implementation**", in particular implementing marketing information. Both Bonama, (1985) and Piercy, (1991b) concur that research in "**marketing has been short on useful recommendations on how to do it**". King & Grover, (1991) advance this view and advocate further research to identify **"best practice"** in managing marketing information. Johnson & Carrico, (1988) report from their discussions with senior corporate executives that practitioners wish to know and understand what managerial actions can be undertaken to improve their management of marketing information. Birks, (1991); Aaker &

Day, (1980); Snelson & Hart, (1991); Nystrom, (1990); Beard & Easingwood, (1988); de Brentani, (1991) and Piercy, (1991a) also recognise the need for further research into how marketing information can best be managed for successful new products.

The high product failure rates quoted by Edgett et al, (1992); Crawford, (1987) and Cooper, (1994) strongly emphasise the need to minimise the wastage of development resources and improve the success rates of newly launched products. What now needs to be empirically determined is whether **skilful management of marketing information** is associated with successful new products and if so in what ways do **superior product developers** manage their marketing information that is significantly different to the management style of less successful developers?

3.8 Managerial Actions For Marketing Information Management

"Successful innovation is not due to environmental factors but to managerial action".

McKee, (1992)

Thus far we have analysed and discussed the importance of marketing information during product development. We have argued that marketing information is an important **corporate resource** for product development activities, for development decisions and within the key managerial factors which have been found to be associated with successful new products. We have also found strong arguments in the product development and marketing information literature supporting the view that marketing information is a key corporate resource and as such needs to be **managed** if it is to facilitate business success. During our review of the literature we became cognisant that neither the product development nor the marketing literature had developed a prescriptive or normative paradigm concerning how skilful

management of marketing information could be undertaken. Instead we found many isolated managerial actions that were individually proffered to be important as part of the management of marketing information.

Invoking Kotler's (1989) conceptualisation of management (i.e. as consisting of analysis, planning, implementation and control) as our analytical model we have reviewed the information science, decision making, management, marketing and innovation literature and identified eighteen key managerial actions which have been proffered as important in analysing, planning, implementing and controlling information. These managerial actions are as follows.

Analysis:

1) Shanklin & Ryans, (1984); Curren et al, (1992); Evans, (1993); Brown, (1992); Lilien & Yoon, (1989); King & Grover, (1991); Turner, (1991) and Johne, (1993) argue that successful firms frequently undertake analysis of market data searching for latent or niche market segments. Ghoshal & Westney, (1991); Abernathy & Clark, (1988); Morgan, (1989) and Davison et al, (1989) suggest that an examination of the benefits and characteristics of rival products is necessary to achieve competitive advantage. Davison, Watkins & Wright, (1989); Davison & Watkins, (1989); Sullivan & Smart, (1987) and Maidique & Zirger, (1985) recommend analysis of both market and competitive opportunities as an important managerial action during product development. Cooper, (1990); Gernand, (1991); Pagonis, (1992) and Cooper & Kleinschmidt, (1991) further contend that firms need to implement formal evaluation of market and competitive opportunities throughout the development process. Reid, (1989) and Lock & Hughes, (1989) also support this managerial action and contend that highly efficient firms adopt structured analytical techniques. This view is shared by Guiltinan, (1993); Guiltinan & Paul, (1988) and Fletcher, (1990a/b) who also recognise the need to invoke structured

analysis of captured customer and transaction data, customer needs, market segment shifts and rival product benefits and features. Analysis of markets and competitor data intuitively appears to add value to product development activities, however what is not clear from the literature is whether superior developers adopt a significantly different approach to their analysis of marketing information than less successful developers. The foregoing assertions lead us to postulate that the execution of **structured analysis** of marketing information during product development is associated with superior new products.

2) The marketing information and MkIS literature [Fletcher, (1990a/b); Glazer, (1991); Piercy, (1987 & 1991a/b); Watkins, (1985); King, Grover & Hufnagel, (1989); Meidan & Minhas, (1990) and Eisenhart, (1988)] presents much empirical evidence that some firms are increasingly implementing sophisticated IT based processing techniques. These IT based processing techniques include database analyses of captured customer and transaction data, profile scanning and market segmentation reviews. The use of IT based processing is also advocated by the innovation literature [Cooper, (1988c); Kuczmarski, (1988); McDonough & Barczak, (1991 & 1992); Johne, Howard & Davies, (1991) and Cowan, (1987)] to be an increasingly important managerial action in support of many functional marketing activities, including product development.

Hochstrasser & Griffiths, (1990) and Holt, (1990) suggest that the rationale for implementing IT is based on the speed and efficiency with which marketing data can be processed for use by management. This view has given rise to a presumption in the marketing literature, epitomised by Wiseman, (1985); Livesey et al, (1989) and Fletcher, (1991) that the possession of sophisticated IT to facilitate the provision of marketing information can improve the success of some marketing activities. This may be true in some marketing functions such as

sales reporting and product pricing. However, notwithstanding the ostensible importance of IT for processing marketing information, it became clear from our literature review that very little research had been conducted into the relationship between IT based processing of marketing information and product development. We postulate that the **application of IT based processing** of marketing information is associated with superior new products

3) Ganley & Ganley, (1989); Kroeber, (1982); Lock & Hughes, (1989); Land & Kennedy-McGregor, (1987) and Drummond, (1991) assert that the results of information processing should produce data which is in an usable format for managers. Support for this view is also to be found in the product development literature. For instance, Malhotra, (1987); Gordon & Langmaid, (1988); Hague, (1987); Hirschman, (1986); Jain et al, (1982); Kinnear & Taylor, (1991); Lee et al, (1987); Mansfield, (1969) and Luck, (1982) suggest that the format of marketing research reports, internal reports and marketing intelligence should be structured to meet the needs of managers. Baker, (1991a); Kotler, (1989) and Brooksbank, (1990a/b) assert that effective operational management relies upon marketing data not requiring further formatting or processing after receipt by managers. While there are ostensible efficiency advantages in operational managers receiving marketing data in an usable format, we could not locate research which had confirmed (or refuted) that receipt of marketing data in a readily usable format could confer an advantage in creating successful new products. Hence we propose to test the assertions of the suppositional literature and determine whether superior product developers place greater emphasis on **ensuring that their marketing data is in an usable format** for product development activities than less successful developers.

Planning:

4) Gupta & Guimares, (1993) argue a strong case for "planning" of all major corporate resources as part of the creation of new goods and services. Kotler, (1989); Skyrme, (1989); Kuczmarski, (1988); Johnson & Woodward, (1988); Keiser et al, (1987) and Brooksbank, (1990a) endorse the concept of planning and suggest that astute managers do not leave the sourcing of important corporate resources to chance but plan where they will solicit their marketing information. As we have already shown in Chapter 2 multiple sources can be invoked for product development purposes. Since each marketing information source may have a unique relevance for each product development activity, planning appropriate sources of marketing information has an intuitive logic that appeals to many of the authors of theory based marketing literature [McDonald, (1990); MacInnes & Hislop, (1990); Bangs, (1989); Zarecor, (1975) and Oliver, (1990)].

The product development literature, although advocating the need to anticipate information requirements does not provide guidance on whether planning the sources of marketing information can confer a material advantage in achieving successful new products. Based on the assertions of the foregoing literature we postulate that **planning the sources of marketing information** for product development tasks is significantly associated with superior new products.

5) Since the activities within product development take place over time, Johne & Snelson, (1990a) and Doyle & Saunders, (1985) suggest that markets change and the competitive environment evolves during this period. Cooper, (1988c) and Cooper & Kleinschmidt, (1990a/b) recognise that marketing data can become obsolete as nascent products progress through product development. Hence there is a need to ensure that data continues to be

relevant during each task. Haynes et al. (1992) contend that "not all information which is available will be relevant". Kinnear & Taylor, (1991) and Kennard, (1991) also recognise that in highly competitive markets contemporary marketing information can quickly lose relevance. Scott, (1986) contends that information relevancy may be a consequence of circumstance or managerial action. Schlesinger & Heskett, (1991a) identify empirical examples wherein "the lack of relevant information" appears to be detrimental to business success. We postulate that superior product developers are more cognisant of the need to maintain appropriate data and hence ensure that their marketing information is **relevant for the development task undertaken.**

6) Extant marketing literature indicates that practitioners have adequate marketing information for functional purposes. For example, Johnson & Woodward, (1988) report that they found that information "quality and availability" could be improved by the firm if it so wished, but managers "**could not overcome the problem of poor usage**". Daft & Lengel, (1986) support this view and contend from their empirical research that **"a major problem for organisations is not lack of explicit data"**. Edgett, (1991); Morgan, (1989); Meyers & Athaide, (1991) and Turner, (1991) concur that the quality and quantity of marketing information was considered sufficient for the needs of their marketing respondents.

Notwithstanding that significant advances in information processing have improved both the quality and quantity of data made available for business purposes [Johnson & Woodward, (1988) and Twiss & Goodridge, (1990)], what was not evident from our review of the marketing or management literature was whether successful firms planned the sufficiency of their marketing data or whether this sufficiency of data occurred by chance. We postulate that

superior product developers do not leave this key issue to random forces but take action to **ensure the sufficiency of their marketing information** within product development tasks.

Implementation

7/8) Johne, (1990); Charan, (1991); Easton, (1989); Johansson & Mattson, (1987) and Thorelli, (1986) assert that successful product developers encourage closer cross-functional relationships between operating managers. Arising from their empirical research into product development Johne & Snelson, (1990a/b); Bergen, (1990); Frey, (1991) and Cooper & Kleinschmidt, (1991) also advocate closer functional relationships through "networking" (the exchange of information), between head office, R & D, Marketing, Finance and Production during product development activities. They suggest that a consequence of more intense networking is a better understanding of market and competitive conditions by non-marketing managers. Millman, (1982); Montellone, (1976); Souder, (1978, 1980, 1981 & 1988) and Goldhar et al, (1976) support this view and counsel that lack of co-operation and communication, particularly between marketing and R&D functions was found in their studies to be an inhibitor to product innovation. Arising from their study into high-tech firms Gupta & Rogers, (1991); Griffin & Hauser, (1992); Gupta et al, (1985) and Gupta & Wilemon, (1988) recommend that key functions such as R&D and marketing develop closer functional relationships during product development activities. Although they recognise the importance of networking information they provide limited guidance on how this can be achieved.

Sproull & Keisler, (1991); Ruekert & Walker, (1987); Gupta & Wilemon, (1988); Sullivan & Smart, (1987); King & Grover, (1991); Larsen et al, (1991) and Mitchell & Sparks, (1988) also promote the concept of cross-functional networking of marketing information based

on the premise that sharing information improves managerial cognisance, ensures that key operating personnel remain informed of salient business issues and facilitates group actions such as product development tasks. Blattberg & Deighton, (1991) emphasise the need "to share customer information" in all aspects of business management. Hisatomi, (1991); Chase & Hayes, (1991); Crawford, (1987) and Takeuchi & Nonaka, (1986) also subscribe to the need for effective cross-functional information flows between product development tasks. For example Crawford, (1987) suggests that marketing information utilised during idea generation activity may also be required during screening tasks or analysis activities. In their report into Japanese high-tech firms Song & Parry, (1992) contend that a salient variable for "new product success is the level of joint involvement of functional departments". This joint involvement requires frequent and proficient networking of information. Further support for networking between development participants is to be found in Rogers & Roethlisberger's, (1991) argument for "active listening" by business managers. Active listening requires information exchange. Cooper & Kleinschmidt, (1993) and Crawford, (1987) imply that marketing information must also be shared between tasks to ensure a consistency of understanding between all of the participants during product development. Sullivan & Smart, (1987) advance this view and suggest that "many companies find that information networking is a management issue with the same importance as information systems application". Although sharing information has an intuitive logic House & Price, (1991) identify many problems faced by product development teams composed of cross-functional managers particularly with respect to their networking of market data. Although they provide an overview of the problem of information exchange their lack of empirical findings prohibits further commentary

What has not been made explicit within the marketing and product development literature was whether networking marketing information contributes to successful new products. We postulate firstly that **networking of marketing information between development participants** is significantly associated with superior new products and secondly that **networking of marketing information between development tasks** is significantly associated with superior new products.

9) In her extensive investigation into product development issues Caris-McManus, (1991) emphasises that "communication is an important tool for product champions" if they cherish success from product development. Tull & Hawkins, (1976); Piercy & Evans, (1983); Ghoshal & Kim, (1986) and Curtis, (1989) expound arguments for increasing the extent of formality [defined by Kohli & Jaworski, (1990); Robbins, (1991) and Hall, (1991) as standardisation] with which marketing information is communicated during key business and marketing operations. Kotler, (1989) also stresses the salience of formal communication of sales data to those persons responsible for sales management. Gorry & Scott Morton, (1989) suggest that the more standardised the corporate management processes the more formal will be the communication of marketing information. Barczak & Wilemon, (1991) consider that new product development teams are essentially information processing systems which require formal communication of data to facilitate team work.

Cooper, (1991); Johne & Snelson, (1990a): de Brentani & Cooper, (1992) and Cooper & Kleinschmidt, (1991) provide empirical evidence that formal systems for creating new products are associated with several internal measures of success in product development. Inherent in their argument for formalising product development is a requirement to formalise the communication channels supporting this process. The need for "formal marketing

communication" is also an issue eloquently argued by Morgan & Piercy, (1992) in their discussion on the role of marketing in the achievement of quality within business management activities. However, in our review of the literature we did not find empirical validation of a relationship between successful new products and the use of formal marketing information communication channels. We therefore posit that superior product developers have a significant association with **the utilisation of formal communication channels** for marketing information during product development activities.

10) Gorry & Scott Morton, (1989) suggest that the concepts of formality and informality are complementary rather than mutually exclusive. Consequently, notwithstanding the foregoing argument for implementing formal marketing information communication channels, we also found evidence in the marketing, management and product development literature which supports the adoption of informal marketing information communication channels. For example, Lambert et al, (1990); Flax, (1984); Folsom, (1991); Ganley & Ganley, (1989); Proctor, (1991) and Fann & Smeltzer, (1989) argue that many business activities apply informal marketing information communications for functional marketing activities, such as sales force management and controlling advertising programs. Nonaka, (1991) cites the example of Matsushita employees to whom information is "informally conveyed" and suggests that this has been an effective managerial action in improving quality standards. Chase & Hayes, (1991) support this view and suggest that managers identify new product ideas through their "informal interaction with customers and general awareness of industry developments". Research by Earl & Hopwood, (1980) also indicates that the more successful companies (measured in terms of meeting market demand) frequently adopted extensive informal communication of marketing information during business activities. The foregoing leads us to postulate that superior product

developers **implement informal marketing information communication channels** during product development.

11) Marketing Information Systems (MkIS) literature [McLeod & Rogers, (1982 & 1985); Morgan, (1989); McLeod, (1985); Hooley & Mann, (1988) and Sharratt & McMurdo, (1991)] suggests that highly successful firms utilise formal collection systems in respect of their marketing information. For example, Morgan, (1989) contends that the increase in the number of formal MkIS found in his study were a positive response by firms to assimilate customer data as part of their transformation towards a market orientation. Fletcher, (1990a/b & 1991) also reports that formal marketing information collection has increased as a derivative of the increased adoption of IT by many firms. Piercy, (1991b) and Piercy & Morgan, (1989) also suggest that formal marketing information collection systems are correlated to the increased establishment of formal marketing and marketing research functions. Soderlund, (1989) does not question the need to collect marketing data, but does question whether "systematic collection of data about the business environment" can facilitate business success.

Notwithstanding the many literary arguments for implementing formal marketing information collection systems we could not find empirical evidence to indicate that this managerial action contributed to successful new products. The foregoing leads us to postulate that highly successful product developers **utilise formal collection channels** in respect of their marketing information.

12) The evolving nature of customer demand and competitor actions [Piercy, (1989a); Paun, (1993) and Adriaans, (1993)] suggest that marketing information is not a static variable. Time is therefore a significant issue in considering marketing data. Johnson & Woodward, (1988); Deshpande & Zaltman, (1987) and Glazer, (1991) contend that badly timed use of

marketing information can be detrimental in specific operational contexts such as managing sales development, controlling advertising effectiveness and determining price levels. The ill-timed use of marketing information is also articulated in the work of Doyle & Saunders, (1985) who demonstrate the need to utilise marketing information within an appropriate time-frame in order to optimise its effect. For example, Doyle & Saunders, (1985) argue that a time lag exists between firms recognising market needs and those needs being addressed in the performance attributes and characteristics inherent in the new product. During product development markets evolve and rival products emerge. The characteristics and benefits of the nascent product need to reflect these changed circumstances if the new product is to achieve and sustain a competitive advantage and market acceptance. Hence timely utilisation of marketing information is ostensibly important. We postulate that superior product developers take positive action to **ensure timely implementation of their marketing information** during product development activities.

13) In section 3.3 we analysed and discussed the multiple roles of marketing information during product development activities. We also argued that marketing information can be implemented for many important purposes during key product development tasks. However what was not evinced from the literature was whether and to what extent highly successful product developers apply marketing information for multiple purposes as suggested in the mainly suppositional literature. The marketing literature [Oakey, (1989) and Marks, (1988)] provided empirical evidence that some less successful developers operationalised marketing information for very limited purposes during development activities. However the restricted operationalisation of marketing information undertaken by less successful product developers does not of itself impute that successful developers must therefore utilise marketing information

for a wider range of purposes. To resolve this issue we postulate that superior product developers **implement marketing information for a greater number of purposes** than less successful developers.

Control:

14) During our review of the marketing literature in section 3.2 we identified that conventional conceptualisations ascribed the marketing function to be the business operation primarily responsible for sourcing the firm's marketing information [Deshpande & Zaltman, (1982, 1983, 1984 & 1987); Deshpande & Jeffries, (1981); Jobber & Watts, (1988); McLeod & Rogers, (1982 & 1985); McLeod, (1985); Kohli & Jaworski, (1990) and Jobber, (1977)]. However we are also persuaded by the reasoned arguments of the more recent theory based marketing literature [Shapiro, (1988); Gronroos, (1990) and Baker, (1991b)] which advocates the company wide adoption of the philosophy of marketing. This philosophical approach argues that obtaining marketing information is the responsibility of all employees of the firm and should not be the exclusive responsibility of the marketing function. We postulate that superior product developers **share responsibility for sourcing marketing information** during product development activities.

15) Drummond, (1991); Bazerman, (1990); Etzioni, (1989); Ganley & Ganley, (1989) and Birks, (1991) support the view that timely receipt of information is essential for effective management. They suggest that even adequate quality and quantity of marketing information can be negated if it is not received by corporate managers on a timely basis. However, timely receipt of marketing information can be a matter of chance rather than control by managers. In circumstances of evolving competitive postures and changing markets timely

receipt of marketing information is of greater importance for product development purposes. Doyle & Saunders, (1985) demonstrate that accurate, reliable and relevant data may actually be harmful if it is not received within an appropriate time frame. Hence we postulate that superior product developers are cognisant of this issue and take specific action to **ensure timely receipt of their marketing information** within product development activities.

16) Cooper, (1990) and Crawford, (1987) suggest that inaccurate forecasts of sales figures and unrealistic estimates of competitor reactions affect the ability of new products to attain competitive advantage and market acceptance. de Brentani, (1988) and de Brentani & Droge, (1988) support this assertion and contend that because of the influence of marketing information during the creation of new products any inherent inaccuracies in their competitor data will impair the competitive standing of their new products. These assertions appear to be prudent axioms and are supported by the arguments of Fletcher, (1990a/b) and Watkins, (1988 & 1990) who contend that accuracy of marketing information is no longer a significant concern for product developers following the advent of electonic data processing and sophisticated information transmission systems. However during our review of the literature we could not identify whether accuracy of marketing information had been significantly improved by these new approaches to data processing and transmission or whether some firms took positive action to validate the accuracy of their marketing information. This leads us to posit that superior product developers take specific action to **ensure the accuracy of their marketing information** during product development tasks.

17) The research findings of Johne, (1991b) conclude that less successful product developers adopt a **combative approach** (reacting to competitor initiatives rather than market imperatives) to product development. That is to say they view product development as a

defensive mechanism and hence attempt to defend against or react to the new product initiatives of more proactive developers, rather than in response to market based initiatives. Johne has also found that successful product developers adopt a more **competitive approach** by proactively implementing new market needs. These divergent approaches to product development suggest different orientations towards the implementation of marketing information. For example the adoption of a **competitive orientation** suggests a more aggressive and inquisitive marketing information seeking approach. The adoption of a combative approach suggests a reluctance to operationalise marketing data for product development purposes unless as a reaction to product initiatives of rival firms. This leads us to posit that superior product developers **adopt a more competitive (rather than combative) orientation** in their use of marketing information during development activities than less successful developers.

18) Empirical studies by Cooper & Kleinschmidt, (1991); Knight, (1987); Stefflre, (1985); Edgett et al, (1992); Hopkins, (1975) and Johne & Snelson, (1990a) argue that product development decision making should not be located with the firm's strategic policy makers but decentralised to those persons responsible for undertaking development activities (e.g. the product champion [Devaney, (1991)] or the development team members). Other product development studies [Johne & Vermaak, (1993); Howard, (1992); Gluck & Foster, (1975); Hickson et al, (1986) and Maidique, (1980)] also found that in less successful firms there was greater participation in product development decision making by senior management who were not directly involved during product development tasks. Contrarily in the more successful firms they found that product development decision making was the responsibility of the product champion or product development team members. Since decision making is perceived in the information science and decision making literature to require information it would appear that in

order to achieve successful new products developers should direct their marketing information towards those persons directly participating in product development tasks. However we could not find any empirical validation of this view. Hence we postulate that superior product developers take specific action to channel their marketing information towards **decentralised decision making** during development activities.

The foregoing managerial actions together with their schematic categorisation (in parenthesis) are set out in Table 2 below.

TABLE 2
Managerial Actions For Managing Marketing Information

1) Undertake Structured Analytical Methods (Analysis)
2) Application Of IT Based Processing (Analysis)
3) Ensure Data In Usable Format (Analysis)
4) Plan The Sources Of Marketing Information (Planning)
5) Ensure Relevant Data (Planning)
6) Ensure The Sufficiency Of Data (Planning)
7) Undertake Networking Between Development Participants (Implementation)
8) Undertake Networking Between Development Tasks (Implementation)
9) Utilise Formal Communication Channels (Implementation)
10) Utilise Informal Communication Channels (Implementation)
11) Utilise Formal Collection Systems (Implementation)
12) Ensure Timely Utilisation (Implementation)
13) Implement Marketing Information For Multiple Uses (Implementation)
14) Share Responsibility For Sourcing (Control)
15) Ensure Timely Receipt (Control)
16) Ensure Accurate Data (Control)
17) Competitive (Rather Than Combative) Orientation (Control)
18) Channel Marketing Information To Decentralised Decision Makers (Control)

Each of these managerial actions has been proffered by the mainly suppositional literature to be a distinctive trait of information management. Collectively these factors suggest a conceptual framework for **managing marketing information.** Although all of the above managerial actions are suggested by the mainly theory based literature, we postulate that some will be more influential in facilitating the success of new products than others. If so what are

these more influential managerial actions? Additionally, the literature did not indicate the frequency with which each managerial action should be undertaken nor how proficiently superior developers carry out each action? Nor could we ascertain guidance on what specific tasks managerial actions concerning marketing information should be concentrated? Which managerial actions lead to greater product development success than others? What marketing information paradigms do **outstanding developers** invoke that lead to superior new products?

By resolving these questions we shall be able to answer concerns expressed by scholars and practitioners concerning how best to manage marketing information for the creation of outstanding new products.

3.9 Frequency And Proficiency

Baker, (1991c) suggests that "its not what you do, its the way that you do it" that is important in marketing management. This view is supported by Bonoma, (1985) who suggests that managers need to understand more about "how to implement marketing management". Piercy, (1989) also contends that "marketing for a number of years has been long on advice about **what to do** in a given competitive or market situation and short on useful recommendations for **how to do it.**" Kohli & Jaworski, (1990) suggest that marketing information is important but "very little attention has been given to its implementation".

Cooper, (1990) and Cooper & Kleinschmidt, (1990b) recognise that managerial factors associated with successful new products rely greatly upon the **"proficient"** manner in which the actions are undertaken. In their studies they found that the **"proficient** execution of activities" was a critical factor in achieving successful new products. Calantone & Di Benedetto, (1988) also recognise proficiency as an important managerial trait. They found that successful

developers "execute marketing resources and skills well". de Brentani & Cooper, (1992) cite "quality of execution of marketing activities" as important marketing inputs for the success of new products. Utterback et al, (1976) and Rothwell, (1976a/b) found that "proficiency" in executing marketing actions was a significant factor associated with new product success. In the above and many other studies [Maidique & Zirger, (1984); Zirger & Maidique, (1990); Easingwood & Storey, (1991); Mintzberg, (1989) and Cooper & de Brentani, (1991)] we found evidence that the **proficient execution** of managerial action is an important issue. Hence we conclude that any investigation into managerial actions must consider the proficiency with which these actions are executed.

Sanchez & Elola, (1991); Lilien & Yoon, (1989); Myers & Marquis, (1969) and Johne & Snelson, (1990a) also suggest that the **frequency** with which managerial action was undertaken during product development tasks differed substantially in their respective studies. For example, Johne & Snelson, (1990a) suggest that within their respondent companies frequent marketing activity was prevalent during both initiation and implementation tasks in product development. Cooper, (1991) and de Brentani & Cooper, (1992) also assert that the frequency with which marketing actions were carried out during product development tasks was an important factor during the creation of successful new industrial products.

Simply investigating whether the foregoing eighteen managerial actions are carried out during product development activities will provide only limited guidance concerning how to manage marketing information. Since both quality (proficiency of execution) and quantity (frequency of occurrence) influence the effectiveness of managerial action we therefore contend that an investigation into the **proficiency** and **frequency** with which these managerial actions

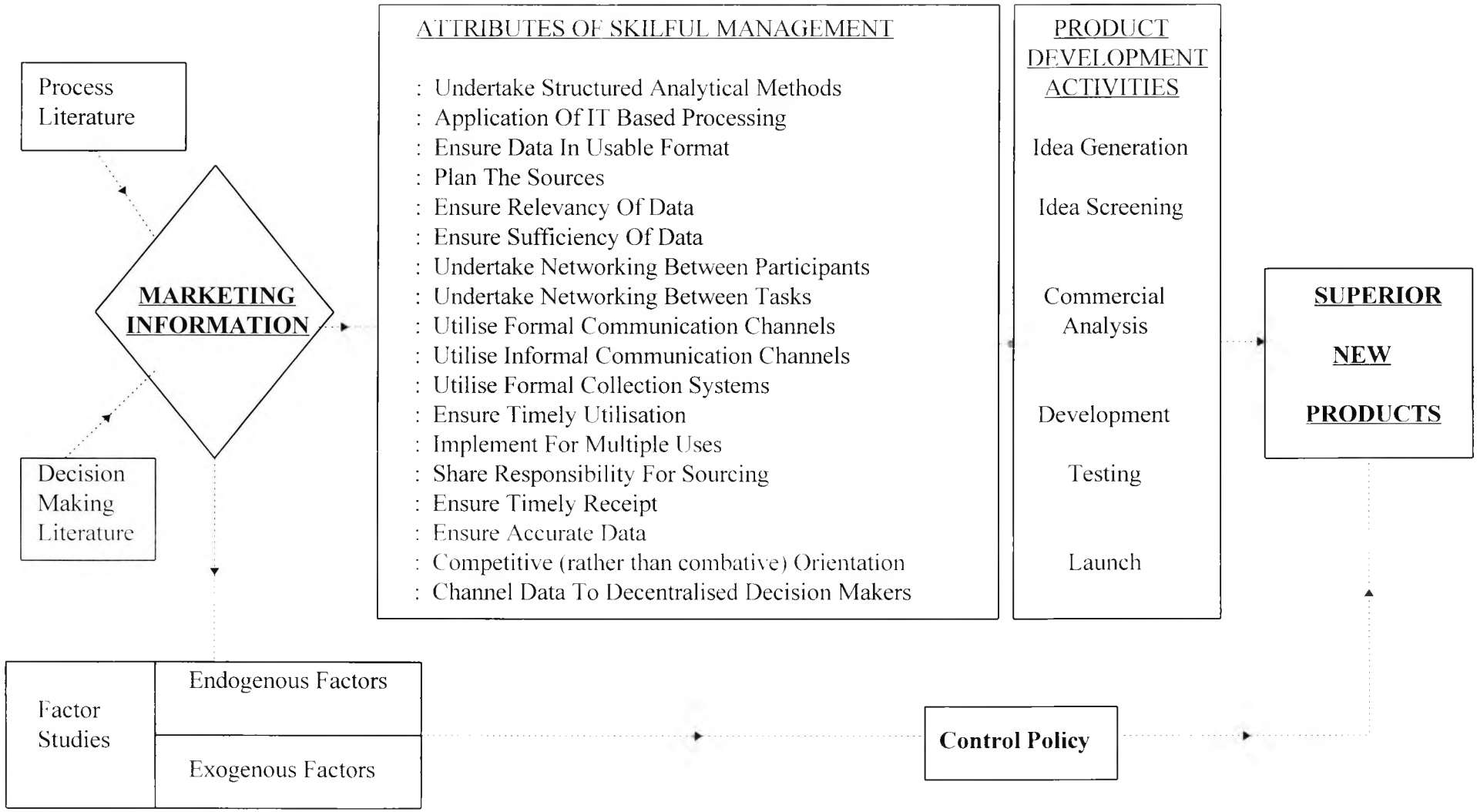
are executed by superior and less successful developers will provide significant insights into how best to manage the important corporate asset of marketing information.

3.10 Model Of The Research Problem

Arising from our review of the marketing and product development literature we have identified important concerns related to the management of marketing information during the important business function of product development. Our literature review has also identified eighteen individual managerial actions that have been suggested to be important for analysing, planning, implementing and controlling marketing information. The foregoing review leads us to suggest that some firms invoke these managerial actions more skilfully (i.e more frequently and more proficiently) during key development tasks and as a consequence achieve superior new products.

In our model of the research problem (see Figure 1 below) we illustrate our eighteen managerial actions and suggest that they have a causal effect during key product development tasks that leads to outstanding new products. Our model also recognises that other factors influence the outcome of product development. These other factors have been classified by Johne & Pavlides, (1991) as exogenous (outwith the control of managers) and endogenous (within the control of managers). Given that exogenous factors are mainly determined by external conditions, previous product development studies have concentrated on those endogenous factors that managers can control. Our policy to negate the effect of these endogenous variables on our selected dependent variable is discussed in Chapter 5.

FIGURE I: MODEL OF THE RESEARCH PROBLEM



3.11 Conclusion And The Need For Research

Marketing information is increasingly recognised by the innovation literature to be an important corporate asset [Goldberg, (1989) and Piercy, (1980 & 1991a/b)] used extensively in product development. However, despite its importance, the marketing and product development literature provides many empirical examples which demonstrate that marketing information is often **poorly managed** [Johnson & Woodward, (1988) & Marks, (1988)].

Previous research into marketing information management has predominantly focused on issues associated with the organisation of marketing information systems (MKIS), managing the facilitating technology or managing the underlying motivations for adopting marketing information. These research perspectives are unquestionably important, however both practitioners and scholars [Hodkinson, (1991)] have indicated a need to understand better if, and in what ways, marketing information management **per se** can contribute to successful new products [Barabba & Zaltman, (1991)]. At present guidance on this issue is limited.

The foregoing review of the literature has led us to postulate that developing superior new products can be facilitated by adopting high levels of frequency and proficiency **(skilful management)** in carrying out key managerial actions concerned with marketing information during product development activities (see Figure 2 below for hypothesised relationships).

FIGURE 2

Hypothesised Associations Between The Management Of Marketing Information And The Success Of New Products

		Success of New Products	
		Superior	Less Successful
Management Of	Skilful	*High	Low
Marketing Information	Un-Skilful	Low	High

* To be read as, superior new products have a high association with the skilful management of marketing information during product development.

CHAPTER 4: THE RESEARCH CONTEXTS AND RESULTS OF A PRELIMINARY FIELD STUDY

4.1 Introduction

The creation of new products has been identified in the management and marketing literature as an important business issue for corporate survival and growth. Iwamura & Jog, (1991); Edgett & Jones, (1991); Easingwood, (1986); Easingwood & Mahajan, (1989); Scarborough & Lannon, (1989) and Ennew, Watkins & Wright, (1990a) contend that of increasing importance is the creation of new financial services products. However research into the creation of new financial services products has only recently begun to receive more scholarly attention. Legislative and market changes have stimulated many highly competitive financial services sub-sectors such as banking, insurance, pensions and investments. These in turn have stimulated the development of many new financial services products.

This chapter demonstrates the importance of financial services, considers past research into the development of financial services products, provides the rationale for selection of our research contexts and reports on the findings from a preliminary field study.

4.2 Importance Of Financial Services

Services are the largest and most important constituent in the Gross National Product (GNP) of the major industrialised countries of the western world. Table 3 demonstrates that this has been the case from 1979 to 1992.

TABLE 3

MANUFACTURING AND SERVICES AS % OF GNP

		% 1979	% 1984	% 1986	% 1989	% 1992
UK:	manufacturing	27.0	23.9	23.1	24.4	24.8
	services	57.8	60.3	60.0	61.7	60.9
USA:	manufacturing	21.8	21.6	21.4	21.0	20.4
	services	46.3	46.4	46.8	46.7	47.1
Japan:	manufacturing	28.1	28.5	27.9	27.3	26.9
	services	56.3	53.6	54.9	54.7	54.8
Germany:	manufacturing	43.2	40.1	39.4	38.8	38.9
	services	50.7	53.6	54.9	54.7	54.8
France:	manufacturing	32.5	30.6	29.4	28.0	28.2
	services	47.9	50.8	52.4	49.9	50.1

Source - Central Statistical Office. (July 1993)

The GNP trend in the UK demonstrates that services are consistently more than double the contribution of the manufacturing sector and are the single largest contributor to the economic well-being of our nation. Yet, in spite of this overwhelming contribution to the respective economies of these major industrialised countries, most research into the success of new products has concentrated principally in non-service contexts such as the manufacturing and pharmaceutical sectors. Despite calls from the product development literature for further research in to this economically important area [Edgett & Jones, (1991); de Brentani, (1991); Ennew, Watkins & Wright, (1990a) and Ennew, Wright & Watkins, (1989)] only recently have scholars begun to focus on how to improve the success of new services.

Financial services are the largest sub-sector of services in terms of financial revenue [CSO, (1993)] and have become increasingly important to the UK economy over the past decade [Ennew, Watkins & Wright, (1990a/b) and Watkins & Wright, (1986)]. Survival and growth in

the financial services sector has also become more problematical as a result of significantly increased competition and new emerging markets arising from changes in legislation [Iwamura & Jog, (1991); Johne & Vermaak, (1993); Speed, (1988); Carey, (1989); Speed & Smith, (1990); Inglis, (1983); Kaynal & Kucukemiroglu, (1989) and Easingwood & Mahajan, 1989)]. In this more competitive environment the commercial success of new financial services products has also become a critically important business issue [Howcroft & Lavis, (1986); Dyer & Watkins, (1985); Landon & Donnelly, (1983) and Cooper & de Brentani, (1991)].

4.3 Past Research Into New Financial Services Product Development

Johne & Pavlides, (1993) and Hauschildt, (1991) assert that the vast majority of earlier product development research has been conducted in non-service contexts such as chemicals, high-tech manufacturing and engineering. This level of research is disproportionate to the significant contribution of services to the GNP's of the 5 major trading nations as shown in Table 3. More recently the innovation literature [Easingwood & Mahajan, (1989); Easingwood, (1986); Middleton, (1987) and Johne and Vermaak, (1992)] recognises the importance of developing new financial services products and this increased recognition has led to calls for more research [Easingwood & Storey, (1991); Davison, Watkins & Wright, (1989); Easingwood & Percival, (1990); Edgett & Jones, (1991); Johne, Howard & Davies, (1991) and Cowell, (1988)].

Extant research studies into new financial services product development have already focused on the following sub-sectors; general insurance [Pahl, (1988); Johne, (1993) and Johne, Howard & Davies, (1991)], banking [Stevenson, (1989); Turnbull & Lewis, (1982); Turnbull, (1982); Turnbull & Gibbs, (1987); Cheese et al, (1988); de Moubray, (1991) and Davison, Watkins & Wright, (1989)], derivative instruments [Johne & Pavlides, (1993)], treasury

products [Haaroff, (1983)] and investments [Iwamura & Jog, (1991)]. Fifield, (1989); Ennew, Wright and Watkins, (1989); Furlong & Ritchie, (1986) and Ennew, Watkins & Wright, (1990a/b) indicate that very little research has focused on the important and expanding sector of **personal financial products** and they argue that further research is urgently required in this key area. In our review of the product development literature we did not identify that any significant research had been conducted into two particularly important and emergent personal financial product types: **Personal Equity Plans** and **Individual Pension Products.**

4.4 Overview Of Research Contexts

Johne & Snelson, (1990b) and Hauschildt, (1991) contend that research which focuses only on one specific new product can be "myopic in focus" and may provide information which cannot be generalised for future program level developments. They further argue that greater insights can be obtained from research which concentrates on the creation of groupings of successful products (i.e. at the program level). The recently introduced ranges of **individual pension products** and **PEPs** provide us with examples of recent program level developments in the personal financial services sector.

New individual pension products for **employed persons** may be considered to be a form of NPD in that they represent products that were both new to the market and new to the industry. Although occupational pension schemes made provision for the retirement of employed persons [Bacon & Woodrow, (1991)], employees in the UK had minimal beneficial rights under these occupational schemes while they were employed and they frequently lost many benefits when they left employment [Reeve, (1990)]. Individual pension products provided a new opportunity for individual employees to purchase an unique product aligned to their own retirement needs and provide us with a unique opportunity to study an important business phenomenon.

Personal Equity Plans (PEPs) may be considered to be the result of "Old Product Improvement". PEPs fall within Johne & Snelson's, (1990a/b) definition of OPI considered in Chapter 2 since they represent incremental enhancements of existing investment services. The underlying investment expertise which forms the basic product content already existed prior to January 1987. This was merely, repackaged, re-priced and re-marketed under the more tax efficient shelter offered by the Finance Act of 1986. The investment expertise underlying pension products also existed but this was not available to the individual pension product market. The development of PEPs and individual pension products were also undertaken during a similar time span (both became available in 1987) and most commonly at the program level (i.e. a suite of complementary personal pension products or a range of PEPs were simultaneously or sequentially created).

Unlike PEPs the total accumulated capital under pension products cannot be returned to the beneficiary and must be used to provide income during retirement from employment. Capital within PEPs can be withdrawn by the beneficiary at any time and need not be utilised for any particular purpose. Income accruing to the capital of a pension product must be added to the capital value of the underlying funds while income accruing to the capital of a PEP can be paid directly to the beneficiary. We therefore conclude that although our research contexts have products with similar features in that they both facilitate savings and have tax efficient shelters for capital and income growth, they are not mutually exclusive substitutes nor do they compete with one another and hence represent discrete contexts for research purposes.

4.5 Background To Pensions

Pension products are a form of annuity i.e. in return for the payment of a lump sum or regular contributions a pension provider undertakes to provide income at a future date. Trebilcock & Reeve, (1990) suggest that the principal purpose of a pension product is as a tax efficient means of providing income upon retirement from employment. Carter & Duncan, (1990) suggest that the main providers of pension products were traditionally,

a) life insurance companies (life offices) who offered insured occupational schemes (purchased by employers for the benefit of their employees) and

b) the State which offered a basic retirement pension, supplemented where appropriate by SERPS (State Earnings Related Pension Scheme). Despite increases in the retiring population, worker mobility and improvements in the average standard of living in the UK, the opportunity for improvement of the above pension provisions for employed persons was severely limited by legislation (Social Security Acts, 1946, 1959, 1965, 1966 and 1973).

Tutt & Tutt, (1989) suggest that growing concern by government over two key issues resulted in the introduction of the provisions of The Social Security Act of 1986 in October 1987 and July 1988. These two key issues were,

a) The implications arising from demographic increases in the retired population and the subsequent strain on government resources to support the State pension schemes, particularly the State Earnings Related Scheme (SERPS) and

b) The opportunity for employed persons to make "individual pension" provisions to supplement, or as an alternative to their employer's occupational scheme.

The Social Security Act 1986 (SSA) addressed both of the above issues and created the legislative environment for a new market i.e. **the demand for individual pensions products**

4.6 New Individual Pensions Market

The provisions of the SSA created a legislative environment wherein three generic market segments for individual pension products were created viz.

: A Personal Pension Contract wherein employed persons (not in an occupational scheme) could make provision for tax efficient payments into this product/contract.

: A Contracted Out Personal Pension Contract wherein the employee "contracted out" of the SERPS scheme and payments into this product arose initially from redirected government (SERPS) contributions and from short term incentive contributions from the State and

: Free Standing Additional Voluntary Contribution Contract (FSAVC) wherein a member of an occupational plan could supplement his employer's scheme by additional contributions to a personal pension product.

The effect of the SSA stimulated the previously latent demand for individual pension products and within the foregoing legislative parameters product developers responded with products that were both new to the industry and new to the pensions market.

4.7 Growth In The Individual Pensions Market

Before the implementation of the SSA (1986) in October 1987 (for FSAVCs) and July 1988 (for personal pensions and contracted out contracts), section 226 of the Income and Corporation Taxes Act, 1970 had created an earlier opportunity for the provision of individual pension products for self-employed persons. Consequently a restricted market for individual pension products did exist before the implementation of the SSA. However the employed person did not have the same freedom to provide for his/her retirement. Table 4 below provides data on the dramatic growth of the new market for individual pension plans.

TABLE 4

Individual Pensions Market: New Business

	1987	1988	1989	1990	1991
New Policies (000s)	913	2,614	4,380	2,769	2,859
New Premiums (£m)	1,227	2,063	4,360	4,964	5,081
Year On Year Growth	%	%	%	%	
New Policies	186	68	-37	3	
New Premiums	68	111	14	2	

Sources: ABI Statistics (1989, 1990a/b & 1992).

The mean annualised growth in new policies is equivalent 55% p.a. and the mean annualised growth in new premium income is equivalent to 49% p.a. Very few financial services markets have demonstrated comparable growth figures. The emergence of a new growth market and a new competitive environment creates a unique opportunity to study how the management of marketing information was operationalised during the program level development of new personal financial services products.

4.8 The Nature Of Personal Equity Plans

Personal Equity Plans (PEPs) first became available on 1st January 1987 and were introduced by conservative Chancellor Nigel Lawson to encourage stock market investment by the public. Each year investors can take advantage of their annual PEP taxation allowance and purchase a PEP (an authorised investment product). The original capital sum that could be invested was £3000 per annum, but this was progressively increased to £4800 in the fiscal year 1989/90. then £6000 in 1990/91 and finally to £6000 plus £3000 in a single company PEP in 1991/92. PEPs are investment vehicles whose capital profits are free of any liability to Capital Gains Tax and whose income is free of any liability to Income Tax. Dividends and capital gains can therefore be paid out gross or reinvested within the PEP.

The first PEPs had high charges for customers, low profit margins for authorised plan managers (product providers) and offered potentially small tax savings for plan holders (investors). As a result of lobbying by the financial services industry the Finance Act of 1989 introduced changes in the concept of the PEP (notably increasing the amount that could be invested). The provisions of the 1989 Act subsequently created a renewed stimulus for investment in these tax efficient products. In 1991 the then Chancellor Norman Lamont increased the eligibility of shares that could be invested in a PEP and granted a further allowance for investment in a single company PEP.

4.9 Types Of PEPs

The early PEPs were permitted to invest in a narrow range of shares or authorised unit trusts. However, mainly due to legislative amendments and the ingenuity of the financial services industry PEPs have evolved into flexible and sophisticated investment vehicles that form an integral part of most tax efficient investment portfolios. PEP products can include investments for capital growth, income, growth and income, regular savings schemes, single company schemes and unit trusts. The variety of PEPs available is emphasised by the 712 equity plans available from over 200 authorised PEP plan managers listed in the PEP Guide [Chase De Vere Investments, (1993)].

PEPs are generally described by their accepted industry categorisations viz.

A Single Company PEP: This product invests only in the shares of one company and the maximum investable amount is subject to statutory limits within each tax year.

Managed PEP: Within this product the plan manager selects the underlying investments on behalf of the investor. Managed PEPs invest in shares, investment trusts, unit trusts or a combination of all three.

Self-Select PEP: This product permits the investor to select the underlying investments and the plan manager acts upon the instructions of the investor.

Advisory PEP: This is similar to a Self-Select PEP wherein the plan manager provides some expertise in selecting the underlying investments, although responsibility for investment decisions is vested in the individual plan holder.

Corporate PEP: These are normally sponsored by a company to allow shareholders and employees to hold shares in that company. PEP plan managers develop and administer the PEP which because of its single underlying investment requires no investment management discretion. This type of PEP has an unique advantage for employees and shareholders who have share options. The shareholder/employee can maximise his taxation advantage by placing his reduced cost shares of the company obtained through share option schemes into his corporate PEP.

Over 168 of the 205 authorised PEP plan managers scheduled in Chase De Vere's PEP Guide offer three or more types of PEP, all of which have been launched during the period January 1987 through to December 1992.

4.10 Growth In PEP Market

PEPs did not exist in December 1986 but have become extremely popular with over 2 million PEPs in issue and £6 billion under management as at December 1992 [Chase De Vere Investments, (1993)].

4.11 Objectives Of Preliminary Field Study

Our review of the marketing and product development literature in Chapters 2 and 3 has argued that marketing information is an important corporate asset during product development

and consequently needs to be managed. In the absence of a comprehensive paradigm we have identified eighteen managerial actions which have been proffered to be important in managing marketing information. However our typology of managerial actions has not been subject to empirical validation in a research context nor does it provide specific guidance on the proficiency and frequency criteria with which outstanding product developers undertake their management of marketing information. In Chapter 1 we quoted from Brownlie, (1991a) and indicated that we were desirous that our research should have practical results. We therefore consider that we would be remiss if we were to execute an investigation into these eighteen managerial actions without referencing the views of practitioners on our ostensibly important analytical perspective. Additionally the literature has been deficient in advising if there is sufficient measurable variation in the proficiency and frequency of execution of these proffered managerial actions to enable a rigorous scientific study to be undertaken. We therefore resolved to mount a preliminary field study to rectify these deficiencies in our knowledge and to provide the researcher with greater empirical insights into the research contexts prior to initiation of a full scale research study.

The main objectives of our preliminary field study were as follows,

1) To determine from personal interviews if there was significant variation in the frequency and proficiency of the foregoing eighteen managerial actions during product development to enable a viable research study to be undertaken. We also wished to gather information on the frequency and proficiency of action to enable us to compile measurement scales for subsequent use in our main interview schedule.

2) To confirm if the managerial actions concerning marketing information are important issues of concern for product development practitioners. In particular that the proficiency and

frequency criteria adopted by superior firms are of significant interest to financial service product developers.

3) To determine a measure of new product success that is meaningful to practitioners and appropriate for program level research in our selected financial services contexts.

4) To determine key activities that were common within new PEP and new individual pension product development.

4.12 Respondents In The Preliminary Field Study

Based on telephone requests to 11 PEP developers and 11 pension developers, 14 firms (8 pension developers and 6 PEP developers), agreed to participate in a preliminary field study. Respondent firms were randomly selected from firms listed in the DTI Annual Report 1992 and the Chase De Vere PEP Guide (1993). The preliminary field study interviews were carried out during May and June 1993 and the participating respondent firms are shown in Table 5 below.

TABLE 5

Field Study Participants

Individual Pension Product Developers	Personal Equity Plan Developers
Aetna Life	Aetna Unit Trusts
Prolific Life	Baring Inv. Man.
Laurentian Life	Framlingtons
Prudential Assur.	Stewart Ivory
Provident Capital	W I Carr Investments
Standard Life	Godwins
NPI	
Sun Alliance	

As part of their agreement to be interviewed the interviewees requested that in any subsequent publication their respective answers should not be directly attributable to them as a named respondent. Consequently in the following report on our findings we do not refer to the respondent companies by name.

4.13 Preliminary Field Study Approach

In our initial telephone call to the Marketing Director of each firm we requested that two representatives from the main functions which were actively involved in product development activities be available for simultaneous interview within each respondent firm in order to provide a cross-functional response. The preliminary field study interviews, although exploratory in nature, adopted a broad theme of enquiring how frequently and proficiently the eighteen managerial actions concerning marketing information were undertaken during the creation of financial services products. We opted for an unstructured interview approach (based around our eighteen managerial actions previously scheduled in Table 2) in order to allow respondents and the researcher to interact and produce greater insights than would be obtained from a structured question and answer approach. Before commencing each preliminary field study interview the researcher explained our analytical perspective and defined key words and phrases to avoid ambiguity of understanding and unintentional errors in communication. Interviewees were then requested to confirm that they understood the terminology being adopted. At the commencement of each interview our pair of interviewees were instructed to indicate whether **in their opinion** our eighteen managerial actions concerning marketing information had been undertaken with either "high" or "low" frequency of occurrence and with a "high" or "low" level of proficiency. Measurement criteria were deliberately left to the discretion of respondents since we merely wished to determine whether variation in either dimension was evident. In order to avoid divergent responses each pair of interviewees were requested to confer and provide their consensus response. There were no instances when a pair of interviewees could not achieve a consensus response. Responses were repeated aloud by the

interviewer before being carefully recorded against the appropriate managerial action shown in Table 2.

In anticipation that we would subsequently seek to measure frequency and proficiency of execution of our eighteen managerial actions within product development we also requested that interviewees identify a measurement range within which they could rate their frequency and proficiency of action. Details of the guidance given to interviewees and the compilation of these measurement scales are discussed in Chapter 5.

4.14 Preliminary Field Study Findings

The responses from our respondent firms with respect to levels of frequency and proficiency of managerial action are illustrated below in Table 6.

TABLE 6
Levels Of Frequency & Proficiency
Of Managerial Actions

	Managerial Actions	Number of Firms			
		Frequency		Proficiency	
		High	Low	High	Low
1)	Undertake Structured Analytical Methods	* 6	8	3	11
2)	Application Of IT Based Processing	6	8	5	9
3)	Ensure Data In Usable Format	5	9	5	9
4)	Plan The Sources Of Marketing Information	2	12	2	12
5)	Ensure Relevancy Of Data	4	10	0	14
6)	Ensure Sufficiency Of Data	6	8	5	9
7)	Undertake Networking Between Development Participants	12	2	12	2
8)	Undertake Networking Between Development Tasks	10	4	6	8
9)	Utilise Formal Communication Channels	14	0	9	5
10)	Utilise Informal Communication Channels	11	3	6	8
11)	Utilise Formal Collection Systems	10	4	8	6
12)	Ensure Timely Utilisation	12	2	10	4
13)	Implement Data For Multiple Uses	12	2	4	10
14)	Share Responsibility For Sourcing Data	6	8	2	12
15)	Ensure Timely Receipt	3	11	2	12
16)	Ensure Accurate Data	5	9	5	9
17)	Competitive (Rather Than Combative) Orientation	9	5	3	11
18)	Channel Data To Decentralised Decision Makers	7	7	7	7

* To be read, as six respondent firms had undertaken structured analysis of their marketing information with a high level of frequency during product development tasks.

The wide diversity of responses illustrated in Table 6 indicates that variation in the frequency and proficiency dimensions of all of our managerial actions had been present during product development. These findings allow us to confirm our first preliminary field study objective.

Our second preliminary field study objective was to confirm that the managerial actions concerning marketing information are an important contemporary issue of concern to product development practitioners and hence a meaningful perspective for research. Twenty five interviewees from our fourteen respondent firms indicated that understanding **"how to**

manage" marketing information was a significant issue for practitioners. One respondent from Prolific Life advised "We are gradually becoming aware of the importance of marketing information but as with the acquisition of all new assets we need instructions on how to get the best from it." The remaining three interviewees suggested that future research should focus on issues related to managing marketing information within other traditional marketing operations such as sales management or advertising campaigns.

Our third preliminary field study objective was to determine a measure of success for new personal financial services products that is appropriate for program level research in our selected financial services contexts. During the preliminary field study interviewees were asked to advise the key dimension/s used to measure the success of their program of new products. The results of this enquiry indicated that success in market terms (e.g. absolute market share or actual versus target market share) and in competitive standing (the perception of the new range of products by industry rivals) were the principal measures of new product success used by both PEP and pension developers. Both measures were regarded as equally important in measuring the success of new personal financial services at the program level. When questioned further our twenty eight interviewees indicated that other measures of success such as profitability [Cooper, (1979a)], financial break-even [Maidique & Zirger, (1984)], speed of development [Dumaine, (1989) & Reinertson, (1983)], innovativeness [Johne & Harborne, (1985)], return on assets employed [Reidenback & Moak, (1986)] were known to them, but these had **not** been formally established as measures in respect of their new range of products. The majority of our interviewees suggested that financial measures of new product success were considered unreliable due to the accounting practices of their respective finance departments. Measures of the efficiency of product development (e.g. speed of development and kill rates) were not considered relevant for these new personal financial products.

Our final preliminary field study objective was to determine key common tasks undertaken during the program level development of PEPs and individual pension products. To achieve this objective interviewees were asked to rank the most common product development activities undertaken during their product development programs. The methodological approach used in compiling these tasks is articulated later in section 5.7, however the results of this line of enquiry are illustrated in Table 7A below.

TABLE 7A
Survey Results: Common Tasks In Financial Services Product Development

Concept Generation
Concept Review
Commercial Analysis
System/Support Development
Testing
Launch

Not all of the tasks were undertaken in the above sequence and some were undertaken concurrently. Interviewees also advised that some tasks were known in the financial services industry by other titles. For example concept generation was known as new product brainstorming; commercial analysis was often referred to as business or financial evaluation and support development included final product specification tasks, training and IT system support activities. Launch was sometimes known as the introduction stage or commercialisation. For the sake of clarity we have categorised the responses of all our preliminary field study interviewees under the above generic headings.

4.15 Conclusion

In Chapter 2 we identified eighteen managerial actions concerning marketing information which were proffered by the marketing, information science, decision making and management literature to be important for managing business operations such as product

development. In this chapter we have considered two new research contexts within which we propose to investigate the effect of these eighteen managerial actions. Our findings from a preliminary field study suggest that there is both significant interest by practitioners and sufficient variation in the frequency and proficiency dimensions of our managerial actions during this important business process to enable a meaningful research study to be instituted.

In order to test our earlier assumptions concerning the relationship between skilful management of marketing information and superior new products we now need to develop a research design appropriate to test our assertions.

CHAPTER 5: RESEARCH DESIGN

5.1 Introduction

> "The purpose of research is to discover answers to questions through the application of scientific procedures. These procedures have been developed in order to increase the likelihood that the information gathered will be relevant to the question asked and will be reliable and unbiased. To be sure, there is no guarantee that any given research undertaking will produce relevant, reliable and unbiased information. But scientific procedures are more likely to do so than any other method known to man."
> Baker, (1991a)

In this chapter we explain our research design (our scientific procedure). We make explicit the research methodology adopted; our principal research objectives; our research variables; our testable hypotheses and our policy for adjusting for the effect of other independent variables.

Our thesis has thus far argued that marketing information is a key managerial resource for business operations which foster corporate survival and growth, and hence needs to be **managed.** However, guidance on the management of marketing information in the context of the important business operation of product development is scant. The marketing information, information science and management literature does not prescribe a paradigm for **skilful management of marketing information.** Instead our review of the literature has identified eighteen individual managerial actions each of which has been suggested by the mainly suppositional literature to be a distinctive trait of good information management. Collectively these factors suggest a conceptual framework for **skilful management of marketing information.**

Our preliminary field study has confirmed that these eighteen managerial actions are of significant concern to practitioners and undertaken with sufficient variation in frequency and proficiency to permit a valid research project to be undertaken. Following our review of the

literature we suggested that the manner with which these managerial actions were executed may have a significant association with superior new products. In order to address the concerns of scholars and practitioners we propose to investigate and report on whether the management of marketing information (and which specific actions) can facilitate outstanding new products

5.2 The Principal Research Question

The foregoing review of the literature and observations from our preliminary field study have led us to postulate that the way in which the management of marketing information is undertaken has an effect on the success of new products. This leads us to pose the question **"Do superior product developers manage their marketing information in ways which are distinctly different from less successful product developers?"**

5.3 Objectives Of The Research

The objectives of this research project are,

1) To <u>investigate</u> and <u>determine</u> if superior product developers manage their marketing information in a manner which is more skilful than that of less successful developers and

2) To <u>identify</u> and <u>report</u> in what ways the managerial approach of superior developers is significantly more skilful from the managerial approach of less successful developers and

3) To provide empirically based and significantly new knowledge with respect to the management of marketing information during the critically important business operation of product development.

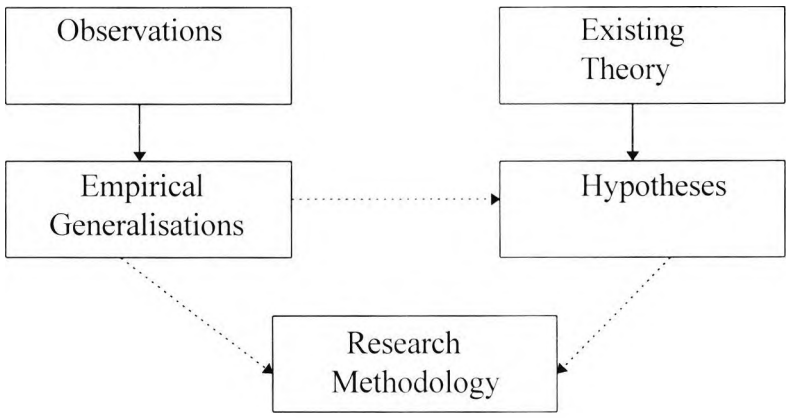
5.4 Methodological Approach

Our methodological approach is less common in marketing and product development research, and involves a hybrid technique which utilises the more common hypothetico-deductive methodology **and** the less common inductive methodology. Since these two approaches traditionally commence from different bases they have been considered to be conflicting and mutually exclusive [Zaltman, LeMasters & Heffring, (1982)]. For example, the inductive approach is based on observations which result in empirical generalisations, while the hypothetico-deductive approach is grounded in untested theories which form the basis for testable hypotheses. In research topics where theory development is deficient the inductive methodology tends to be favoured. Contrarily in research topics where few empirical studies have been carried out the hypothetico-deductive approach tends to predominate [Podsakoff & Dalton, (1991)].

Zaltman, LeMasters & Heffring, (1982) and Birks, (1991) provide support for our hybrid methodological approach by suggesting that both methods represent different stages in testing assumptions. Both methods lead to the development of a research approach and ultimately to further theory development and further empirical generalisations. Our hybrid methodological approach is illustrated in Figure 3.

FIGURE 3

Hybrid Hypothetico-Deductive/Inductive Approach



Adapted from Zaltman, LeMasters & Heffring, (1982) & Birks, (1991)

The advantage of our hybrid methodology is that we have merged empirical observations from our preliminary field study to support hypotheses principally derived from a review of the mainly theory based literature. By merging the empirical concerns of practitioners observed from our preliminary field study, with theoretical assertions derived from extant marketing and product development literature we have created hypotheses which when tested will refute or confirm extant theory **and** advance our understanding of how best to manage a valuable corporate asset [Piercy, (1981)].

5.5 Principal Independent Variable

Our principal independent variable is stated to be the **management of marketing information.** By management of marketing information we mean the execution of the eighteen managerial actions listed in Table 2.

5.6 Measurement Of Variation In The Principal Independent Variable

In order to determine if, and in what ways, superior developers manage their marketing information differently from less successful developers we measure and then compare the quality and quantity of execution of the managerial actions identified in Table 2 between our groups. We will measure the **frequency of occurrence** of each managerial action within product development tasks. For example, we will measure how frequently multiple usage of marketing information occurred during idea screening and within testing activities and how frequently marketing information was shared between participants during testing activities and launch tasks.

We will also measure the **proficiency** with which each managerial action was undertaken during key product development tasks. For example we will measure whether IT based processing of marketing information was proficiently executed during idea generation activities and whether formal marketing information collection was diligently implemented within launch tasks. By measuring and then contrasting both the frequency and proficiency of execution of our eighteen managerial actions during common tasks we will be able to determine how often and how diligently marketing information is operationalised by superior product developers relative to the practices undertaken by less successful developers. By analysing the results of our measurement of these managerial actions we will be able to determine what specific managerial actions are significantly associated with the creation of outstanding new products.

5.7 Product Development Tasks

In this research study we propose to measure the extent of marketing information management undertaken during product development tasks. Therefore we need to identify key

tasks that are common to our research population. To determine these tasks we have adopted a dual approach. Our first approach involved identifying the most common tasks scheduled within the models illustrated in Appendix I. The results of this analysis initially identified eight tasks which were the most prevalent in our product development models. Of these eight tasks identified as having arisen in two or more of the paradigms, two tasks had a significantly lower frequency of occurrence than the remaining six tasks. Because of this low frequency of occurrence and a practical need to maintain research variables within manageable parameters we decided to eliminate the two tasks with a lower frequency of occurence. The remaining six tasks are illustrated below in Table 7B.

TABLE 7B
Common Tasks In Product Development

i) Idea Generation
ii) Idea Screening
iii) Commercial Analysis
iv) Development
v) Testing
vi) Launch

Our second approach arises from our preliminary field study. Field study interviewees were asked to state the product development tasks which they considered were the most commonly undertaken. Interviewees identified nine product development tasks. With the assistance of an eminent panel of three industry and two academic experts and using repeated applications of an analytical reduction technique known as Delphi Analysis we reduced the number of tasks to eight, then seven and then subsequently to six. Delphi Analysis [Mitchell, (1992) and Evans, (1993)] is a recognised data reduction technique which requires that the data under examination is subjected to a number of "passes". Each "pass" is a reconsideration by the panel of the remaining variables. Panel members were contacted by telephone and during each pass members eliminated one task which they considered to be marginally less important until

the remaining variables had been honed down to those which our expert panel considered the most common within personal financial services product development. The residual tasks arising from our Delphi Analysis are scheduled in Table 7A in Chapter 4.

The six common tasks in Table 7A can be seen to be congruent with those of Table 7B and we therefore conclude that these six tasks are representative of the common activities inherent in financial services product development. Interestingly, the same generic tasks were previously identified by Booz, Allen & Hamilton, (1982) as key activities in product development. Arguably, we could have applied the Booz, Allen & Hamilton (BAH) model for our analytical purposes without reference to our respondent firms. We originally considered this approach but declined for the following reasons,

a) The BAH model was compiled from research undertaken in non-financial services contexts and therefore could not be presumed to be representative of the common tasks inherent in financial services product development.

b) The BAH model was based on studies undertaken in the late 1970s and we considered that the model may no longer be representative of the key tasks within product development undertaken in the late 1980s.

c) We wished to investigate the management of marketing information within tasks that respondents in our research contexts considered to be key tasks rather than assume that the BAH tasks were also important to our respondents.

Using a typology previously implemented by Johne & Harborne, (1985) and Johne & Snelson, (1990a) we can further synthesize these tasks into **initiation activities** (idea generation, idea screening and analysis) and **implementation activities** (development, testing and launch). In adopting this additional categorisation we will be able to comment further on the manner in

which marketing information is managed between the early (initiation) activities and later (implementation) tasks.

We propose that the six tasks in Tables 7A & 7B will form the activities within which we will measure the proficiency and frequency of execution of our eighteen key managerial actions. Appendix IV illustrates our analytical matrix showing the six product development tasks along the horizontal axis and the eighteen managerial actions along the vertical axis.

5.8 Principal Hypothesis

Based on our review of the literature and supplemented by findings from our preliminary field study we have developed the following principal hypothesis. **We hypothesise that superior product developers are more skilful in their management of marketing information than less successful developers.** By skilful we mean invoking significantly higher levels of frequency and proficiency in the execution of the aforementioned managerial actions.

5.9 Supporting Hypotheses

In order to test our principal hypothesis we have transposed our managerial actions into eighteen pairs of supporting hypotheses. Each pair of supporting hypotheses incorporates a frequency hypothesis and a proficiency hypothesis related to each specific managerial action.

Our supporting hypotheses are presented as follows;

H1a: We hypothesise that superior product developers implement more frequent multiple usage of marketing information than less successful developers.

H1b: We hypothesise that superior product developers are more proficient in the multiple usage of marketing information than less successful developers.

H2a: We hypothesise that superior product developers have a greater frequency of ensuring timely utilisation of marketing information than less successful developers.

H2b: We hypothesise that superior product developers are more proficient in ensuring timely utilisation of marketing information than less successful developers.

H3a: We hypothesise that superior product developers undertake more frequent networking of marketing information between development participants than less successful developers.

H3b: We hypothesise that superior product developers are more proficient in their networking of marketing information between development participants than less successful developers.

H4a: We hypothesise that superior product developers more frequently plan the sources of their marketing information than less successful developers.

H4b: We hypothesise that superior product developers are more proficient in planning the sources of their marketing information than less successful developers.

H5a: We hypothesise that superior product developers more frequently ensure the relevancy of their marketing information than less successful developers.

H5b: We hypothesise that superior product developers are more proficient in ensuring the relevancy of their marketing information than less successful developers.

H6a: We hypothesise that superior product developers undertake more frequent informal communication of marketing information than less successful developers.

H6b: We hypothesise that superior product developers are more proficient in informal communication of marketing information than less successful developers.

H7a: We hypothesise that superior product developers more frequently ensure the usable format of their marketing information than less successful developers.

H7b: We hypothesise that superior product developers are more proficient in ensuring their marketing information is in a usable format than less successful developers.

H8a: We hypothesise that superior product developers invoke marketing information more frequently for competitive (rather than combative) purposes than less successful developers.

H8b: We hypothesise that superior product developers are more proficient in invoking marketing information for competitive (rather than combative) purposes than less successful developers.

H9a: We hypothesise that superior product developers undertake more frequent structured analyses of marketing information than less successful developers.

H9b: We hypothesise that superior product developers are more proficient in their structured analyses of marketing information than less successful developers.

H10a: We hypothesise that superior product developers more frequently ensure the sufficiency of their marketing information than less successful developers.

H10b: We hypothesise that superior product developers are more proficient in ensuring the sufficiency of their marketing information than less successful developers.

H11a: We hypothesise that superior product developers undertake more frequent networking of marketing information between development tasks than less successful developers.

H11b: We hypothesise that superior product developers are more proficient in their networking of marketing information between development tasks than less successful developers.

H12a: We hypothesise that superior product developers more frequently share responsibility for sourcing marketing information than less successful developers.

H12b: We hypothesise that superior product developers are more proficient in sharing responsibility for sourcing of marketing information than less successful developers.

H13a: We hypothesise that superior product developers more frequently implement formal marketing information communication channels than less successful developers.

H13b: We hypothesise that superior product developers are more proficient in their implementation of formal marketing information communication channels than less successful developers.

H14a: We hypothesise that superior product developers undertake more frequent IT based processing of marketing information than less successful developers.

H14b: We hypothesise that superior product developers are more proficient in IT based processing of marketing information than less successful developers.

H15a: We hypothesise that superior product developers have a greater frequency of ensuring timely receipt of marketing information than less successful developers.

H15b: We hypothesise that superior product developers are more proficient in ensuring timely receipt of marketing information than less successful developers.

H16a: We hypothesise that superior product developers have a higher frequency of ensuring the accuracy of marketing information than less successful developers.

H16b: We hypothesise that superior product developers are more proficient in ensuring the accuracy of their marketing information than less successful developers.

H17a: We hypothesise that superior product developers more frequently implement formal collection systems for their marketing information than less successful developers.

H17b: We hypothesise that superior product developers more proficiently implement formal collection systems for marketing information than less successful developers.

H18a: We hypothesise that superior product developers have a higher frequency of channelling their marketing information towards decentralised decision makers than less successful developers.

H18b: We hypothesise that superior product developers are more proficient in channelling their marketing information towards decentralised decision makers than less successful developers.

The underlying constructs for the above supporting hypotheses are the eighteen managerial actions derived from our review of the literature. These managerial actions were compiled in Chapter 3 using Kotler's typology of management and consequently our managerial actions were grouped together within Table 2 under analysis, planning, implementation or control headings. During testing of our draft interview schedule we found that the order of the questions within categories of analysis, planning, implementation and control suggested to some interviewees actions that they may (on reflection) have wished to have undertaken. To avoid some interviewees providing answers which portrayed them in a more favourable position we randomly rescheduled the order of the above supporting hypotheses and our interview questions in Appendix VIII.

5.10 Dependent Variable

Our dependent variable is stated to be **new product success.** We discussed in Chapter 2 that success in product development can be measured within two key dimensions i.e. the success of the output of the process or success in undertaking the process. We are concerned with the success of new products (i.e. the output of product development). In this research project we define superior product developers as those firms whose measure of new product success exceeded the median value based on our composite measure of the dependent variable. We define less successful developers as those firms whose measure of new product success was below the median value based on our composite measure of the dependent variable.

5.11 Measures Of The Dependent Variable

Johne & Pavlides, (1991) and Hauschildt, (1991) review and discuss measures of product development success adopted in earlier research studies (at both the product and program levels). Arising from our review of product development research studies [e.g. Rothwell, (1976a/b); Cooper, (1979a); Maidique & Zirger, (1984); Nystrom & Edvardsson, (1982); Hopkins, (1981); Souder, (1981); Reinertson, (1983); Dumaine, (1989); Cooper, (1984a & 1984b); Johne & Harborne, (1985); Cooper & Kleinschmidt, (1987); Ruekert & Walker, (1987) and Meyer & Roberts, (1986)] we have found that rarely did the researchers adopt a single measure of success. Instead multiple measures were often regarded as more appropriate criteria for measuring new product success. Previous research in the financial services sector by de Brentani, (1989); Reidenback & Moak, (1986); de Brentani & Cooper, (1992); Edgett & Thwaites, (1990a); Johne & Vermaak, (1993) and Edgett, (1991) also indicates a tradition of multiple rather than single measures of new product success. In our review of these financial services studies we found that the rationale for the use of multiple measures was based on each author's field study findings which indicated that at least two measures of success had been invoked by practitioners. These conclusions were consistent with our own preliminary field study observations which also confirmed that pension providers and PEP plan managers adopted more than one measure of success with respect to their program level developments.

Earlier research studies have utilised various measures of success in product development. Appendix II illustrates examples of selected measures of success in product development. Many of these measures are technology or supply driven (based on internal capabilities), relevant to project level success or seek to measure success based on the subjective and often unique opinions of individual interviewees. In the context of each researcher's investigation the measures adopted were validly related to the independent variable being

examined. We have reviewed the measures of success shown in Appendix II. Each of these measures was appropriate for the research design implemented by the researchers, however the majority are incompatable with the success criteria suggested by our preliminary field study respondents.

Littler, (1988); Buckley, Pass & Prescott, (1988) and Day & Wensley, (1988) have recorded their concerns in determining measures of success within the financial services sector and concluded that profitability measures were prone to subjective manipulation dependent upon the accounting practices, expense management and strategic objectives of each individual company. Cunningham and Culligan, (1990) also endorse the rejection of figures derived from "accounting manipulation" and further argue that short term and simplistic financial measures are frequently misleading. Speed, (1988) argues against invoking financial measures of success and suggests that there can be difficulty in isolating the "costs and margins" associated with creating financial services products because of the apportionment of central overhead expenses. These problems therefore present difficulties in isolating an appropriate measure of new product success based on financial data. Other measures of success in product development such as speed of development, rate of development and kill/failure rates [Ettlie & Bridges, (1982); Reinertson, (1983); Cooper, (1984a) and Dumaine, (1989)] gauge proficiency of execution of the process rather than the responsiveness of the new product to information concerning consumer needs and competitive imperatives. The importance of competitiveness as a measure of business success is recognised in many marketing and management texts [Kheir El Din, (1991); Koren, (1990); Littler, (1988) and Porter, (1979)] by both scholars and practitioners. According to Buckley et al, (1988); Nystrom & Edvardsson, (1982); Ughanwa, (1987); Cooper, (1984b) and Meyers & Roberts, (1986) measures of competitiveness are fundamentally subjective and assume that individuals have comprehensive knowledge of all competing

products and consequently can make accurate comparisons. To further complicate this issue, rarely are rival products perfect substitutes for one another [Pavia, (1990)] and although having similar benefits they may be focusing on similar but marginally different market segments. Notwithstanding the recognised deficiencies in measuring the relative competitiveness of new products, respondents in our preliminary field study concurred that the competitive standing of their suite of new products was a significantly important measure of new product success in their sector of the financial services industry.

The product development and management literature also advocates market related measures of new product success. For example, Pearson, (1989) considers and discusses market leadership as a critical measure of new product success recognised across all industries. Robinson, (1988) and Ryans & Shanklin, (1984) also highlight the importance of "speed to market" as a measure of product development success while Kekre & Srinivasan, (1990) conclude that market share is recognition of "customer satisfaction" and hence a meaningful measure of success. Cordero, (1990) suggests that measures of new product success based on market share should allow for significant overall demand movements if they are to be valid when compared across industries. Additionally measures of market share tend to be based on the served market [Thomas, (1988)] rather than on the potential total market, albeit there are recognised problems in accurately ascertaining the potential total market for a new product.

Reinertsen, (1983); Cooper, (1984a/b & 1985a) and Dumaine, (1989) identify 3 key dimensions used to measure new product success at the program level viz.,

Relative Performance:- The extent to which the product development program met internal (profitability, technological, use of assets etc.) or external (competitor and market related) criteria.

Success Rate:- The extent to which the development process produced new products, killed partly developed products or generated new product ideas.

Relative Impact:- This is the extent to which current revenues are made up by income from products introduced from product development.

During our preliminary field study interviewees indicated that market based criteria and competitive standing of their new products were the primary measures used to evaluate the success of their recent program level developments. In so doing they indirectly confirmed that "success rate" and "relative impact" dimensions had not been their principal measurement criteria. Instead by advising that **market related** and **competitor relative** measures had been used they had in fact adopted a "relative performance" dimension.

Based on information provided by our preliminary field study interviewees we have determined the following dual measures which, when combined, provide a valid measure of new product success within our research contexts. These dual measures are,

(i) The **achieved** mean market share of the suite of new products relative to their **target** mean market share **during the period from launch to 31st December 1992** and

(ii) Rating by respondents of the relative competitiveness of the program of new products launched by rival firms **during the period from launch to 31st December 1992**.

In both of our research contexts respondents indicated that they had launched their range of products within three to seven weeks of the enactment of the enabling legislation and during the period from launch until 31st December 1992 their range of products had adequate time in which to establish their target market share. We have also limited our research timeframe to the period ended 31st December 1992 since we were advised that some amendments to product ranges in both research contexts were implemented during 1993.

The procedure for compiling our measure of the dependent variable is articulated in Chapter 6. In summary our basis for selection of a multiple measure in respect of the dependent variable is based on the following rationale,

: Our field study findings indicated that **market related** and **competitor relative** measures were the most meaningful for practitioners and of equal weighting in our research contexts.

: Reinertsen, (1983); Cooper, (1984a/b & 1985a) and Dumaine, (1989) argue that a key dimension used to measure success at the program level is relative performance:- the extent to which the range of new products met market and competitor expectations.

: Past research at the program level has recognised and adopted market and competitive criteria as the basis for commercial success of new products. [Cooper, (1988c) and Cooper & de Brentani, (1991)].

Having determined an appropriate measure of new product success we invoke this to categorise respondents into two groups; superior product developers (program winners) and less successful developers (program losers).

5.12 Methodological Considerations

5.12.1 Units Of Study & Analysis

Our primary units of study are the universe of 205 authorised insurance companies listed in the Department Of Trade Annual Report 1992. To enable comparison and validation of our findings we have decided to replicate the study in a secondary research context using the 202 authorised PEP plan managers listed in the Chase De Vere PEP Guide (11th Edition:1993). The rationale for selection of firms in the pensions and PEP contexts as units of study is that they provide recent examples of new program level developments. Additionally there has been

growing recognition by the product development literature of the need for urgent investigation into the development of personal financial services [Ennew, Wright & Watkins, (1989) Edgett, (1991); Edgett & Jones, (1991) and Ennew, Watkins & Wright, (1990)].

An additional advantage in adopting pensions and PEP developers as our units of study is that individual respondent units tend to be autonomous SBUs (Strategic Business Units) whose operations and management are unfettered by corporate parents. Kohli & Jaworski, (1990) support analysis at the SBU level and argue that "the appropriate unit of analysis appears to be the strategic business unit rather than the corporation, because different SBUs of a corporation are likely to be market oriented to different degrees". The SBU status of our respondent firms will in part mitigate the effects of corporate or external management intervention as an influence on our dependent variable measure.

The unit of analysis was three senior representatives (from the main functional areas) who had been directly involved during the creation of the suite of new products. Our basis for insisting upon three interviewees was to ensure that the quality of our data was not diminished by poor recall problems or subjected to undue bias by individual interviewees.

5.12.2 Rationale For Program Level Research

Johne & Snelson, (1990a/b) suggest that investigating success at the project level may inadvertently focus on isolated flukes and thus individual product level findings may be unreliable as a basis for understanding the real reasons underlying the success of a range of new products. While most firms can demonstrate one-off examples of successful new products very few can demonstrate program level success. Soderberg & O'Halloran, (1992) and Parsons, (1992) contend, that since business is an ongoing activity, program level success is more supportive of long term survival and growth. We conclude that research at the program level is

therefore more meaningful than project level research and hence this study has been instituted at the program level.

5.13 Data Collection Approach

Smith & Dainty, (1991) argue that the method of data collection implemented within research studies is of "paramount importance" in achieving reliable and valid data for analysis. Many previous studies into the phenomenon of product development have sought to obtain data from mail or telephone surveys targeted at individuals within firms which fall within the researcher's selected context [Alreck & Settle, (1985)]. These data collection approaches can result in a low response rate and often rely on the subjective evaluation and recall ability of an individual. According to Baker, (1991a) the resultant data can also lack the "quality and richness" obtainable from personal interviews. Notwithstanding the swiftness with which mail and telephone surveys can secure data for analysis we consider that the foregoing disadvantages of these methods could bring into question the validity of our data. We have therefore opted to implement a structured interview approach based on a pre-tested questionnaire to facilitate data collection. The rationale underlying our data collection approach is as follows,

(i) The managerial actions that we are investigating preceded the availability of the range of new financial services products we are investigating and hence interviewees are required to exert memory recall of the managerial actions previously undertaken. A personal interview approach will permit the interviewer to ensure a period of focused recollection that may not be facilitated by impersonal and unsupervised data collection approaches such as mail or telephone surveys.

(ii) Our preliminary field investigation found that some respondents wished to be perceived in a favourable manner concerning their management of marketing information. The

problem of units of analysis wishing to be perceived in a favourable light by researchers had previously been identified by Elton Mayo during his renowned **Hawthorne Studies** conducted in the 1940/50s. To reduce the Hawthorne effect and any inadvertent response errors during our main investigation we decided to verify the objectivity of each respondent's answers against their archive records. Such verification was only possible by the physical presence of the interviewer within the offices of each respondent firm.

(iii) Many previous studies concerned with the phenomenon of product development have sought to obtain data responses from individual interviewees within sample firms. However individual memory recall may be fettered and unknowingly subjective. To minimise subjectivity of response and constraints on interviewee recall we simultaneously administered our questionnaire to three individuals who were actively involved in the development of each respondent firm's range of new products. By obtaining a consensus response we were able to substantially reduce response errors, improve data reliability and further minimise memory recall problems.

(iv) Some earlier research studies have reported incomplete or missing responses to self-administered questionnaires (possibly as a result of mis-understanding the terminology used). To overcome this problem we decided that prior to completing the interview schedule our interviewer would explain the terminology being used. This approach increased the time taken to complete the interview schedule but ensured that all questions were answered and that both interviewer and interviewee were adopting the same definitions. As a further safeguard to the validity of our data the interviewer repeated the interviewee's answers aloud as they were recorded in the interview schedule to ensure that there had been no errors of communication.

(v) We considered that the implementation of an unstructured or semi-structured interview schedule may compromise the validity of the data collected. For example during a

semi-structured or unstructured approach the interrogative style adopted by the interviewer would most certainly be different during each interview and this may distort the quality and comparability of answers provided. We decided that to counter this potential problem that we would standardise our questions and apply a consistent interview approach based on a structured questionnaire.

Baker, (1991a) and Smith & Dainty (1991) contend that the administration of a structured interview schedule is an inflexible approach that does not facilitate discussion of any interesting issues which may arise in the course of the interview. This is a valid criticism of a structured interview approach, however in this research study we are not seeking to discover further issues for research but are concerned to focus on a specific analytical perspective.

5.14 Interview Schedule

5.14.1 Construction Of Interview Schedule

Based on our supporting hypotheses, our control policy and our dependent variable measure a draft interview schedule was prepared. The interview schedule contains an introduction which was read aloud by the interviewer prior to initiation of the formal interview process. This introduction section allowed the interviewer to explain the broad nature of the study and the terminology being used.

Section One of the interview schedule contained questions designed to solicit general corporate information. This section provided data which was used as background information to allow the researcher to evaluate if issues such as corporate size or ownership were associated with the apportionment of respondents to winners or losers groups. Section Two required respondents to provide data on the dependent variable measures. Section Three contained questions designed to operationalise the supporting hypotheses (i.e. soliciting responses to

questions concerning frequency and proficiency of managerial actions). Section Four solicited data for our control policy concerning other independent variables.

Section Three of our data collection schedule was designed to obtain measures of the quality and quantity of managerial actions under investigation. This is a key consideration in our research and hence our measurement scales need to be capable of accurately measuring our independent variables while having sufficient range for subsequent statistical analysis. Baker, (1991c) identifies and discusses the importance, scope and use of various types of scales (e.g. Thurstone, Likert, Semantic Differential and Stapel scales). Arising from his discussion Baker suggests that scales should be designed which are appropriate to the variables being measures and within ten basic criteria viz. 1) Keep them simple, 2) Respect the respondent, 3) Dimension the response, 4) Pick the denominations, 5) Decide on the range, 6) Group only when required, 7) Handle neutrality safely, 8) State instructions clearly, 9) Always be flexible and 10) Pilot test the scales.

With due reference to Baker's ten point framework we commenced preparation of a scaling system for use in measuring our managerial actions. The researcher did not wish to impose a scaling system within our interview schedule which could be considered during the field investigation to be inappropriate. During our preliminary field study we had requested interviewees identify a measurement range over which they could rate a) their frequency and b) their proficiency of execution of managerial actions. For the guidance of interviewees we set limiting dimensions that restricted the maximum number of points within the scale to 9, commencing from absolute zero (nil frequency or nil proficiency) and having equal interval values. In discussions with our interviewees we developed a 7 point (equal interval) frequency scale and a 5 point (equal interval) proficiency scale which they confirmed were appropriate to measure frequency and proficiency of managerial action. We recognise that the intervals within

our scales lack the precise equality inherent in more formal scaling systems. However before implementing Section 3 of our questionnaire we advised respondents that they must treat our scales as having equal intervals. Although this approach does not of itself endow our scales with the accuaracy inherent in formal scaling systems it does provide a scaling system which is sufficiently robust to allow the use of our statistical analysis procedures. Details of these scales are shown at the commencement of Section Three.

We tested our measurement scales during our preliminary pilot test of the interview schedule to the ensure that our scales validly measured what they purported to measure. Interviewees commented that they found our scales easily understood and a valid measurement basis for the managerial actions being investigated.

5.14.2 Testing Of Interview Schedule

The draft interview schedule was tested during eight interviews with individuals who had originally been included in our preliminary field study. During testing the interviewer read each question aloud and each interviewee was then requested to explain their interpretation of the questions and thus we were able to determine if interviewees had correctly interpreted our terminology. Arising from our testing of the draft interview schedule minor amendments regarding terminology, scaling and presentation were made. The amended interview schedule was then reviewed by telephone with the three interviewees who raised the original queries and they subsequently indicated that they were satisfied that the amended questions were free from ambiguity and would be easily understood by their industry colleagues. The final interview schedule is shown in Appendix VIII.

During testing of the interview schedule six respondents indicated that information concerning achieved and target market shares would take some time to retrieve from their

archive records. This delay in retrieving market figures caused the researcher to conclude that time spent on the field investigation could be optimised by forwarding a copy of Section Two of the interview schedule to each respondent firm in advance of the interview. Hence respondent firms were faxed or mailed a copy of Section Two of the interview schedule and this completed section was collected and checked for completeness at the conclusion of the main field interviews.

Although all of the underlying constructs (the managerial actions) of our questions in Section Three of the interview schedule were derived from the literature using Kotler's typology of management as our analytical framework, our purpose in using Kotler's categorisation was merely to facilitate a structured analysis of the literature. During testing of the interview schedule we found that clustering the interview questions into groups of analysis, implementation, planning or control questions implicitly indicated to interviewees managerial actions that superior product developers might be expected to have undertaken. To avoid interviewees providing answers which they perceived may be expected or portray them in a more favourable but less than honest position we randomly re-scheduled the questions in Section Three of the interview schedule.

5.15 Adjustment For Confounding Variables

In any research study there may be situation and subject variables [Miller, (1984) & Baker, (1991a)] which influence the dependent variable and consequently confound the results of a research study unless certain negating or adjusting action is taken. In studies by Johne & Snelson, (1990b); Cooper & Kleinschmidt, (1990 & 1991); Cooper, (1991); Rothwell, (1976b) and Roberts, (1977) they have shown that other variables are significantly associated with the success of new products. In order to preserve the integrity of our independent variable we must

adjust or negate the influence of these other independent variables. The key objective of our adjustment policy is therefore to avoid **confounding** (distortion of the dependent variable) by eliminating the effect of other independent variables which **systematically** change with our selected independent variable.

In this research project we are not seeking to identify new factors associated with new product success. Rather, we are seeking to explain **what** managerial actions concerning marketing information influence the success of new products. This research project should therefore be considered to be a **complementary study** with respect to the earlier associated factor studies and not considered to be a competing study. These earlier studies have answered questions concerning **what factors** are associated with success. This study proposes to answer questions concerned with **what managerial actions** are associated with successful new products. Many of the extant endogenous factors found to be associated with the success of new products are **functions** of the management of marketing information. For example, the following factors require varying degrees of analysis, planning, implementation and control of marketing information before they can exist: a differentiated product, knowledge of customer needs, a product valued by the customer, product/ market fit and superior product with unique benefits. Our control policy does not adjust for those marketing related factors which are a function of managing marketing information during product development activities. If we were to eliminate the effect of these factors we would negate the impact of the underlying managerial actions that we are investigating. What we wish to eliminate are the effects of other corporate actions which were not considered during product development but which subsequently influenced our measures of the dependent variable. For example unplanned advertising expenditure or acquisition of new distribution channels can be corporate actions not considered by the product development team which affected achieved market share and may have influenced the perceived

competitive standing of a firm's suite of new products. We are seeking to curb the effect of those variables which **were not part** of the product development team's consideration when they were determining their target market share or how the new product's competitiveness would be perceived by rival firms. In Section Four of our interview schedule we provide respondents with an opportunity to identify and quantify the effect of such managerial factors.

5.15.1 McKinsey 7S Framework

The analytical model which forms the basis of our subject control frame is the McKinsey 7S framework as advocated by Peters & Waterman, (1982): Structure, Strategy, Systems, Skills, Shared Values, Staff and Style. The original purpose of the 7S analytical framework was to capture key management activities within organisations. In the following sections we have invoked the 7S framework to subjectively determine from the product development and marketing literature other independent variables which could influence our measure of success in new products. The application of this analytical model has been used most recently by Johne & Snelson, (1990a); Thomas, (1988); Dwyer & Mellor, (1991a/b) and Johne & Vermaak, (1993).

Our approach involved interviewees considering the effect of other key managerial actions (not previously considered by the development team) on their respective sub-measures of new product success. They did so by providing answers to Section 4 of our interview schedule. In cases where other independent variables were considered to have had an effect (and had not been considered during the establishment of target market shares or competitiveness of the new products) interviewees were also asked to quantify this effect. An adjustment was subsequently made to the dependent variable measure of each respondent firm to negate the effect of these independent variables.

5.15.2 Subject Adjustments

Structure:- Studies by Cooper, (1990) and Cooper & Kleinschmidt, (1990a & 1990b) have found that formal product development processes have a high association with success in product development. This association was determined when the dependent variable was measured in terms of the number of inadequate projects filtered out, speed of the development and output volume, rather than in terms of market and competitive criteria. In our field investigation two respondent firms indicated that the formal structure of their development process contributed to the success of their new products. Interviewees from these two firms believed that their formal development processes had facilitated more competitive products and improved their achieved market share by speeding up the introduction of their range of new products. The two respondent firms quantified the effect of this variable and an adjustment was made to the dependent variable measure appropriate to negate the effect of this particular independent variable.

Acs & Audretsch, (1990) and Rothwell & Zegveld, (1982) demonstrate that size (in asset and financial resources terms) is not a significant discriminating variable in determining success in product development. Both small and large firms undertake product development but as yet no significant correlation has been established between company size and success in product development. Our interviewees did not indicate any significant relationship existed between their corporate size (or lack of it) and new product success. Hence we have not adjusted for corporate size as an independent variable.

Strategy:- The implementation of unplanned and additional corporate advertising expenditure after launch of the new products was cited by two respondents (both pension providers) as a potential influence on sub-measure 1 of our dependent variable (i.e. their

achieved market share). To compensate for this, we adjusted the dependent variable measure by an amount judged by the interviewees to be equivalent to the causal effect of this unplanned advertising strategy. A significant amount of unplanned sales promotion in terms of free publicity in the trade press was cited by a further three respondents as an additional and unplanned head office strategy implemented shortly before launch to promote the range of new products. To negate the effect of this variable we made an adjustment to the respondent's dependent variable measures equivalent to the effect specified by interviewees.

Respondents were also requested to advise if their pricing strategy was felt to have significantly contributed to the acceptance of the new product range by consumers or its competitive standing. All respondent firms indicated that setting uneconomic prices in order to increase market share or to improve competitive advantage had not been a deliberate strategy. Hence no adjustments to the dependent variable were made in respect of this independent variable.

Systems:- The existence of extensive in-house technology and systems was cited by three respondents (one pension and two PEP providers) as having affected their dependent variable measure. For example, the administration systems of one PEP provider were felt to have created the "perception" of an unique competitive advantage for their suite of new products by improving the quality of customer service. An adjustment was made to the competitive sub-measure in respect of the three respondent firms concerned.

Staff:- Two respondent firms indicated that they had unique staff i.e. the stature of key executives who had embarked on personal publicity campaigns which had also indirectly improved the competitive standing of their new range of products. Interviewees indicated that this managerial action had not been considered during product development. In both cases an adjustment was made to their respective dependent variable measures.

We also recognise that achieved market share and competitive standing of new products can be influenced by the interpretational and judgmental skills of product development staff with respect to their marketing information. Since this research is not an investigation into product development decision making we have not requested nor made any adjustments to our dependent variable measures in respect of the judgmental or interpretational skills of product development staff. However from our experience in administering the interview schedule and from discussions with practitioners during the investigation we conclude that judgmental or interpretational skills were not significantly different between our respondent firms.

Skills:- Five respondent firms (three PEP providers and two pension providers) indicated that their skill in successfully achieving top quartile investment performance in the past had influenced the market's perception of their range of new products. However in all cases interviewees confirmed that this variable had been considered when setting target market share during product development. Hence no adjustment was made for this variable.

Shared Values:- During the field interviews we did not find evidence that the shared values (e.g. the corporate culture) of product developers within our sample of companies had exerted an influence over our dependent variable sub-measures. Hence no adjustments were made to dependent variable measures in respect of this issue.

In their study Johnson & Woodward, (1988) have identified that business managers shared the view that they had adequate quality and quantity of marketing information. However their findings were uncovered in non-financial services contexts. Arguably the issues of quality and quantity of marketing information could have an impact on the success of new products in the financial services sector and hence impact on our measure of the dependent variable. Within our analytical perspective we include specific managerial actions that were taken to ensure adequate quality and quantity of marketing information. For example we investigate the extent

to which respondent firms ensure accuracy, relevance, format and sufficiency of marketing information. If we had not investigated these issues we would have been obliged to institute an adjustment to mitigate the effects of the differing quality and quantity of marketing information on our measure of the dependent variable.

Style:- Johne & Snelson, (1990b); Nayak & Ketteringham, (1986); Bart, (1991); Dwyer & Mellor, (1990 & 1991a/b); Hegarty & Hoffman, (1990); Pagonis, (1992) and Johne & Vermaak, (1993) have identified that the style of top management involvement can influence success in product development. We should however note that these researchers defined success using different measures to those used in this study. Two of our respondent firms indicated that the interactive style of senior management in co-operating with competitors may have unduly influenced the competitive standing of their range of new products. To compensate for this independent variable an adjustment was made to sub-measure 2 of both respondent's measures of success.

The overall effect of adjustments to the dependent variable measures of our respondent firms arising from other independent variables identified in our control policy was minimal and resulted in the re-allocation of four respondent firms to different groups. Two firms were moved from their winners groups (one in each research context) to their respective loser groups and vice versa.

5.16 Situational Adjustments

We consider that exogenous variables within the demographic, legislative, political, social and economic environments had an equal impact on firms within our research contexts since our respondents were all within the same industrial sector (personal financial services) and

were developing their new products during a similar time scale. If we had chosen to incorporate manufactured products then different exogenous variables would necessitate additional situational adjustments.

Financial services providers have in the past been accused of adopting an aggressive "hard sell" approach and arguably this sales approach could influence achieved market share. For instance Kotler, (1989) suggests that a "sales oriented" distribution channel may increase sales by mis-selling unsuitable products to unwary customers. To prevent aggressive sales techniques and to ensure that customers were not pressurised into purchasing unsuitable products the marketing of retail financial services was regulated by three self-regulatory organisations (SROs) set up by the Securities & Investments Board. These SROs are

a) Life Assurance & Unit Trust Regulatory Organisation [LAUTRO],

b) Financial Intermediaries, Managers & Brokers Regulatory Association (FIMBRA)

c) Investment Management Regulatory Organisation (IMRO).

These SROs regulated sales through a strict code of selling practice that ensures that purchasers of retail financial products are given a "cooling off" period during which they can renounce their purchase if they so wish. Hence the regulations of LAUTRO, FIMBRA & IMRO provided an additional situational control mechanism to prevent aggressive sales techniques.

In October 1994 the Securities & Investments Board (SIB) mandated that personal pension providers review their selling practices with respect to 1.93% of all personal pensions sold from inception until 30th December 1994. This suggests that a small minority of sales may not have been in the best interests of customers. Notwithstanding this review, which is expected to be completed by 31st December 1996, the Association of British Insurers (ABI) have publicly stated in The Times (14th October 1994) that they consider only a small minority of the cases under review may be subject to compensation payments as a consequence of mis-selling by

unscrupulous salesmen. Given the relatively small number of cases subject to review and the positive response of the ABI we cannot therefore conclude that the outcome of this review, even if all cases are found to have been mis-sold, will have a significant effect on the market related figures of our respondent firms.

5.17 Causality Effect

In this study we are concerned to establish if there is a causal effect between the ways in which marketing information management is carried out and achieving superior new products. We therefore need to consider whether our research design will appropriately fulfil this objective. Moser & Kalton, (1971) suggest that three types of evidence are relevant in establishing causality. These are

a) ascertaining the existence and degree of association between the variables under consideration,

b) the timing sequence of the variables and

c) evidence that the effect of other variables had been eliminated or controlled for.

Our chosen analytical procedure will, by contrasting the mean scores between groups in both research contexts, identify the existence and extent of any association between managerial actions and outstandingly successful new products. Using an analysis of variance procedure we will calculate the probability that our samples come from populations with the same means. From these probability values we can ascertain which managerial actions are highly associated with superior new products.

Baker, (1991a) advocates that researchers also consider the timing of the independent variable since this is important in establishing a causality effect upon the dependent variable. For instance if we had measured the management of marketing information carried on **after** the

launch of the new products, we may have found some significant correlation between the management of marketing information after launch and new product success but there could be no causal effect, since in this example the influence of the independent variable occurred after the change in the dependent variable. In this investigation our independent variable precedes the change in our dependent variable.

By adjusting for the effects of other independent variables on our dependent variable we have strengthened the validity of any significant relationship between skilful management of marketing information and superior new products.

We conclude that our research design incorporates the three types of evidence required by Moser & Kalton, (1971) and this will allow us to infer a causality effect if we find significant differences between winners and losers in terms of managerial action.

5.18 Conclusion

In this chapter we have discussed our research design which has been crafted from the nature and scope of our analytical perspective, our requirement to invoke a controlled and reliable approach to data collection and our desire to implement a scientific and robust framework capable of providing valid data for subsequent analysis. Churchill, (1987) contends that because social science is not constrained by unyielding laws as prevail within the natural sciences, this does not mean that the rigour with which research is conducted should be less stringent than that applied within the natural sciences. We acknowledge this need for a rigorous analytical approach and have devised a research design which will permit the capture of valid data, mitigate the effect of other independent variables and will allow us to undertake systematic analysis, unhindered by poor quality data.

CHAPTER 6: THE FIELD INVESTIGATION & PRELIMINARY DATA VALIDATION

6.1 Introduction

The primary purpose of this chapter is to consider our respondent universe, describe the execution of the field investigation, report on the preliminary validation of our data and explain the primary statistical analysis procedure which will be utilised.

6.2 Population And Response Rates

The 205 authorised life offices recorded in the Department Of Trade (DTI) 1992 Annual Report were originally selected as our primary population of interest. Although building societies also participated in the new pensions market they have been excluded from our research sample because they were restricted by legislation as to the amount of income that they could derive from this specific product type. Because of the exploratory nature of our investigation we considered that "simultaneous replication" of our study would provide supplementary data which could be used for verification purposes. Hence the 202 PEP providers recorded in the 1993 edition of Chase De Vere's PEP Guide were selected as a secondary personal financial services research context for replication and validation purposes.

Using the DTI 1992 Report and Chase De Vere's schedule of registered PEP plan managers the researcher telephoned each organisation and requested the name of an executive director with marketing responsibilities from each firm. The purpose of this initial telephone call was to determine a sufficiently senior member of staff to whom we would direct our initial enquiry for assistance within each respondent firm. Arising from this initial enquiry we forwarded a letter to the nominated individual (see Appendix V). The objective of this letter was to determine the following,

:Whether the firm had been active in the development of a suite of new products and

:Whether the firm considered their program of new products to be a strategically important part of their business and

:Whether the firm would be willing and able to provide suitable interviewees and archive records for the purposes of this research project.

Of the 407 mailings undertaken 297 firms responded within 7 days using our pre-paid reply envelope. A further 26 firms responded after a telephone prompt from the researcher within a further 10 days. Following a second telephone call to non-respondents a further 15 firms responded within 7 days. The remainder of 32 PEP providers and 37 life offices declined to respond or provide a reason for non-participation, despite a third telephone request by the researcher. Table 8 illustrates the derivation of those active program level developers who were able to provide assistance in this research project. After deducting firms which could not or would not provide assistance for our research project we had nevertheless achieved a sample of 30 PEP providers and 30 individual pension providers. The exact equality of 30 firms in both research context was fortuitous.

TABLE 8

Derivation Of Research Samples

	PEP Providers	Pension Providers
Initial Population	202	205
Less Ineligible Firms		
Only Undertook Project Level Development	15	2
Did Not Participate In Developing These New Product Types	nil	36
New Products Were Not A Strategically Important Business Issue	49	36
Key Product Development Managers Had Left The Company	14	11
Maximum Eligible (A)	124	120
Less		
No Response To Our Circulation Letter Or Follow Up Telephone Calls	32	37
	---	---
Minimum Eligible (B)	92	83
Less		
Corporate Policy Not To Participate In Research	30	29
Would Not Be Prepared To Divulge Historical Data	32	24
Achieved Samples (C) =	30	30
NB: Maximum response rate (C/B)=	33%	36%
Minimum response rate (C/A) =	24%	25%

It may have been possible for us to marginally increase our sample sizes by pursuing those firms who had not responded to our letter and follow up telephone calls. We opted not to undertake this course of action for the following reasons.

a) we did not wish to include firms in our sample who were unwilling or reluctant to participate in our study since we felt that they may provide inaccurate data which could distort the validity of our findings and

b) equal sample sizes in both contexts meant that the results of our analyses would facilitate direct comparison without qualification of the effect of comparing a large sample with a smaller sample and

c) Miller, (1984) and Boneau, (1960) have demonstrated that "misleading results can occur from parametric tests when sample sizes are significantly different". We did not wish our results to be considered misleading or subjected to criticism arising from unequal sample sizes.

In determining the maximum number of respondents who would be eligible for inclusion in our study we have also eliminated those product developers who indicated that their new PEP or pension products were not a strategically important business issue in their business strategy. The rationale behind this decision was two fold. Firstly, the target market share of their program of new products was likely to be unambitious since these firms did not place great importance upon success in this new product market. Secondly, achieved market share would not be a meaningful measure to these developers since these products had been developed as complementary products with respect to their existing product range. Letters of gratitude (see Appendix VI) declining their participation were forwarded to the firms concerned. We were also obliged to remove those firms who no longer employed the key individuals who had participated during product development and those firms which failed to respond to our initial circulation letter or three telephone requests. We could have pursued these latter firms and perhaps increased our response rate. However none of the firms were recognised market leaders nor were they identified by our interviewees as having developed highly competitive products.

Our response rate was also affected by firms whose corporate policy prohibited participation in independent research and firms who would not be prepared to allow access to their archive records. The exclusion of these firms initially appeared to present a problem in achieving a viable universe for our study. However when we evaluated these firms in terms of market share using data supplied by Money Marketing, Financial Adviser and Money Management we identified that none of these firms had a mean market share greater than 0.8% and consequently their products could not be considered to have achieved significant consumer acceptance. Additionally none of these firms were recognised by our respondent firms to have developed a range of highly competitive products.

6.3 Scope Of Samples

The data from Table 8 indicates that our maximum response rates (C/B) were respectively 33% and 36% in the PEP and pensions contexts and our minimum response rates (C/A) were respectively 24% and 25%. Based on these response rates in may be argued that our research samples did not include representation from the most successful developers in each of our selected research contexts. In order to determine whether our respondent universe contained sufficient numbers of superior developers verification tests would have to be executed. To test if our research samples included outstanding developers in their respective research contexts we undertook the following actions.

(i) During our field investigation we requested that interviewees advise on the competitive standing of any other outstanding products from developers not included in our respondent schedule (refer to appendix VIII, Section Two, question 2.3). Four respondent firms advised that they considered the suite of new products from three other developers not included in our research study to have some competitive merit. The three firms proffered to have

developed competitive products had previously been included in our category of having developed products that were not strategically important to their respective businesses.

(ii) We calculated the total achieved market share of our respondents in each research context during the time period covered by our research. This indicated that our research samples encapsulated firms whose total achieved market share exceeded 76% in the pensions context and 68% in the PEP context. These high market shares indicate that our respondents dominated their respective product markets. Market share data was verified by reference to data published by Datamonitor Publications Limited (independent financial researchers). This data also confirmed that within the remaining market shares (i.e. 24% & 32%) no firm in either research context had achieved more than 0.8% of the total achieved market

The foregoing validation actions permit us to conclude that our respondents include those firms who were regarded by their peers to have created highly competitive new products **and** whose new products had achieved the greatest consumer acceptance.

6.4 Application Of Interview Schedule

Smith & Dainty, (1991) advise that there are three fundamental approaches to collecting data; experimentation, observation and survey. In our research design we do not intend to manipulate the independent variable and consequently this eliminates an experimentation approach. Nor can we observe the independent variable under examination in our research contexts since this occurred during an earlier time period. We are therefore constrained by default to obtain data by a survey approach.

Following confirmation of a willingness to provide data for this research project managers of firms in our research sample were contacted by telephone to arrange a convenient appointment to conduct the interview. In order to facilitate the interview the contact member

within each respondent firm was faxed an advance copy of question 2.1 from Section Two of the research questionnaire. The objective of this advance notification was to permit respondents to collate achieved and target market data and have this completed section available for collection by the interviewer. This procedure allowed the interviewer to principally focus on collecting and verifying key independent variable data. A letter confirming the date and time of the interview was forwarded to the contact staff member (see Appendix VII). This letter also contained our agreement not to specifically attribute any responses arising from the interview to any individual interviewee or respondent firm. This issue had previously been raised by a small number of firms during our preliminary field study. In the interests of consistency of approach the researcher advised all respondents that prior to data analysis each respondent firm would be allocated a pseudonym to ensure anonymity.

To avoid an over-reliance upon the subjective evaluation of respondents with respect to the frequency and proficiency of execution of managerial actions concerning marketing information we had verbally, and in our subsequent letter, requested that respondents make available records, memoranda and product specification papers/reports for inspection. Our rationale in this respect was to obtain objective verification or rejection of the validity of interviewee responses from archive evidence. This validation procedure did not always provide positive validation of interviewee responses, since historical records were not always comprehensively maintained. Nevertheless our examination of archive records did not identify any material contradiction of the consensus verbal answers given by our interviewees.

The interviews were arranged during August 1993 and undertaken in the offices of each firm during September 1993 (17 interviews), October 1993 (15 interviews), November 1993 (20 interviews) and December 1993 (8 interviews). The average time taken to complete the

interview and examine archive records was just over two hours and twenty minutes. The interviews were arranged on a geographical basis to minimise the time spent on travel.

Before commencement of the field interviews the interviewer made a brief presentation to the interviewees. This presentation consisted of the researcher reading a standard text (contained within Appendix VIII) outlining that we were investigating the management of marketing information during key product development tasks. Our preliminary overview indicated only that the object of the research was to consider if and in what ways marketing information was managed during product development. Great care was taken not to intimate to interviewees that we were seeking to find a particular style of management that facilitated highly successful new products. This was followed by an interactive discussion of the key terms used in the interview schedule. After the discussion but before commencing the interview respondents were requested to confirm that they both understood the terminology used and that they would provide candid answers. To ensure the latter, the interviewer verbally reaffirmed that all responses would not be attributable to a named respondent and absolute confidentiality would be maintained.

In the pensions context the structured interview schedule was simultaneously administered by the researcher to three senior staff members (within each respondent firm) who had been directly involved with the creation of the range of new individual pension products made available during the period 1st October 1987 through to 31st December 1992. In the PEP context the structured interview schedule was also simultaneously administered to a trio of senior staff members (within each respondent firm) who had been directly involved in the creation of the range of new PEP products launched during the period 1st January 1987 through to 31st December 1992. Each trio of interviewees were given time to confer and provide a consensus answer. Achieving a consensus response by each trio of interviewees was not difficult

and minor problems arose mainly when one individual could not clearly recall a specific managerial action or had not been personally involved in a particular product development activity. The difference between the interview schedules used in each research context is that the competitors listed in each schedule relate to the research context being investigated.

In Section One of our interview schedule we obtained general data concerning each of our respondent firms. When contrasting this data between winners and loser groups in both contexts for later descriptive purposes, we did not identify any significant differences with regard to experience in financial services product development, distribution channels used, financial size of the organisation or its proprietary status.

Before commencing question 2.2 of Section Two of the interview schedule we tutored interviewees on the scoring system to be utilised in allocating a competitive rating to the range of new products developed by the other firms in our study. Prior to commencing Section Three of our interview schedule we advised respondents of the scales to be used in responding to either frequency or proficiency questions. Interviewees were advised that intervals between points on the scale should be considered to have equal value and responses should be made by allocating a value from the scales in response to each question asked by the interviewer. The frequency and related proficiency questions in respect of each managerial action were asked sequentially. The reason for doing this was to ensure that if respondents indicated a zero frequency score they could not then inadvertently indicate a proficiency score in excess of zero (since zero frequency could not also incur a proficiency rating beyond zero). To ensure that interviewee responses were correctly recorded the interviewer repeated the interviewee's answer aloud as it was entered onto the interview schedule. At the conclusion of the interview interviewees were offered the opportunity to amend any of their answers but all declined.

Before commencing Section Four of the interview schedule the interviewer advised interviewees that we were concerned only with variables which had not been previously considered during product development and which were believed to have affected the achieved market share or competitive standing of their new range of products. The findings of this control procedure were considered in section 5.15 of our thesis. This resulted in one PEP and one pension developer being moved from their respective winner groups to their respective loser groups and a corresponding adjustment of two losers into their respective winner groups.

After the interview was completed the researcher then examined archive records presented by each respondent firm. These records contained inter alia memoranda, internal reports, marketing research reports, commercial analyses, product specifications and various meeting notes. Overall the standard of record keeping was not as comprehensive as we had wished for. However arising from this review of archive records we did not find any material issues which led us to contradict the answers given by interviewees.

6.5 Procedure For Determining The Dependent Variable Measure

Using the data supplied by respondents in Section Two of our interview questionnaire, we have implemented the following procedure to measure the success of each respondent's new products. The following combined measure forms the basis for our categorisation of program winners and program losers in both research contexts.

6.5.1 Market Related Measure

All 60 respondent firms provided details of their mean **achieved** market share in respect of their suite of new products during the period from launch to 31st December 1992. Additionally respondents provided their mean **target** market share in respect of their suite of new products for the same time period. The mean achieved market share provided by each

respondent firm was verified by reference to market share data provided by Datamonitor Publications Limited (independent financial services researchers).

The above verification process identified discrepancies between data supplied by three respondent firms and information provided from our secondary validation source. In the first two discrepancies our respondents had understated their respective achieved market shares by excluding the market share obtained by their FSAVC and Unit Trust PEP products. The third discrepancy arose from a respondent making a mathematical error by double counting the market share of its managed PEP. This discrepancy resulted in an over-statement of the respondent's achieved mean market share. All three respondent firms were requested to reconsider their achieved market share figures and subsequently submitted revised figures. These discrepancies were adjusted prior to implementation of the data.

Our procedure for determining the market related measure for each respondent within each research context was as follows.

(i) For each respondent we summed the mean achieved market share of each new product type during the research period. The resultant figure is the gross achieved market share of each respondent in respect of their program of new products.

(ii) We then deducted from the gross achieved market share the percentage of market share identified by respondents as attributable to other random independent variables during the same time period (see control policy in section 5.15 and Section Four of the interview schedule). The resultant figure is deemed to be the net achieved market share in respect of each respondent's program of new products.

(iii) We then calculated the market related success measure of each respondent by dividing each respondent's net achieved market share by their respective target market share for

the same period. The resultant figure represents the **market related measure** of success for each respondent.

(iv) The market related measures in (iii) were then ranked in ascending order within each research context.

(v) The researcher then allocated points to each respondent based on their ranking position (i.e. the firm ranked number 1 received the maximum score of 30 points, the firm ranked number 2 was allocated 29 points and so on).

6.5.2 Competitor Relative Measure

The procedure for determining the competitor relative measure of the dependent variable was as follows,

(i) In Section Two of our interview schedule each respondent was requested to allocate a score to the range of new products of the other named respondents based on a scale ranging from 0 = uncompetitive products to 10 = outstandingly competitive products.

(ii) The scores allocated to each respondent were then extracted from our completed interview schedules and totalled to provide a gross competitive rating in respect of each respondent firm.

(iii) The effect of other independent variables identified in Section Four of the interview schedule was deducted from each respondent's gross competitive rating. The resultant figure was deemed to be the net competitive rating with respect to each respondent's program of new products.

(iv) Using the net competitive rating respondent firms were then ranked by the researcher. The researcher then allocated a score to each respondent based on their ranking (i.e. the firm ranked number 1 received the maximum score of 30 points, the firm ranked number 2 was allocated 29 points and so on).

6.5.3 Combined Dependent Variable Measure

The researcher then summed the market related and competitor relative points of each respondent. Respondents were then ranked, based on their combined market and competitive points, within their respective contexts. The researcher then divided the ranking schedule between those 15 firms with an above median rank from those 15 firms with a below median rank for each research context. Respondents with above median ranking were classified as **superior product developers** (program winners). Respondents having below median ranking were classified as **less successful developers** (program losers).

6.6 Pseudonyms And Data Transcription

Having categorised our respondents into program winners and program losers in both research contexts we then allocated pseudonyms to respondents within their respective groups. For example in the pensions context program losers were allocated pseudonyms ranging from IPP1 to IPP15 and program winners were allocated pseudonyms ranging from IPP16 to IPP30. In the PEP context program losers were allocated pseudonyms ranging from PEP1 to PEP15 and program winners were allocated pseudonyms ranging from PEP16 to PEP30.

Data from the manually completed interview schedules was subsequently transcribed by the researcher in to a master data file within a software package called SPSS (The Statistical Package for the Social Sciences). Data within the data file was then further verified to ensure that it fell within the defined ranges for the frequency and proficiency measures set out in Section Three of the interview schedule. The schedule of responses obtained from each respondent are contained within the SPSS master data file and are illustrated in Data Tables 1 to 144. Calculation of the column and row totals and column means was then performed by the

researcher using SPSS facilities. The data transcription and calculation of totals and means was replicated for validation purposes by a fellow research student. Three errors of transcription were identified and remedied before the data was considered ready for analysis.

6.7 Analytical Objectives

Our primary objective in this research is to identify **if superior developers are more skilful than less successful developers** in their management of marketing information. In order to consider our principal hypothesis we propose to adopt the following approach. In each research context, we shall compare the mean frequency scores and then the mean proficiency scores of the aggregated data between winners and losers groups to determine if overall there are significant differences in managerial approach. We shall also analyse (using aggregated data) the mean frequency and mean proficiency scores of winners and losers (in both contexts) across our six product development tasks.

These analyses will firstly permit us to identify if overall, superior developers undertake more skilful management of their marketing information and secondly to determine which product development tasks receive overall, significantly more frequent or more proficient managerial action by winners.

Our secondary research objective is to identify in **what ways** superior developers manage their marketing information that is significantly different from the approach of less successful firms. In order to examine this issue we shall adopt the following investigative approach,

i) Identify whether the winners within each research context are significantly different from their respective losers by **frequency** of specific managerial action.

ii) Identify whether the winners in each research context are significantly different from their respective losers by **proficiency** of specific managerial action.

iii) When we find specific managerial actions which are significantly different between winners and losers (and which are verified in the secondary context) we shall then investigate during which specific product development tasks these significantly different managerial actions are focused. In the subsequent review of these findings we shall contrast the scores of our groups within and between their respective contexts across the six product development tasks. This will allow us to determine specific differences in managerial style between winners and losers and if there are any significant similarities in managerial style by winner groups.

6.8 Statistical Methodology

Many text books [e.g. Walpole & Myers, (1989) & Hair, (1983)] advocate Student's t-test as a simple statistical procedure for testing for significant differences in the mean scores of two groups. When a statistically significant t-value is found between the mean scores of two groups it may be possible to infer this to be a result of a particular independent variable. Consequently Student's t-test represents a simple method for differentiating between **two groups** on a **single independent variable.** Criticism of the t-test has been made by Miller, (1984) and Boneau, (1960) who suggest that significant t-values have been found when sample sizes in each group are small and where the variability within the groups is abnormally large. The Z-test has also been advocated by the literature to be a test appropriate for measuring and determining differences between groups. However, as Miller, (1984) points out the Z-test is more suitable for analysis when the group sizes exceed 30 respondents. When

variables have been measured on a dichotomous basis Norsusis, (1993a/b) suggests that crosstabulation or Pearson's chi-square statistic may be more appropriate techniques.

After consideration of the number of variables and groups being examined, the scales used to measure our managerial actions and our research objectives we have concluded that Analysis Of Variance (ANOVA) is an appropriate and reliable statistical approach for our purposes. ANOVA is a robust statistical procedure that is powerful in detecting significance between two or more groups, over one or more independent variables, when it is present. Analysis of Variance procedures examine the variability of observations within groups as well as the variability between group means. The consequence of this variability analysis means that we can obtain a high degree of comfort that differences in means amongst our data sets are differences due to the effect of the independent variable we are examining rather than natural variability among sample means.

Analysis of Variance procedures can be found within SPSS for Windows. Frude, (1987) recommends that One-Way ANOVA is a suitable procedure for analysing one independent variable between two or more groups. An extension of analysis of variance is multivariate analysis of variance (MANOVA). Norsusis, (1993a/b) and Frude, (1987) contend that MANOVA is a suitable technique for analysis when two or more dependent variables are under scrutiny. In our research we have a single dependent variable (new product success) and thus MANOVA is not an appropriate analytical technique for our purposes.

6.9 Data Validation

Our research design involves comparisons of different conditions of our principal independent variable between discrete groups; program losers and program winners. Miller, (1984) suggests that this approach can be termed an **independent groups** research design.

Norsusis, (1993b) contends that parametric tests such as ANOVA are more powerful in detecting significance between independent groups than non-parametric tests (e.g. Mann-Whitney or Wilcoxon tests), but are based on three underlying assumptions concerning the data viz.

1) data is drawn from a normal distribution,

2) the sample populations are assumed to have similar variances and

3) the data has been measured using (as a minimum) interval scales.

Our first underlying assumption requires that data is drawn from a normal distribution. The rationale behind this requirement is that a normal distribution has known qualities (e.g. the dispersion of data) which are fundamental to many parametric tests. If data conforms to a normal distribution we can invoke parametric tests to calculate the probability of a score falling within any particular limits we are interested in. We utilised the Explore Option on SPSS to total the number of times each frequency and proficiency score occurred within the responses of our winners and losers in the pension's context. Data for this exercise was extracted from Data Tables 1 - 72. The results of this exercise are tabulated in Data Tables 145, 146, 147 & 148. In order to consider whether our data met the first assumption for parametric tests (i.e. data are drawn from a normal distribution), we charted the aggregated frequency and proficiency scores shown in Data Tables 145, 146, 147 & 148. These are illustrated in figures 4 & 5. A similar exercise was performed on our PEP data sets. Using Data Tables 73 - 144 we have totalled the occurrence of each proficiency and frequency score of all program winners and program losers in the PEP context. The results of this exercise are tabulated in Data Tables 149, 150, 151 & 152. We then charted the distribution of our aggregated frequency and proficiency scores shown in Data Tables 149, 150, 151 & 152 and these are illustrated in Figures 6 & 7.

FIGURE 4

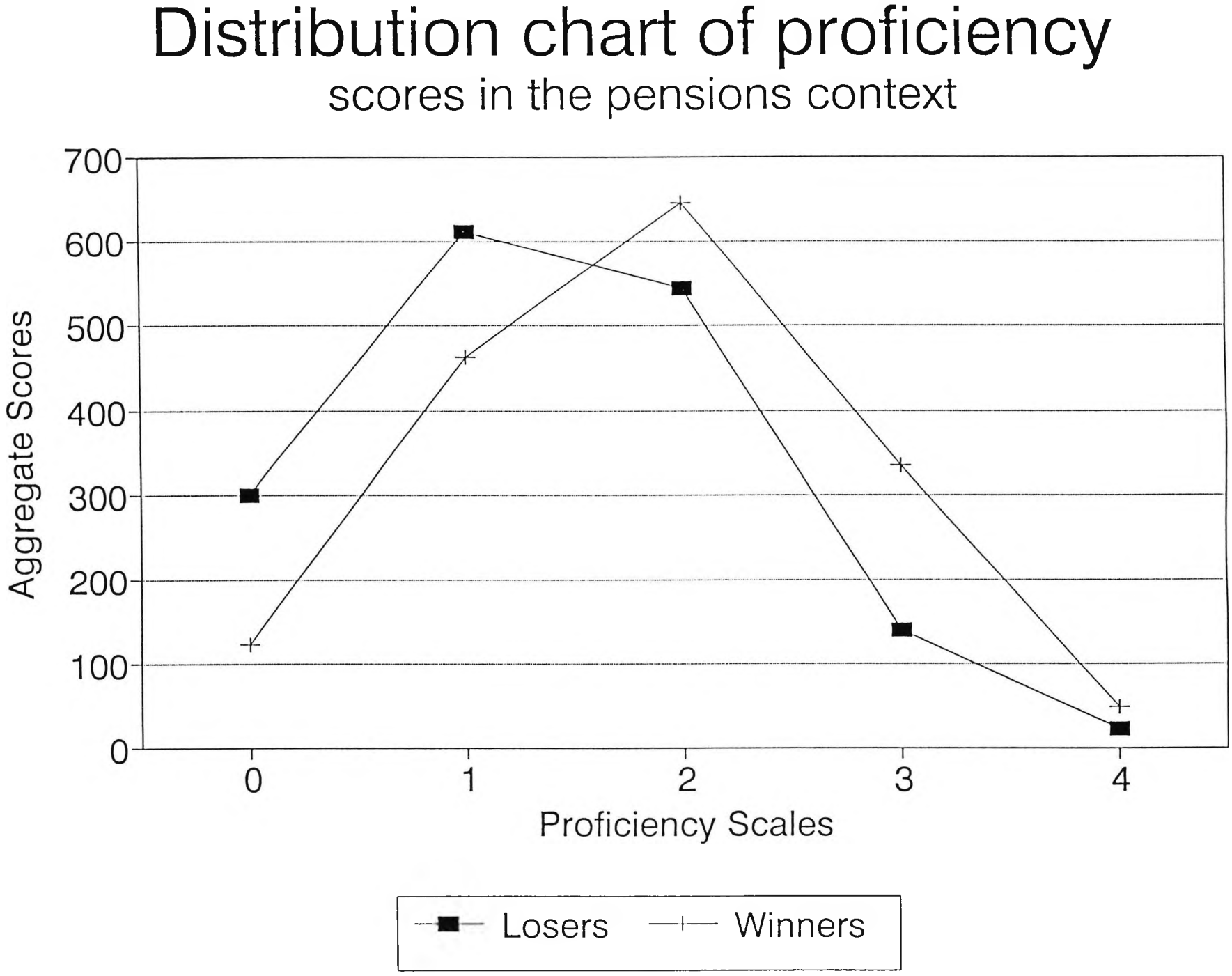
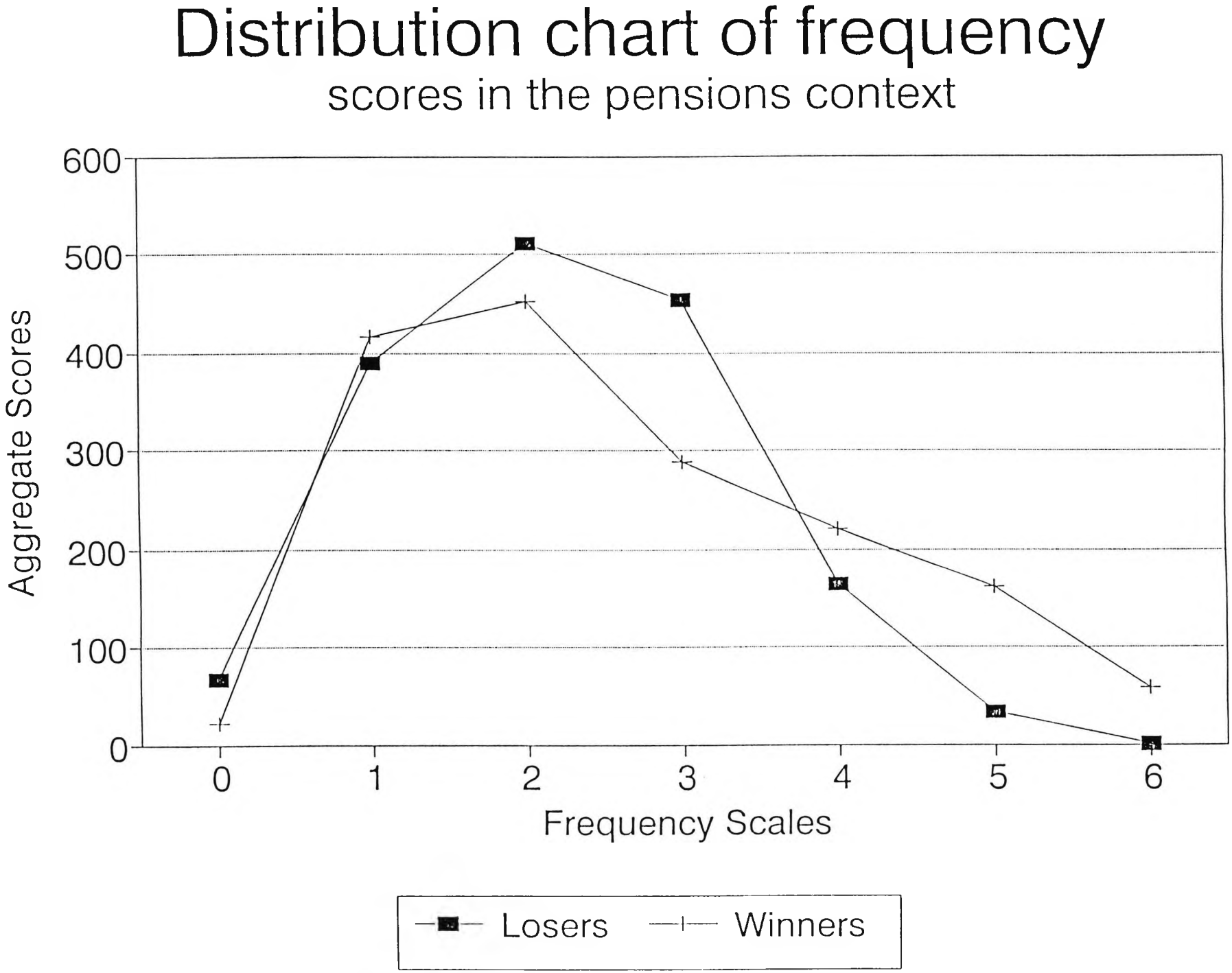

Distribution chart of proficiency
scores in the pensions context
Aggregate Scores
700
600
500
400
300
200
100
0
0
1
2
3
4
Proficiency Scales
Losers
Winners

FIGURE 5


Distribution chart of frequency
scores in the pensions context
Aggregate Scores
600
500
400
300
200
100
0
0
1
2
3
4
5
6
Frequency Scales
Losers
Winners

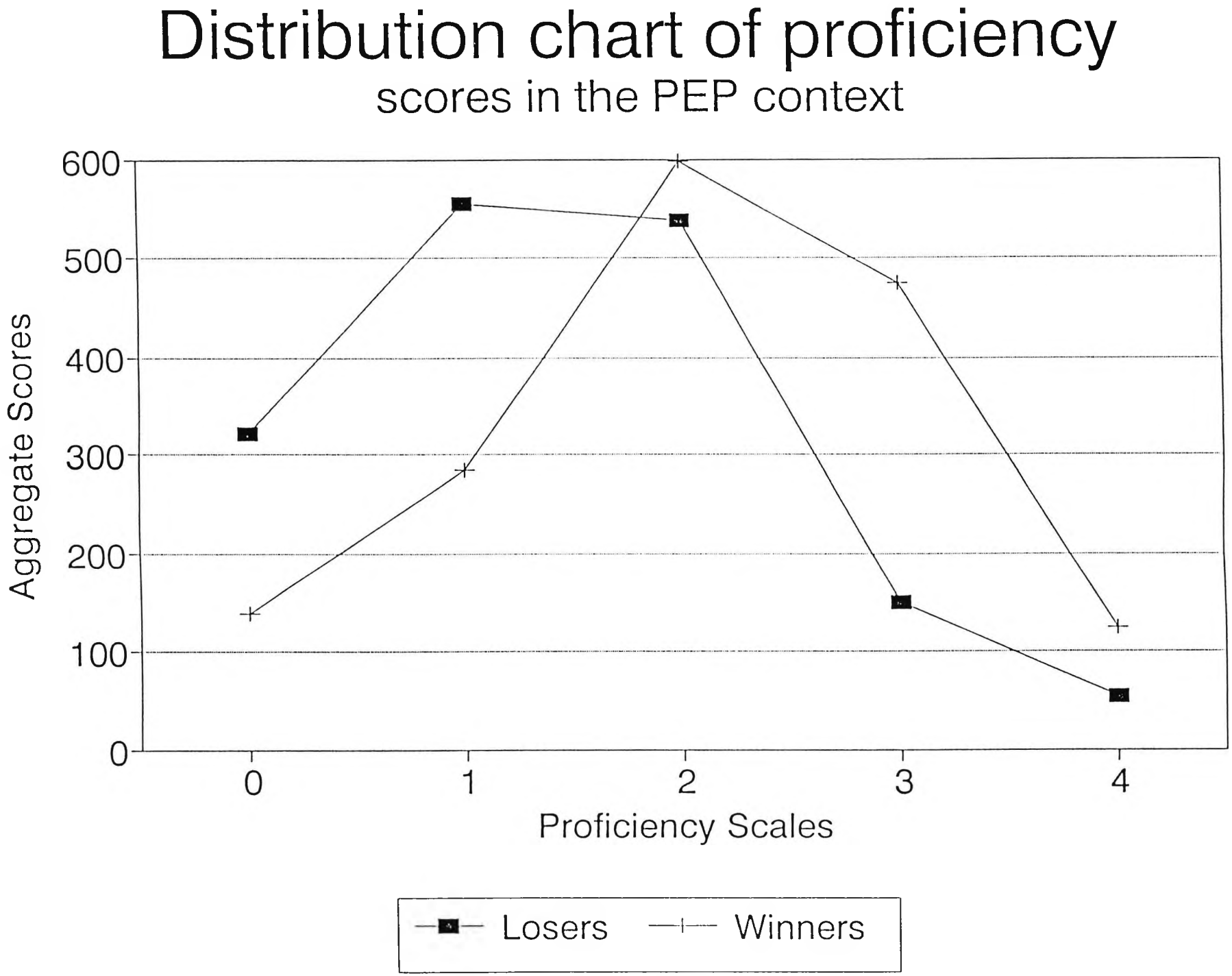

Distribution chart of proficiency
scores in the PEP context
Aggregate Scores
600
500
400
300
200
100
0
0
1
2
3
4
Proficiency Scales
Losers
Winners

FIGURE 6

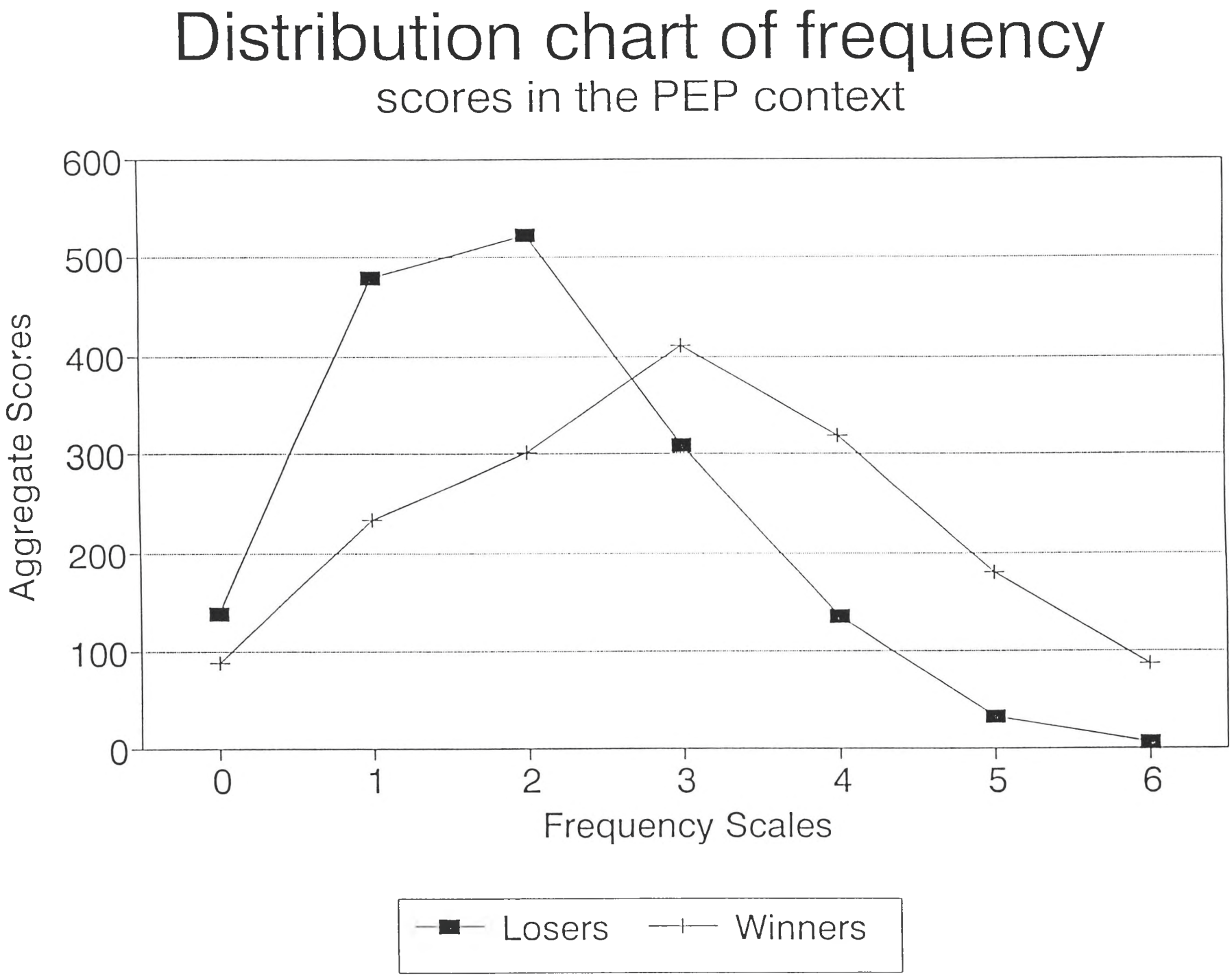

Distribution chart of frequency
scores in the PEP context
Aggregate Scores
600
500
400
300
200
100
0
0
1
2
3
4
5
6
Frequency Scales
Losers
Winners

FIGURE 7

Figures 4, 5, 6 & 7 illustrate that the overall scores attributable to both the program winners and losers groups in both research contexts is marginally skewed but nonetheless is highly indicative of a series of normal distributions. Miller, (1984) argues that sample data are unlikely to replicate the symmetrical bell shape indicative of a normal distribution and that some skewness (as is the case with our charts) will occur due to normal sampling differences. Miller further contends that parametric tests are sufficiently robust to cope with minor deviations in the shape of the normal distribution of sample data. We conclude that the shape of our data distributions in figures 4,5,6 & 7 are not significantly deviant from the uniform symmetrical shape of the normal distribution to refute the assumption of normality.

Walpole & Myers, (1989) suggest that there are several tests available which are suitable for testing homogeneity of variance (e.g. Bartlett's test, Cochran's test and Levene's test). Although these tests are equally reliable Bartlett's test is particularly suitable when sample sizes are unequal while Cochran's test is more appropriate when one variance is anticipated to be significantly larger than another. In our study sample sizes are equal and we have no reason to suspect that one variance will be significantly different from another. Under these circumstances Frude, (1987) recommends that Levene's test is an appropriate procedure for testing homogeneity of variance.

The Levene test is a post-hoc ANOVA procedure which will allow us to test the null hypothesis that the frequency data of our groups in each context are likely to come from populations with the same variance. Additionally we shall use ANOVA to test whether the proficiency data of our groups in each context are likely to have come from populations with the same variance. Using SPSS we have executed Levene's test on the aggregated frequency and proficiency data of winner and loser groups within both research contexts. Data for the Levene tests was extracted from Data Tables 1 - 144 and the ANOVA calculations are shown

in Data Tables 153, 154, 155 & 156. For ease of reference we have summarised the results of our Levene tests and these are shown below in Table 9.

TABLE 9

Levene Tests: Significance Level Results (2 tailed tests)

Data Sets	Statistic	df1	df2	2-tail Sig.
Frequency Data (Pensions context)	5.1758	1	28	.031
Proficiency Data (Pensions context)	.5652	1	28	.458
Frequency Data (PEP context)	2.6843	1	28	.113
Proficiency Data (PEP context)	.5204	1	28	.477

In Table 9 df1 represents the degrees of freedom used in the "between groups" calculation and df2 represents the degrees of freedom in the "within groups" calculation. Both the degrees of freedom, the within and the between groups calculations are part of One-Way ANOVA and are fully explained in section 7.8. The results in Table 9 are shown for 2-tailed tests since we are concerned with the overall variability of the data, rather than the variability of the data in a particular direction. When interpreting the results of the Levene test we can reject the null hypothesis (that the variances are equal) if the observed significance level is small and accept the null hypothesis when the observed significance level is large. In the above table the observed significance levels for the proficiency data in both contexts and the frequency data in the PEP context are high and do not provide sufficient evidence for us to suspect that the variances are not homogeneous. The results of the Levene test on the frequency data in the pensions context illustrate an observed significance level of 0.031 (critical value of 0.05) suggesting that an assumption of homogeneity of variance cannot be confirmed. This does not however preclude us from utilising ANOVA procedures since

Frude, (1987) and Norsusis, (1993a/b) further contend that most parametric tests such as ANOVA are sufficiently robust to cope when deviations from the basic assumptions of normality and homogeneity of variances are present. Additionally Miller, (1984) contends that " Statisticians have recently examined what happens to the accuracy of analysis of variance tests when the basic assumptions of normality and homogeneity of variance are systematically violated. Happily these studies show that the results of the parametric tests are not seriously distorted even when quite marked departures from the basic assumptions are introduced."

Our third pre-condition for the use of parametric tests requires that data sets are measured using at least interval scaling. Norsusis, (1993a/b), Churchill, (1987) and Miller, (1984) suggest that the weakest level of scaling is nominal scales which merely categorise variables without indicating a value or relationship between variables. The next level of scaling is ordinal scaling wherein items are ranked in relation to one another. In ordinal scaling the scales indicate order but not the value of differences between scale points. Interval scaling is a higher level of scaling wherein value points are placed in rank order and the intervals between the value points are of equal value. In section 5.15 we reported that our respondents were requested to provide responses using our scaling system and to consider each point therein as being of equal distance from one another. This system of scaling could be considered to lack the accuracy of more formal interval scaling systems. However given a consistent approach in applying our scaling systems by our respondents we contend that our measurement basis is sufficient to meet the requirements of SPSS.

6.10 Conclusion

In this chapter we have recorded the derivation of our samples, reported on our data collection procedure, advised on the compilation of our dependent variable, stated our analytical objectives and the primary statistical procedure that we will adopt. We also tested our data against the underlying assumptions required for parametric tests.

During the process of collecting and validating our data we have taken great care to maintain a rigorous scientific approach to ensure that our data was not corrupted [Smith & Dainty, (1991)] as a result of ambiguity of terminology, incorrect responses by individual interviewees or errors of recording by the interviewer. By validating the assumptions needed for analysis of variance procedures and transposing our data onto a data file within SPSS we are now in a position to perform sophisticated analyses without doubt over the integrity of our underlying data.

CHAPTER 7 DATA ANALYSIS & RESULTS

7.1 Introduction

This chapter is primarily concerned with the execution of our data analyses and reporting our results. These results and their implications for the management of marketing information will be discussed more fully in Chapter 8. In this chapter we use the field of statistics to help us draw inferences about populations based on samples taken from these populations. Our primary statistical approach reflects our desire to determine if our samples of program winners have significantly different managerial characteristics from our samples of program losers and whether these differences can be attributed to specific managerial actions. We also examine which product development tasks received overall, significantly more frequent and more proficient managerial action from superior developers.

7.2 Analytical Procedures

In order to achieve our research objectives we shall execute the following analytical procedures. In our **primary research context** we shall undertake One-Way Analysis Of Variance (ANOVA) on

a) **mean frequency scores** (i.e. based on the aggregated frequency scores extracted from all frequency hypotheses) of our winner and loser groups and

b) **mean proficiency scores** (i.e. based on the aggregated proficiency scores extracted from all proficiency hypotheses) of our winner and loser groups.

The results of these analyses will enable us to determine if **overall,** superior pension developers undertake more skilful management of their marketing information than their less successful counterparts. By replicating these data analyses in our **secondary context** this will enable us to substantiate (or refute) any findings from our primary context.

Additionally, in order to gain further insights into differences between the overall managerial approach of superior developers and less successful developers we shall execute One-Way ANOVA utilising the aggregated frequency scores within each of the six product development tasks in each context. We shall also execute One-Way ANOVA utilising the aggregated proficiency scores within each of the six product development tasks in each context. Data for these analyses was extracted from Data Tables 1 - 144. These latter analyses will enable us to identify **during which specific tasks** superior product developers undertook overall, more skilful management of marketing information than less successful firms.

If we find that overall there are significant differences between winners and losers in both contexts we shall then execute ANOVA utilising the scores of each supporting hypothesis within each research context. This procedure will allow us to determine **what specific managerial actions** are significantly different between winners and losers in both our primary and secondary contexts. Where we find specific managerial actions which are significantly different between winners and losers (and these results are validated in the secondary context) we shall, in our review of these findings, contrast the mean scores of winners and losers within each activity using ratio analyses. These ratio analyses will allow us to identify which specific tasks are subject to the greatest differences in frequency or proficiency of managerial action between winners and losers in each context.

Our rationale for rejecting results which have not been validated is based on arguments by Smith & Dainty, (1991) and Podaskoff & Dalton, (1991) that new knowledge is not merely the identification and reporting of isolated new research findings, but in obtaining verification of these findings through substantive testing.

7.3 Operationalising Our Data

As previously advised in Chapter 6, data from our interview schedules was entered onto a SPSS master data file. Data entry was validated by a fellow research student. We then calculated the row and column totals and the column means using facilities within SPSS. A copy of the contents of our master data file is shown in Data Tables 1 - 144. Data Tables 1 - 144 present our data by research context, by group (winners and losers), by hypothesis, by respondent firm and by scores for each task within product development. This presentation approach allowed us to more easily operationalise our data sets (blocks of data) using the Explore facility within the SPSS programme. Category and context variables were also added to enable SPSS to identify in numerical terms that category 1 refers to winners, category 2 refers to losers, context 1 refers to pensions and context 2 refers to PEPs. This classification was required to enable us to segregate data for analysis using the ANOVA dialogue box.

7.4 Methodological Considerations

Accepting conventional research methodology we test our principal and supporting hypotheses as a series of null hypotheses i.e. that the population means are equal. In any exercise of this nature there is always the possibility that we will find statistical justification for accepting a null hypothesis when it is in fact incorrect and vice versa. A Type I error occurs when we reject the null hypothesis when it should be accepted i.e. concluding that data sets are significantly different when in fact they are the same. Type II errors occur when we accept the null hypothesis when it should be rejected i.e. concluding that data sets are not significantly different when in fact they are different. We have reviewed statistical texts, refereed articles and published theses to determine an appropriate level of significance which will provide adequate safeguards against Type I and Type II errors. Miller, (1984); Thomas, (1983); Moser & Kalton,

(1971); Churchill, (1987) and Chao, (1974) suggest that a level of significance of 0.05 is appropriate to control for the probability of a Type I or Type II error for a two-tailed test (see section 7.6). If the observed significance level in our ANOVA tests is less than 0.025 (for a one tailed test) then we shall reject the null hypothesis and infer that the independent variable under scrutiny was responsible for the difference between our data sets.

The nature of statistical testing such as ANOVA is that it can provide us with a mathematically derived probability statistic that helps us to confirm or refute our supporting hypotheses. However, statistical tests cannot confirm or refute a hypothesis with absolute certainty. At best they provide a strong indication of the probability that our independent variable was or was not responsible for influencing the success of new products (our dependent variable).

7.5 Analysis Of Variance

The Statistical Package for Social Science (SPSS) is a highly sophisticated software package that contains many statistical applications for use in social science research. SPSS has now been made available for use in conjunction with the word processing package of Windows (SPSS for Windows, Version 6.0) and this package contains the ANOVA procedures that we have implemented.

Analysis of variance can take several forms but because of our research objectives we have determined that One-Way ANOVA is a suitable technique for analysis of our data from both research contexts. Within One-Way ANOVA the observed variability in our samples is considered from two perspectives. The first area of variability is <u>within a group</u> (i.e. the variability of responses around their group mean) and secondly the variability <u>between the group means</u>. Walpole & Myers, (1989) suggest that when variation in means occurs this can

be attributable to normal random variation within groups or caused by systematic variation. The purpose of ANOVA is to determine if the variances between the sample means are what one would expect due to random variation alone or whether the variation can in part be explained by systematic variation caused by a particular independent variable. ANOVA calculates the ratio of the "within group" variability to the "between group" variability. This ratio is termed the F statistic. If the observed significance level of our calculated F statistic is less than 0.025 (for a one tailed test) we will reject the null hypothesis and infer that our findings are associated with the independent variable being tested. When the observed significance level of our calculated F statistic is greater than the critical value of F at 0.025 significance then we shall be unable to confidently reject the null hypothesis.

7.6 One Tailed Tests

In our research we are not merely seeking to identify whether superior developers are different to less successful developers in their managerial approach but whether they undertake **more frequent and more proficient (more skilful) managerial action**. This is termed a "directional" hypothesis in that it postulates a difference in a specific direction (i.e. greater than as opposed to less than). If we were testing for a difference between our groups but did not specify whether we were looking for a greater or lesser difference this would be considered to be a "two tailed test" [Churchill, (1987)]. Since we are making a directional assumption this requires a "one tailed test". The analytical procedure for one tailed tests is the same for two tailed tests except that the resulting probability value is divided by two. This reduced probability value will cause us to reject the null hypothesis when the difference between the group means is both sufficiently large and in the direction of interest.

7.7 Comparison Procedures

When we have identified specific managerial actions that are significantly different between superior developers and less successful developers we shall then conduct further analyses within these managerial actions as part of our review of our findings. Within each significantly different managerial action we will contrast the mean scores of winners and losers across product development tasks in each research context. The objective of these analyses is to identify during which specific tasks the greatest differences between winners and losers are to be found and if these differences occur in the secondary context. These contrasts for the basis for our discussion of results as shown in Chapter 8.

7.8 Principal Hypothesis: Analysis And Results

In this section we analyse our aggregated data using our ANOVA procedure and report our findings. In order to determine if, **overall**, superior developers (program winners) are significantly more skilful in their management of marketing information than less successful developers (programme losers) we executed One-Way ANOVA firstly utilising our aggregated frequency data and then utilising our aggregated proficiency data in our primary research context. The full results of our testing are set out in Data Tables 153, 154, 155 & 156. For the purposes of general explanation of our results we illustrate below our findings from analysis of the aggregated frequency data in the pensions context.

Analysis of Variance: Aggregated Frequency Data

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	12854.7000	12854.7000	19.0219	.0001
Within Groups	28	18922.0000	675.7857		
Total	29	31776.7000			

In the above analysis the first column identifies the source of the group analyses. The second column identifies the degrees of freedom applicable to the analysis of each source group. Frude, (1987) and Norsusis, (1993a/b) advise that in order to calculate the appropriate degrees of freedom the ANOVA procedure subtracts 1 from the number of groups in the "between groups" calculation. The term "degrees of freedom" refers to the number of values in a sample that we can specify freely once we have determined a parameter (e.g. the mean) of that sample. In this calculation there are two groups (winners and losers). In order to calculate the degrees of freedom in the "within group" calculation we need to subtract 1 from the total number of cases (respondent firms) within both groups. In the within groups category there are thirty respondent firms under scrutiny (15 winners and 15 losers). One-Way ANOVA procedure automatically makes the appropriate degrees of freedom calculation. The sum of squares column is calculated by the ANOVA procedure as follows. Subtract the score of each observation from each group mean and then square each of these differences. Then multiply the squared figures by the number of observations in each group and sum the results. The third column (mean squares) is calculated by dividing the sum of squares by the number of degrees of freedom for each row. The F ratio is obtained by dividing the between groups mean square by the within groups mean square. One-Way ANOVA automatically determines the F probability for each calculated ratio, by reference to "Tables of percentage of the inverted beta (F) distribution" using the appropriate number of degrees of freedom in the numerator and in the denominator.

In the above example our calculated F statistic of 0.0001 is significantly less than our critical acceptable level of 0.025. Based on the above findings we therefore reject the null hypothesis and infer that overall frequency of action concerning marketing information is significantly different between our winners and losers in the pensions context. In Table 10

below we list the results of our analyses of our aggregated frequency and aggregated proficiency data in both the pensions and PEP contexts.

TABLE 10

Aggregated Data Analysis Results: F Ratios (F Probabilities)

	Pensions Context	PEP Context
Aggregated Frequency Results	19.02 (0.0001)	199.21 (0.0000)
Aggregated Proficiency Results	103.33 (0.0000)	204.37 (0.0000)

The above results were obtained from one tailed tests and in all cases with 1 degree of freedom in the "between groups" analysis and 28 degrees of freedom in the "within groups" analysis.

All of the F probabilities shown in Table 10 are significantly less than 0.025 (our acceptance level for the null hypothesis). The above results therefore allow us to infer that overall **superior developers undertake significantly more frequent and more proficient managerial action concerning marketing information than less successful developers** in both our primary and secondary research contexts.

7.9 Supporting Hypotheses: Analyses & Results

In order to determine **in what ways** superior developers are significantly more skilful in their management of marketing information than less successful developers we applied One-Way ANOVA to the scores of each supporting hypothesis. The mean scores which were contrasted from our supporting hypotheses are shown in Table 11 and the respective One-Way ANOVA calculations are shown in Data Tables 157 - 228. For convenience we have tabulated these results and they are illustrated below in Tables 12, 13 & 14.

TABLE 11

Contrasted Mean Scores of Supporting Hypotheses

Supporting Hypothesis	Mean Frequency Scores						Mean Proficiency Scores					
	Pension			PEP			Pension			PEP		
	Win.	Losers	Diff.	Win.	Losers	Diff.	Win.	Losers	Diff.	Win.	Losers	Diff.
1 Multiple usage	***18.3***	***7.9***	***10.4***	***21.6***	***8.4***	***13.2***	***10.8***	***4.3***	***6.5***	***13.0***	***7.7***	***5.3***
2 Timely utilisation	***21.6***	***10.0***	***11.6***	***20.4***	***8.1***	**12.3**	14.9	12.6	2.3	***16.9***	***8.7***	***8.2***
3 Network between participants	***22.4***	***13.2***	***9.2***	***17.0***	***10.1***	***6.9***	***14.6***	***8.0***	***6.6***	***16.2***	***9.2***	***7.0***
4 Plan the sources	***25.6***	***11.8***	***13.8***	***25.0***	***13.4***	***11.6***	***16.9***	***9.0***	***7.9***	***15.8***	***8.0***	***7.8***
5 Ensure relevancy	***11.8***	***19.6***	***-7.8***	16.4	14.9	1.5	***13.2***	***9.3***	***3.9***	12.4	11.6	0.8
6 Informal communication	9.4	7.8	1.6	***15.6***	***12.3***	***3.3***	***10.6***	***6.7***	***3.9***	***15.8***	***10.0***	***5.8***
7 Ensure usable format	18.4	17.8	0.6	***23.8***	***15.9***	***7.9***	11.4	12.9	-1.5	***17.1***	***13.2***	***3.9***
8 Competitive orientation	***11.0***	***13.8***	***-2.8***	12.2	12.6	-0.4	***11.0***	***8.2***	***2.8***	10.8	9.5	1.3
9 Structured analyses	***19.7***	***14.6***	***5.1***	***22.0***	***14.4***	***7.6***	***10.0***	***8.0***	***2.0***	***13.1***	***8.5***	***4.6***
10 Ensure sufficiency	***10.2***	***14.5***	***-4.3***	15.9	14.1	1.8	***9.4***	***6.6***	***2.8***	***10.7***	***6.0***	***4.7***
11 Network between tasks	16.8	13.0	3.8	***19.2***	***9.4***	***9.8***	10.8	9.6	1.2	***15.5***	***6.0***	***9.5***
12 Share sourcing responsibility	***22.6***	***13.3***	***9.3***	***21.8***	***6.8***	***15.0***	***11.6***	***13.4***	***-1.8***	***15.5***	***10.4***	***5.1***
13 Formal communication	13.1	15.5	-2.4	***16.8***	***11.7***	***5.1***	8.8	9.2	-0.4	***11.2***	***7.6***	***3.6***
14 IT based processing	17.5	15.6	1.9	19.8	16.4	3.4	***11.1***	***8.5***	***2.6***	9.8	9.8	0.0
15 Ensure timely receipt	10.2	11.7	-1.5	10.8	9.3	1.5	***7.6***	***4.2***	***3.4***	5.4	5.4	0.0
16 Ensure accuracy	12.4	13.0	-0.6	11.9	11.9	-0.0	***6.6***	***3.8***	***2.8***	6.1	6.7	-0.6
17 Formal collection systems	9.5	10.7	-1.2	11.0	12.2	-1.2	***10.3***	***4.0***	***6.3***	***12.4***	***6.2***	***6.2***
18 Decentralised. decisions	***10.4***	***15.7***	***-5.3***	***15.8***	***9.3***	***6.5***	7.0	8.5	-1.5	10.2	8.3	1.9
Mean Totals	**280.9**	**239.5**	**41.4**	**317.0**	**211.2**	**105.8**	**196.6**	**146.8**	**49.8**	**227.9**	**152.8**	**75.1**

Source: Data Tables 1 - 144

NB: The mean frequency scores fall within a range of 0 to 36 and the mean proficiency scores fall within a range of 0 to 24. The mean scores in bold and italics have been found to be significantly different between winners and losers in their respective contexts.

TABLE 12

Results Of Analyses Of Supporting Hypotheses: F Ratios (F Probabilities)

		Pensions Context		PEP Context	
		Frequency	Proficiency	Frequency	Proficiency
Hypo.	Managerial Action	F Ratio (F Prob.)	F Ratio (F Prob.)	F Ratio (F Prob.)	F Ratio (F Prob.)
1)	Implement MI# for Multiple Uses	55.09* (0.00)	45.95* (0.00)	163.58* (0.00)	45.30* (0.00)
3)	Network MI Between Participants	100.61* (0.00)	61.70* (0.00)	23.33* (0.00)	51.16* (0.00)
4)	Plan The Sources Of MI	117.62* (0.00)	154.96* (0.00)	108.85* (0.00)	68.50* (0.00)
9)	Implement Structured Analytical Methods	6.21* (0.01)	4.65* (0.02)	16.14* (0.00)	15.35* (0.00)

The above results are reported on the basis of one tailed tests and in all cases with 1 degree of freedom in the "between groups" analysis and 28 degrees of freedom in the "within groups" analysis.

MI is an abbreviated term for marketing information

TABLE 13

Results Of Analyses Of Supporting Hypotheses: F Ratios (F Probabilities)

		Pensions Context		PEP Context	
		Frequency	Proficiency	Frequency	Proficiency
Hypo.	Managerial Action	F Ratio (F Prob.)	F Ratio (F Prob.)	F Ratio (F Prob.)	F Ratio (F Prob.)
2)	Ensure Timely Utilisation	81.61* (0.00)	3.09 (0.04)	172.36* (0.00)	67.93* (0.00)
6)	Utilise Informal Communications	2.55 (0.06)	11.44* (0.00)	6.33* (0.01)	62.70* (0.00)
10)	Ensure Sufficiency Of MI	-9.54* (0.00)	12.18* (0.00)	0.73 (0.20)	34.87* (0.00)
12)	Share Responsibility For Sourcing MI	17.29* (0.00)	-4.76* (0.02)	55.09* (0.00)	24.59* (0.00)
17)	Utilise Formal Collection Systems	-1.03 (0.16)	36.77* (0.00)	-0.80 (0.19)	29.04* (0.00)

The above results are reported on the basis of one tailed tests with 1 degree of freedom in the "between groups" analysis and 28 degrees of freedom in the "within groups" analysis.

TABLE 14

Results Of Analyses Of Supporting Hypotheses: F Ratios (F Probabilities)

		Pensions Context				PEP Context			
		Frequency		Proficiency		Frequency		Proficiency	
Hypo.	**Managerial Action**	**F Ratio**	**(F Prob.)**	**F Ratio**	**(F Prob.)**	**F Ratio**	**(F Prob.)**	**F Ratio**	**(F Prob.)**
5)	Ensure Relevancy Of MI	-29.96*	(0.00)	9.12*	(0.00)	1.22	(0.13)	0.51	(0.24)
7)	Ensure Usable FormatOf MI	0.10	(0.38)	-2.03	(0.08)	17.11*	(0.00)	18.18*	(0.00)
8)	Adopt Competitive Orientation	-5.50*	(0.01)	7.40*	(0.00)	-0.10	(0.38)	1.00	(0.16)
11)	Network MI Between Development Tasks	3.18	(0.04)	1.71	(0.10)	27.23*	(0.00)	107.38*	(0.00)
13)	Utilise Formal Comm.Channels	-1.71	(0.10)	-0.27	(0.31)	7.45*	(0.01)	12.62*	(0.00)
14)	Implement IT Based Processing	0.76	(0.19)	7.41*	(0.01)	3.47	(0.04)	-0.01	(0.47)
15)	Ensure Timely Receipt	-1.26	(0.14)	20.73*	(0.00)	0.65	(0.21)	0.01	(0.47)
16)	Ensure Accuracy	-0.28	(0.30)	19.82*	(0.00)	0.00	(0.49)	-0.34	(0.28)
18)	Channel MI To Decentralised Decision Makers	-22.15*	(0.00)	-3.56	(0.03)	48.86*	(0.00)	3.04	(0.05)

The above results are reported on the basis of one tailed tests and in all cases with 1 degree of freedom in the "between groups" analysis and 28 degrees of freedom in the "within groups" analysis.

In the above tables * indicates that the findings are significant at 0.025 level. In tabulating these results we find that they cluster into three groups. The first batch of results, presented in Table 12, illustrate four managerial actions all of which are significantly different between winners and losers in **both** frequency **and** proficiency dimensions within **both** research contexts. In the second cluster of five managerial actions, shown in Table 13, we find some evidence of significant differences in our primary research context but these can only be validated in **either** frequency **or** proficiency dimensions by the findings from our secondary research context. In the third cluster of nine managerial actions in Table 14 some significant differences in either frequency or proficiency terms are evident in our primary context but these are not validated by findings in our secondary research context.

7.10 Task Analyses

In the previous section we reported on the results of our analyses of our supporting hypotheses. In this section we disregard our supporting hypotheses and consider whether **overall**, there are significant differences between winners and losers **within each of the six product development activities**. To accomplish this we executed analysis of variance on the frequency and proficiency scores attributed to winner and loser groups within each of our six product development tasks. Data for this analysis was obtained from Data Tables 1 - 144. The objective of these analyses was to identify **during which product development activities** superior product developers undertook more skilful management of marketing information than less successful firms. The mean scores attributable to each task are shown below in Table 15.

TABLE 15

Contrasted Mean Scores of Product Development Tasks

Product Development Task	Pension Context						PEP Context					
	Frequency Scores			Proficiency Scores			Frequency Scores			Proficiency Scores		
	Win.	Losers	Diff.	Win.	Losers	Diff.	Win.	Losers	Diff.	Win.	Losers	Diff.
Idea Generation	***42.2***	***25.6***	***16.6***	***29.2***	***17.2***	***12.0***	***48.6***	***25.4***	***23.2***	***33.6***	***19.8***	***13.8***
Idea Screening	***40.4***	***31.6***	***8.8***	***29.8***	***17.1***	***12.7***	***46.4***	***24.6***	***21.8***	***33.1***	***18.9***	***14.2***
Analysis	36.6	36.5	0.1	***24.8***	***22.0***	***2.8***	***44.4***	***28.4***	***16.0***	***32.6***	***20.1***	***12.5***
Development	34.6	32.6	2.0	***25.4***	***21.3***	***4.1***	***39.3***	***30.0***	***9.3***	***31.2***	***22.3***	***8.9***
Testing	***39.4***	***35.2***	***4.2***	***27.7***	***23.4***	***4.3***	***41.9***	***32.9***	***9.0***	***30.4***	***22.4***	***8.0***
Launch	41.4	38.8	2.6	***27.4***	***21.9***	***5.5***	***43.6***	***35.1***	***8.5***	***29.4***	***24.4***	***5.0***
Totals	234.6	200.3	34.3	164.3	122.9	41.4	264.2	176.4	87.8	190.3	127.9	62.4

NB: The mean frequency scores fall within a range of 0 to 90 and the mean proficiency scores fall within a range of 0 to 60. The mean scores in bold and italics have been found to be significantly different between winners and losers in their respective contexts.

We then executed ANOVA on the frequency scores of winners and losers in the pensions context within each of the six development activities. These calculations are set out in Data Tables 229 - 234. We then executed ANOVA on the frequency scores of PEP winners and PEP losers within each of the six development activities and these calculations are set out in Data Tables 235 - 240. We also executed ANOVA on the proficiency scores of pension winners and pension losers and these calculations are set out in Data Tables 241 - 246. Finally we executed ANOVA on the proficiency scores of winners and losers in the PEP context. These calculations are illustrated in Data Tables 247 - 252. In all of the ANOVA calculations in Data Tables 229 - 252 we have used 1 degree of freedom for the between groups analyses and 28 degrees of freedom for the within groups analyses. For the benefit of the reader we have summarised the results of these analyses in Table 16 below.

TABLE 16

Results Of Analyses By Product Development Task: F Ratios (F Probabilities)

	Pensions Context		PEP Context	
	Frequency	Proficiency	Frequency	Proficiency
Task	**F Ratio (F Prob.)**	**F Ratio (F Prob.)**	**F Ratio (F Prob.)**	**F Ratio (F Prob.)**
Idea Generation	77.91* (0.00)	130.27* (0.00)	250.97* (0.00)	158.86* (0.00)
Idea Screening	35.69* (0.00)	190.28* (0.00)	334.72* (0.00)	165.35* (0.00)
Analysis	0.00 (0.48)	5.15* (0.01)	97.48* (0.00)	147.74* (0.00)
Development	0.91 (0.17)	8.70* (0.01)	30.82* (0.00)	54.16* (0.00)
Testing	8.21* (0.00)	25.94* (0.00)	25.24* (0.00)	43.80* (0.00)
Launch	2.49 (0.06)	27.66* (0.00)	23.17* (0.00)	13.29* (0.00)

The above results are reported as one tailed tests and in all cases with 1 degree of freedom in the "between groups" analysis and 28 degrees of freedom in the "within groups" analysis.

7.11 Adjustments To ANOVA Findings

Although One-Way ANOVA is powerful in identifying any difference between the mean scores of groups it does not specify the direction of the difference. Consequently ANOVA did not draw to our attention the minority of cases where loser groups undertook significantly more frequent or more proficient managerial action than our winner groups. We therefore had to supplement our ANOVA findings by identifying those mean scores of loser groups which were greater than the mean scores of winner groups for each managerial action. Before compiling tables 12, 13, 14 and 16 we therefore reviewed the data sets which had been subject to analysis. Where the mean scores of the loser group were greater than those of the winner groups we have placed a dash (-) sign in front of the calculated F ratio. These dash signs should be interpreted to mean differences in the opposite direction rather than suggesting that the F statistic is negative (since F cannot be negative).

7.12 Conclusion

The results of our analyses of the aggregated frequency and aggregated proficiency data in both research contexts suggest that **overall,** our program winners undertake significantly more frequent and more proficient managerial actions concerning their marketing information than less successful developers. These findings allow us to infer that superior developers are more skilful in their management of marketing information during the important business phenomenon of product development than their less successful counterparts.

The results of our analyses of the supporting hypotheses have identified four key managerial actions which are significantly different in terms of both greater frequency and greater proficiency of action and which have been validated by findings in our secondary

research context. Additionally we have found evidence (verified by findings in the secondary context) that superior developers adopted either greater frequency or greater proficiency in their execution of a further five managerial actions.

The results of our analyses of aggregated data within each individual product development task suggests that superior PEP developers undertake significantly more skilful (i.e. more frequent and more proficient) action during all product development activities. In the pensions context superior developers undertake significantly more skilful managerial action only during idea generation, screening and testing activities.

In order to provide more specific insights into how to manage marketing information during product development a more comprehensive discussion of our findings now follows in Chapter Eight.

CHAPTER 8: DISCUSSION OF RESULTS

8.1 Introduction

> "The research tradition of marketing has been remiss in the provision of effective tools for the implementation of marketing. The tools we have traditionally provided have been strategy generation rather than implementation. Piercy, (1989a)

The objective of this chapter is to consider and discuss the results of the preceding analyses and place our findings in a context suitable for implementation. In effect this chapter also answers the "**in what ways**" question posed earlier in our research design. Before commencing this chapter we must remind the reader that our analytical perspective is not a mutually exclusive variable in facilitating superior new products. Rather, managing marketing information is only one of many endogenous and exogenous variables which can influence the success of a suite of new products and our results must be considered accordingly.

Before consideration of our findings, it is worthy of recall that the total achieved market shares of our respondent companies were 76% in the pensions context and 68% in the PEP context. This indicates that we have included in our research those firms whose new products had achieved significant consumer acceptance. Additionally we have only included firms for which product development was a strategically important business activity, who had been active at the program level and who were regarded by their peers to have developed the most competitive products in their respective product market sectors.

8.2 Proficiency Testing Results

The results of our analyses of the aggregated proficiency data in the primary research context (see Table 10) produced a F value of 103.33 (F probability of 0.0000). This F value indicates a significant difference between the mean scores of our two groups and together with

the low F probability allow us to reject the null hypothesis (that the groups came from populations with similar means) and infer that overall, superior pension developers executed more proficient managerial actions than their less successful counterparts. In the PEP context the aggregated proficiency findings (i.e. a F value of 204.37) were also found to have a probability score far below our acceptable level of 0.025. These findings allow us to reject the null hypothesis and infer that superior PEP developers also executed more proficient managerial actions than their less successful rivals.

Collectively these findings suggest that the adoption of a more proficient approach to managing marketing information within product development facilitates new products that are outstandingly competitive and highly concordant with demand for personal financial services. The foregoing results from both the primary and secondary contexts therefore allow us to assert that overall, superior developers are significantly more proficient than less successful developers in their management of marketing information.

8.3 Frequency Testing Results

The F Values in Table 10 indicate that in both the primary and secondary research contexts the aggregated frequency scores of our program winner groups were also significantly greater than the mean scores of their respective program loser groups. The low F probabilities for our frequency data allow us to reject the null hypothesis and infer that overall superior developers undertake significantly more frequent managerial action than less successful developers. The results of our analysis of the aggregated frequency scores in our primary research context produced a F value of 19.02 which was not as large as the F value (199.21) obtained in the secondary context. The reasons for this disparity of results may be context

related. For example many superior PEP developers in our sample tended to be newly created organisations who were not as tied to older and more traditional management practices as were the more established firms in the pensions context. Collectively our aggregated frequency results allow us to infer that overall, superior developers undertake more frequent action in managing their marketing information than their less successful counterparts.

The frequency and proficiency results in Table 10 illustrate F probabilities which are significantly below our critical value of 0.025 in both contexts to allow us to reject the null hypothesis that the population means are equal. These aggregated data results therefore allow us to validate our principal hypothesis that **superior product developers are more skilful in their management of marketing information than less successful developers.** The reason for this more skilful approach may be that superior developers are more aware of the importance of marketing information and hence they may already recognise the need to skilfully manage this key corporate asset. This view was suggested in a quotation by one highly successful firm following the conclusion of our structured interview; "In the past we gave very little consideration to customer wants. During the creation of our new pension products we became aware that the competitive environment was changing and the public were becoming more financially astute. We therefore had to take account of their needs and what competitors were offering".

8.4 Supporting Hypotheses Results

In order to provide more than a superficial perspective on the managerial approach of outstanding developers we now focus on the results from our testing of individual supporting hypotheses. Four managerial actions were identified in Table 12 as having significantly **greater**

frequency and proficiency of action by superior developers **in both research contexts**. The managerial actions which differentiate between our program winners and program losers groups in both contexts are.

(i) **Greater frequency and proficiency in implementing marketing information for multiple uses during product development** (supporting hypotheses 1A & 1B)

(ii) **More frequent and proficient networking of marketing information between the participants involved in product development activities** (supporting hypotheses 3A & 3B)

(iii) **Greater frequency and proficiency in planning the sources of marketing information throughout product development** (supporting hypotheses 4A & 4B)

(iv) **Greater frequency and proficiency in implementing structured analyses of marketing information during product development activities** (supporting hypotheses 9A & 9B).

8.4.1 Multiple Uses Of Marketing Information

Our findings in Table 12 illustrate that in both research contexts superior developers demonstrated significantly greater frequency and proficiency in utilising marketing information for multiple purposes during product development than their less successful counterparts. In order to identify during which specific product development activities superior firms focused this particular managerial action we contrasted the mean scores of winners with the mean scores of losers in each research context. Data for this analysis was taken from Data Tables 1, 37, 73 & 109. The results of our comparison of the mean frequency scores for supporting hypothesis 1A are shown below in Table 17. In the following tables the ratios represent the loser groups' mean score expressed as a multiple of the mean score of the winner group for each task.

TABLE 17: Mean Frequency Ratios
Multiple Uses Of Marketing Information

	Pensions Context			PEP Context		
	Winners	Losers	Ratio	Winners	Losers	Ratio
Idea Generation	4.93	1.07	4.61	4.93	1.47	3.35
Idea Screening	4.27	1.33	3.21	4.60	1.60	2.88
Analysis	2.73	1.33	2.05	3.87	1.47	2.63
Development	2.33	1.40	1.66	2.40	1.47	1.63
Testing	2.00	1.40	1.43	2.53	1.33	1.90
Launch	2.07	1.40	1.48	2.93	1.07	2.74
Totals	18.33	7.93		21.26	8.41	

The above ratios in Table 17 demonstrate that superior developers in both research contexts invoked marketing information for multiple purposes with at least twice the frequency of less successful developers during early initiation activities (i.e. idea generation, idea screening and analysis) than less successful developers. We speculate that superior developers maximised the utility of their marketing information through multiple usage during a time frame when there was high uncertainty with respect to market needs and emerging rival products. In later implementation activities (i.e. development, testing and launch) the difference in frequency of use of marketing information for more than one purpose (with the exception of the launch stage in the PEP context) was not as great as in initiation activities. This appears to have been caused by a reduction in frequency by superior developers rather than as a result of a significant increase in frequency of action by less successful developers. It may be that marketing information was considered to be less effective in these later stages and hence was less frequently used for more than one purpose. Alternatively, it may be that other information types become more dominant in these later activities and are used more frequently in preference to marketing information. Arising from our inspection of archive records we found that many superior developers frequently utilised marketing information in a catalytic role to design the

performance attributes of their nascent products in line with identified customer needs **and** to evaluate the technical competitiveness of their nascent products against rival offerings. The catalytic use of marketing information was epitomised in Aetna Life's range of animal funds (Stag, Bear, Bull, Owl and Squirrel) which reflected an investment risk profile more easily understood by the client than orthodox industry terminology. Superior developers also regularly utilised marketing information to confirm (or refute) the competitiveness of the new benefits offered by their nascent range of products against those of competitors. In the archive files of some less successful firms we found many examples wherein marketing information was only used when it confirmed earlier assumptions of market or competitive conditions. In these firms market and competitive data was infrequently used for strategic purposes or as a catalyst to stimulate changes in the performance characteristics of their emerging products.

Using data extracted from Data Tables 19, 55, 91 & 127 we have also calculated and tabulated mean proficiency ratios in respect of the multiple usage of marketing information. These are shown below in Table 18.

TABLE 18: Mean Proficiency Ratios
Multiple Uses Of Marketing Information

	Pensions Context			PEP Context		
	Winners	Losers	Ratio	Winners	Losers	Ratio
Idea Generation	2.40	0.67	3.58	2.60	1.13	2.30
Idea Screening	2.13	0.67	3.18	2.33	1.27	1.83
Analysis	2.00	0.80	2.50	2.33	1.53	1.52
Development	1.60	0.73	2.19	2.00	1.33	1.50
Testing	1.40	0.80	1.75	1.93	1.20	1.61
Launch	1.33	0.67	1.99	1.87	1.27	1.47
Totals	10.86	4.34		13.06	7.73	

Table 18 illustrates that the ratio between superior and less successful developers is greatest in both contexts during idea generation and idea screening tasks. A feature of Table 18

is that in both contexts superior developers became progressively less proficient in their multiple use of marketing information as the process continued. A possible reason for this diminution in proficiency may be that as the process advances the relative value of marketing information may be perceived to diminish and hence proficiency in multiple usage may also decline. During our field investigation we found archive evidence that superior developers diligently utilised marketing research to both stimulate product concepts and to provide the evaluation criteria upon which early "go/no go" decisions were made. Detailed examination of market forecasts and potential take up rates often formed the basis for key attribute and performance decisions.

The foregoing results in Tables 17 & 18 support the view that superior developers **not only frequently implemented marketing information for a greater number of uses than less successful developers, during the early stages of product development, but they also undertook this action with significantly greater proficiency.**

8.4.2 Network Marketing Information Between Development Participants

Frequent and proficient networking of marketing information between development participants was also identified in Table 12 as a key differentiator between superior and less successful firms in both contexts. Using data extracted from Data Tables 3, 39, 75 & 111 we have calculated and tabulated mean frequency ratios for this managerial action. These ratios are illustrated in Table 19 below.

TABLE 19 Mean Frequency Ratios

Network Between Development Participants

	Pensions Context			PEP Context		
	Winners	Losers	Ratio	Winners	Losers	Ratio
Idea Generation	4.33	1.73	2.50	3.20	1.66	1.92
Idea Screening	4.07	1.67	2.44	2.73	1.47	1.86
Analysis	3.33	1.80	1.85	2.87	1.93	1.48
Development	3.40	1.47	2.31	2.40	1.60	1.50
Testing	3.67	2.47	1.49	2.87	1.73	1.66
Launch	3.67	4.13	0.89	3.00	1.73	1.73
Totals	22.47	13.27		17.07	10.12	

Table 19 suggests that the greatest differences between winners and losers in terms of frequency of sharing marketing information in both contexts are to be found in idea generation and idea screening tasks. This may be explained by less successful developers having some of their lowest mean scores and superior developers having some of their highest scores during these two activities. During our field investigation we found that many superior firms encouraged a "marketing philosophy" [Shapiro, (1988)] as a key construct in their corporate culture. This philosophy may have manifested itself in frequent exchanges of marketing information during product development especially within the early stages when market and competitive conditions were not fully known and there was a greater need to keep members of the development team informed of pertinent issues.

By implementing data extracted from Data Tables 21, 57, 93 & 129 we have also considered the extent of proficiency exercised in exchanging marketing information between those persons involved in product development. The mean proficiency ratios in this respect are illustrated in Table 20.

TABLE 20: Mean Proficiency Ratios

Network Between Development Participants

	Pensions Context			PEP Context		
	Winners	Losers	Ratio	Winners	Losers	Ratio
Idea Generation	2.27	1.47	1.54	3.13	2.33	1.34
Idea Screening	2.33	0.93	2.51	2.87	1.87	1.53
Analysis	2.47	1.13	2.19	2.73	0.73	3.73
Development	2.47	1.47	1.68	2.53	1.07	2.37
Testing	2.60	1.53	1.70	2.60	1.60	1.63
Launch	2.53	1.53	1.65	2.33	1.66	1.40
Totals	14.67	8.06		16.19	9.26	

The ratios in Table 20 indicate that the greatest difference in proficiency with which networking of marketing information was undertaken between winners and losers was during analysis tasks in the PEP context and during idea screening in the pensions context. In both cases this has occurred because less successful firms undertook their lowest levels of proficiency rather than by superior developers undertaking their highest levels of proficiency. During our review of archive records we found examples of great care having been taken to share key data with colleagues as part of a marketing orientation embedded in the corporate culture of superior developers. A typical example of this managerial action was illustrated by some superior developers who often supplemented their internal memoranda and reports with subsequent discussions on emerging product issues.

8.4.3 Planning The Sources Of Marketing Information

Our results in Table 12 indicate that frequency and proficiency in planning the sources of marketing information was also a significant differentiator between superior and less successful developers in both research contexts. Using data extracted from Data Tables 4, 40, 76 & 112 we have considered the frequency with which this particular managerial action was

executed during product development. The mean frequency ratios in this respect are illustrated in Table 21.

Table 21: Mean Frequency Ratios

Planning The Sources Of Marketing Information

	Pensions Context			PEP Context		
	Winners	Losers	Ratio	Winners	Losers	Ratio
Idea Generation	3.93	2.13	1.85	4.47	2.47	1.81
Idea Screening	4.40	2.46	1.79	4.47	2.53	1.77
Analysis	4.00	2.80	1.43	3.77	1.47	2.56
Development	4.07	1.60	2.54	3.87	2.27	1.70
Testing	4.73	1.27	3.72	4.40	2.40	1.83
Launch	4.47	1.53	2.92	4.07	2.27	1.79
Totals	25.60	11.79		25.05	13.41	

It is noticeable that in both contexts superior developers had high mean frequency scores for most activities and this suggests that frequent planning of the sources of marketing information was considered to be a particularly important managerial action throughout product development. The ratios in Table 21 also illustrate that superior pension developers undertook relatively more frequent planning of their sources of marketing information for later implementation tasks. Unfortunately these findings are not validated by our ratios in the secondary context where the largest ratio is to be found for analysis tasks. During our review of archive records we found some evidence of regular development team meetings at which sources such as marketing research and marketing intelligence were considered for use during later activities.

Invoking data from Data Tables 22, 58, 94 & 130 we have also calculated proficiency ratios in respect of this particular managerial action. These proficiency ratios are tabulated in Table 22 below.

Table 22: Mean Proficiency Ratios

Planning The Sources Of Marketing Information

	Pensions Context			PEP Context		
	Winners	Losers	Ratio	Winners	Losers	Ratio
Idea Generation	2.80	1.33	2.11	3.20	1.27	2.52
Idea Screening	2.73	1.27	2.15	2.80	1.33	2.10
Analysis	2.47	1.47	1.68	2.33	1.07	2.18
Development	3.13	1.73	1.81	2.33	1.60	1.46
Testing	3.20	2.00	1.60	2.73	1.47	1.86
Launch	2.60	1.27	2.05	2.40	1.33	1.80
Totals	16.93	9.07		15.79	8.07	

The ratios in Table 22 indicate that in both research contexts superior developers were more than twice as proficient in planning their sources of marketing information for idea generation and idea screening tasks than less successful developers. This suggests that even before the process has formally begun superior developers recognised the need to carefully plan their marketing data for these early and important tasks. Superior pension developers were also twice as proficient in planning the sources of their marketing information for launch activities than less successful pensions developers, while superior PEP developers were more than twice as proficient in planning their sources for analysis tasks. During our review of archive records we found examples of great care in planning appropriate sources of marketing information. For example one PEP developer decided not to include the recommendations of their sales force during the idea generation stage on the grounds that they were unduly biased towards high commission generating products. In other cases we found examples of detailed plans for obtaining marketing research and internal reports for use during analysis and testing tasks.

8.4.4 Undertake Structured Analytical Methods

Our ANOVA findings in Table 12 also indicate that skilful execution of structured analytical methods was a significant differentiator between superior and less successful developers in both contexts. Utilising data extracted from Data Tables 9, 45, 81 & 117 we have calculated and tabulated mean frequency ratios with respect to the execution of structured analyses of marketing information during product development tasks. These are illustrated in Table 23 below.

Table 23: Mean Frequency Ratios

Undertake Structured Analytical Methods

	Pensions Context			PEP Context		
	Winners	Losers	Ratio	Winners	Losers	Ratio
Idea Generation	3.20	1.60	2.00	3.67	1.20	3.06
Idea Screening	3.27	1.73	1.89	3.73	1.47	2.54
Analysis	3.27	2.20	1.49	4.33	2.60	1.66
Development	3.00	2.60	1.15	3.20	2.93	1.09
Testing	3.67	3.40	1.08	3.80	2.40	1.58
Launch	3.33	3.13	1.06	3.27	3.80	0.86
Totals	19.74	14.66		22.00	14.40	

The ratios in Table 23 indicate that superior developers (in both research contexts) performed relatively more frequent structured analysis of their marketing information during idea generation and screening tasks than their less successful rivals. However superior pension developers undertook their greatest frequency of structured analyses during testing and launch tasks while superior PEP developers undertook their greatest frequency of analyses during formal analysis and testing activities. During our field investigation we found that superior developers frequently invoked rigorous structured analyses for generating new product ideas. These evaluations were not loose or informal techniques such as brainstorming or quality circles, as suggested by Sowrey, (1990) and Majaro, (1988). Instead we found many examples

of regular methodical evaluations of product concepts which clearly evidenced the merits and disadvantages of each new idea. It may be that a more frequent structured analytical approach during idea generation and idea screening was more appropriate given that the enabling legislation had already set key parameters on many possible product attributes/performance features (e.g. annual maximum amounts of investment).

By implementing data extracted from Data Tables 27, 63, 99 & 135 we have also considered the proficiency exercised in the execution of structured analytical techniques during product development tasks. The mean proficiency ratios in this respect are illustrated in Table 24.

Table 24: Mean Proficiency Ratios

Undertake Structured Analytical Methods

	Pensions Context			PEP Context		
	Winners	Losers	Ratio	Winners	Losers	Ratio
Idea Generation	2.13	1.07	1.99	1.53	1.13	1.35
Idea Screening	2.20	1.20	1.83	2.73	1.73	1.58
Analysis	1.60	1.40	1.14	2.53	1.07	2.36
Development	1.33	1.33	1.00	2.00	1.67	1.19
Testing	1.40	1.60	0.88	2.20	1.40	1.57
Launch	1.40	1.40	1.00	2.13	1.53	1.39
Totals	10.06	8.00		13.12	8.53	

The ratios in Table 24 suggest that superior pension developers were more proficient in this managerial action during idea generation and screening tasks. These findings are not however supported by our findings in the PEP context where the largest ratios are to be found in analysis and development tasks. During our investigation into archive files we found evidence in both contexts of proficiency in executing structured analyses in the form of detailed market segmentation reviews and carefully constructed competitor product reviews. It may be that frequent and proficient structured analyses of new product concepts utilising marketing

information can act as an effective filter in eliminating new ideas that are unlikely to achieve commercial success.

8.5 Supplementary Findings

In Table 13 we have tabulated the results of five managerial actions in which we found significant differences between superior and less successful developers in terms of **either** frequency **or** proficiency of action and which were validated by findings in the secondary context. These findings are considered below.

8.5.1 Ensure Timely Utilisation

Our ANOVA tests identified that superior developers more frequently ensured timely utilisation of their marketing information than less successful developers (supporting hypothesis 2A) in both contexts. In order to identify during which tasks superior developers ensured more frequent timely utilisation of marketing information we have calculated mean frequency ratios using data from Data Tables 2, 38, 74 and 110 and these are shown below in Table 25.

Table 25: Mean Frequency Ratios

Ensure Timely Utilisation

	Pensions Context			PEP Context		
	Winners	Losers	Ratio	Winners	Losers	Ratio
Idea Generation	4.20	1.20	3.50	4.73	1.13	4.19
Idea Screening	4.13	0.87	4.75	4.00	0.73	5.48
Analysis	1.80	0.87	2.07	2.00	0.93	2.15
Development	2.53	2.00	1.27	2.27	1.47	1.54
Testing	4.27	1.93	2.21	3.33	1.60	2.08
Launch	4.73	3.20	1.48	4.07	2.27	1.79
Totals	21.66	10.07		20.40	8.13	

The ratios in Table 25 indicate that superior developers in both contexts undertook more frequent timely utilisation of marketing information during idea generation and screening tasks than less successful developers. These large ratios may reflect a greater awareness by superior developers of the diminishing value of marketing information as over time it becomes obsolete. The timely use of market and competitive data therefore appears to be critically important when new product ideas are being initiated and considered. Additionally the mean scores in Table 25 indicate that superior developers in both contexts also had a high frequency of ensuring timely utilisation during testing and launch tasks. We speculate that frequent and prompt implementation of feedback from product tests and initial market reaction can be critically important in constructing marketing plans and for fine tuning the market's perception of the new product.

8.5.2 Utilise Informal Communication Channels

Proficiency in utilising informal communication channels (supporting hypothesis 6B) was also identified in our ANOVA tests as a managerial action which was significantly different between superior and less successful developers. Using data from Data Tables 24, 60, 96 and 132 we have calculated mean proficiency ratios for each task and these are illustrated below in Table 26.

Table 26: Mean Proficiency Ratios

Utilise Informal Communication Channels

	Pensions Context			PEP Context		
	Winners	Losers	Ratio	Winners	Losers	Ratio
Idea Generation	1.40	0.80	1.75	2.60	1.73	1.50
Idea Screening	2.13	1.07	1.99	2.66	1.60	1.66
Analysis	1.27	1.13	1.12	2.80	1.87	1.50
Development	1.73	1.20	1.44	2.67	1.27	2.10
Testing	1.87	1.33	1.41	2.47	1.07	2.31
Launch	2.20	1.20	1.83	2.67	2.53	1.06
Totals	10.60	6.73		15.87	10.07	

In the pensions context we find the largest ratios in idea screening and launch tasks while in the PEP context the largest ratios are in development and testing tasks. Neither set of ratios provide conclusive support that any particular task in either context was uniquely subject to more proficient use of informal communication channels by the winner group. In our review of archive records we found that some new product managers from superior developers carefully manipulated informal social meetings within their firm. This informal approach was considered to have improved communications especially when membership of the development team changed throughout the process.

8.5.3 Ensure Sufficiency of Data

Proficiency in ensuring sufficiency of marketing information (supporting hypothesis 10B) was identified by our ANOVA tests to be significantly different between winners and losers in both research contexts. By utilising mean scores from Data Tables 28, 64, 100 and 136 we have calculated proficiency ratios and these are set out in Table 27 below.

Table 27: Mean Proficiency Ratios

Ensure Sufficiency of Data

	Pensions Context			PEP Context		
	Winners	Losers	Ratio	Winners	Losers	Ratio
Idea Generation	2.13	0.80	2.66	1.73	1.27	1.36
Idea Screening	1.73	0.73	2.37	1.53	1.27	1.20
Analysis	1.20	1.33	0.90	2.13	0.73	2.92
Development	1.00	0.93	1.08	2.07	0.80	2.59
Testing	1.93	1.53	1.26	1.93	0.80	2.41
Launch	1.40	1.27	1.10	1.33	1.13	1.18
Totals	9.39	6.59		10.72	6.00	

In the pensions context the ratios between winners and losers are greatest during idea generation and idea screening activities while in the PEP context the largest ratios are to be found in analysis, development and testing activities. Losers in both contexts had very low proficiency scores and this suggests that they paid very little attention to the sufficiency of their marketing information during product development. In our review of archive records we found that some less successful developers did not place great importance on the needs of customers. These less successful firms considered that whatever market and competitor information was initially obtained would be sufficient for their needs throughout the process. This lack of proficiency in ensuring the adequacy of data throughout the process placed some less successful developers at a disadvantage since the markets and rival products were emerging during 1987 and there was an ongoing need to ensure that data remained adequate throughout product development.

8.5.4 Share Sourcing Responsibility

The results of our ANOVA testing in Table 13 illustrate that superior firms in both contexts more frequently shared responsibility for obtaining market and competitor information

than their less successful rivals (supporting hypothesis 12A). In order to determine during which activities superior developers focus their efforts we have calculated mean frequency ratios using data from Data Tables 12, 48, 84 and 120 and these are shown below in Table 28.

Table 28: Mean Frequency Ratios

Share Sourcing Responsibility

	Pensions Context			PEP Context		
	Winners	Losers	Ratio	Winners	Losers	Ratio
Idea Generation	3.93	1.87	2.10	4.40	0.67	6.57
Idea Screening	3.67	1.87	1.96	3.73	1.13	3.30
Analysis	3.53	1.93	1.83	3.33	1.40	2.38
Development	3.67	2.87	1.28	3.33	1.13	2.95
Testing	3.87	2.67	1.45	3.40	1.27	2.68
Launch	3.93	2.13	1.85	3.60	1.27	2.83
Totals	22.60	13.34		21.79	6.87	

The largest differences between winners and losers in both contexts are again to be found in idea generation and idea screening tasks. In the PEP context superior developers undertook over six times the frequency of action than their less successful counterparts during idea generation. This difference was due to the particularly low frequency scores of losers and the particularly high score of the winners. Based on our inspection of meeting notes from superior firms we identified that conceptualising new product ideas often included a wide range of functional managers who had proactively made themselves aware of emerging needs and the potential features of emerging rival products. We speculate that all contributors to idea generation and screening tasks should be informed of client needs and the features of competing products, rather than be led by their own functional information types. This may be best achieved by other business functions such as actuarial, finance and administration frequently seeking out and becoming familiar with this key corporate asset rather than relying upon the marketing department to be the sole provider of marketing information.

When we contrast the ratios between contexts we can see that the differences between winners and losers is greater in the PEP context. This appears to be the consequence of lower mean scores by PEP losers rather than PEP winners adopting significantly greater frequency of action. It may be that PEP losers had not yet adopted the marketing concept to the same extent as their superior counterparts.

8.5.5 Utilise Formal Collection Systems

Our ANOVA tests also identified that proficiency in using formal collection systems for marketing information was a significant differentiator between superior and less successful firms (supporting hypothesis 17B). In order to consider during which tasks superior developers undertook more proficient use of formal collection systems we have calculated mean proficiency ratios using data from Data Tables 35, 71, 107 and 143 and these are shown below in Table 29.

Table 29: Mean Proficiency Ratios

Utilise Formal Collection Systems

	Pensions Context			PEP Context		
	Winners	Losers	Ratio	Winners	Losers	Ratio
Idea Generation	1.13	0.13	8.69	2.13	0.80	2.66
Idea Screening	1.67	0.73	2.29	1.67	1.00	1.67
Analysis	1.67	0.73	2.29	1.93	1.13	1.71
Development	2.40	0.53	4.52	2.33	1.07	2.18
Testing	1.47	1.13	1.30	2.20	0.87	2.53
Launch	2.00	0.80	2.50	2.13	1.33	1.60
Totals	10.34	4.05		12.39	6.20	

The largest ratios in the pensions context occur in idea generation and development activities. Superior pension developers utilised formal collection systems with over eight times the proficiency of their less successful rivals during idea generation. The main reason for this is

the low proficiency shown by losers, rather than outstanding proficiency by winners. In the PEP context the largest ratios are to be found in idea generation and testing tasks. Here again differences appear to be caused by a lack of proficiency by less successful firms rather than excessive proficiency by winners. In our review of archive records we identified that some less successful firms did not place a high value on marketing information. Consequently they paid little attention as to how this key asset was gathered from formal collection systems.

8.6 Residual Findings

In Table 14 we have tabulated the residual findings from the ANOVA tests of our remaining supporting hypotheses. This group of nine managerial actions have been clustered together because the results of our testing have either not identified significant F values or we have not found validation of significant results in our secondary context. Tests for frequency and proficiency within this cluster of managerial actions identified another fifteen significant F values. However these findings were not subject to verification and we therefore do not proffer these unsubstantiated findings as a reliable basis for inferring guidance on the management of marketing information.

Tables 13 & 14 also contain sixteen test results which indicate that less successful developers undertook greater frequency or proficiency of action than superior developers in a number of managerial actions. Within these sixteen test results eleven were designated as not significant and five were adjudged to be significant. None of the five significant findings were validated by findings in the other research context and we therefore do not place reliance on these results as a basis for inferring guidance on managing marketing information.

Our rationale for rejecting results which have not been validated in another research context is based on arguments by Smith & Dainty, (1991) and Podaskoff & Dalton, (1991) that new knowledge is not merely the identification and reporting of isolated new research findings, but in obtaining verification of these findings through substantive testing.

8.7 Results of Activity Analyses

In this section we examine the results obtained from testing data within product development tasks rather than from within specific managerial actions. We executed ANOVA in both contexts on the scores of our groups within each activity using Data Tables 1 - 144. The mean scores from within all product development tasks together with their respective differences are shown in Table 15. The ANOVA calculations are based on the mean scores from Table 15 are set out in Data Tables 229 to 252. The results of these ANOVA calculations are summarised in Table 16.

Those results which were validated by findings in the secondary context indicate that superior developers undertook more proficient managerial action during all six key product development tasks. Superior PEP developers also adopted significantly more frequent managerial action throughout all activities while superior pension developers adopted more frequent action only during idea generation, idea screening and testing tasks. Although we found significant differences in frequency between superior and less successful developers in the PEP context during analysis, development and launch activities these results were not confirmed by findings in our primary research context and hence we do not offer them as validated findings.

The results of our task analyses support the view that skilful management of marketing information during the initial conceptualisation and screening of new product ideas can facilitate outstandingly successful new products. The validated results in Table 16 also suggest that the skilful management of marketing information during testing can also facilitate successful new products. We speculate that diligent early evaluation of new product ideas using market and competitor data can effectively eliminate those new product ideas which have a low probability of meeting customer expectations and of competing successfully against rival offerings.

These findings at the activity level are consistent with the findings from analyses within our supporting hypotheses i.e. that skilfully managing marketing information particularly during early tasks in product development can lead to new product success. In our review of archive records and from discussions following our interviews we found that superior developers recognised the need to skilfully manage this important corporate asset. Less successful developers tended to be less responsive to their marketing information and they were less inclined to devote time to manage this resource.

8.8 Conclusion

In both the pensions and PEP contexts we have found from our aggregated data tests that overall, superior developers implemented significantly more frequent and more proficient managerial actions than less successful developers. These aggregated data results support our principal hypothesis and allow us to infer that superior product developers adopt more skilful management of marketing information during product development than less successful developers.

The second objective of our research was to identify in what ways superior developers differed in their management of marketing information from the approach adopted by less successful developers. In this investigation we have identified four specific managerial actions which superior pension and PEP developers executed with significantly greater frequency **and** proficiency. These four actions were

(i) **Greater frequency and proficiency in implementing marketing information for multiple usage** and

(ii) **More frequent and proficient networking of marketing information between the participants involved** and

(iii) **Greater frequency and proficiency in planning the sources of marketing information** and

(iv) **Greater frequency and proficiency in implementing structured analyses of marketing information**.

Within these significantly different managerial actions we found evidence that superior developers placed greater emphasis on the quantity and quality of managing marketing information during early initiation tasks. We also found a further five managerial actions in which superior pension and PEP developers executed **either** more frequent or more proficient action. Within these five managerial actions we found further evidence that superior developers focused much of their efforts on idea generation and idea screening tasks.

We also examined the overall management of marketing information within all six product development activities. The results of these analyses further indicated that overall, superior developers adopt a more proficient approach in their management of marketing

information throughout all product development tasks. They also adopt more frequent action during early initiation tasks (i.e. idea generation and screening) and in testing activities.

We have not sought to explain what causes superior developers to undertake more skilful managerial action, however Kotler, (1989) suggests that the adoption of marketing is a progressive process and that firms will be at various stages in the adoption process. Hence some firms will be more sophisticated in their approach to managing marketing information than others. Morgan, (1989) also suggests that some financial services developers have "traditionally been product led and disinclined to adopt the marketing concept". This disinclination to adopt the concept of marketing may be more manifest in our primary research context where superior firms were established life insurance companies whereas in the PEP context superior developers appeared to be relatively more recently established and hence were not as embedded in existing industry-led practices as their counterparts in the pensions context. These points may to some extent account for the difference in the frequency and proficiency with which marketing information was actioned within each research context.

Our findings suggest that skilful management of marketing information can facilitate the success of new products particularly when applied during early tasks when customer needs are emerging and competitive positioning is evolving. Developers who adopt greater frequency and proficiency in using marketing information for multiple purposes, in networking marketing information between participants, in planning the sources of marketing information and in implementing structured analyses of marketing information have been found to be more successful in two research contexts. Skilful management of the important corporate asset of marketing information can contribute to the commercial success of new products and those firms which focus the frequency and proficiency of their actions in the early activities should

improve the probability of creating new products that are congruent with the market and held in high esteem by industry rivals.

CHAPTER 9: MANAGERIAL IMPLICATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

9.1 Introduction

The objectives of this chapter are to consider the implications of the results of this study for managers and scholars of product development, to consider the limitations of our research and to suggest possible issues for future research.

9.2 Managerial Implications

The results of this research have identified significant new knowledge concerning the management of a key corporate asset (marketing information) during an important business operation (product development). The nature of this new knowledge will benefit both practitioners and scholars and spans several key areas viz.,

: It has empirically validated assertions from the marketing and management literature concerning the need to manage a key corporate resource (marketing information) during a critically important business process (product development) and

: It has identified and validated four highly important managerial actions concerning marketing information which facilitate superior new products. In this study we have identified that superior firms execute significantly more skilful management of marketing information particularly during the early stages of the process and

: It has advanced our understanding of the salient activities involved in a critically important business process (developing personal financial services) and

: It has provided new knowledge concerning **program level** product development of personal financial services which will assist managers in focusing their actions

concerning marketing information in ways that are likely to result in superior new products.

In identifying and reporting upon the above key issues we have provided significantly new knowledge which will engender a managerial approach concerning market and competitor information that should facilitate commercial success for new products and permit product developers to reduce the unacceptably high rates of new product failures. Additionally scholars of financial services product development have been provided with greater insights which should enhance their understanding of the critical role of marketing information within new and product markets.

9.3 Limitations Of This Research

The limitations of this research are considered from two perspectives; the conceptual perspective and the methodological perspective.

9.3.1 Conceptual Limitations

In our review of the literature we identified eighteen actions concerning marketing information that were proffered by mainly theory based literature to be important in managing marketing information. We posited these managerial actions as a conceptual framework for skilful management of an important corporate asset during key product development tasks. However in informal discussions following the conclusion of the field interviews, twenty seven interviewees intimated that other managerial issues such as the relationship between development team members and the internal political use of marketing information may also

have an influence on the success of new products. Neither of these two managerial actions had been identified in our review of the literature nor during our preliminary field study and hence the analytical scope of our enquiry was not as comprehensive as we would (on reflection) have wished.

Additionally our research has conceptualised the process of product development as consisting of six key tasks. Although this validly reflected the essential generic tasks of product development in our selected research contexts, each task may not have been of equal importance within each respondent firm's process. Our study has assumed that each of the six generic activities was of equal importance to our respondent firms and our results interpreted accordingly. It may be that some tasks are perceived by developers to play more salient roles in fostering success than others and hence the frequent and proficient execution of managerial action may require more focused attention during the more important tasks.

In this research study we have also envisioned the management of marketing information as an isolated management function, unrelated to other management issues. In reality the management of marketing information exists within a continuum of evolving managerial and marketing constraints. Our research does not consider the inter-relationship or effect of other constraining variables on the management of marketing information during development activities. For instance product development managers may be under pressure to operate within strict financial constraints. These constraints may affect the frequency and proficiency with which managerial action concerning marketing information can be undertaken.

9.3.2 Methodological Limitations

Although our research design has adopted a methodological approach invoking simultaneous replication, this replication was undertaken within another sub-set of personal financial services. Replication within a contemporaneous research context allowed us to maintain an identical analytical framework for our studies in both research contexts. However in so doing we have limited the extent to which our findings can be generalised to other non-financial services contexts. Nevertheless the strength of our key findings suggests that developers in other personal financial services contexts (e.g. retail banking and personal insurance) should benefit from invoking high levels of frequency and proficiency in their management of marketing information. In other research contexts the importance of market and competitor data will vary. In industries where customer demand is a powerful force and competition is fierce we would expect our findings to be highly applicable. In circumstances where demand is staid and competition is limited then managerial actions concerning market and competitive information may be less important in facilitating new product success.

Measurement of our dependent variable was determined following discussions with practitioners during our preliminary field study and after consideration of measures used in earlier product development studies. In this study we allocated an equal weighting to our market related and competitor relative measures as this was the weighting allocated by respondents in our preliminary field study. However during our field investigation we identified a small number of firms who indicated that market measures were marginally more important than competitive measures of new product success. Future research studies adopting our dual measures of the dependent variable may wish to allocate different weightings to their respective measures of new product success.

This study has focused on product development at the **program level** and as a consequence responses to our interview questions are generalisations of the frequency and proficiency with which the managerial actions were executed during the development of a range of personal financial services products. As a consequence of this it may be that some individual products which formed part of the suite of new products required less or more frequent and proficient managerial action than other individual products. Hence care should be taken before interpreting our findings as applicable to the project level of product development.

9.4 Suggestions For Future Research

The following recommendations for future research are based on the limitations of our own research and in the implicit and explicit requirements of our one hundred and eighty practising managers who benevolently gave of their time for this research study.

Product development decision making was earlier cited as a managerial process which relies upon the operationalisation of marketing information in making judgmental decisions. During our review of the literature we found a small number of assertions concerning the roles of **experiential** and **objective marketing information** within product development decision making. The interaction and utilisation of both these information types was also of concern to a small number of our respondents. New knowledge concerning the relationship of these two marketing information types and their relative roles during development decision making may be of value in understanding how to achieve decisions which engender new product success and minimise decisions which lead to failure.

In Chapter 2 we conceptualised product development to be a series of managerial decisions. This conceptualisation was undertaken to further demonstrate the importance of

marketing information in product development. However, our thesis has not considered the quality of managerial decision making during development decisions and our results should therefore not be used to imply that superior developers are ipso facto superior decision makers. Further research into the management of marketing information may nevertheless wish to focus on this particular analytical perspective.

Although our research design was developed for two specific personal financial services contexts it is capable of application in other financial and non-financial contexts. Additional studies invoking our research design would be beneficial in confirming or refuting the findings of this study within alternative contexts.

In the discussion of our findings in Chapter 8 we considered in what ways superior firms managed their marketing information that was different to the approach of less successful firms. These findings provided a basis for speculating why these firms adopted different managerial styles. Future research may wish to focus on identifying and explaining the psychological factors which motivated the adoption of differing styles of management.

Finally, our research has conceptualised the management of marketing information during product development as an isolated function unrelated to other management activity. In practice this sterile approach does not reflect the environment within which the management of marketing information is executed. Future research should focus on the inter-relationship and effect of other exogenous and endogenous variables on the management of marketing information during this critically important business process.

9.5 Conclusion

Unlike the natural sciences social science research takes place in an imperfect laboratory that is conditioned by human frailties and evolving environmental conditions. Notwithstanding these limitations this study has adopted a robust research design and an objective scientific approach based on principles articulated by Baker, (1991a) in Chapter 6 in order to derive significantly new knowledge. These procedures were invoked in order to increase the probability that the information gathered and analysed would be appropriate to our research questions. Baker, (1991a) contends that "there is no guarantee that any given research undertaking will produce relevant, reliable and unbiased information. But scientific procedures are more likely to do so than any other method known to man." Throughout this research study we have sought to uphold these principles in pursuit of significantly new knowledge. We contend that the findings of this study contribute significant new knowledge concerning the management of a key corporate resource **(marketing information)** within a critically important business activity **(product development)**.

APPENDIX I

PRODUCT DEVELOPMENT MODELS

PESSEMIER (1966)

Step 1) Search for ideas
Step 2) Preliminary economic analysis
Step 3) Formal economic analysis
Step 4) Development of a product
Step 5) Product testing
Step 6) Commercialisation

BOOZ, ALLEN & HAMILTON (1968)

Step 1) Exploration
Step 2) Screening
Step 3) Business analysis
Step 4) Development of a product
Step 5) Testing
Step 6) Commercialisation

URBAN & HAUSER (1980)

Stage 1) Opportunity identification (go/no go)
Stage 2) Design (go/no go)
Stage 3) Testing (go/no go)
Stage 4) Introduction/Launch (go/no go)
Stage 5) Profit Management/Feedback (go/no go)

WIND (1982)

Stage 1) Objective setting and organising
Stage 2) Idea generation
Stage 3) Idea/concept screening
Stage 4) Concept/product development
Stage 5) Concept/product evaluation
Stage 6) Generation and evaluation of the new product
Stage 7) Design a system for continuation of product performance
Stage 8) Product introduction

BOOZ, ALLEN & HAMILTON (1982)

1) New product planning
2) Idea generation
3) Screening
4) Concept development
5) Business analysis
6) Product development
7) Test marketing
8) Launch

CRAWFORD (1983)

First Phase.....Strategic planning
Second Phase.....Concept generation and development
Third Phase.....Screening
Fourth Phase.....Simultaneous development of:
Physical Product, Business Plan & Marketing Plan.
Fifth Phase.....Product Launch

COOPER (1983)

Stage 1) Idea (generation/screening)
Stage 2) Preliminary assessment (technical/market)
Stage 3) Concept evaluation/testing
Stage 4) Development
Stage 5) Testing
Stage 6) Trial
Stage 7) Launch

SHOSTACK (1984)

1) Idea generation
2) Synthesis/building
3) Market introduction
4) Post introduction audit

DONNELLY, BERRY & THOMPSON (1985)

1) Strategic guidelines
2) Exploration
3) Screening
4) Comprehensive analysis
5) Development and testing
6) Introduction/launch

JOHNE & HARBORNE (1985)

Initiation Phase
1) Idea generation
2) Screening out of unsuitable ideas
3) Testing and development of suitable ideas

Evaluation Phase
4) Financial evaluation of alternative new concepts

Implementation Phase
5) Product development proper
6) Test marketing
7) Launching

BOWERS (1986)

1) Develop a business strategy
2) Develop a service strategy
3) Idea generation
4) Concept development and evaluation
5) Business analysis
6) Service development and evaluation

JOHNSON, SCHEUING & GUIDA (1986)

1) Strategy formulation
2) Idea generation
3) Analysis
4) Service design and process development
5) Testing
6) Service development and evaluation

COOPER & KLEINSCHMIDT (1986) & COOPER (1988b)

Activity 1) Initial screening
Activity 2) Preliminary market assessment
Activity 3) Preliminary technical assessment
Activity 4) Detailed market study/research
Activity 5) Business/financial analysis
Activity 6) Product development
Activity 7) In-house product testing
Activity 8) Customer product tests
Activity 9) Test market
Activity 10) Trial production
Activity 11) Precommercialisation business analysis
Activity 12) Production start up
Activity 13) Market Launch

GOLTZ (1986)

1) Identification of options
2) Selection of preferred options
3) Development of preferred options
4) Evaluation and review of development
5) Development of prototype
6) Evaluation and review
7) Specification and implementation of production

CHEESE, DAY & WILLIS (1988)

1) Idea exploration
2) Concept screening
3) Business evaluation
4) Development
5) Testing
6) Commercialisation

DICKENSON & GAINSLEY (1988)

1) Collection of ideas
2) Screening of ideas
3) Planning and budgeting
4) Contracting
5) Test marketing
6) Programme adjustment

PAHL (1988)

1) Product initiation
2) Determination of tasks and time frames
3) Product development
4) Product implementation
5) Product monitoring

BROCKHOFF (1988)

1) Product idea
2) Research and development
3) Invention
4) Investment/production/marketing
5) Product introduction
6) Regular sales

BINGHAM,QUIGLEY & CHARLES (1989)

1) Idea generation
2) Idea screening
3) Conceptual development and testing
4) Business analysis
5) Product development
6) Test marketing
7) Product introduction

SCHEUING & JOHNSON (1989)

1) Formulation of new service objectives and strategy
2) Idea generation
3) Idea screening
4) Concept development
5) Business analysis
6) Project authorisation
7) Service design and testing
9) Process and system design and testing
10) Marketing programme design and testing
11) Personnel training
12) Service testing and pilot run
13) Test marketing
14) Full scale launch
15) Post launch review

HOWLEY (1990)

1) Product development strategy
2) Idea generation
3) Gap analysis
4) Taste testing/screening by customers
5) Name/packaging development
6) Business analysis of target market
7) Physical product development
8) Taste testing by consumers
9) In-home test
10) Launch

COOPER'S STAGE GATE MODEL (1990)

Stage 1) Assessment of idea
Stage 2) Definition
Stage 3) Development
Stage 4) Testing
Stage 5) Trial
Stage 6) Commercialisation

JOHNE & SNELSON (1990a)

1) Planning product changes
2) Idea exploration
3) Screening and evaluation
4) Physical development
5) Launch

BIEMANS & SHAW (1990)

Dutch Study Model	UK Study Model
1) Idea generation	1) a) Idea generation and screening b) Concept evaluation
2) Preliminary technical assessment	2) Preliminary technical and market assessment
3) Concept identification, test and evaluation.	3) Prototype development
4) Prototype development	4) Prototype testing/evaluation
5) Testing	5) Final specification
6) Trial	6) Full production
7) Launch	7) Market launch
	8) Marketing
	9) User feedback
	10) Re-innovation

FLETCHER (1990)

1) Idea generation
2) Screening
3) Business analysis and product development
4) Market development and testing
5) Commercialisation

EDGETT (1991)

1) Product concept development
2) Preliminary technical feasibility
3) Product design
4) System design and testing
5) Personnel training
6) Full-scale launch
7) Post launch review

SASAKI (1991)

1) Specify product concept
2) Undertake research & development
3) Analysis market/commercial potential
4) Design the product
5) Plan the production
6) Plan the marketing

HASLAM (1991)

1) Ideas generation
2) Ideas screening
3) Prototype production
4) External appraisal
5) Production costing
6) Go/no go and priority decision
7) Production and marketing plan
8) Production and marketing

ROCHFORD (1991)

1) Strategic planning
2) Opportunity identification
3) Business analysis
4) Feasibility
5) Development
6) Testing
7) Introduction
8) Commercialisation

KENNARD (1991)

1) Initial screening
2) Business analysis
3) Product development
4) Testing
5) Commercialisation

BIEMANS (1991)

1) Ideation
2) Market assessment
3) Concept analysis
4) Development
5) Testing
6) Trial
7) Launch

MAHAJAN & WIND (1992)

1) New product idea generation
2) New product concept screening
3) Detailed market study for concept development testing
4) Detailed market study for market identification, positioning and strategy
5) Business/financial analysis
6) Product development
7) Customer test of products
8) Pre-market volume forecasting using prototype
9) Market test/trial sell
10) Market launch planning

ANTHONY & MCKAY (1992)

1) Concept
2) Specification
3) Design
4) Test
5) Launch

APPENDIX II

MEASURES OF PRODUCT DEVELOPMENT SUCCESS

Researcher	Selected Measures of Success
Rothwell (1974)	Obtaining alignment with corporate strategy, market share and commercial success.
Cooper (1979a)	Profitability.
Ettlie & Bridges (1982)	The number of new product introductions.
Hopkins (1981)	Ability to achieve company expectations.
Souder (1981)	Internal criteria.
Nystrom & Edvardsson (1982)	Technological success, profitability and the uniqueness of the product.
Reinertson (1983) & Dumaine (1989)	Speed of development.
Cooper (1984a)	Kill and failure rates, the extent to which the new product program met its objectives.
Cooper (1984b)	Competitive success and the percentage of new products included in turnover.
Maidique & Zirger (1984)	Financial break-even.
Johne & Harborne (1985)	Innovativeness.
Meyer & Roberts (1986)	The product "newness".
Riedenbach & Moak (1986)	Return on assets employed and profitability.
Cooper & Kleinschmidt (1987)	Opportunity windows.

Ruekert & Walker (1987)	Perception by customers.
de Brentani (1988)	Cost effectiveness of development.
Larson & Gobeli (1988)	Achievement of market launch objectives.
Johne & Snelson (1988a)	Sales revenue growth.
Clark & Fujimoto (1991)	Consumer opinion, expert assessments and market share.
Ladensohn & Schoenhaud (1990)	Entertainment value

APPENDIX III

FACTORS ASSOCIATED WITH SUCCESS IN PRODUCT DEVELOPMENT

de Brentani & Cooper (1992)
1) Product/market fit
2) Quality of execution of marketing activities
3) Synergy: product/company fit
4) Service expertise
5) Product advantage

Cooper & de Brentani (1991)
1) Service/skills/experience synergy
2) Strong service/market fit
3) Service superiority
4) Quality of development execution
5) Quality of service delivery

Cooper, (1990), Cooper & Kleinschmidt (1990)
1) Superior product with unique benefits
2) Well defined product prior to development
3) Technological synergy
4) Quality of execution of technological activities
5) Quality of execution of pre-development activities
6) Marketing synergy
7) Quality of execution of marketing activities
8) Market attractiveness

Maidique & Zirger (1984)
1) Quality R & D understanding customer needs
2) Technically superior product
3) First to a growing market
4) A product valued by the customer
5) Product/technology synergy

Cooper (1980, 1982 & 1979a/b)
1) Customer perception of unique product
2) Strong market knowledge
3) Development/production/marketing synergy

Kulvik (1977)
1) Company/product fit
2) Degree of utilisation of know how in the firm
3) Familiarity with markets and technology

Utterback, Allen, Holloman & Sirbu (1976)
1) Marketing proficiency
2) Product advantage
3) Early market need recognition
4) High degree of customer contact
5) Top management support/involvement

Rothwell (1976a, 1976b & 1977)
1) Understanding users needs
2) Attention to launch and marketing activities
3) Effectiveness of development activities
4) Efficient use of outside technology
5) Extent of involvement of senior management

Rubenstein, et al. (1976)
1) Awareness of customer needs
2) Superior data collection and analysis
3) Existence of a product champion
4) Good internal communications
5) Planned approaches to product development

Zirger & Maidique (1990)
1) Managerial excellence
2) Significant value to customer
3) Building on existing marketing/technology competencies
4) Management commitment
5) Market environment

Easingwood & Storey (1991)
1) Overall quality of service
2) Differentiated product
3) Product fit and internal marketing
4) Use of technology

de Brentani (1991)

1) Detailed/formal service development process
2) Overall marketing/skill/technology synergy
3) Market competitiveness
4) Product/market attractiveness
5) Expert/people based service
6) Equipment based service
7) Service innovativeness
8) Evidence of service quality
9) Service newness to the firm
10) Effectiveness of service management
11) Service complexity
12) Quality/speed of service experience
13) Standardisation of service process
14) Market newness to the firm
15) Specialised initial market
16) Responds to demand cycle
17) Responsiveness to market segments

Edgett & Jones (1991)

1) Adequate financial support for market research
2) Clear identification of target market
3) Organised development process
4) High level of enthusiasm throughout the development
5) High interpersonal contact between development team members
6) Strong product champion
7) Strong launch campaign
8) Product differential
9) Support of senior management

APPENDIX IV: ANALYTICAL MATRIX

	PRODUCT DEVELOPMENT ACTIVITIES						
	Initiation Activities				Implementation Activities		
	Idea Generation	Idea Screening	Commercial	Analysis	Development	Testing	Launch
MANAGERIAL ACTIONS							
Undertake Structured Analytical Methods							
Application Of IT Based Processing							
Ensure Data In Usable Format							
Plan The Sources Of Marketing Information							
Ensure Relevancy Of Data							
Ensure Sufficiency Of Data							
Undertake Networking Between Development Participants							
Undertake Networking Between Development Tasks							
Utilise Formal Communication Channels							
Utilise Informal Communication Channels							
Utilise Formal Collection Systems							
Ensure Timely Utilisation							
Implement Marketing Information For Multiple Uses							
Share Responsibility For Sourcing							
Ensure Timely Receipt							
Ensure Accurate Data							
Competitive (Rather Than Combative) Orientation							
Channel Marketing Information To Decentralised Decision Makers							

APPENDIX V

Sample Of A Letter Requesting Initial Involvement In the Research Project

Mr. M Coffey
Aetna Life Insurance Co. Ltd
Aetna House
2/12 Pentonville Road
London N1 9XG

Date aa/bb/93

Dear Mr Coffey

RESEARCH PROJECT: MANAGING MARKETING INFORMATION IN PRODUCT DEVELOPMENT

I am conducting an initial survey in support of the above research project being undertaken by the Department of Marketing of the City University. To assist in this survey I should be grateful if you would kindly complete and return the attached simple questionnaire in the attached self addressed envelope at your earliest convenience.

All information provided now or at any subsequent time will be treated in the strictest confidence and will not be attributable to either you or your company.

Thank you in advance for your kind assistance in this matter.

Yours sincerely,

Thomas Heron

Department Of Marketing

encs.

INITIAL SURVEY QUESTIONNAIRE
(sample of questionnaire for pension providers)

Please complete and return this survey questionnaire in the enclosed pre-paid envelope.

Question 1) Has your firm undertaken development of more than one type of Individual Personal Pension product.

Answer 1) Circle Yes/No (If your answer is no, please advise if you have undertaken development of only one product type or declined to participate in the new individual pensions market?)

.....

Question 2) If the answer to question 1) is yes, did your firm consider the development of new individual personal pensions products to be an important part of your business strategy?

Circle Yes/No (If your answer is no, please advise why it was not considered to be an important part of your business strategy?)

.....

Question 3) Would your firm be willing **and** able to provide information from an interview and from archive files concerning your management of marketing information during product development activities?

Answer 3) Circle Yes/No (If no please advise your reason for not being willing or able to provide information for research purposes)

.....

Initial Survey Reference: (Name Of Company = Aetna Life Insurance Company)

APPENDIX VI

Sample Of A Letter Declining Participation In the Research Project

Mr. J Wybrew
Windsor Life Insurance Co. Ltd
Telford Centre
Telford
Shropshire TF3 4NB

Date aa/bb/93

Dear Mr Wybrew

RESEARCH PROJECT: MANAGING MARKETING INFORMATION IN PRODUCT DEVELOPMENT

Many thanks for your most gracious response to my request for information regarding the above research project. Due to a high level of more directly related replies I shall not require to interview employees of your company.

I appreciate your support and should you wish to receive an executive copy of the results of the results of this research please complete and return the tear off section of this letter and return it to me at the City University address shown above.

Yours sincerely,

Thomas Heron

Department Of Marketing

.....(tear along this line)

RESEARCH PROJECT: MANAGING MARKETING INFORMATION IN PRODUCT DEVELOPMENT

Please forward me an executive copy of results of your research project.

Name .....
Address.....
.....
.....

APPENDIX VII

The following draft letter was forwarded to respondents following initial explanatory telephone contact.

DRAFT LETTER

Mr.J.J.Hampden
etc. date / / .

Dear Mr. Hampden,

Following our telephone conversation of today I herewith enclose a copy of Section Two of my questionnaire. This section should be completed and will be collected during my forthcoming visit to meet with your colleagues at your office at ... am/pm on xx/xx/xx.

I appreciate your valuable co-operation in this matter and I can assure you that all responses will be treated in the strictest confidence. The data collected during this research may form the basis for a subsequent publication/s, but under no circumstances will responses be directly attributable to individuals or their organisations.

Section Two is designed for easy completion, however should you experience any difficulties please contact me at the City University Business School on the telephone number shown above.

At our forthcoming meeting I shall pose additional questions to enable me to complete sections 1, 3, & 4 of my interview schedule. I anticipate that completion of the these sections will take approximately 55 minutes. As we discussed on the telephone it would assist me greatly if your product development records were available in your offices in order that they can be examined immediately after the formal interview has closed.

Following completion of my research I shall forward an executive summary of my findings which I hope you will find of use. May I thank you again for assisting me in my research and I look forward to meeting with you on xx/xx/xx.

Yours sincerely,

Thomas Heron,
Research Student,
Room 1325

APPENDIX VIII

CITY UNIVERSITY BUSINESS SCHOOL

DEPARTMENT OF MARKETING

Questionnaire
By

Thomas Heron

Contents

Introduction:	Overview of the research and interview objectives.
Section One:	Background data on respondent firms.
Section Two:	Questions designed to obtain data concerning the dependent variable measures.
Section Three:	Questions designed to obtain data concerning the frequency and proficiency with which managerial actions concerning marketing information were carried out.
Section Four:	Questions designed to obtain data concerning other independent variables and the extent of their effect the dependent variable measures.

INTRODUCTION

Introductory remarks at the commencement of each interview with the representatives of each respondent firm.

I am undertaking a research study into the ways and extent to which marketing information (i.e. data concerning markets and competitors) is managed during product development activities. The purpose of my research study is two fold. Firstly to provide new knowledge in the fields of marketing information management and financial services product development and secondly to provide the basis for my PhD.

The information that you provide will be treated in the strictest confidence and will **not** be reported or published as specifically attributable to you or your organisation. However, the information will be used for analysis and the results of this analysis may be subsequently used in a future publication/s.

Although the questionnaire has been pre-tested, if you are in any way unsure as to the interpretation of the question please ask me for clarification.

The main body of questions are designed to elicit information concerning managerial actions which preceded the establishment of your range of (either) a) new individual pension products launched during the period 1st October 1987 until 31st December 1992 or b) your new range of Personal Equity Plans launched during the period 1st January 1987 until 31st December 1992. Hence your answers should relate to the period during which the suite of new products were under development.

Terminology:

The interviewer now ensures that interviewees are fully familiar, using the Glossary and Appendix IV, with the terminology used in the questions overleaf. This procedure is to be carried out without exception.

SECTION ONE

Name Of Respondent Firm .....

Location .....

Names Of Respondents .....
(and job titles during .....
the relevant period) .....

Aggregate Number Of Years
In Financial Services Product
Development By Interviewees .....

Date Of Interview .....

Principal Distribution
Channel .....

Average Net Assets Of The
Firm (during development
period) .....

Proprietary Basis .....

SECTION TWO

2.1 The following questions are designed to obtain information concerning the market related dependent variable measure.

Pension Providers:

Using the following product types please indicate the **mean market shares** for each of the following during the period 1st October 1987 until 31st December 1992.

	Market Share	
	Achieved %	Target %
FSAVC Contracts		
Contracted Out Pension Contracts		
Personal Pension Contracts		
Totals	====	====

PEP Plan Mangers:

Please advise the **mean market shares** in respect of your range of PEPs during the period 1st January 1987 until 31st December 1992.

	Market Share	
	Achieved %	Target %
PEPS	====	====

2.2 The following questions are designed to obtain information concerning the competitor relative dependent variable measure.

Please rate the competitiveness of the range of individual pension plans/PEPS provided by the following product providers. Use the scale of 1 - 10, where 1 represents a very uncompetitive suite of products and 10 represents an outstandingly competitive suite of products.

Life Offices	Competitive Rating	PEP Plan Managers	Competitive Rating
Aetna Life		Aetna U/Trusts	
Allied Dunbar		Brown Shipley	
Prolific Life		Baring Inv. Man.	
Laurentian Life		Bank Of Scotland	
Prudential Assur.		Baillie Gifford	
Scottish Widows		Aetna Invest. Man.	
Scottish Equitable		Capital House Inv Man.	
Provident Capital		C E Heath Financial Serv.	
Barclays Life		Commercial Union	
Standard Life		Framlingtons	
Scottish Amicable		Hambros Bank	
Albany Life		Henderson Fin. Man.	
Cannon Assurance		Ivory & Sime	
Norwich Union		James Capel	
Friends Provident		Mercury Asset Man	
Legal & General		Murray Johnstone	
Provident Mutual		Newton Inv. Man.	
Lloyds Abbey		Norwich Union Port. Man.	
NPI		Stewart Ivory	
Sun Alliance		W I Carr Investments	
GRE		Godwins Limited.	
Royal Life		Nat. Westminster Bank	

National Mutual	Jas. Finlay Inv. Man.
Clerical Medical	Barclays Stockbrokers Ltd.
Eagle Star	Smith & Williamson
Scottish Mutual	Guinness Flight
Swiss Life	Dunedin Fund Managers
Canada Life	Provident Capitol
LAS	Schroder Inv. Managers
Commercial Union	Scottish Equitable Inv. Man.

2.3 Do you consider that there were other firms which had developed highly competitive new products but which are not included in the above schedule?

Answer Yes/No

2.4 If the answer to 2.3 is yes, please identify the firm/s and rate the competitiveness of their suite of new products using the above scale?

SECTION THREE

Before commencing this section the interviewer reads aloud the scaling system (emphasisng the need to observe equality between scale points), places a copy of the above scales in front of the interviewees and ensures they fully understand how to score each question.

3.1 Answers to the frequency questions shown overleaf should be scored using the following response scale,

Frequency Scale:

0 = Action was never carried out.
1 = Action was very infrequently carried out.
2 = Action was infrequently carried out.
3 = Action was carried out 50% of the time.
4 = Action was carried out most of the time.
5 = Action was carried out almost all of the time.
6 = Action was carried out all of the time.

3.2 Answers to the proficiency questions shown overleaf should be scored using the following response scale,

Proficiency Scale:

0 = No proficiency in undertaking the managerial action
1 = Minimal proficiency in undertaking the managerial action
2 = Median proficiency in undertaking the managerial action.
3 = High proficiency in undertaking the managerial action.
4 = Maximum proficiency in undertaking the managerial action

SECTION THREE

PRODUCT DEVELOPMENT ACTIVITIES

	Initiation Activities			Implementation Activities		
	Idea Generation	Idea Screening	Commercial Analysis	Development	Testing	Launch

Frequency Questions

1a) How frequently was the multiple usage of marketing information undertaken?

2a) How frequently did you ensure timely utilisation of MI?

3a) How frequently was MI* networking undertaken between development participants?

4a) With what frequency were the sources of MI planned ?

5a) How frequently did you ensure data relevancy?

6a) How frequently was informal MI communication undertaken?

7a) How frequently did you ensure that the data was in an usable format?

PRODUCT DEVELOPMENT ACTIVITIES

	Initiation Activities			Implementation Activities		
	Idea Generation	Idea Screening	Commercial Analysis	Development	Testing	Launch

Frequency Questions

8a) How frequently was a competitive (rather than a combative) orientation in respect MI undertaken?

9a) How frequently were structured analytical methods implemented?

10a) How frequently did you ensure that data was sufficient?

11a) How frequently was MI networking undertaken between development tasks?

12a) How frequently did you share responsibility for sourcing MI ?

13a) How frequently was formal communication of MI undertaken?

14a) How frequently were IT based processing techniques undertaken?

15a) How frequently did you ensure timely receipt of MI?

PRODUCT DEVELOPMENT ACTIVITIES

	Initiation Activities			Implementation Activities		
	Idea Generation	Idea Screening	Commercial Analysis	Development	Testing	Launch
Frequency Questions						
16a) How frequently did you ensure data accuracy ?						
17a) How frequently were formal MI collection systems utilised?						
18a) How frequently was MI channelled towards decentralised decision makers?						

MI denotes marketing information

	PRODUCT DEVELOPMENT ACTIVITIES					
	Initiation Activities			Implementation Activities		
	Idea Generation	Idea Screening	Commercial Analysis	Development	Testing	Launch

Proficiency Questions

1b) How proficiently was MI utilised for multiple purposes?

2b) How proficiently did you ensure timely utilisation of MI ?

3b) How proficiently was networking of MI between development participants undertaken?

4b) How proficiently were the sources of MI planned ?

5b) How proficiently did you ensure data relevancy?

6b) How proficiently was informal MI communication undertaken?

7b) How proficiently did you ensure that the data was in an usable format?

8b) How proficiently was a competitive (rather than combative) orientation to MI undertaken?

	PRODUCT DEVELOPMENT ACTIVITIES					
	Initiation Activities			Implementation Activities		
	Idea Generation	Idea Screening	Commercial Analysis	Development	Testing	Launch

Proficiency Questions

9b) How proficiently were structured analytical methods undertaken?

10b) How proficiently did you ensure that the data was sufficient?

11b) How proficiently was the implementation of MI networking between development tasks undertaken?

12b) How proficiently was the sourcing of MI shared ?

13b) How proficiently was formal communication of MI undertaken?

14b) How proficiently were IT based processing techniques undertaken?

15b) How proficiently did you ensure timely receipt of MI ?

PRODUCT DEVELOPMENT ACTIVITIES

	Initiation Activities			Implementation Activities		
	Idea Generation	Idea Screening	Commercial Analysis	Development	Testing	Launch

Proficiency Questions (continued)

16b) How proficiently did you ensure that data was accurate?

17b) How proficiently were formal MI collection systems utilised?

18b) How proficiently was MI channelled towards decentralised decision makers?

SECTION FOUR

4.1 This sub-section is designed to obtain details which will permit us to determine what other independent variables had an effect on each respondent's measure of new product success and the extent of the effect of these variables. It is important for the interviewer to emphasise to interviewees **before undertaking this section** that they should only advise on the nature and effect of variables which influenced the **achieved or target market share** and b) **the competitive standing of their suite of new products** (during the period from launch to the end of December 1992) and which were not considered before the new products were made available to their respective markets.

Question **Narration**

1a Did the formality with which your product development was carried out contribute to

a) The achieved market share of the new pension/PEP products?

Yes/No (circle answer)

b) The competitive standing of your new pension/PEP products?

Yes/No (circle answer)

1b If the answer to either of the above questions is **Yes** then please indicate in the following spaces, the mean achieved market share or competitive standing specifically attributable to the effect of the above.

a) Percentage of mean achieved market share directly attributable to the formality of the development process = ...%

b) Percentage of competitive standing directly attributable to the formality of the development process = ...%

2a Have other unplanned resources (such as additional advertising and increased distribution capability) contributed to

a) The achieved mean market share of the new pension/PEP products?

Yes/No (circle answer)

b) The competitive standing of your new pension/PEP products?

Yes/No (circle answer)

2b If the answer to either of the above questions is Yes then please indicate the percentage of achieved market share or competitive standing specifically attributable to the effect of the above.

Percentage of market share directly attributable to unplanned resources

= .....%

Percentage of competitive advantage directly attributable to unplanned resources

= .....%

3a Did uneconomic pricing levels contribute to

a) The achieved market share of the new pension/PEP products?

Yes/No (circle answer)

b) The competitive standing of your new pension/PEP products?

Yes/No (circle answer)

3b If the answer to either of the above questions is Yes then please indicate the percentage of achieved market share or competitive standing specifically attributable to the effect of the above.

Percentage of achieved market share directly attributable to uneconomic pricing levels = ...%

Percentage of competitive standing directly attributable to uneconomic pricing levels = ...%

4a Did the systems used to support the administration of the suite of new products affect

a) The achieved market share of the new pension/PEP products?

Yes/No (circle answer)

b) The competitive standing of your new pension/PEP products?

Yes/No (circle answer)

4b If the answer to either of the above questions is Yes then please indicate the percentage of achieved market share or competitive advantage specifically attributable to the effect of the above.

Percentage of achieved market share directly attributable to the supporting systems = ...%

Percentage of competitive standing directly attributable to the supporting systems = ...%

5a Did any special skills or experience of development staff affect

a) The achieved market share of the new pension/PEP products?

Yes/No (circle answer)

b) The competitive standing of your new pension/PEP products?

Yes/No (circle answer)

5b If the answer to either of the above questions is Yes then please indicate the percentage of achieved market share or competitive advantage specifically attributable to the effect of the above.

Percentage of achieved market share directly attributable to the experience or special skills of staff = ...%

Percentage of competitive standing directly attributable to the experience or special skills of staff = ...%

6a Did past investment performance or existing corporate image affect

a) The achieved market share of the new pension/PEP products?

Yes/No (circle answer)

b) The competitive standing of your new pension/PEP products?

Yes/No (circle answer)

6b If the answer to either of the above questions is Yes then please indicate the percentage of achieved market share or competitive standing specifically attributable to the effect of the above.

Percentage of achieved market share directly attributable to past investment performance = ...%

Percentage of competitive standing directly attributable to the experience and special skills of staff = ...%

7a Did the corporate culture contribute to

a) The achieved market share of the new pension/PEP products?

Yes/No (circle answer)

b) The competitive standing of your new pension/PEP products?

Yes/No (circle answer)

7b If the answer to either of the above questions is Yes then please indicate the percentage of achieved market share or competitive standing specifically attributable to the effect of the above.

Percentage of achieved market share directly attributable to corporate culture

= .....%

Percentage of competitive standing directly attributable to corporate culture = ...%

8a Did the style of control invoked by top management affect

a) The achieved market share of the new pension/PEP products?

Yes/No (circle answer)

b) The competitive standing of your new pension/PEP products?

Yes/No (circle answer)

8b If the answer to either of the above questions is Yes then please indicate the percentage of achieved market share or competitive standing specifically attributable to the effect of the above.

Percentage of achieved market share directly attributable to the style of control adopted by top management = ...%

Percentage of competitive standing directly attributable to the style of control adopted by top management = ...%

9a Did any other factors (e.g. interpretation of MI) materially affect

a) The achieved market share of the new pension/PEP products?

Yes/No (circle answer and provide a brief narration of the factor)

.....

b) The competitive standing of your new pension/PEP products?

Yes/No (circle answer and provide a brief narration of the factor)

.....

9b If the answer to either of the above questions is Yes then please indicate the percentage of achieved market share or competitive standing specifically attributable to the effect of the above factor.

Percentage of achieved market share directly attributable to the factor noted above = ...%

Percentage of competitive standing directly attributable to the factor noted above = ...%