

Going for Growth

Technological Innovation in
Manufacturing Industries

R. C. PARKER

Ashridge Management College

TECHNISCHE HOCHSCHULE DARMSTADT	
Fachbereich 1	
<u>Gesamtbibliothek</u>	
<u>Betriebswirtschaftslehre</u>	
Inventar-Nr. :	37.923
Abstell-Nr. :	A 12 / 1408
Sachgebiete:	1.2.0
	1.8.2.1

JOHN WILEY & SONS

Chichester · New York · Brisbane · Toronto · Singapore

Contents

Foreword *xv*

Introduction *xvii*

CHAPTER 1 INDUSTRIAL GROWTH AND PROSPERITY

1.1	Society's dependence on industry	1
1.2	The industrial performance of the United Kingdom	2
1.3	Future expansion of world markets	5
1.4	Advantages that accompany growth	10
1.5	Growth and the employee	12
1.6	Overcoming obstacles to growth	13
1.7	Summary	17
1.8	References	18

CHAPTER 2 GROWTH AND THE COMPANY CLIMATE

2.1	The evolution of a business organization	21
2.2	Overcoming barriers to innovation	31
2.3	The exercise of power	35
2.4	Responsibilities of executives for growth	36
2.5	Establishing a Creative Ethos	39
2.6	Summary	40
Appendix I	The nature of creativity	42
2.7	References	44

CHAPTER 3 GROWTH AND THE ENVIRONMENT

3.1	Evolution and innovation	46
3.2	Environmental forecasting	52
3.3	Technological forecasting	54
3.4	Short-wave trade cycles and long-wave economic activity	64

3.5	A practical view of forecasting	68
3.6	Summary	70
3.7	References	71

CHAPTER 4 GROWTH AND COMMUNICATIONS

4.1	The dependence of company growth on information	74
4.2	Formal communications within a company	76
4.3	Formal communication channels—libraries and other organizations	77
4.4	Communications in a R & D laboratory	79
4.5	Diffusion of innovations	82
4.6	Informal communication channels—internal and external sources	85
4.7	The use of models in business communication	93
4.8	Summary	96
4.9	References	98

CHAPTER 5 SOURCES OF NEW PRODUCTS

5.1	Avenues to growth	101
5.2	The initial search for new products	105
5.2.1	General	105
5.2.2	Inhouse research and development	109
5.2.3	Licensing and technical interchange	110
5.2.4	Subcontracting research and development	112
5.2.5	Mergers	113
5.2.6	Conglomerates	114
5.2.7	Joint ventures	115
5.2.8	Acquisitions	116
5.2.9	Management buyouts	117
5.2.10	Divestments	118
5.3	The results of diversification	119
5.4	Summary	121
5.5	References	122

CHAPTER 6 STRATEGIC PLANNING AS A MEANS OF DEVELOPING A BUSINESS

6.1	General principles	124
-----	--------------------	-----

6.2	Strategies based on the nature of a company's technology	127
6.3	A company board and its corporate plan	132
6.4	Contrasting the planning philosophies of two successful, similar companies	136
6.5	A group board and its corporate plan	138
6.6	The likely effectiveness of a corporate plan	141
6.7	Summary	141
6.8	References	142

CHAPTER 7 FINDING IDEAS FOR IMPROVED AND NEW PRODUCTS

7.1	The search for improved, new, and unique products	144
7.2	Evolution	149
7.2.1	Customers and suppliers	149
7.2.2	Product analyses	150
7.3	Innovation	151
7.3.1	General	152
7.3.2	Research	152
7.3.3	The use of creative groups to generate new ideas	153
7.4	Operation of workshops designed to generate ideas	154
7.4.1	Workshop A—the present	155
7.4.2	Workshop B—the future	163
7.5	Design methodologies	168
7.6	Summary	171
Appendix I	The synectics process	172
Appendix II	A classification of idea-formation methods	174
7.7	References	175

CHAPTER 8 RESEARCH AND DEVELOPMENT AT BOTH MEDIUM AND HIGH LEVELS OF TECHNOLOGY

8.1	Planning	178
8.1.1	Product specifications	179
8.1.2	Network	180
8.1.3	Five stages of development	181

8.2	Organization	190
8.2.1	Committee structure	195
8.2.2	Venture management	196
8.3	Leadership	199
8.4	Summary	201
8.5	References	202
CHAPTER 9 THE FUNDING OF GROWTH AND THE SELECTION OF IDEAS		
9.1	Constructing a sound base for growth	204
9.2	Financing growth - A corporate view	207
9.3	Financing research and development	214
9.4	Selecting ideas for development	218
9.5	The discounted cash-flow approach	222
9.6	Summary	225
9.7	References	226
CHAPTER 10 THE ROLE OF GOVERNMENT AND OTHER AGENCIES		
10.1	Interactions between government and businesses	228
10.2	The role of government in stimulating the adoption of new technology	231
10.3	Other ways in which government can stimulate innovation	233
10.4	Standards, specifications, quality assurance, and product liability	237
10.5	Summary	239
10.6	References	240
	INDEX	242