Contents

	List of figures	Xiii
	Preface to eighth edition	xix
	Acknowledgements	xxiii
Part I	The nature and organization of project management	1
Chapter 1	The nature and purpose of project management	3
-	Projects	4
	The primary project objectives	
	Balancing the primary objectives	6 8
	Perceptions of project success or failure beyond the	
	three primary objectives	12
	Customers, clients, contractors and end-users	15
	Project life cycle	16
	Associations representing the profession of project management	17
Chapter 2	Project management organization	21
	Effective organization and communications	21
	The emergence of project management in a developing	
	company	22
	Project matrix organizations	27
	Project teams and task forces	32
	Organization of central administration functions	35
	Which type of organization is best?	35
	The project manager	42
	Project services groups	47
	Organizations with more than one project manager	48
	References and further reading for Part I	53

Part II	The financial and commercial framework	55
Chapter 3	Defining the project	57
•	Projects which are difficult or impossible to define	58
	Feasibility studies to improve early project definition	59
	Checklists	60
	Defining a project for financial appraisal	60
	Customer enquiries	65
	The contractor's specification and questions of strategy	69
	Specifications for product development projects	72
	Developing and documenting the project specification	77
Chapter 4	Cost estimates, Part 1: Definitions and principles	81
	Cost definitions and principles	81
	Estimating accuracy	89
	Classification of estimates according to confidence	89
	Estimating accuracy in relation to prices and profits	91
	Version control of project cost estimates	92
	Work breakdown structure	93
	Cost-coding systems	96
	Benefits of a logical coding system	99
	Choosing a coding system	103
	What happens when the customer says 'You shall use my	100
Clarata 5	coding system!'?	104
Chapter 5	Cost estimates, Part 2: Estimating in practice	107
	Top-down or bottom-up?	107
	Compiling the task list	108
	Level of detail in project cost estimating	109
	Estimating formats	110
	Estimating manufacturing costs	117
	Collecting estimates for labour times	120
	Personal estimating characteristics	122
	Estimates for material and equipment costs	124
	Below-the-line costs	126
	Reviewing the cost estimates	128
Chapter 6	Commercial management	129
	Project feasibility analysis	129
	Financial project appraisal	130
	Sensitivity analysis	139
	Project funding	140
	Contracts	142
	Contract payment structures	146
	References and further reading for Part II	155

Contents	vii

Part III	Planning and scheduling	157
Chapter 7	An introduction to planning and scheduling	159
1	The planning and scheduling environment	159
	Distinction between planning and scheduling	162
	The planning time frame	163
	Matrix charts	165
	Simple tabular planning (timetables)	168
	Bar charts (Gantt charts)	170
	Line of balance charts	174
Chapter 8	Network analysis: Logic diagrams and the critical path	181
	Background	181
	The different network notation systems	182
	Critical path analysis using arrow diagrams	184
	Critical path analysis using precedence notation	192
	Case study: Furniture project	196
	Case study: Gantry project	201
	PERT	208
	More complex network notation	209
Chapter 9	Network analysis in practice	215
	Developing network logic	215
	Level of detail in network planning	219
	Interface events and activities	223
	Milestones	224
	Estimating activity durations	224
	Is the timescale shown too long?	227
	A case for drawing networks from right to left	227
	Network analysis as a management tool	229
Chapter 10	Scheduling resources, Part 1: Principles	231
	What are resources and which of them can be scheduled?	232
	The role of network analysis in resource scheduling	234
	Case study: Garage project	235
	Float	245
	Two fundamental priority rules for resource scheduling	250
	Summary: The elements of a practicable schedule	253
Chapter 11	Scheduling resources, Part 2: In practice	255
	Choice of labour resources to be scheduled	255
	Choice of resource units	258
	Rate-constant and non-rate-constant use of resources	259
	Specifying resource availability levels	260
	Using different calendars for resource scheduling	261

viii

	Scheduling labour costs	263
	Scheduling costs for materials and other purchases	263
	Scheduling cash flow	266
	The seven steps of project resource scheduling	270
	Froject scheduling in the corporate context	272
	References and further reading for Part III	275
Part IV	Computer applications	277
Chapter 12	2 Project management computer systems, Part 1: Preparation	270
-	Scheduling with or without a computer	279
	Facilities required	279
	System requirements	282
	Choosing a suitable computer program	284
	Special network logic requirements for computer applications Preparing for the first	286
	Preparing for the first computer schedule	293
		293
Chapter 13	Project management computer systems, Part 2: Typical applications	
	The welcoming screen	303
	Case study project	303
	Data entry errors	304
	Network plotting	309
	Time analysis of the garage project network	312
	Resource scheduling: The general process	313
	Resource scheduling for the garage project	316
	Output reports	319
	Updating	319
	- -	324
Chapter 14	Project management computer systems, Part 3: Specialized applications	
	Dealing with large networks	329
	Multi-project resource scheduling	329
	Standard networks	332
	Templates (standard network modules)	341
	Programs for probability and risk analysis	343
	Software sources	352
		357
Part V	Purchasing and materials management	359
Chapter 15	Scheduling parts for manufacturing projects	
	Parts scheduling compared with project scheduling	361
	g parca wan project scheauting	361

		Contents ix
	Identifying and quantifying common parts	362
	Filing cabinet project	363
	Line of balance	369
	Computer solutions	377
Chapter 16	Purchasing, Part 1: Principles and initial ordering	379
	The importance of purchasing and materials control	379
	The purchasing cycle	380
	The purchase order	384
	Commercial conditions of purchase	386
	Terms of trade used in international business (Incoterms 20	000) 388
	Specifying the goods	389
	Timing of orders and deliveries	391
	Purchase quantities	393
Chapter 17	Purchasing, Part 2: Post-order activities and wider aspects	
	of materials control	395
	Purchase order amendments	395
	Expediting	396
	Shortages	398
	The Pareto principle and stock management	399
	Project or stock purchasing?	401
	Project purchasing as a condition of contract	405
	Stores administration	406
	Materials management as a shared or common service	409
Chapter 18	Purchasing, Part 3: Procedures for capital projects	411
	The purchasing organization	411
	Purchase control schedules	413
	Purchase specifications	419
	Purchase enquiries	424
	Bid evaluation	427
	Purchase requisitions and orders	430
	Correlation between specification, enquiry and order numb	ers 432
	Assuring quality and progress	433
	Vendors' documents	435
	Shipping, port and customs formalities	437
	Purchase order status reports	438
	References and further reading for Part V	441

Part VI	Managing work and costs	443
Chapter 19	Managing project start-up	
•	Project authorization	445
	Authorizing work without a contract or customer's order	445
	Preliminary organization of the project	449
	Correspondence and other documents	453
	Project engineering standards and procedures	454
	Physical preparations and organization	459
	Getting work started	460
	Issuing detailed planning and work instructions	462 465
Chapter 20	Managing progress	
	Project progressing as a closed-loop control system	469
	Routine collection of progress data	470
	The non-routine approach to progressing	471
	Managing subcontractors and agency employees	475
	Routine priority allocation in manufacturing projects When the power is to design the design to the	477
	When the news is bad	481
	Corrective measures	482
	Immediate action orders	483
	Haste versus good management	484
	Construction site organization and management	488
	Conduct of project meetings	490
	Progress meetings	493
	Progress meetings abandoned	495
	Project progress reports	497 498
Chapter 21	Managing Costs	470
	Objectives of project cost management	501
	A checklist of cost management factors	501
	The total cost approach	503
1	Budgets	504
•	Cost-collection methods	506
	Audits	509
(Comparing actual costs with planned costs	514
		514
Chapter 22 I	Earned-value analysis	515
Λ	Ailestone analysis	515
E	Earned-value analysis	515
E	Earned-value analysis prediction reliability and implications	523
e	quipment quipment	530
E	ffect of project changes on earned value and	532
T	he project ledger concept	534
	5 P.	535

		Contents x
	Predicting profitability for the whole project	536
	Post mortem	542
Chapter 23	Managing project changes	E 40
	Classification of changes	543
	Authorization arrangements	543
	General administration	546
	Estimating the true cost of a change	548
	Forms and procedures	552
	•	555
	Version conrol for modified drawings and specifications Emergency modifications	565 568
Chapter 24	Managing project risk	573
	Identifying and assessing risks	574
	Methods for dealing with risks	582
	Insurance	584
	Planning for a crisis	590
Chapter 25	Managing project closure	593
	Reasons for closing a project	593
	Formal project closure	594
	Final project cost records	597
	Disposal of surplus material stocks	597
	Final project definition: The end of a continuous process	597
	As-built condition of a manufacturing or capital engineering	
	project	598
	As-built condition of a multiple manufacturing project	601
	As-built condition of a project that is interrupted	001
	before completion	603
	Managing files and archives	605
	References and further reading for Part VI	607
	A general project management bibliography	609
	Index	613