Service Management

Operations, Strategy, Information Technology

Eighth Edition

James A. Fitzsimmons

Seay Professor of Business Emeritus University of Texas at Austin

Mona J. Fitzsimmons

Sanjeev Bordoloi

Associate Professor of Operations Management University of St. Thomas, Minnesota



Table of Contents

PART ONE UNDERSTANDING SERVICES 1	Competitive Service Strategies 33 Overall Cost Leadership 33 Differentiation 34
Chapter 1	Focus 35
The Service Economy 3	Strategic Analysis 35
Learning Objectives 3	Porter's Five Forces Analysis 35 SWOT Analysis: Strengths, Weaknesses,
Chapter Preview 4	Opportunities, Threats 36
Service Definitions 4	Winning Customers in the Marketplace 37
Facilitating Role of Services in an Economy 4	Qualifiers 38
Economic Evolution 5	Service Winners 38
Stages of Economic Development 6	Service Losers 38
Preindustrial Society 6	Sustainability in Services 38
Industrial Society 7	Triple Bottom Line (TBL) 39
Postindustrial Society 8	The Competitive Role of Information
Nature of the Service Sector 9	in Services 41
The 21st Century Career 10	Creation of Barriers to Entry 41
The Experience Economy 11	Revenue Generation 42
Consumer Service Experience 11	Database Asset 43
Business Service Experience 12	Productivity Enhancement 44
Service-Dominant Logic 13	The Virtual Value Chain 45
Distinctive Characteristics of Service Operations 14	First Stage (New Processes) 46
Customer Participation 15	Second Stage (New Knowledge) 46
Simultaneity 15	Third Stage (New Products) 46
Perishability 16	Fourth Stage (New Relationships) 47
Intangibility 16	Economics of Scalability 47
Heterogeneity 17	Limits in the Use of Information 48
Nontransferrable Ownership 17	Anticompetitive 48
The Service Package 18	Fairness 48
Grouping Services by Delivery Process 20	Invasion of Privacy 48
Open-Systems View of Service Operations	Data Security 49
Management 22	Reliability 49
Service Benchmark: Walmart Is Number One	Using Information to Categorize
on the Fortune 500 List 23	Customers 49
Summary 24	Stages in Service Firm
Key Terms and Definitions 24	Competitiveness 49
Topics for Discussion 24	Available for Service 49
Interactive Exercise 25	Journeyman 51
Case 1.1: Village Volvo 25	Distinctive Competence Achieved 51
Case 1.2: Xpresso Lube 26	World-Class Service Delivery 51
Selected Bibliography 27	Summary 51
Endnotes 28	Service Benchmark: Outside the Box 52
Charte 2	Key Terms and Definitions 52
Chapter 2	Topics for Discussion 53
Service Strategy 29	Interactive Exercise 53
Learning Objectives 29	Case 2.1: United Commercial Bank and
Chapter Preview 29	El Banco 53
The Strategic Service Vision 30	Case 2.2: The Alamo Drafthouse 56
Understanding the Competitive Environment	
of Services 32	Selected Bibliography 57 Endnotes 58

Contact Personnel–Dominated Encounter 95

Designing the Service Enterprise 59	Customer-Dominated Encounter 96 The Service Organization 96
Chapter 3	Culture 96
· · · · · · · · · · · · · · · · · · ·	Empowerment 97
New Service Development 61	Control Systems 98
Learning Objectives 61	Customer Relationship Management 98
Chapter Preview 62	Contact Personnel 99
Sources of Service Sector Growth 62	Selection 99
Information Technology 62	Training 100
The Internet as a Service Enabler 63	Creating an Ethical Climate 101
Innovation 64	The Customer 102
Changing Demographics 64	Expectations and Attitudes 102
Innovation in Services 65	The Role of Scripts in Coproduction 103
New Service Development 66	Summary of Service Encounters 104
Technology in Service Innovation 68	Creating a Customer Service Orientation 104
Challenges of Adopting New Technology in Services 68	Service Profit Chain 106
Readiness to Embrace New Technology 68	Summary 107
Service Design Elements 69	Service Benchmark: Miss Manners on Complaint
Customer Value Equation 70	Handling 108
Strategic Positioning through Process Structure 71	Key Terms and Definitions 108
Service Blueprinting 72	Topics for Discussion 109
Taxonomy for Service Process Design 73	Interactive Exercise 109
Degree of Divergence 73	Case 4.1: Amy's Ice Cream 109
Object of the Service Process 74	Case 4.2: Enterprise Rent-A-Car 110
Type of Customer Contact 75	Selected Bibliography 112
Generic Approaches to Service System Design 75	Endnotes 114
Production-Line Approach 76	
Customer as Coproducer 77	Chapter 5
Customer Contact Approach 79	Supporting Facility and Process Flows 115
Information Empowerment 80	
Intellectual Property 81	Learning Objectives 115
Service Benchmark: Ten Things Google	Chapter Preview 116
Has Found To Be True 82	Environmental Psychology and Orientation 116
Summary 82	Servicescapes 116
Key Terms and Definitions 83	Behaviors in Servicescapes 117
Topics for Discussion 83	Environmental Dimensions of Servicescapes 118
Interactive Exercise 83	Facility Design 120
Case 3.1: 100 Yen Sushi House 83	Nature and Objectives of Service Organizations 120
Case 3.2: Commuter Cleaning—A New	Land Availability and Space Requirements 121
Venture Proposal 84	Flexibility 121
Case 3.3: Amazon.com 86	Security 121
Selected Bibliography 88	Aesthetic Factors 122
Endnotes 89	The Community and Environment 122
	Process Analysis 123
Chapter 4	Types of Processes 123
The Service Encounter 91	Flowcharting 123
	Gantt Chart 124
Learning Objectives 91	Process Terminology 125
Chapter Preview 91	Facility Layout 127
Technology in the Service Encounter 92	Flow Process Layout and the Work Allocation
The Emergence of Self-Service 93	Problem 127
The Service Encounter Triad 94	Job Shop Process Layout and the Relative
Encounter Dominated by the Service Organization 95	Location Problem 128

PART TWO

Service Benchmark: Where, On Where	Chapter /
Shall We Go? 132	Process Improvement 181
Summary 132	Learning Objectives 181
Key Terms and Definitions 133	_ · · · · · · · · · · · · · · · · · · ·
Topics for Discussion 133	Chapter Preview 181
Interactive Exercise 133	Quality and Productivity Improvement
Solved Problems 133	Process 182
Exercises 136	Foundations of Continuous Improvement 182
Case 5.1: Health Maintenance	Plan-Do-Check-Act (PDCA) Cycle 182
Organization (A) 139	Problem Solving 183
Case 5.2: Health Maintenance	Quality Tools for Analysis and Problem
Organization (B) 139	Solving 184
Case 5.3: Esquire Department Store 140	Check Sheet 184
Case 5.4: Central Market 141	Run Chart 184
Selected Bibliography 142	Histogram 184
Endnotes 142	Pareto Chart 185
	Flowchart 185
Chapter 6	Cause-and-Effect Diagram 186
-	Scatter Diagram 187
Service Quality 143	Control Chart 187
Learning Objectives 143	Benchmarking 188
Chapter Preview 143	Improvement Programs 189
Defining Service Quality 144	Deming's 14-Point Program 189
Dimensions of Service Quality 144	Baldrige National Quality Award 190
Gaps in Service Quality 145	ISO 9000 191
Measuring Service Quality 147	Six Sigma 191
SERVQUAL 147	Lean Service 196
Walk-through Audit 148	Value-Stream Mapping in Services 198
Quality Service by Design 152	Summary 198
Incorporation of Quality in the Service Package 152	Service Benchmark: Service, Education,
Taguchi Methods 153	and Health Care Winners of the
Poka-Yoke (Failsafing) 154	Baldrige National Quality Award 199
Quality Function Deployment 155	Key Terms and Definitions 200
Achieving Service Quality 157	Topics for Discussion 200
Cost of Quality 157	Interactive Exercise 200
Statistical Process Control 158	Case 7.1: Sonora County Sheriff 200
Unconditional Service Guarantee 162	Case 7.2: Mega Bytes Restaurant 201
	Chapter 7 Supplement: Data Envelopment
	•
···	-
	Endifotes 214
	Chanter 9
	•
	Service Facility Location 215
•	Learning Objectives 215
Stages in Quality Development Summary 164 Service Recovery 165 Approaches to Service Recovery 166 Complaint Handling Policy 166 Service Benchmark: Bronson Methodist Hospital 167 Summary 167 Key Terms and Definitions 168 Topics for Discussion 168 Interactive Exercise 168	Chapter 7 Supplement: Data Envelopment Analysis (DEA) 205 Measuring Service Productivity 205 The DEA Model 205 DEA and Strategic Planning 211 Exercises 212 Case 7.3: Mid-Atlantic Bus Lines 212 Selected Bibliography 213 Endnotes 214 Chapter 8 Service Facility Location 215 Learning Objectives 215 Chapter Preview 216 Strategic Location Considerations 216 Competitive Clustering 217 Saturation Marketing 217

	Table of C
Marketing Intermediaries 218	Professional Service Firms 257
Substitution of Communication for Travel 218	Attributes of Professional Services 257
Separation of Front from Back Office 218	Service Consulting 258
Impact of the Internet on Service Location 219	Operational Characteristics 259
Site Considerations 219	Outsourcing Services 261
Geographic Information Systems 220	Benefits and Risks of Outsourcing Services 262
Facility Location Modeling Considerations 222	Classification of Business Services 263
Geographic Representation 222	Managerial Considerations with Service
Number of Facilities 223	Outsourcing 264
Optimization Criteria 224	Summary 266
Facility Location Techniques 225	Service Benchmark: Citizens Come First
Cross-Median Approach for a Single Facility 226	in Lynchburg 267
Huff Model for a Retail Outlet 228	Key Terms and Definitions 267
Location Set Covering for Multiple Facilities 231	Topics for Discussion 267
Regression Analysis in Location Decisions 232	Interactive Exercise 268
Summary 233	Case 9.1: Boomer Consulting, Inc. 268
Service Benchmark: Here a Bun,	Case 9.2: Evolution of B2C E-Commerce
There a Bun, Everywhere a Bun-Bun 234	in Japan 270
Key Terms and Definitions 234	Case 9.3: Mortgage Service Game 272
Topics for Discussion 235	Selected Bibliography 274
Interactive Exercise 235	Endnotes 274
Solved Problems 235	
Exercises 237	Chapter 10
Case 8.1: Health Maintenance	Globalization of Services 277
Organization (C) 239	
Case 8.2: Athol Furniture, Inc. 240	Learning Objectives 277
Selected Bibliography 242	Chapter Preview 278
Endnotes 243	Domestic Growth and Expansion
	Strategies 278
PART THREE	Focused Service 278
	Focused Network 279
Managing Service Operations 245	Clustered Service 280
	Diversified Network 280 Franchising 280
Chapter 9	Franchising 280 The Nature of Franchising 281
Service Supply Relationships 247	Benefits to the Franchisee 281
Learning Objectives 247	Issues for the Franchiser 282
Chapter Preview 247	Globalization of Services 283
Supply Chain Management 248	Generic International Strategies 283
Network Model 248	The Nature of the Borderless World 285
Managing Uncertainty 249	Planning Transnational Operations 286
Service Supply Relationships 250	Global Service Strategies 288
Customer-Supplier Duality 250	Multicountry Expansion 289
Service Supply Relationships Are Hubs, Not Chains 251	Importing Customers 290
Service Capacity Is Analogous to Inventory 252	Following Your Customers 290
Customer Supplied Inputs Can Vary in Quality 252	Service Offshoring 291
Managing Service Relationships 252	Beating the Clock 292
Bidirectional Optimization 252	Service Benchmark: Small World and
Productive Capacity 254	Other Myths 292
Perishability 254	Summary 293
Social Media in Services 255	Key Terms and Definitions 293
Social Media as a Competitive Strategy 255	Topics for Discussion 293

Social Media and Customer Convenience 256

Social Media for Organizing and Co-creation

of Value 256

Interactive Exercise 294

Texas 294

Case 10.1: Goodwill Industries of Central

Case 10.2: FedEx: Tiger International	Queuing Systems 336
Acquisition 295	Strategies for Managing Customer Waiting 337
Selected Bibliography 298	The Psychology of Waiting 338
Endnotes 298	That Old Empty Feeling 338
Chanter 11	A Foot in the Door 339
Chapter 11	The Light at the End of the Tunnel 339 Excuse Me, but I Was Next 340
Managing Capacity and Demand 301	Essential Features of Queuing Systems 340
Learning Objectives 301	Calling Population 341
Chapter Preview 301	Arrival Process 341
Generic Strategies of Level Capacity or Chase	Queue Configuration 345
Demand 302	Queue Discipline 347
Strategies for Managing Demand 302	Service Process 348
Customer-Induced Variability 302	Service Benchmark: The Magic of Disney
Segmenting Demand 303	Makes Queues Disappear 350
Offering Price Incentives 304	Summary 350
Promoting Off-Peak Demand 305	Key Terms and Definitions 351
Developing Complementary Services 306	Topics for Discussion 351
Reservation Systems and Overbooking 306	Interactive Exercise 351
Strategies for Managing Capacity 308	Solved Problems 351
Defining Service Capacity 308	Exercises 351
Daily Workshift Scheduling 309 Woolth Workshift Scheduling with Dawy Off	Case 12.1: Thrifty Car Rental 352
Weekly Workshift Scheduling with Days-Off Constraint 311	Case 12.2: Eye'll Be Seeing You 353
Increasing Customer Participation 312	Case 12.3: Field Study 354
Creating Adjustable Capacity 312	Selected Bibliography 354
Sharing Capacity 313	Endnotes 354
Cross-Training Employees 313	
Using Part-Time Employees 313	Chapter 13
Scheduling Part-Time Tellers at a Drive-In Bank 313	Capacity Planning and Queuing Models 355
Yield Management 314	Learning Objectives 355
Yield Management Applications 317	Chapter Preview 356
Service Benchmark: Pay Up Front and Take	Capacity Planning 356
Your Chances 320	Strategic Role of Capacity Decisions 357
Summary 320	Analytical Queuing Models 358
Key Terms and Definitions 320	Relationships among System Characteristics 360
Topics for Discussion 321	Standard M/M/1 Model 360
Interactive Exercise 321	Standard M/M/c Model 362
Solved Problems 321	M/G/1 Model 365
Exercises 323	General Self-Service M/G/∞ Model 366
Case 11.1: River City National Bank 325	Finite-Queue M/M/1 Model 366
Case 11.2: Gateway International Airport 327	Finite-Queue M/M/c Model 367
Case 11.3: The Yield Management	Capacity Planning Criteria 368
Analyst 328	Average Customer Waiting Time 368
Case 11.4: Sequoia Airlines 331	Probability of Excessive Waiting 369
Selected Bibliography 332	Minimizing the Sum of Customer Waiting
Endnotes 333	Costs and Service Costs 370
	Probability of Sales Lost Because of Inadequate
Chapter 12	Waiting Area 371
•	Waiting Area 371 Summary 372
Managing Waiting Lines 335	Waiting Area 371 Summary 372 Service Benchmark: Don't Guesstimate,
	Waiting Area 371 Summary 372 Service Benchmark: Don't Guesstimate, Simulate! 373
Managing Waiting Lines 335 Learning Objectives 335 Chapter Preview 335	Waiting Area 371 Summary 372 Service Benchmark: Don't Guesstimate,

Solved Problems 374	Solved Problems 420
Exercises 376	Exercises 422
Case 13.1: Houston Port Authority 378	Case 14.1: Oak Hollow Medical
Case 13.2: Freedom Express 379	Evaluation Center 423
Case 13.3: Renaissance Clinic (A) 379	Case 14.2: Gnomial Functions, Inc. 424
Chapter 13 Supplement: Computer	Selected Bibliography 425
Simulation 380	Endnotes 425
Systems Simulation 381	OL . 45
Simulation Methodology 381	Chapter 15
Monte Carlo Simulation 383	Managing Service Inventory 427
Generating Random Variables 383	Learning Objectives 427
Discrete-Event Simulation 386	Chapter Preview 428
ServiceModel Simulation Software 388	Inventory Theory 429
Demonstration: Customer Service Call Center 390	Role of Inventory in Services 429
Process Analysis: Manufacturing Cell 391	Characteristics of Inventory Systems 430
Solved Problems 393	Relevant Costs of an Inventory System 431
Exercises 395	Order Quantity Models 432
Case 13.4: Pronto Pizza 399	Economic Order Quantity 433
Case 13.5: Renaissance Clinic (B) 399	Inventory Model with Quantity Discounts 435
Selected Bibliography 400	Inventory Model with Planned Shortages 437
Endnotes 400	Inventory Management under Uncertainty 440
	Inventory Control Systems 441
PART FOUR	Continuous Review System 441
Quantitative Models for Service	Periodic Review System 442
Management 401	The ABCs of Inventory Control 444
g	Radio Frequency Identification 445
Chapter 14	Single-Period Model for Perishable Goods 446
Forecasting Demand for Services 403	Expected Value Analysis 446
-	Marginal Analysis 447
Learning Objectives 403	Retail Discounting Model 448
Chapter Preview 403	Service Benchmark: Your Bag Is Tagged 450
The Choice of Forecasting Method 404	Summary 450
Subjective Models 404	Key Terms and Definitions 450
Delphi Method 405	Topics for Discussion 451
Cross-Impact Analysis 406	Interactive Exercise 451
Historical Analogy 406 Causal Models 407	Solved Problems 451
	Exercises 453
Regression Models 407 Econometric Models 408	Case 15.1: A.D. Small Consulting 458 Case 15.2: Last Resort Restaurant 458
Time Series Models 408	Case 15.2: Last Resort Restaurant 458 Case 15.3: Elysian Cycles 459
N-Period Moving Average 408	Selected Bibliography 460
Simple Exponential Smoothing 409	Endnotes 460
Forecast Error 411	Literates 400
Relationship Between \alpha and \N 412	Chanton 16
Exponential Smoothing with Trend Adjustment 413	Chapter 16
Exponential Smoothing with Seasonal Adjustment 414	Managing Service Projects 461
Exponential Smoothing with Trend and Seasonal	Learning Objectives 461
Adjustments 416	Chapter Preview 461
Summary of Exponential Smoothing 418	The Nature of Project Management 462
Summary 418	Characteristics of Projects 462
Service Benchmark: Googling the Future 419	
Sometiments Googing the Future	Project Management Process 462
Key Terms and Definitions 419	
	Project Management Process 462
Key Terms and Definitions 419	Project Management Process 462 Selecting the Project Manager 463

Techniques for Project Management 464

Gantt Project Charts 464

A Critique of Gantt Charts 466

Constructing a Project Network 466

Critical Path Method 467

Microsoft Project Analysis 470

Resource Constraints 473

Activity Crashing 473

Incorporating Uncertainty in

Activity Times 478

Estimating Activity Duration Distributions 478

Project Completion Time Distribution 479

A Critique of the Project Completion

Time Analysis 480

Problems with Implementing Critical Path

Analysis 482

Monitoring Projects 482

Earned Value Chart 483

Project Termination 483

Project History Report 484

Service Benchmark: The House

That Warren Built 484

Summary 484

Key Terms and Definitions 48:

Topics for Discussion 485

Interactive Exercise 485

Solved Problems 485

Exercises 487

Case 16.1: Info-Systems, Inc. 491

Case 16.2: Whittier County Hospital 492

Selected Bibliography 494

Endnote 494

Appendix A: Areas of Standard Normal

Distribution 495

Appendix B: Uniformly Distributed Random

Numbers [0, 1] 496

Appendix C: Values of L_a for the M/M/c Queuing

Model 497

Appendix D: Equations for Selected Queuing

Models 499

Name Index 504

Subject Index 510