

Series on Resource Management

New Methods of Competing in the Global Marketplace

Critical Success Factors from
Service and Manufacturing

Richard E. Crandall
William R. Crandall

 CRC Press
Taylor & Francis Group
AN AUERBACH BOOK

Contents

Foreword	xxi
Acknowledgments	xxiii
Introduction	xxvii
About the Authors	xxxix
1 The Vanishing Manufacturing/Services Boundary	1
Differences between Manufacturing and Service	2
Forces That Are Eliminating the Boundary	4
The Economy Is Going through a Natural Evolution	4
There Is a Need to Identify Critical Success Factors	4
Supply Chains Are Expanding to Integrate Manufacturing and Service ..	5
It Is Easier to Blend Tasks, Resources, and Techniques into Programs ..	5
Service Businesses Are Looking for Ways to Operate More Efficiently ..	5
Health Care Providers Are Looking for Ways to Cut Costs and	
Improve Quality	6
Banks Are Facing Competition from Lower-Cost Banks	6
Investment Bankers Are Facing Competition from Commercial	
Banks and Discount Brokers	6
The Retail Industry Is Moving in Two Strategic Directions	
— Low Cost and Focus	7
Manufacturing Is Adding Services to Be More Customer Focused	7
Post-Sales Services	8
Financing of Purchases	8
Online Purchasing	9
Customer Input to Product Design	9
Enhanced Customer Relationship Management	9
Technology Development	9
A Movement towards a Process Perspective	11
Outsourcing Focuses More Attention on the Need for Good Service	11

Changing Personal and Organizational Relationships.....	12
The Need to Integrate Companies into Supply Chains.....	12
Services Become More Relevant to All Types of Customers	13
Continuous Improvements Continue to Blur the Boundary between Manufacturing and Services.....	13
There Is a Movement toward an Industry Focus and away from a Functional Focus.....	13
<i>The Mass Customization Concept Requires a Blending of Manufacturing and Service</i>	13
The Vanishing Manufacturing/Services Boundary.....	15
Phase 1: Separated Disciplines.....	15
Phase 2: Internal Improvements in Costs and Quality	15
Phase 3: Customer Service Improvements	17
Phase 4: Integrated Product and Service Functions	17
Summary	18
References.....	18
2 Critical Success Factors and Strategic Planning	19
What Are Critical Success Factors?.....	21
The Evolution of CSFs in the United States	22
Other Changes during a Country's Economic Life Cycle	26
The Need to Be Effective	29
A Hierarchy of the Planning Process.....	30
The Strategic Planning Process.....	31
The Business Planning Process	32
Project and Program Plans	33
CSFs Plan.....	33
A Hierarchy of Critical Success Factors.....	33
The Role of CSFs in Strategic Planning	34
What Is Strategic Planning?.....	35
Background of CSFs in Strategic Planning.....	36
Characteristics of Strategic CSFs.....	37
The Temporal Nature of CSFs.....	39
Start-Up.....	40
Growth.....	40
Maturity	41
Decline	41
The Role of CSFs in Operational Planning	41
Positioning Strategy	43
Manufacturing Flows.....	44
Manufacturing Strategies	45
Role of CSFs in Selecting Management Programs	45
Performance Measurement and CSFs	47

Summary	48
References.....	48
3 The ITO Model.....	51
The ITO Model	53
Introduction to Models.....	55
Types of Models	55
Why Are Models Used?.....	56
Benefits of Using Models.....	57
The Basic ITO Model — Inputs, Transformation, and Outputs.....	58
The General Systems Model	58
The Basic Model Extended	61
Components of the Model.....	62
Customers.....	62
Outputs	63
Transformation Process	64
Inputs	64
Extending the Basic ITO Model into Supply Chain Configurations	65
A Look at the Supply Chain	67
The Closed and Open Systems Model	67
Closed Systems	68
Open Systems.....	68
Closed-System Strategy.....	70
Open-System Strategy	71
Feedback.....	73
The Fine Art of Building Relationships	73
The Concept of Reverse Logistics.....	76
Why the Interest in Reverse Logistics?	76
Benefits of Reverse Logistics.....	77
Barriers to Reverse Logistics Implementation	78
System Design and Implementation	79
Summary	80
References.....	81
4 The Role of Management Programs in Continuous Improvement.....	83
What Are Management Programs?	85
Normal or Sustaining Day-to-Day Operations.....	87
Problem-Solving Activities	88
Improvement Programs	88
Management Program Life Cycles	92
Life-Cycle Stages	92
At the End of the Life Cycle.....	94
Implications of Program Life Cycles for Management.....	94

Why Are Management Programs Important?96

Where Do Management Programs Come From?97

 Overview of Employee Management Theories.....98

 Scientific Management.....98

 Human Relations Management99

 Administrative Management.....100

 Systems Theory.....102

 Contingency Theory.....103

Why Are Some Programs Successful and Some Not?.....105

 Failure to Match Program with Need.....107

 Implementing the Program Correctly.....109

 Planning and Preparation109

 Execution and Evaluation110

Future of Management Programs111

 Management for the 21st Century.....112

Summary.....114

References.....114

5 How Manufacturing Techniques Are Being Adapted to Service

Operations..... 117

Introduction118

Description of Manufacturing Process Types.....120

Product–Process Relationship.....122

Service Industry Classifications.....122

 The Chase Model122

 Schmenner Model123

Comparison of Manufacturing and Services.....123

Manufacturing Objectives125

 Reduce Product Costs125

 Reduce Inventories125

 Increase Resource Utilization126

 Improve Quality.....127

 Reduce Response Time128

 Reduce Product Development Time.....129

Service Objectives.....130

Programs That Work in Services.....131

 JIT and Lean.....132

 TQM and Six Sigma135

Programs More Difficult to Adapt to Service Operations.....138

 Product Costing.....139

 Activity-Based Costing.....139

 Materials Requirements Planning139

 Enterprise Resources Planning.....140

Performance Measures 140
 Automation 140
 Resource Utilization..... 141
 Keys to Extending Manufacturing Techniques to Services 141
 Conclusions 142
 References..... 143

6 How Service Techniques Are Being Extended to Manufacturing 147

Introduction 149
 The Rise of Services as a Part of the Economy..... 150
 The Swing of Power from Manufacturing to Retail..... 150
 Maturity of the Customer as a Shopper..... 151
 Increasing Complexity of the Marketplace..... 151
 Need for Manufacturing Company to Add Services..... 151
 Move from Product-Centric to Customer-Centric..... 153
 Services as a Separate New Business Segment..... 156
 Economic Growth and the Need for Added Services..... 156
 The Movement from Make-to-Stock (MTS) to Make-to-Order (MTO)..... 157
 The Movement toward Mass Customization 157
 What Are Services? 158
 Distributive Services..... 161
 Personal Services 161
 Self-Service..... 161
 Producer (Business) Services..... 161
 Social Services 161
 Knowledge Transfer from Services to Manufacturing..... 162
 Areas of Manufacturing Expertise..... 162
 Areas of Service Expertise..... 163
 Examples of Programs Developed in Services 163
 Customer Relationship Management (CRM) 164
 Definitions..... 165
 Background 166
 What Does It Do? 166
 Benefits..... 167
 Problems..... 168
 Relation to the Supply Chain..... 168
 CRM's Future..... 168
 Response Time Reduction..... 169
 Quick Response Systems (QRS) 169
 Continuous Replenishment Programs (CRP) 170
 Efficient Consumer Response (ECR) 170
 Vendor-Managed Inventory (VMI) 171

Sales and Operations Planning (S&OP)	171
Collaborative Planning, Forecasting, and Replenishment (CPFR)..	171
Supply Chain Management (SCM)	172
Present Status	172
Future.....	174
Flexibility	174
Product and Service Flexibility: Mass Customization	174
Horizontal Communication and Organization Structure	175
Demand Management.....	178
Location near the Market versus Lowest Cost	179
Evolution from Job Specialization to Self-Directed Teams.....	180
Replacement of Inventory with Information.....	180
Inter-Organizational Communications	180
Traditional EDI.....	180
Internet EDI.....	181
Other Service Developments.....	184
Working in an Open-System Environment.....	184
Product Development as a Result of Customer Inputs.....	184
Quality as Customers' Perceptions, Not Just Conformance to Specification	184
Managing the Customer Encounter.....	185
Nonquantitative Performance Measurement.....	185
The Use of Business Intelligence	185
Summary.....	186
Differences between Manufacturing and Services	186
From Services to Manufacturing.....	187
Collaborative Efforts	188
Conclusion.....	189
References.....	189
7 The Role of Technology in Continuous Improvement	195
Definitions.....	199
The Role of Technology in Continuous Improvement.....	200
Technology and the Infrastructure.....	201
Technology and Organizational Culture.....	202
Technology Transfer.....	205
Technology for Process Improvement	205
Agriculture, Mining, Construction, and Manufacturing: Goods Producers	206
Services	209
Self-Service.....	211
E-Business.....	212
Technology for Resource Enhancement.....	214

Human Resources	214
As an Aid to the Employee	215
As a Substitute for the Employee	216
As an Integral Part of the Process	218
Equipment	219
Enhance the Performance of Equipment	219
Provide a Source of Performance Information	219
Facilities	220
Design	220
Location	221
Layout	222
Information Technology (IT).....	222
Integrated Systems.....	224
Enterprise Resource Planning (ERP) Systems.....	224
Inter-Organizational Systems (IOS).....	224
Service-Oriented Architecture (SOA)	224
Structure, Trust, and Collaboration.....	225
Criteria Used in Decision Making	225
Strategic Needs versus Short-Term Needs.....	225
Behavioral versus Scientific Management Issues	226
Costs versus Benefits of Added Technology.....	227
Steps in Adding Technology to the Process.....	228
Step 1. Communicate, Communicate, Communicate.....	228
Step 2. Identify Needs and Opportunities.....	228
Step 3. Evaluate Alternatives and Select the Optimum Alternative.....	229
Step 4. Educate and Orient	229
Step 5. Develop the Implementation Plan	230
Step 6. Implement the Technological Changes.....	230
Step 7. Evaluate Results, Redefine Needs, and Redefine Additional Increments.....	231
Future Considerations for Technology	231
Customer Acceptance.....	232
Work Force Acceptance.....	233
Economic Feasibility	233
Technical Feasibility.....	234
Summary	235
References.....	237
8 The Role of Infrastructure in Continuous Improvement	241
What Is Infrastructure?.....	242
Strategies.....	243
Corporate Strategy	243
Business Strategy.....	244

The Four Classical Management Functions	245
Planning.....	246
Organizing.....	246
Directing.....	247
Controlling	248
Organization Structure.....	248
Functional.....	249
Product	249
Geographic.....	250
Alternate Organizational Structures	251
The Matrix Organization	251
The Horizontal Organization	252
The Virtual Organization.....	253
Trends in Organizational Structures.....	254
Moving from Centralization to Decentralization	254
Moving from Vertical Structures to Horizontal Structures.....	255
Moving from Autocratic Managers to More Empowered Employees...255	
Moving from Job Specialization to Higher Skill Variety	256
Moving from Line Managers to Self-Directed Work Teams.....	257
Moving from Specialized Departments to Cross-Functional Teams....258	
Moving from Top-Down to Multi-Directional Communications	259
Moving from Rigid Policies and Procedures to More Flexibility	259
Moving from Mechanistic Structures to Organic Structures.....	260
The Role of the Internet in Changing Organizational Structure.....	261
The Integration of Knowledge Management into Organizational Structure.....	263
Data, Information, Knowledge	263
Why Knowledge Is Not Transferred.....	266
Does Your Business Need a Change in Its Infrastructure?	267
Notes	268

9 Understanding Organizational Culture — the Elusive Key to

Change	271
Introduction	273
What Is Organizational Culture?.....	275
Why Is Organizational Culture so Important?	276
Organizational Culture Gives the Company an Identity.....	276
Organizational Culture Helps Employees Make Sense of Things.....	277
Organizational Culture Enables Employees to Be Committed to the Company	279
Organizational Culture Helps Add Stability to the Company.....	281
What Are the Components of Organizational Culture?.....	282
The Components of Culture.....	282

Values.....	283
Artifacts: The Display of Organizational Culture.....	283
Stories.....	284
Language.....	284
Symbols, Ceremonies, and Rituals.....	286
Identifiable Value Systems and Behavioral Norms	287
The Physical Surroundings Characterizing the Particular Culture.	288
Organizational Rewards and Reward Systems	290
What Types of Organizational Culture Are There?.....	291
Types of Cultures	291
Aligning Culture and Strategy	292
Changing Organizational Culture.....	293
State What You Want the Culture to Be	293
Promote an Ethical Culture	294
Hire the Kind of People You Want to See Perpetuate Your Desired Culture.....	296
Take Care of Your Employees, and They Will Take Care of Your Customers	297
Implement the Strategy Proposed.....	298
Change the Physical Cultural Artifacts	299
Unlock the Power of Language and Phrases	300
Tell Stories.....	301
Recognize Employees Formally	302
Conclusion.....	303
Notes	303
10 Integrated Supply Chains from Dream to Reality	307
Introduction	308
Present Status of Supply Chains	308
Background of Supply Chains.....	310
Material Flows.....	310
Organization Hierarchy.....	310
Systems Theory	312
Role of the Supply Chain	312
Setting the Stage.....	313
Supply Chain Models	317
Evolution of Supply Chain Models.....	317
A Comprehensive Supply Chain Model.....	320
The World of Lean Production.....	322
Product.....	324
Purchasing Process	324
Production Process	324
Delivery Process.....	324

Demand Variation	325
Steps to Achieve a Lean and Agile Supply Chain	325
Commitment	325
Concept.....	326
Configuration	327
Marketing.....	327
Purchasing.....	328
Manufacturing	328
Distribution.....	329
Finance and Accounting.....	329
Top Management	330
Communication	331
Culture.....	331
Customization.....	332
The Integrated Supply Chain.....	333
Coordination.....	334
Collaboration	334
Steps in the Change Process.....	335
Investigate	335
Initiate.....	336
Invigorate.....	336
Implement.....	336
Integrate.....	336
Institutionalize.....	337
Innovate	337
A Look Ahead.....	337
Complexity	338
Clairvoyance	339
Conclusions	341
References.....	342
11 The Role of Services to Complement the Supply Chain	345
Introduction	346
Producer Services versus Consumer Services	347
What Are Producer Services?	350
Why Are Producer Services Important?.....	352
The Role of Outsourcing	352
The Role of Producer Services	353
Classes of Producer Services	355
Reasons to Acquire Producer Services	355
Gain a Cost Advantage.....	355
Remove Noncore Types of Activities.....	356
Supplement Internal Staffs with Added Expertise.....	356

Provide Flexible Capacity or to Avoid Overload on Key Departments.....	358
Acquire Expertise Not Available Internally.....	358
Assist in Strategic Planning.....	359
Comply with Regulatory or Otherwise Mandatory Requirements.	360
Manage Major Programs	361
Steps to Interfacing Business with Producer Services.....	361
Recognize the Role of Producer Services in the Company	362
Develop a Strategy for Each Producer Services Area	362
Select Suppliers to Provide a Continuing Relationship	362
Prepare a Plan That Interfaces with the Supply Chain Plan	362
Implement the Service — Fit It to the Situation	363
Measure the Progress	363
Revise and Assimilate	363
The Future of Producer Services.....	364
Producer Services Firms Buy Producer Services.....	364
What Are Social Services?.....	365
Why Are Social Services Important?	365
The Role of Social Services	365
Classes of Social Services.....	366
Government.....	366
Nonprofit Organizations.....	366
Quasi-Private Firms.....	367
Specific Social Services.....	367
Information	367
Communications Systems.....	367
Standards.....	367
Education and Training.....	368
Location Incentives.....	368
Support Infrastructure.....	368
Protection	368
Health Care.....	368
Steps to Interfacing Business with Social Services	369
The Future of Social Services.....	370
Level of Regulation.....	370
Level of Privatization	370
Level of Effectiveness and Efficiency.....	371
Emphasis on Business-Related Topics.....	371
Specific Issues to Resolve	371
What Are Consumer Services?.....	371
Roles of Consumer Services.....	372
Future of Consumer Services.....	372
Integrated Service Package.....	373

- The Need for an Integrated Service Package.....373
- Steps in Developing the Integrated Service Package.....373
 - Recognize the Need to Change.....373
 - Identify the Service Package Components.....374
 - Develop Objectives for the Service Package.....374
 - Develop Strategies for the Service Package.....374
 - Develop Objectives for Each Component.....375
 - Develop Strategies for Each Component.....375
 - Implement the Strategic Plan.....375
 - Evaluate the Results.....375
 - Revise as Needed.....376
- Summary.....376
- References.....376

12 The Future of Improvement Programs379

- Introduction.....380
- The Background to Improvement Programs.....380
 - The Vanishing Manufacturing/Services Boundary.....380
 - The Foundation Topics.....380
 - Knowledge Transfer across the Manufacturing/Services Boundary.....381
 - Agents of Change.....382
 - Integration of Related Entities.....382
- Future Areas of Emphasis.....383
 - Services Will Continue to Increase as a Critical Success Factor (CSF) in Business.....384
 - Continuing Need to Integrate the Product and Service Bundle.....384
 - Continuing Increase in Globalization.....384
 - Outsourcing Will Become a More Focused Activity.....384
 - Increased Need for Project Management Competencies.....385
 - Decision Making Will Deal with a Blend of Hard and Soft Variables.....385
 - Decisions Will Become More Complex.....385
- Future of Improvement Programs.....385
 - Improvement Programs Will Become Increasingly Important.....386
 - Improvement Programs Will Be Customized to Specific Applications.....386
 - Improvement Programs Will Be Better Managed.....386
 - Improvement Programs Will Become a Regular Part of Business Operations.....386
 - Improvement Programs Will Lose Their Manufacturing or Service Heritage.....387
- The Drivers of Change.....387
 - Technology.....387
 - Structure.....387
 - Culture.....388

Most Likely Future Methodologies	388
Integrated Supply Chains	388
Outsourcing	389
Total Cost of Ownership.....	389
Performance Measurement.....	390
Project Management	391
Mass Customization.....	391
Virtual Organizations	392
Information Technology.....	392
Environmental Design	393
Service Sciences.....	393
Chaos and Complexity.....	393
Most Likely Improvement Programs.....	394
Cost Reduction	394
Response Time Reduction.....	396
Quality.....	397
Customer Service Level	398
Flexibility	398
Agility	399
Compatibility.....	400
Integration	400
Industries Most Likely to Stress Continuous Improvement.....	400
Health Care: Hospitals and Wellness Centers	400
Pharmaceuticals	401
Local Government	402
Retailing	402
Education.....	403
Knowledge Management: Where Does It Fit?.....	405
From Data to Information.....	406
From Information to Knowledge.....	408
From Knowledge to Wisdom	408
Notes	409
Index	413