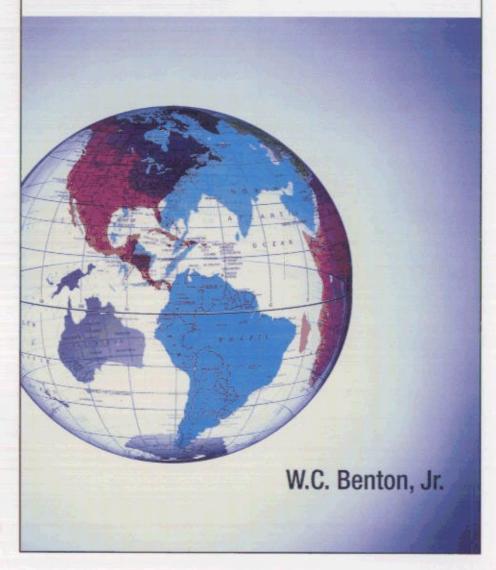
## Purchasing and Supply Management



## Contents

m 6 111	C 1 CI : D 1 C 1 : D
Preface xiii	Supply Chain Relationship Pegging 25 Supply Chain Relationship Pegging Example 26
About the Author xix	The Integrated Buying Model 29
Note to Student xxi	Cost 30
	Quality Level 30
PART ONE	Lead Time 30
INTRODUCTION TO PURCHASING	Constraints 30
AND SUPPLY MANAGEMENT 1	The Purchasing Strategic Plan 31
	Developing a Strategic Sourcing Plan 31 Program Objectives by Phase 32
Chapter 1	Purchasing Strategy Trends 33
Purchasing and Supply Management 3	Summary 34
Introduction 3	Discussion Questions 34
Purchasing Managers, Buyers, and Purchasing	Suggested Cases 34
Agents 4	References 35
The Supply Management Process 5	Appendix 2A: Supply Chain Relationship
Purchasing Dollar Responsibility 6	Pegging Study 36
Potential for Profit 8	Chapter 3
Integrated Supply Management (ISM) 9	The Legal Aspects of Purchasing 43
Annual Inventory-Ordering-Transportation Costs 10	Introduction 43
Organizing for Purchasing 11	Authority of the Purchasing Manager 44
Centralized versus Decentralized Purchasing 12	Execution of Contracts and Purchase
Advantages of Centralized Purchasing 12	Orders by the Purchasing Manager 45
Disadvantages of Centralized Purchasing 13	Essentials of a Purchase Contract 46
The Future Organization Concept 13	The Requirements for a Contract 46
Reporting Assignment 13	Offers 47
The Supply Management Concept 14	Invitation to Do Business 47
Careers in Purchasing 16	Counteroffers 47 The Time Limits of an Offer 48
Summary 16 Discussion Questions 17	Firm Offers 49
Suggested Cases 17	Option Contracts 49
Reference 18	Bid Bonds 49
	Promissory Estoppels 50
Chapter 2	Oral Contracts 50
Purchasing Decisions and Business	Terms of a Contract 50
Strategy 19	Quantity 50
Introduction 19	Quality 50 Price and Credit Terms 51
Purchasing and Competitive Strategy Linkage 20	Price and Credit Terms 51 Delivery Terms 51
Competitive Strategy 21	Leasing 51
Competitive Priorities 22	The Legal Impact of the Information Age 51
Purchasing Criteria 23	Electronic Contracts and Signatures 52
Supply Chain Strategy 23	Cryptographic Signatures (PKI) 53

The Federal Electronic Signatures in Global and National Commerce Act (ESGNCA) 53	Chapter 5 Inventory Management 79
Purchasing and Ethics 54 Women and Minority Compliance 55 Summary 56 Discussion Questions 56 Suggested Cases 56 References 57	Introduction 79 Dependent versus Independent Demand 80 Inventory Management Overview 81 ABC Classification of Inventory Items 83 Independent Demand 84
PART TWO MATERIALS MANAGEMENT 59	Costs in an Inventory System 85 Quantity Discounts 88 Safety Stock 90 Dependent Demand Systems 91 The Material Requirements Concept 92
Chapter 4 Materials Management 61	The General Lot-Sizing Problem 93 Quantity Discounts for the Variable Demand Case 93
Introduction 61 Materials Requirements Planning and Capacity Requirements 62 Capacity Planning 62 Capacity and Inventory 62 Throughput Time 63 Order Cycle 63 Integrated Materials System 64 Order Cycle—Activities 65	Illustration of Various Variable-Demand Lot-Sizing Models 95  Summary 101  Discussion Questions 101  Exercises 102  Suggested Cases 102  References 103  Appendix 5A: Areas under the Normal Curve 104
Oruer Cucie—Actionies 03	
Lead Time : .65 Customer Satisfaction 65	Chapter 6 Just-in-Time (Lean) Purchasing 105
Lead Time 65  Customer Satisfaction 65  Material Availability 66  On-Time Shipment 67  On-Time Receipt 67  Complete Shipment 67  Quality of Receipt 67  Flexibility 67  Responsiveness to Inquiry 68  Customer Satisfaction—The Balance 68	Chapter 6 Just-in-Time (Lean) Purchasing 105 Introduction 105 Significance of Purchasing 106 JIT Purchasing 106 Purchasing Benefits 109 Implementation of JIT Purchasing 110 Role of Culture 113 Critical Analysis of the JIT Concept 114
Lead Time 65  Customer Satisfaction 65  Material Availability 66  On-Time Shipment 67  On-Time Receipt 67  Complete Shipment 67  Quality of Receipt 67  Flexibility 67  Responsiveness to Inquiry 68	Just-in-Time (Lean) Purchasing 105 Introduction 105 Significance of Purchasing 106 JIT Purchasing 106 Purchasing Benefits 109 Implementation of JIT Purchasing 110 Role of Culture 113
Lead Time 65  Customer Satisfaction 65  Material Availability 66  On-Time Shipment 67  On-Time Receipt 67  Complete Shipment 67  Quality of Receipt 67  Flexibility 67  Responsiveness to Inquiry 68  Customer Satisfaction—The Balance 68  Quality 69  The Quality Level 71  Objective Quality 72  Specifying Materials 73  Raw Materials 73  Purchased Parts 73  Maintenance, Repair, and Operating (MRO)  Supplies 74  Maintenance 74	Just-in-Time (Lean) Purchasing 105 Introduction 105 Significance of Purchasing 106 JIT Purchasing 106 Purchasing Benefits 109 Implementation of JIT Purchasing 110 Role of Culture 113 Critical Analysis of the JIT Concept 114 Summary 115 Discussion Questions 116 Suggested Cases 116
Lead Time 65 Customer Satisfaction 65 Material Availability 66 On-Time Shipment 67 On-Time Receipt 67 Complete Shipment 67 Quality of Receipt 67 Flexibility 67 Responsiveness to Inquiry 68 Customer Satisfaction—The Balance 68 Quality 69 The Quality Level 71 Objective Quality 72 Specifying Materials 73 Raw Materials 73 Purchased Parts 73 Maintenance, Repair, and Operating (MRO) Supplies 74	Just-in-Time (Lean) Purchasing 105  Introduction 105  Significance of Purchasing 106  JIT Purchasing 106  Purchasing Benefits 109  Implementation of JIT Purchasing 110  Role of Culture 113  Critical Analysis of the JIT Concept 114  Summary 115  Discussion Questions 116  Suggested Cases 116  References 117  PART THREE  FUNDAMENTALS OF PURCHASING

Systems Contracting 124	Currency Exchange Rates 165
What Is Systems Contracting? 124	Organizational and Behavioral Issues 166
Reverse Auctions 125	Global Sourcing as a Strategic Sourcing
What Are Reverse Auctions? 125	Option 167
Implementing a Reverse Auction 126	Sourcing from China and Western Europe 170
Electronic Data Interchange (EDI) and	Protectionism in the United States 170
Purchasing 127	Importance of Negotiations 172
What Is EDI? 127	U.S. Export Administration Regulations 174
Implementation 128	Foreign Trade Zones 175
The Implementation Team 129	The European Union (EU): Overview and What
EDI in Practice 130	It Means to Purchasing 176
Future Outlook 130	Countertrade 177
Radio Frequency Identification (RFID) 132	Summary 180
What Is RFID and How Does It Work? 132	Discussion Questions 180
Advantages of RFID 133	Suggested Cases 180
Disadvantages of RFID 133	Reference 181
RFID Implementation 134	Appendix 9A: Outsourcing Policy Example 182
E-Sourcing and Purchasing 135	
Summary 138	Chapter 10
Discussion Questions 138	Purchasing, Supply Partnerships, and
Suggested Cases 138	Supply Chain Power 185
References 139	Supply Chair Tower 165
Appendix 7A: Systems Contract Agreement 140	Introduction 185
	Benchmark Supplier Partnerships:
Chapter 8	DaimlerChrysler Corporation 186
Supplier Selection and Evaluation 143	Importance of Supply Chain Partnership
Introduction 143	Awareness 186
Make versus Buy 143	Partnerships: Definition and Overview 186
Benefits of Outsourcing 144	Relationship Intensity 187
Sources of Supplier Information 145	Traditional Sourcing 188
Strategic Selection 145	Reduced Supplier Bases 189
Criteria for Supplier Evaluation 146	Supply Chain Partnerships 190
Three Common Supplier Evaluation Systems 146	Benefits of Supplier Partnerships 191
Supplier Development 150	Risks of Supplier Partnerships 192
Single versus Multiple Sources 150	Partnership Implementation and Critical Success
Supplier Reduction 153	Factors 192
Industry Examples 154	Power Influences on Supply Chain
Apparel Industry 155	Relationships 194
Chemical Industry 156	Power and Dependence 194
Electronics Industry 157	Power, Commitment, and Trust 195
Construction Industry 159	Power, Cooperation, and Compliance 195
Summary 160	Power and Conflict 196
Discussion Questions 160	Power and Satisfaction 196
Suggested Cases 161	Power, Performance, and Profitability 196
References 162	Automobile Industry Example of Power Asymmetry 197
	Summary 198
Chapter 9	Discussion Questions 199
Global Sourcing 163	Suggested Cases 199
<del></del>	References 200

Introduction 163

Costs of Global Sourcing 165

Appendix 10A: Channel and Supply Chain Power 201

Discussion Questions 247

Exercises 247

Chapter 11	Suggested Cases 248
Total Quality Management (TQM) and	References 249
Purchasing 209	Appendix 12A: The Robinson-Patman Act: General Price
Introduction 209	Discrimination 250
Quality Requirements for Suppliers 210	Appendix 12B: Unit Factors for Progress
Quality Assurance Expectations 210	Functions 257
Quality Target Commitment 210	Appendix 12C: Estrada Systems 262
Preventive Quality 211	Cl. 12.42
Quality Awards 217	Chapter 13
The Deming Award 217	Bargaining and Negotiations 271
The Malcolm Baldrige National Quality Award 218	Introduction 271
Continuous Improvement and the Supplier 219	Psychological Bargaining Framework 273
ISO 9000 220	Payoff System 274
Quality Function Deployment (QFD) 221	Bargaining Strategy 276
Engineering and Design 221	Economic Bargaining Framework 276
Summary 222	An Experiment in Distributive Bargaining 278
Discussion Questions 222	Planning for a Formal Negotiation 282
Suggested Cases 222	Planning (Seller's Perspective) 282
References 223	Planning (Buyer's Perspective) 283
Appendix 11A: Taguchi Method 224	A Richer Model of the Buyer–Seller Interaction 286
Appendix 11B: Acceptance Sampling 228	Summary 288
	Discussion Questions 288
PART FOUR	Suggested Cases 288
PRICE/COST ANALYSIS AND	References 289
NEGOTIATION STRATEGIES 231	
	PART FIVE
	LWILLIAF
Chapter 12	SPECIAL PURCHASING
Chapter 12 Price Determination 233	
-	SPECIAL PURCHASING APPLICATIONS 291
Price Determination 233 Introduction 233 The Purchasing Decision 234	SPECIAL PURCHASING APPLICATIONS 291 Chapter 14
Price Determination 233 Introduction 233 The Purchasing Decision 234 Price-Setting Strategy (Economic) 234	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293
Price Determination 233  Introduction 233  The Purchasing Decision 234  Price-Setting Strategy (Economic) 234  Price-Making Strategy (Psychological) 235	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293
Price Determination 233  Introduction 233 The Purchasing Decision 234 Price-Setting Strategy (Economic) 234 Price-Making Strategy (Psychological) 235 Discounts 235	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294
Price Determination 233  Introduction 233 The Purchasing Decision 234 Price-Setting Strategy (Economic) 234 Price-Making Strategy (Psychological) 235 Discounts 235 Cash Discounts 235	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294 Mode Selection 294
Price Determination 233  Introduction 233 The Purchasing Decision 234 Price-Setting Strategy (Economic) 234 Price-Making Strategy (Psychological) 235 Discounts 235 Cash Discounts 235 Trade Discounts 235	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294 Mode Selection 294 Relative Prices for Transportation Goods and Services 299
Price Determination 233  Introduction 233 The Purchasing Decision 234 Price-Setting Strategy (Economic) 234 Price-Making Strategy (Psychological) 235 Discounts 235 Cash Discounts 235 Trade Discounts 235 Quantity Discounts 235	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294 Mode Selection 294 Relative Prices for Transportation Goods and Services 299 Carrier Selection 300
Price Determination 233  Introduction 233 The Purchasing Decision 234 Price-Setting Strategy (Economic) 234 Price-Making Strategy (Psychological) 235 Discounts 235 Cash Discounts 235 Trade Discounts 235 Quantity Discounts 235 Price and the Law 236	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294 Mode Selection 294 Relative Prices for Transportation Goods and Services 299 Carrier Selection 300 Carrier Evaluation 300
Price Determination 233  Introduction 233  The Purchasing Decision 234  Price-Setting Strategy (Economic) 234  Price-Making Strategy (Psychological) 235  Discounts 235  Cash Discounts 235  Trade Discounts 235  Quantity Discounts 235  Price and the Law 236  Price 236	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294 Mode Selection 294 Relative Prices for Transportation Goods and Services 299 Carrier Selection 300 Carrier Evaluation 300 Rate Determination 300
Price Determination 233  Introduction 233  The Purchasing Decision 234  Price-Setting Strategy (Economic) 234  Price-Making Strategy (Psychological) 235  Discounts 235  Cash Discounts 235  Trade Discounts 235  Quantity Discounts 235  Price and the Law 236  Price 236  Costs 238	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294 Mode Selection 294 Relative Prices for Transportation Goods and Services 299 Carrier Selection 300 Carrier Evaluation 300 Rate Determination 300 Third-Party Relationships 302
Price Determination 233  Introduction 233  The Purchasing Decision 234  Price-Setting Strategy (Economic) 234  Price-Making Strategy (Psychological) 235  Discounts 235  Cash Discounts 235  Trade Discounts 235  Quantity Discounts 235  Price and the Law 236  Price 236  Costs 238  The Learning Curve 238	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294 Mode Selection 294 Relative Prices for Transportation Goods and Services 299 Carrier Selection 300 Carrier Evaluation 300 Rate Determination 300 Third-Party Relationships 302 Freight Consolidation 303
Price Determination 233  Introduction 233  The Purchasing Decision 234  Price-Setting Strategy (Economic) 234  Price-Making Strategy (Psychological) 235  Discounts 235  Cash Discounts 235  Trade Discounts 235  Quantity Discounts 235  Price and the Law 236  Price 236  Costs 238  The Learning Curve 238  The Model 238	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294 Mode Selection 294 Relative Prices for Transportation Goods and Services 299 Carrier Selection 300 Carrier Evaluation 300 Rate Determination 300 Third-Party Relationships 302 Freight Consolidation 303
Price Determination 233  Introduction 233  The Purchasing Decision 234  Price-Setting Strategy (Economic) 234  Price-Making Strategy (Psychological) 235  Discounts 235  Cash Discounts 235  Trade Discounts 235  Quantity Discounts 235  Price and the Law 236  Price 236  Costs 238  The Learning Curve 238  The Model 238  Example Problem 241	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294 Mode Selection 294 Relative Prices for Transportation Goods and Services 299 Carrier Selection 300 Carrier Evaluation 300 Rate Determination 300 Third-Party Relationships 302 Freight Consolidation 303 Documentation/Tracing/Claims 303
Price Determination 233  Introduction 233  The Purchasing Decision 234  Price-Setting Strategy (Economic) 234  Price-Making Strategy (Psychological) 235  Discounts 235  Cash Discounts 235  Trade Discounts 235  Quantity Discounts 235  Price and the Law 236  Price 236  Costs 238  The Learning Curve 238  The Model 238	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294 Mode Selection 294 Relative Prices for Transportation Goods and Services 299 Carrier Selection 300 Carrier Evaluation 300 Rate Determination 300 Third-Party Relationships 302 Freight Consolidation 303 Documentation Tracing Claims 303 Terms and Conditions of Transportation Purchasing 303
Price Determination 233  Introduction 233  The Purchasing Decision 234  Price-Setting Strategy (Economic) 234  Price-Making Strategy (Psychological) 235  Discounts 235  Cash Discounts 235  Trade Discounts 235  Quantity Discounts 235  Price and the Law 236  Price 236  Costs 238  The Learning Curve 238  The Model 238  Example Problem 241  Pricing Strategy 243	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294 Mode Selection 294 Relative Prices for Transportation Goods and Services 299 Carrier Selection 300 Carrier Evaluation 300 Rate Determination 300 Third-Party Relationships 302 Freight Consolidation 303 Documentation/Tracing/Claims 303 Terms and Conditions of Transportation Purchasing 303 Three Transportation Purchasing Examples 304 Ross Laboratories 304 Consolidated Stores 305
Price Determination 233  Introduction 233  The Purchasing Decision 234  Price-Setting Strategy (Economic) 234  Price-Making Strategy (Psychological) 235  Discounts 235  Cash Discounts 235  Trade Discounts 235  Quantity Discounts 235  Price and the Law 236  Price 236  Costs 238  The Learning Curve 238  The Model 238  Example Problem 241  Pricing Strategy 243  Standard Price List 243	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294 Mode Selection 294 Relative Prices for Transportation Goods and Services 299 Carrier Selection 300 Carrier Evaluation 300 Rate Determination 300 Third-Party Relationships 302 Freight Consolidation 303 Documentation/Tracing/Claims 303 Terms and Conditions of Transportation Purchasing 303 Three Transportation Purchasing Examples 304 Ross Laboratories 304 Consolidated Stores 305 Copeland Inc. 306
Price Determination 233  Introduction 233  The Purchasing Decision 234  Price-Setting Strategy (Economic) 234  Price-Making Strategy (Psychological) 235  Discounts 235  Cash Discounts 235  Trade Discounts 235  Quantity Discounts 235  Price and the Law 236  Price 236  Costs 238  The Learning Curve 238  The Model 238  Example Problem 241  Pricing Strategy 243  Standard Price List 243  Competitive Bidding 243	SPECIAL PURCHASING APPLICATIONS 291  Chapter 14 Purchasing Transportation Services 293  Introduction 293 Transportation's Role in Purchasing 294 Mode Selection 294 Relative Prices for Transportation Goods and Services 299 Carrier Selection 300 Carrier Evaluation 300 Rate Determination 300 Third-Party Relationships 302 Freight Consolidation 303 Documentation/Tracing/Claims 303 Terms and Conditions of Transportation Purchasing 303 Three Transportation Purchasing Examples 304 Ross Laboratories 304 Consolidated Stores 305

Suggested Cases 308

References 309

Chapter 15	Current Irenas 345
Equipment Acquisition and Disposal 311	Primary Supplier 345
Introduction 311	Automation Technology 345
Department Requisition 313	Acquisition of Capital Equipment Process
Company Goals and Objectives 313	Overview 345
New Project Ideas 313	Overview of the Process 347
Cash-Flow Analysis 316	Factors and Decision Rules 348
Economic Evaluation 317	Selecting the Right Supplier 350
Payback 317	Summary 352
Average Rate of Return 317	Discussion Questions 353
Net Present Value 317	Suggested Cases 353
Internal Rate of Return (IRR) 318	References 354
Profitability Index 319	Appendix 16A: Purchasing Health
Selection 319	Care Plans 355
Financial Plan Analysis 320	
Types of Leases 320	Chapter 17
Lease versus Borrow and Purchase 321	Procuring Professional Services 357
Implementation 321	
Expenditure control 321	Introduction 357
Audits 321	Service Sector Characteristics
Disposal of Capital Equipment 321	and Strategies 358
Purchasing New versus Used Capital	Professional Services 358
Equipment 321	Project Management 360
New Equipment Purchases 322	Project Planning and Scheduling
Used Equipment Purchases 322	Processes 361
Summary 322	Gantt Chart (or Bar Chart) Method 363
Discussion Questions 323	The Critical Path Method (CPM) 364
Exercises 323	Steps in CPM Project Planning 364
Suggested Cases 324	1. Specify Each Individual Activity 365
Reference 325	2. Sequence the Activities 365
Appendix 15A: Federal Acquisition Regulation;	3. Draw the Network Diagram 365
Electronic and Information	4. Estimate Activity Completion Time 365
Technology 326	5. Identify the Critical Path 365
Appendix 15B: Lease versus Borrow and	6. Update CPM Diagram 365
Purchase Example 331	7. CPM Crashing 366
i dictabe Branipie 551	Summary 366
Chapter 16	Discussion Questions 366
Health Care Purchasing and Supply	Suggested Cases 366
Management 337	Reference 367
9	Appendix 17A: FHWA Project
Introduction 337	Example 368
Purchasing, Supplies, and Services 338	Appendix 17B: Fortune 500 Company
Supply (Materials) Management Survey 339	Example 375
Methods of Supply Management 340	
Fixed Order Quantity System 340	CASES
Fixed Order Interval 341	
Stockless Inventory Systems 341	Case 1 Advanced Computer Logic 379
The Best Method 342	Case 2 AMD Construction Company:
Complicating Factors Unique to Health Care for	Negotiating the Old-Fashioned

Way 381

Case 3 The ARMS Procurement System at

Tustin State University 385

Inventory Control 342

Safety Stock 344

Demand Problems 343

## xii Contents

Case 4 The Auction Case 395

Cube I	The Traction Case 570	case is the fit and science of
Case 5	Austin Wood Products 399	Purchasing Coal 435
Case 6	Butler Systems 403	Case 16 Pendleton Construction, Inc. 441
Case 7	The Capital State Arena 405	Case 17 Point Clear, Inc. (B) 443
Case 8	DBE Earthmovers 409	Case 18 Swisher Systems 445
Case 9	Eastern Waves Inc. 411	Case 19 The Tank Case 451
Case 10	Firebird Electric, U.S. 417	Case 20 Trip 7 Screen Printing 457
Case 11	Hoosier Pride Construction, Inc. 421	Classery 461
Case 12	Hudson Fabricators, Inc. 423	Glossary 461
Case 13	KACI Products, Inc. 429	Index 464
Case 14	Medical Laser Equipment, Inc. (B) 431	

Case 15 NEP: The Art and Science of