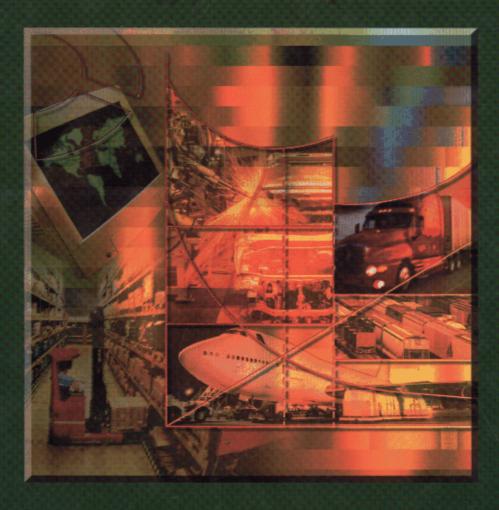
The Management of Business Logistics

A Supply Chain Perspective



COYLE • BARDI • LANGLEY

Preface xv		Introduction	32
About the Authors xix		Logistics in the Economy: A Macro	24
		Perspective	34
Part I		What Is Logistics?	37
CHAPTER 1		Value-Added Role of Logistics	40
SUPPLY CHAIN MANAGEMENT	2	Logistics in the Firm: The Micro Dimension	42
Logistics Profile: SAB Distribution	3	Logistics Interfaces with	42
Introduction	4	Operations/Manufacturing	42
The Changing Business Landscape:		Logistics Interfaces with Marketing	43
Driving Forces	5	Supply Chain Technology: E-Logistics:	10
The Empowered Consumer	5	Weapons for a New World	47
Power Shift in the Supply Chain	6	Logistics Interfaces with Other Areas	47
Deregulation	6	Logistical Activities	48
Globalization	8	Scope of Activities	49
Technology	10	On the Line: Toyota Tunes Up Its	
On the Line: Extreme Enterprise	12	Distribution Network	51
The Supply Chain Concept	13	Approaches to Analyzing Logistics	
Development of the Concept	13	Systems	52
Business Case for Supply Chain		Materials Management versus Physical	
Management	16	Distribution	52
Supply Chain Technology: Enabling		Cost Centers	54
Retailers to Conquer the World	21	Nodes versus Links	55
Characteristics of Supply Chain	22	Logistics Channel	56
Management	22	Logistics and Systems Analysis	58
Summary	25	Cost Perspective	58
Study Questions	26	Level of Optimality	59
Notes	27	Techniques of Logistics System Analysis	60
Case 1–1: Central Transport, Inc.	27	Short-Run/Static Analysis	60
		Long-Run/Dynamic Analysis	61
CHAPTER 2		Logistics in the Firm: Factors Affecting	
DIMENSIONS OF LOGISTICS	30	the Cost and Importance of Logistics	63
Logistics Profile: Jordano Foods Case	31	Competitive Relationships	63

V

Determining the Expected Cost

66

Product Relationships

Critical Factors and Key Trends 152

Importance of Competitive Environment	152	CHAPTER 6	
Critical Changes in Logistics		Managing Inventory Flows	
and Transportation	152	IN THE SUPPLY CHAIN	186
Changing Political and Legal		Logistics Profile: Micros	
Environments	156	and More Case	187
A Single European Market	156	Introduction	188
Eastern Europe	158	Inventory in the Economy	189
The North American Free Trade		On the Line: Inventory Turns	191
Agreement	158	Inventory in the Firm: Rationale	
Maquiladora Operations	160	for Inventory	192
Asian Emergence	161	Batching Economies/Cycle Stocks	193
New Directions	161	Uncertainty/Safety Stocks	194
On the Line: Holidays May Be Hazardous		Time/In-Transit and Work-in-Process	
to International Logistics Systems	162	Stocks	195
Global Transportation Options	163	Seasonal Stocks	195
Ocean	163	Anticipatory Stocks	196
Air	165	Summary of Inventory	
Motor	166	Accumulation	196
Rail	166	The Importance of Inventory	
Strategic Channel Intermediaries	167	in Other Functional Areas	197
Foreign Freight Forwarders	167	Inventory Costs	197
Non-Vessel-Operating Common		Inventory Carrying Cost	198
Carriers	168	Calculating the Cost of Carrying	
Export Management Companies	168	Inventory	199
Export Trading Companies	169	Nature of Carrying Cost	200
Customs House Brokers	169	Order/Setup Cost	200
Ship Brokers	170	Carrying Cost versus Order Cost	202
Ship Agents	170	Expected Stockout Cost	204
Export Packers	170	In-Transit Inventory Carrying Cost	205
Ports	170	Supply Chain Technology: The Internet	
Storage Facilities and Packaging	172	Positions Brick-and-Mortar Wholesalers	206
Storage Facilities	172	to Help E-Businesses Succeed	206
Supply Chain Technology: Growing Up	173	Classifying Inventory	207
Packaging	174	ABC Analysis	208
Governmental Influences	175	Quadrant Technique	210
Customs Regulation	176	Inventory Visibility	211
Other Customs Functions	177	Evaluating the Effectiveness	
Foreign Trade Zones	178	of a Company's Approach to Inventory Management	212
Summary	178		215
Study Questions	180	Summary Study Questions	
Notes	180	Study Questions	216 216
Case 5–1: Sport Shoes, Inc.	181	Notes	
Suggested Reading for Part I	182	Case 6-1: Leola Milling Company	217
5		Case 6-2: Casey-Lynn Corporation	218

Part II

267

INVENTORY DECISION MAKING	220	Case 7-1: Beierlein Distributors	268
Logistics Profile: Micros and More:		Case 7–2: Nittany Fans	269
The Sequel	221	Appendix 7a: Special Applications	
Introduction	222	of the EOQ Approach	270
Fundamental Approaches		Adjusting the Simple EOQ Model	
to Managing Inventory	222	for Modal Choice Decisions—The Cost	
Key Differences among Approaches		of Inventory in Transit	270
to Managing Inventory	223	Adjusting the Simple EOQ Model	
Principal Approaches and Techniques		for Volume Transportation Rates	274
for Inventory Management	225	Mathematical Formulation	275
On the Line: Cancer Society Cures		Transportation Rate Discount Example	276
Inventory Clog	226	Adjusting the Simple EOQ Model	
Fixed Order Quantity Approach		for Private Carriage	277
(Condition of Certainty)	227	Adjusting the Simple EOQ Model	
Inventory Cycles	227	for the Establishment and Application	
Simple EOQ Model	228	of In-Excess Rates	278
Reorder Point	235	Summary	281
A Note Concerning the Min-Max		CUARTER O	
Approach	235	CHAPTER 8	
Summary and Evaluation of the Fixed		WAREHOUSING DECISIONS	282
Order Quantity Approach	235	Logistics Profile: Redesigning	
Fixed Order Quantity Approach		Distribution Centers	283
(Condition of Uncertainty)	236	Introduction	284
Reorder Point—A Special Note	238	The Nature and Importance	
Uncertainty of Demand	238	of Warehousing	285
Uncertainty of Demand and Lead		The Role of the Warehouse	
Time Length	242	in the Logistics System: A Basic	205
Fixed Order Interval Approach	244	Conceptual Rationale	285
Summary and Evaluation of EOQ		Basic Warehousing Decisions	288
Approaches to Inventory Management	245	The Ownership Decision	290
Additional Approaches to Inventory		Public Warehousing	293
Management	246	Contract Warehousing	296
The Just-in-Time Approach	246	The Number of Warehouses	297
Materials Requirements Planning	250	Basic Warehouse Operations	299
Distribution Resource Planning	256	On the Line: Homemade	
Inventory at Multiple Locations—		Warehousing	303
The Square Root Law	258	Warehouse Layout and Design	304
A Special Note on Inventory		Layout and Design Principles	305
for Outbound Systems	260	Layout and Design Objectives	307
Demand Pull Approaches		Materials Handling	308
to Managing Inventory	261	Objectives of Materials Handling	309
Supply Chain Technology: Inventory		Guidelines and Principles	
Management: Balancing Act	264	for Materials Handling	312
Summary	265	Supply Chain Technology: RF Helps Hasbro	
Study Questions	266	Get Ahead of the Game	314

Notes

CHAPTER 7

The Role of Packaging

Exempt Carrier

Private Carrier

Packaging

The Note of Lackaging	51.5	Supply Chain rechnology. The virtual	
What Is Packaging?	316	Freight Marketplace	361
Packaging Materials	317	Containerization	363
Bar Coding	319	Piggyback	363
Summary	319	International Shipments	364
Study Questions	320	Indirect and Special Carriers	365
Notes	321	Small-Package Carriers	365
Case 8-1: Vanity Products	321	Consolidators	365
Appendix 8a: Materials-Handling		Freight Forwarders	366
Equipment	323	Shippers Associations	366
Dock Equipment	323	Brokers	366
Other Materials-Handling Equipment	327	Intermodal Marketing Companies	367
Order-Picking and Storage Equipment	329	Summary	368
Types of Materials-Handling Equipment	_	Study Questions	368
A Design Perspective	333	Notes	369
Equipment Selection Factors	333	Case 9-1: Double D Trucking	370
CHAPTER 9			
THE TRANSPORTATION SYSTEM	336	CHAPTER 10	
Logistics Profile: Victoria's Secret		Transportation Management	372
for Success	337	Logistics Profile: Mastering the Art	
Introduction	338	of Advance Planning	373
The Role of Transportation in Logistics	338	Introduction	373
The Transport Selection Decision	340	Management Strategy	374
The Transportation-Supply Chain		Proactive Management Approach	374
Relationship	340	Reducing the Number of Carriers	375
The Carrier Selection Decision	340	Negotiating with Carriers	376
Carrier Selection Determinants	342	Contracting with Carriers	376
The Pragmatics of Carrier Selection	343	Consolidating Shipments	377
The Basic Modes of Transportation	345	Monitoring Service Quality	378
Railroads	346	Federal Regulation	380
On the Line: It's the Service, Stupid	348	On the Line: Transportation:	
Motor Carriers	349	The Forgotten Factor	381
Water Carriers	351	Documentation—Domestic	382
Air Carriers	354	Bill of Lading	382
Pipelines	355	Freight Bill	385
Performance Rating of Modes	356	Claims	386
Legal Classifications of Carriers	356	F.O.B. Terms of Sale	387
Common Carrier	357	Documentation—International	387
Regulated Carrier	358	Sales Documents	387
Contract Carrier	358	Terms of Sale	388

359

359

315

315

Intermodal Transportation

Transportation Documents

Improving Documentation

Supply Chain Technology: The Virtual

360

390

393

Bases for Rates	393	Third-Party-Logistics Research	
Cost of Service	393	Study—Industry Details	428
Value of Service	394	Profile of Logistics Outsourcing	
Distance	395	Activities	429
Weight of Shipment	396	Strategic Role of Information	
Transportation Services	396	Technology .	433
Terminal Services	397	Supply Chain Technology: Harry Potter's	
Line-Haul Services	398	Logistics Dilemma	437
Supply Chain Technology: The Home		Management and Relationship Issues	437
Delivery Portal	399	Customer Value Framework	438
Summary	400	A Note on Fourth-Party Relationships	442
Study Questions	401	Need for Collaborative Relationships	442
Notes	402	Summary	444
Case 10-1: Specialty Metals		Study Questions	445
Company	402	Notes	445
Appendix 10a: The Pragmatics		Case 11–1: Ocean Spray	
of Carrier Pricing	404	Cranberries, Inc.	447
Class Rates	404		
Exception Ratings (Rates)	408	CHAPTER 12	
Commodity Rates	409	LOGISTICS AND SUPPLY CHAIN	
Other Rates	410	Information Systems	448
Study Questions	412	Logistics Profile: Applebee's Looks	
Suggested Reading for Part II	413	for Greater Control of Information	449
		Introduction	449
Part III		Contemporary Issues in Information	4 2 4
CHAPTER 11		Systems Results from Assess Co. Co. 1	451
LOGISTICS RELATIONSHIPS		Results from Annual CSC Study on Information Systems Management	451
AND THIRD-PARTY LOGISTICS	416	Quality of Information	451
Logistics Profile: UPS Inks \$150 Million		Architecture and Objectives	432
Deal with Chip Maker	417	of Information Systems	454
Introduction	417	Information System Building Process	454
Logistics Relationships	418	Positioning Information in Logistics	455
Types of Relationships	418	Major Drivers of the Connected	433
Intensity of Involvement	418	Economy	457
Model for Developing		Customer-Centric Value Web® Model	459
and Implementing Successful		Technology Impacts on Supply Chain	107
Supply Chain Relationships	420	Disintermediation	460
Third-Party Logistics—Industry		Evolving Technological Changes	461
Overview	424	On the Line: ShipChem—How	
Definition of Third-Party Logistics	425	E-Commerce Is Changing Supply	
Types of 3PL Providers	426	Chain Relationships	463
On the Line: Exel and Bass—Trade Team Relationship	428	Contemporary Logistics Information Technologies	463

xii.

Logistics Information System	465	The Strategic Importance	
Planning System	466	of Logistics Network Design	505
Execution System	468	Changing Customer Service	
Research and Intelligence System	470	Requirements	505
Supply Chain Technology: Heineken		Shifting Locations of Customer	
Redefines Collaborative Planning	471	and/or Supply Markets	506
Reports and Outputs System	472	Change in Corporate Ownership	506
Adapting to New Information		Cost Pressures	507
Technologies	473	Competitive Capabilities	507
Summary	475	Corporate Organizational Change	508
Study Questions	475	Logistics Network Design	508
Notes	476	Step 1: Define the Logistics Network	
Case 12-1: Peninsula Point, Inc.	478	Design Process	508
		Step 2: Perform a Logistics Audit	509
CHAPTER 13		Step 3: Examine the Logistics	
SUPPLY CHAIN PERFORMANCE		Network Alternatives	510
MEASUREMENT	480	Step 4: Conduct a Facility Location	510
Logistics Profile: Micros and More:		Analysis	510
A Final Sequel	481	Step 5: Make Decisions Regarding	E11
Introduction	482	Network and Facility Location	511
Dimensions of Performance		Step 6: Develop an Implementation Plan	511
Metrics	482	Major Locational Determinants	511
Overview of Performance	404	Key Factors for Consideration	512
Measurement	484	- · · · · · · · · · · · · · · · · · · ·	512
On the Line	488	On the Line: Tennessee—Site for Expanded Manufacturing Capacity	515
Evolution of Metrics Utilization	489	Current Trends Governing Site	515
Performance Categories	490	Selection	516
Another Approach to Metric	400	Modeling Approaches	516
Classification	492	Optimization Models	517
Supply Chain Metrics	495	Simulation Models	520
SCOR Model	495	Heuristic Models	521
Supply Chain Technology	496	Potential Supply Chain Modeling	221
Summary	499	Pitfalls to Avoid	522
Study Questions	499	Example of a Heuristic Modeling	
Notes	500	Approach: The Grid Technique	522
Case 13–1: CPDW	500	Supply Chain Technology: Toyota Motor	
		Sales USA, Inc.	523
CHAPTER 14		Transportation Pragmatics	530
NETWORK DESIGN AND FACILITY LOCATION	502	Summary	534
Logistics Profile: Need for Speed Turns		Study Questions	534
Guadalajara into a High-Tech Hub	503	Notes	535
Introduction	503	Case 14–1: Fireside Tire	
The Need for Long-Range Planning	505	Company	537
- -			

CHAPIER 15		Time-Reduction Logistics Initiatives	5/9
SUPPLY CHAIN FINANCE	540	Asset Productivity Strategies	581
Logistics Profile: CBL Book		Inventory Reduction	581
Distributors.com	541	Supply Chain Technology: The Need	
Introduction	543	for Real-Time, Supply Chain Visibility	582
The Supply Chain-Finance Connection	543	Facility Utilization	583
The Sales-Cost Saving Connection	544	Equipment Utilization Strategies	583
The Supply Chain Financial Impact	546	Third-Party/Contract Logistics Services	584
On the Line: Hard Sell	549	Technology-Based Strategies	586
Financial Statements	551	Relationship-Based Strategies	588
Financial Impact of Supply Chain		Collaboration	589
Decisions	552	Value Nets	590
Supply Chain Technology: Costing		Synthesis and Future Directions	591
Information Technology	557	Shift from Vertical to Virtual	
Supply Chain Service Financial		Integration	591
Implications	558	On the Line: Modus Media International	592
Summary	564	Collaboration	592
Study Questions	564	Knowledge of Core Competencies	593
Note	565	Technology and Connectivity	593
Case 15-1: DVD4LESS.com	566	Managing-the-People Skills	594
Appendix 15a: Financial Terms	567	Comprehensive Supply Chain	
CHAPTER 16		Perspective	594
LOGISTICS AND SUPPLY CHAIN CHALLENGES		Summary	594
FOR THE FUTURE	570	Study Questions	595
Logistics Profile: Creating	3,0	Notes	596
a State-of-the-Art VW Beetle Production		Case 16–1: Vector SCM	596
Facility in Mexico	571	Suggested Reading for Part III	598
Introduction	572		
Overview of Strategic Planning			
for Logistics and Supply Chain		Selected Supply Chain Publications 601	
Management	572	Directory of Trade and Professional Organizations in Logistics 604	
Historical Perspective on Strategy	573	Cases 611	
Definitions	573	Careers in Logistics 664	
Strategy Classification	575	Glossary 669	
Time-Based Strategies	578	Name Index 693	
Reducing Cycle Time	578	Subject Index 696	