CHAPTER OUTLINE

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Title of the chapter:

Available-to-Promise (ATP): Systems and Strategies

List main sections in the chapter. For each section, provide a bullet-list summarizing the intended content.

1. INTRODUCTION
   a. Background
   b. ATP Concepts and Scope
   c. Chapter Goals
      i. Review and categorize existing ATP models
      ii. Summarize current business practices
      iii. Discuss potential ATP strategies
   d. Chapter Outline

2. BUSINESS ENVIRONMENT AND ATP CATEGORIES
   a. Business Environment
      i. Product characteristics – configuration (fixed, configurable and substitutable), demand pattern (steady, lumpy, and seasonal)
      ii. Production frameworks – make-to-stock (MTS), assemble-to-order (ATO), make-to-order (MTO), configure-to-order (CTO)
      iii. Customer relationships – type of market (B2C vs. B2B), relationship (transaction-based, contract-based, vs. partnership-based), customer service requirements (response time, fulfillment reliability)
      iv. Supplier relationships – procurement/inventory policy (continuous vs. periodic), procurement lead time, reliability.
      v. Overall business characteristics – IT technology, logistics infrastructure, culture, market competition
   b. ATP Categorization
      i. Push-based forecast-driven ATP vs. pull-based order-driven ATP
      ii. ATP implementation dimensions
         1. Mode – real-time, batch
         2. Order – quantity, due date, configuration
         3. Scope – make, distribution, global
         4. Model – deterministic, stochastic
5. Objective – profit, customer service

3. PUSH-BASED ATP
   a. Introduction – Push-based ATP is a planning function, which allocates available resources to various demand classes in advance of actual order arrival. Demand forecast of future orders in different demand classes drives the allocation mechanism. With the allocated ATP quantity in each demand class, order-promising decisions can then be made in real time based on predefined business rules. This approach is most efficient in a B2C environment where a company observes a reasonably steady demand stream with small quantity per order.
   b. Demand Classification
      i. Product family
      ii. Time horizon
      iii. Geographical distribution
      iv. Sales channels
   c. Push-based ATP Models
      i. Deterministic models
      ii. Stochastic models
   d. ATP Availability Check Heuristics
   e. Implementation Issues
      i. Forecast quality vs. model robustness
      ii. Aggregated/Hierarchical allocation
      iii. Dynamic reallocation

4. PULL-BASED ATP
   a. Introduction – In contrast to push-based ATP, pull-based ATP directly deals with customer orders. Therefore, pull-based ATP is an execution function that not only makes suggestions of denying or promising an order but also determines the committed quantity and/or due date according to resource availability. Pull-based ATP involves on-line optimization and short-term order batching may be used to increase the performance of the resource allocation models.
   b. Order-Promising Functionality
      i. Quantity quoting
      ii. Due-date quoting
      iii. Quantity-and-due-date quoting
   c. Pull-based ATP Models
      i. Standard promise heuristics
      ii. Resource allocation models
      iii. Job-shop scheduling models
   d. Implementation Issues
      i. Response time vs. profitability
      ii. Resource reserve policies

5. INTEGRATION OF PUSH AND PULL ATP
a. Current Business Practice
b. Formal Push-Pull Integration Strategies

6. SYSTEMS INTEGRATION
   a. Integration of ATP mechanisms and Pricing Models
   b. ATP Integration within ERP and SCM Systems
   c. Collaboration of Multiple ATP Systems across a Supply Chain

7. CONCLUSIONS AND FUTURE RESEARCH