***Supply Chain Management (SCM)***

***Analysis***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***Supply Chain Industry*** | | | | | | | |
| 🡨 Flow of Information 🡨   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Supplier | **↔** | Manufacturer | **↔** | Distributor | **↔** | Retailer | **↔** | Customer |   🡪 Flow of Material 🡪 | | | | | | | |
|  |  | *Supply Chain Characteristics* | | | | |  |
|  |  | Lean  (Cost,Waste) | Green  (TBL,CSR) | Resilient  (Risk) | Responsive  (Agile) | Smart  (Technology) |  |
| *Supply Chain Types* | Commodity  Supply Chain |  |  |  |  |  |  |
| Global  Supply Chain |  |  |  |  |  |  |
| Service  Supply Chain |  |  |  |  |  |  |
| Reverse  Supply Chain |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  | *Functions* | **Inventory – Logistics – Relationships – Information** – Strategy | | | | |  |
|  |  |  |  |  |  |  |  |
|  | *Drivers* | Analytics – Globalization – Sustainability | | | | |  |
|  |  |  | | | | |  |
|  | *SCOR* | SCOR Model: Supply Chain Operations Reference Model | | | | |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | *Supply Chain*  *Functions* |  | *Supply Chain*  *Characteristics* |  | *Supply Chain*  *Types* |  | *Supply Chain*  *Development* |  |
|  |  |  |  |  |  |  |  |  |
|  | **Logistics** |  | Lean |  | Commodity |  | 1. Introduction |  |
|  | **Inventory** |  | Green |  | Global |  | **2. Analyses** |  |
|  | **Relationships** |  | Responsive |  | Service |  | 3. Strategy |  |
|  | **Information** |  | Resilient |  | Reverse |  |  |  |
|  | Strategy |  | Smart |  |  |  |  |  |

|  |
| --- |
| ***Supply Chain Analytics*** |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | ***Supply Chain Functions*** | | | | | | **Inventory** | **Logistics** | **Relationships** | **Information** | **Strategy** | | Stochastic Demand  Echelon Inventory  Risk Pooling | Configurations  Transportation  Cross-Docking | Procurement  Outsourcing  Alliances | Communication  Analysis  Bullwhip Effect | PUSH-PULL  Standardization  Postponement |   . |

|  |
| --- |
| **Overview of Key Analysis Topics** |
| Chapters out of Simchi-Levi Text.   |  |  |  | | --- | --- | --- | | **Inventory** |  | **Logistics** | | Chapter 2 |  | Chapter 7 | | \*Inventory Control  -Stochastic Demand  --Continuous Review  --Periodic Review  --Single Period EOQ  **\*Inventory Risk Pooling**  \*Echelon Inventory  \***ABC Classification** |  | \***Configurations**  -Direct Shipment  -Intermediate Shipping  --Warehousing  --Cross-docking  --Transshipment  \*Transportation Modes  -Truck, Air, Rail, Water, Pipeline |   . . . |
| Chapters out of Simchi-Levi Text.   |  |  |  | | --- | --- | --- | | **Relationships** |  | **Information** | | Chapters 8,9 |  | Chapter 5,14 | | \***Partnerships**  -3PL (Third-party Logistics)  -RSP (Retailer-supplier Partnerships)  -DI (Distributor Integration)  \*Outsourcing  -Products  -Components  -e-Markets |  | \***Bullwhip Effect.**  \***BPS & IS & SCOR**  \*SCIT  -Collect & Access  -Analyze & Collaborate  \*Components  -Network design  -Tactical planning  -Operational planning  -Operational execution |   . . . |

**Outline of Take-Aways for Analysis Topics – Inventory, Logistics**

Summary for Supply Chain Management

|  |  |
| --- | --- |
| **Inventory**. From Simchi-Levi Text, Chapter 2. | |
| \*Inventory Control  -Stochastic Demand  --Continuous Review  --Periodic Review  --Single Period EOQ | \*Classical inventory control of single-item inventory policy.  -Stochastic Demand. Realistic approach to inventory control.  --Continuous Review. Computerized monitoring. For example, low mean high variability inventory demand.  --Periodic Review. Established consistent monitoring. For example, high mean low variability inventory demand.  --Single Period EOQ. Unique inventory policy. For example, rapidly changing product design, variable cost parameters, or long lead times. |
| \*Inventory Risk Pooling | \*Aggregates inventory through upstream centralized inventory to service multiple downstream demand channels. For the same service levels, inventory risk pooling will usually lower safety stock, lower average inventory, lower inventory carrying cost, and increase efficiency. |
| \*Echelon Inventory | \*Addresses inventory control policies for multiple stages within a supply chain. Coordinates and increases efficiency between supply chain stages. |
| \*ABC Classification | \*Practical inventory control of multiple-item inventories. Simple approach, heuristic technique, and effective management of large, co-located or distributed inventories. |

Summary for Supply Chain Management

|  |  |
| --- | --- |
| **Logistics**. From Simchi-Levi Text, Chapter 7. | |
| \*Configurations  -Direct Shipment  -Intermediate Shipping  --Warehousing  --Cross-docking  --Transshipment | \*The structure of distribution configurations.  -Direct Shipment. Eliminate warehousing.  -Intermediate Shipping  --Warehousing. Traditional shipping.  --Cross-docking. Decreases downstream transit time.  --Transshipment. Increases downstream service levels. |
| \*Transportation Modes  -Truck  -Air  -Rail  -Water  -Pipeline | \*Match modes of transportation with supply chain elements that include service levels, cost, regulations, material requirements, etc.  -Truck. Small loads. Short runs. Flexible. Domestic.  -Air. Small loads. Short delivery times. Expensive. International.  -Rail. Large loads. Longer delivery times. Inexpensive. Domestic.  -Water. Large loads. Long delivery times. Inexpensive. International.  -Pipeline. Continuous loads. Inexpensive. Product specific. Domestic. |

**Outline of Take-Aways for Analysis Topics – Relationships, Information**

Summary for Supply Chain Management

|  |  |
| --- | --- |
| **Relationships**. From Simchi-Levi Text, Chapters 8,9. | |
| \*Partnerships  -3PL (Third-party Logistics)  -RSP (Retailer-supplier Partnerships)  -DI (Distributor Integration) | \*Establishing the levels of partnerships define the type of Alliances within a supply chain.  -3PL (Third-party Logistics). Relationship with external partners to the supply chain.  -RSP (Retailer-supplier Partnerships). Relationship between upstream and downstream partners in the supply chain.  -DI (Distributor Integration). Relationship between partners at the same level in the supply chain. |
| \*Outsourcing  -Products  -Components  -e-Markets | \*Securing material or services from external sources.  -Products. Drivers & Risks.  -Components. Criteria & Decision Making.  -e-Markets. Types, Characteristics, Strategies. |

Summary for Supply Chain Management

|  |  |
| --- | --- |
| **Information**. From Simchi-Levi Text, Chapters 5,14 | |
| \*Bullwhip Effect. | \*Bullwhip Effect.  -The Bullwhip Effect is when the Demand Variability Increases Upstream in a Supply Chain  -Results (5) Identify 5 Results of the B-E  -Causes (5) Identify 3 Causes of the B-E  -Approaches (5) Identify 5 Approaches of the B-E  -Trade-offs (4) Identify 4 Trade-offs of the B-E  -Management (3) Identify 3 Management of the B-E |
| \*BPS & IS & SCOR | \*BPS & IS & SCOR  BPS(Business Process Systems)  & IS(Information Systems)  & SCOR(Supply Chain Reference)  -For Supply Chain efficiency,  do not develop Information System maturity  ahead of Business Process maturity |
| \*SCIT  -Collect & Access  -Analyze & Collaborate | \*SCIT. Supply Chain Information Technology  -Collect & Access part of an ERP systems  Analyze & Collaborate accomplished by data analysis and analytics within DSS and APS |
| \*Components  -Network design  -Tactical planning  -Operational planning  -Operational execution | \*Components  -Network design. Strategic, long-term planning.  -Tactical planning. Aggregate planning.  -Operational planning. Short-term local planning.  -Operational execution. Daily procedures. |