Snowverest Supply Chain Overview

Document Version: 2.0 Date: April 14, 2025

Snowverest - Overview Document

1. Introduction

This document outlines the structure and operation of a typical global supply chain network (GSCN), which encompasses the interconnected organizations, resources, and processes involved in creating and distributing goods/services to end customers across international borders. The GSCN's effectiveness is crucial for competitiveness, profitability, and customer satisfaction in today's interconnected world.

Company Description: Snowverest

Snowverest is a leading manufacturer and supplier of high-performance industrial equipment, specializing in compressors, engines, pumps, and monitoring equipment. With a commitment to quality, reliability, and innovation, Snowverest serves a diverse customer base across key industrial sectors worldwide. Our global supply chain network is strategically structured to optimize sourcing, manufacturing, and distribution, ensuring efficient delivery and superior customer service.

Corporate Structure Description: Snowverest

Snowverest operates with a global, multi-divisional structure designed to effectively manage its product portfolio, serve diverse markets, and optimize its international supply chain. The company's structure is broadly organized around product lines, with regional market considerations integrated into sales, distribution, and logistics operations.

1. Lines of Business (Product Divisions)

Snowverest is structured into four primary lines of business, each responsible for the design, production, and marketing of a specific product category:

- **Industrial Compressors Division:**
    - Responsible for the development and manufacturing of rotary screw, reciprocating, and centrifugal compressors.
    - Focuses on serving industries such as manufacturing, construction, oil and gas, and mining.
- **Engines Division:**
    - Oversees the production of diesel and natural gas engines for power generation, industrial, and marine applications.
    - Caters to sectors including energy, marine, and heavy equipment.
- **Pumps Division:**

    - Manages the production of centrifugal, positive displacement, and submersible pumps.
    - Serves industries such as water treatment, agriculture, oil and gas, and chemical processing.
- **Monitoring Equipment Division:**
    - Develops and manufactures advanced sensors, data acquisition systems, and software for equipment health monitoring and predictive maintenance.
    - Provides solutions for various industries to optimize equipment performance and reduce downtime.

2. Markets (Sales and Marketing)

Snowverest serves a global customer base through a regionalized sales and marketing structure:

- **North American Sales:**
    - Headquartered in the United States.
    - Responsible for sales, marketing, and customer service activities in the US and Canada.
    - Targets key sectors including heavy industry, manufacturing, energy, and resource extraction.
- **European Sales:**
    - Headquartered in Germany.
    - Manages sales, marketing, and customer service within the European Union and the United Kingdom.
    - Focuses on industries such as manufacturing, energy, and construction.
- **Asia-Pacific Sales:**
    - Headquartered in Manila, Philippines.
    - Oversees sales, marketing, and customer service in Japan, Australia, and other Asia-Pacific markets.
    - Serves sectors including manufacturing, infrastructure, and resource extraction.

3. Logistics and Supply Chain Management

Snowverest operates a centralized logistics and supply chain management function with a regional focus:

- **Global Supply Chain Management:**
    - Oversees the entire supply chain network, including supplier management, production planning, and global logistics strategy.
    - Sets standards for quality, efficiency, and sustainability across the network.
- **Regional Logistics Centers:**
    - **North America:** Coordinated from the US, managing the flow of goods from US and Mexico manufacturing to US and Canadian customers.

    - **Europe:** Coordinated from Germany, managing the flow of goods from German manufacturing to UK and EU customers.
    - **Asia-Pacific:** Coordinated from Manila, Philippines, managing the flow of goods from Philippines manufacturing, and some from China, to Japan, Australia, and other Asia-Pacific customers.
    - Responsibilities:
        - Managing Manufacturing warehouses.
        - Coordinating transportation (including ocean, air, and ground freight).
        - Handling customs and trade compliance.
        - Optimizing delivery routes and schedules.
        - Managing relationships with regional logistics providers.

Key Structural Features:

- **Product-Based Divisions:** Allows for specialized expertise in product development, manufacturing, and marketing.
- **Regional Market Focus:** Enables tailored sales and service strategies to meet the specific needs of different geographic markets.
- **Centralized Logistics with Regional Execution:** Provides global oversight for supply chain efficiency while allowing for regional flexibility in distribution and delivery.

This structure enables Snowverest to effectively manage its global operations, ensuring that its diverse product portfolio reaches customers around the world in a timely and cost-effective manner.

Global Supply Chain Overview

Snowverest operates a complex yet integrated global supply chain, encompassing a network of suppliers, manufacturing facilities, and distribution channels that span multiple continents.

- **Suppliers:** Snowverest collaborates with a diverse portfolio of suppliers located in key industrial regions:
    - **United States:** Suppliers provide specialized metal alloys, electronic components, and precision-engineered parts.
    - **China:** Sources high-volume components, standard mechanical parts, and electronic sub-assemblies.
    - **Germany:** Partners with suppliers for advanced engineering components, specialized sensors, and high-performance materials.
    - **United Kingdom:** Sources specialized control systems, and niche mechanical parts.
- **Manufacturing:** Snowverest maintains a global manufacturing footprint to serve regional markets and optimize production costs:
    - **United States:** Focuses on high-value, customized, and low-volume production runs, and serves as a key hub for North American distribution.

    - **Mexico:** A strategic location for cost-effective, high-volume manufacturing, primarily serving the North American market.
    - **Germany:** Specializes in the production of highly engineered, precision equipment for the European market.
    - **Manila, Philippines:** A key manufacturing hub for cost-effective, high-volume production, serving the Asia-Pacific market.
- **Customers:** Snowverest serves a broad spectrum of industrial customers across the globe:
    - **United States:** Core market for all product lines, including heavy industry, manufacturing, and energy sectors.
    - **Canada:** Strong demand for industrial compressors, pumps, and monitoring equipment, particularly in the resource extraction and infrastructure sectors.
    - **United Kingdom & European Union:** Key markets for engines, pumps, and specialized monitoring equipment, with a focus on the manufacturing, energy, and construction industries.
    - **Japan & Australia:** Growing markets for all product lines, driven by demand from the manufacturing, infrastructure, and resource sectors.

Product Lines

Snowverest offers a comprehensive portfolio of industrial equipment:

- **Industrial Compressors:** Rotary screw, reciprocating, and centrifugal compressors for various applications.
- **Engines:** Diesel and natural gas engines for power generation, industrial, and marine applications.
- **Pumps:** Centrifugal, positive displacement, and submersible pumps for fluid handling in diverse industries.
- **Monitoring Equipment:** Advanced sensors, data acquisition systems, and software for equipment health monitoring and predictive maintenance.

Snowverest's global supply chain network is critical to its success, enabling the company to efficiently source high-quality components, manufacture products to meet diverse customer needs, and deliver them reliably to markets around the world.

2. Core Components

The GSCN comprises three primary interacting entities:

- **2.1 Suppliers:**
    - Provide raw materials, components, and semi-finished goods.
    - Can be categorized by:
        - Tier (e.g., Tier 1 suppliers directly supply the manufacturer, Tier 2 suppliers provide to Tier 1)
        - Product type
        - Location
    - Strategic considerations:
        - Sourcing strategies (single vs. multi-sourcing)
        - Supplier relationship management (SRM)
        - Global sourcing
        - Ethical and sustainable sourcing
- **2.2 Manufacturers:**
    - Transform inputs from suppliers into finished goods.
    - Encompass various production models:
        - Original equipment manufacturers (OEMs)
        - Contract manufacturers
    - Operational aspects:
        - Production planning
        - Inventory management
        - Quality control
        - Manufacturing processes (e.g., lean manufacturing, agile manufacturing)
        - Facility location decisions
- **2.3 Customers:**
    - Purchase finished goods/services.
    - Diverse categories:
        - Consumers
        - Retailers
        - Distributors
        - Other businesses
    - Key factors:
        - Demand patterns
        - Service level expectations
        - Market segmentation
        - Customer relationship management (CRM)

3. Flows in the GSCN

The GSCN is characterized by the following interconnected flows:

- **3.1 Product Flow:**

    - Movement of goods from suppliers through manufacturing and distribution channels to reach the final customer.
    - Involves:
        - Transportation
        - Warehousing
        - Logistics management
        - Order fulfillment
- **3.2 Information Flow:**
    - Transmission of data and insights among participants.
    - Crucial for:
        - Demand planning
        - Order tracking
        - Inventory visibility
        - Coordination and collaboration
- **3.3 Financial Flow:**
    - Movement of money across the supply chain.
    - Includes:
        - Payments
        - Credit terms
        - Pricing agreements
        - Currency exchange

4. Key Processes and Activities

Effective GSCN management requires the orchestration of several processes:

- **4.1 Planning:**
    - Forecasting demand, coordinating production, and aligning resources to meet customer needs.
    - Encompasses:
        - Strategic planning
        - Sales and operations planning (S&OP)
        - Demand planning
        - Supply planning
- **4.2 Sourcing/Procurement:**
    - Identifying, selecting, and managing suppliers.
    - Involves:
        - Supplier evaluation
        - Negotiation
        - Contract management
- **4.3 Production/Manufacturing:**
    - Converting raw materials into finished goods.
    - Includes:
        - Production scheduling
        - Quality assurance

        - Capacity management
- **4.4 Logistics/Distribution:**
    - Storing and moving goods to customers.
    - Covers:
        - Warehousing
        - Transportation management
        - Order fulfillment
- **4.5 Returns:**
    - Handling returned products.
    - Involves:
        - Reverse logistics
        - Refurbishment
        - Recycling

5. Enabling Technologies * Technology is fundamental to support and optimize the GSCN. * Key examples include: * Enterprise Resource Planning (ERP) systems * Supply chain management (SCM) software * Warehouse management systems (WMS) * Transportation management systems (TMS) * Business intelligence (BI) and analytics * E-commerce platforms * Internet of Things (IoT) * Artificial intelligence (AI) * Blockchain

6. Challenges and Trends

GSCNs face a dynamic set of challenges and are shaped by emerging trends:

- **6.1 Globalization:**
    - Increased complexity and longer distances
    - Cultural, economic, and political considerations
- **6.2 Volatility:**
    - Demand fluctuations
    - Supply disruptions
    - Geopolitical instability
- **6.3 Sustainability:**
    - Environmental concerns
    - Ethical sourcing and labor practices
    - Circular economy principles
- **6.4 Technology:**
    - Automation
    - Data analytics
    - Increased connectivity
- **6.5 Customer Expectations:**
    - Faster delivery
    - Personalization
    - Transparency

7. Performance Measurement

GSCN performance is assessed through key performance indicators (KPIs), such as:

- **7.1 Efficiency:**
    - Total supply chain cost
    - Inventory turnover
    - Order cycle time
- **7.2 Effectiveness:**
    - On-time delivery
    - Order fill rate
    - Customer satisfaction
- **7.3 Sustainability:**
    - Carbon footprint
    - Waste reduction
    - Ethical sourcing compliance

Facility Types

Manufacturing Facilities Overview: Snowverest

Snowverest operates a network of 15 strategically located manufacturing facilities across the United States, Mexico, Germany, and the Philippines. These facilities are integral to our global supply chain, enabling us to efficiently produce our diverse portfolio of industrial equipment while optimizing production costs, meeting regional demands, and ensuring timely delivery to our customers. Each facility houses both raw materials and finished goods warehousing capabilities, integrated to support seamless production and distribution.

Manufacturing Footprint:

- **United States (4 Facilities):**
    - Focus: High-value, customized, and low-volume production; advanced manufacturing technologies.
    - Specialization: Production of specialized components, advanced monitoring equipment, and customized engine solutions.
    - Role: Serves as a key manufacturing and distribution hub for North America, with a strong emphasis on R&D collaboration.
- **Mexico (5 Facilities):**
    - Focus: Cost-effective, high-volume manufacturing.
    - Specialization: Production of standard industrial compressors and pumps for the North American market.

    - Role: Leveraged for economies of scale in production, supporting competitive pricing for the region.
- **Germany (3 Facilities):**
    - Focus: Highly engineered, precision equipment manufacturing.
    - Specialization: Production of specialized engines, high-performance pumps, and critical components for the European market.
    - Role: Center of excellence for engineering and production of complex equipment.
- **Manila, Philippines (3 Facilities):**
    - Focus: Cost-effective, high-volume manufacturing.
    - Specialization: Production of industrial compressors and pumps for the Asia-Pacific market.
    - Role: Provides a competitive manufacturing base for serving the growing demands of the APAC region.

Warehouse Operations:

Each manufacturing facility is supported by two core warehouse functions:

- **Raw Materials Warehouse:**
    - Stores all incoming materials required for production, including:
        - Metals (steel, aluminum, etc.)
        - Electronic components
        - Mechanical parts
        - Sub-assemblies
        - Packaging materials
    - Inventory management systems are employed to track material levels, optimize storage, and ensure timely availability for production.
    - Emphasis on:
        - Efficient receiving and inspection processes
        - Organized storage to minimize handling and damage
        - Integration with production planning systems
        - Safety protocols for handling various materials
- **Finished Goods Warehouse:**
    - Stores completed products, ready for distribution to customers.
    - Inventory is managed based on:
        - Demand forecasts
        - Customer orders
        - Regional market needs
    - Emphasis on:
        - Packaging and labeling for shipment

    - Order fulfillment processes
    - Coordination with logistics providers
    - Maintaining product integrity and quality
    - Optimizing storage to minimize handling and maximize space utilization

Integration and Technology:

Snowverest integrates its manufacturing facilities and warehouse operations through a centralized Enterprise Resource Planning (ERP) system. This system provides real-time visibility into:

- Inventory levels
- Production schedules
- Order status
- Shipping information

Advanced Warehouse Management Systems (WMS) are utilized to optimize warehouse processes, including:

- Receiving
- Put-away
- Picking
- Shipping

This integrated approach enables Snowverest to maintain a responsive and efficient manufacturing network, ensuring that products are produced and delivered to customers in a timely and cost-effective manner.

Material Flow

The general flow of materials through the supply chain is as follows:

1. Raw Material Sourcing: Raw materials and basic components are sourced from a global network of suppliers.
2. MFG Plant Production: Raw materials are shipped to MFG Plants, where they are transformed into specialized components. Strict quality control procedures are implemented at each stage of the component manufacturing production process.
3. Distribution: Finished products are shipped from manufacturing warehouses to:
    - Distributors: The business utilizes a network of distributors to reach a wider range of customers, particularly for smaller orders and products requiring local inventory and support.

    - Direct Customers: For large or strategic customers, the business ships products directly from FAT facilities. This is common for complex systems or large-volume orders.
4. Order Fulfillment: Customers or Distributors place orders. Orders are processed, and go through a status lifecycle (Placed, Shipped, Delivered, Cancelled).

Inventory Management

The business employs sophisticated inventory management techniques to optimize inventory levels at each stage of the supply chain. Key concepts include:

- Safety Stock: Minimum inventory levels maintained to buffer against unexpected demand fluctuations or supply disruptions.
- Replenishment Point: The inventory level at which a replenishment order is placed. This is often 2x the Safety Stock Level.
- Quantity on Hand: Real-time tracking of materials.
- Quantity on Order: Tracking of replenishment orders

Shipment Tracking

All shipments, whether from MFG Plants to customers, distributors, or other manufacturing plants are tracked using a unique shipment ID and tracking number. Key shipment data includes:

- Origin Facility: The MFG plant where the shipment originated.
- Destination Facility: The MFG plant, distributor, or customer receiving the shipment.
- Ship Date: The date the shipment left the origin facility.
- Expected Delivery Date: The estimated date of arrival at the destination.
- Actual Delivery Date: The date the shipment was actually received.
- Shipping Cost: The cost associated with transporting the shipment.

Damaged Goods Process

The business has a strict process for handling damaged goods. Upon receipt, shipments are inspected for damage. If damage is found, a report is generated, and the damaged goods are either returned to the supplier, repaired, or scrapped, depending on the severity of the damage and the product type. The specific process varies depending on the business line and the product involved, but the general principle is to ensure that

only high-quality products reach the end customer. Detailed procedures are documented separately.

Key Performance Indicators (KPIs)

The business tracks various KPIs to monitor the performance of its supply chain, including:

- On-Time In Full: The percentage of shipments delivered on or before the expected delivery date with the complete order quantity.
- Inventory Turnover: The number of times inventory is sold and replaced within a given period.
- Production Cycle Time: The time it takes to manufacture a product, from raw material input to finished goods.
- Capacity Utilization: The percentage of a facility's production capacity that is being used.
- Order Fulfillment Rate: The percentage of orders that are fulfilled completely and on time.

Technology and Systems

The business leverages various technology solutions to manage its supply chain, including:

- Enterprise Resource Planning (ERP) System: A central system for managing core business processes, including procurement, production, inventory, and order management.
- Supply Chain Planning (SCP) System: A system for optimizing inventory levels, production schedules, and distribution plans.
- Transportation Management System (TMS): A system for managing and tracking shipments.
- Warehouse Management System (WMS): Used at Manufacturing Warehouse facilities to manage inventory.

Sustainability

The business is committed to sustainable supply chain practices. This includes sourcing materials responsibly, reducing waste and emissions, and optimizing transportation routes to minimize environmental impact. These initiatives are particularly crucial within the ESS business line, but are company priorities.

This document provides a high-level overview. Specific processes and procedures may vary depending on the business line, product, and geographic location.