

# Florida

## SUPPLY CHAIN MANAGEMENT

Executive Summary



# SUPPLY CHAIN MANAGEMENT OVERVIEW

Supply Chain Management (SCM) practices govern the selection of an appropriate mode for the movement of goods and materials within a given industry or geographical area. SCM has undergone an evolutionary pattern. The pattern has progressed from utilizing a single mode in a single region following the movement of raw materials, through manufacturing facilities, to the consumer; to multi-modal solutions across a global landscape.

Florida is home to a variety of industrial, manufacturing, warehousing, and transportation sectors. Many of these are not single points but facilitate the supply chain for local, state, and national needs. Understanding the needs of SCM, particular to the state’s participants, will assist in guiding future planning for infrastructure or promotion of a particular mode.

## Key Factors in SCM Decision Making



## Push and Pull Ideologies

There are two main ways to attempt to answer the questions of “what to make”, “how much to make”, and “where to make it”. The challenge is to make sure there is enough of whatever product you are selling available for the customer to buy, without making too much and ending up with leftovers you cannot sell.

### Push SCM

**Goal:** ALWAYS have enough product available for the customer to buy

**Benefits:** No potential sales are lost because there is not enough product available, and production costs are lower because the supply order is not constantly changing

**Applications:** Works well with products that have fairly predictable demand and do not spoil or change with trends

### Pull SCM

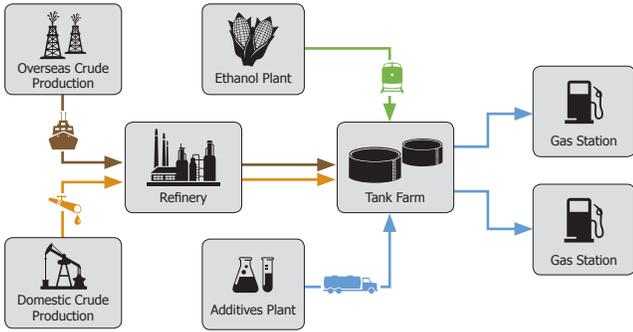
**Goal:** Adjust production to reflect changing customer demand

**Benefits:** Production quantities can be changed frequently, there is added flexibility for product tweaks, and there is less waste with products that spoil, change with trends, or have unpredictable demand

**Applications:** Works well with expensive items because, in this case, it is more costly to have too much product than not enough

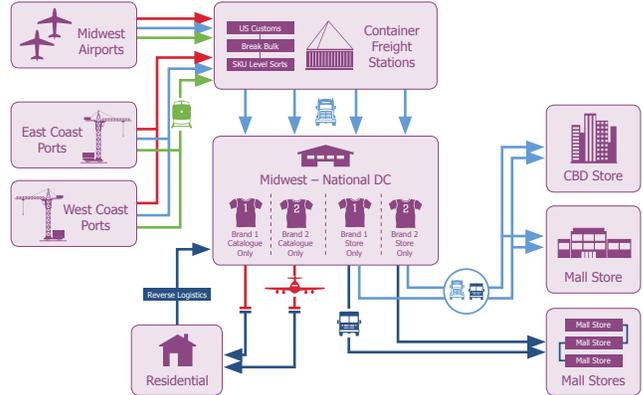
# Examples of Modal use in Supply Chain Management

## SUPPLY CHAIN: GASOLINE & PETROLEUM FUELS



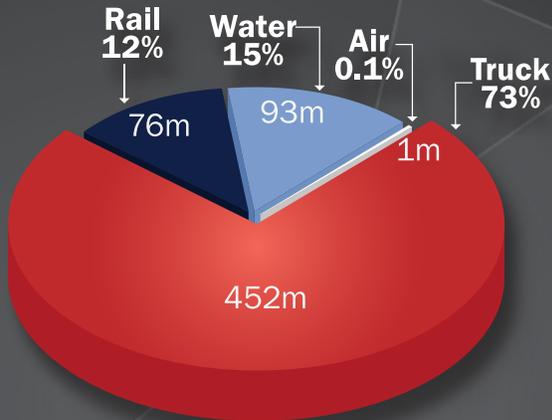
Truck Ship/Barge Direct Rail Pipeline

## SUPPLY CHAIN: APPAREL RETAIL



18 Wheeler Small Truck Aircraft Intermodal Rail

## Domestic and International Modal Mix in Florida (millions of tons)



Source: Trade & Logistics Study, Florida Chamber 2009

A common limiter of modal selection is availability.

Research indicates that the distribution of mode choice in supply chains is not likely to change dramatically in the next 15 years.

## Modal Characteristics

MODE	AIR	TRUCK	RAIL	WATER	PIPELINE
COST (\$/LB)	>\$1.00	\$0.10 - \$0.03		\$0.01 - \$0.005	<\$0.005
RELIABILITY	▲ Higher	◆ Variable		▼ Lower	▲ Higher
FREIGHT PROFILE	▼ Weight ▲ Value ▲ Time Sensitivity ▲ Inventory Cost	◆ Weight ◆ Value ◆ Sensitivity ◆ Inventory Cost		▲ Weight ▼ Value ▼ Time Sensitivity ▼ Inventory Cost	Variable characteristics associated with the specialized nature of the commodity
TRANSIT TIMES	FAST				SLOW

# SUPPLY CHAIN MANAGEMENT IN FLORIDA

Seven industry clusters were identified for economic growth in Florida by the Department of Economic Opportunity and Enterprise Florida. The first five rely heavily on freight transportation systems and were used in the case studies detailed below.

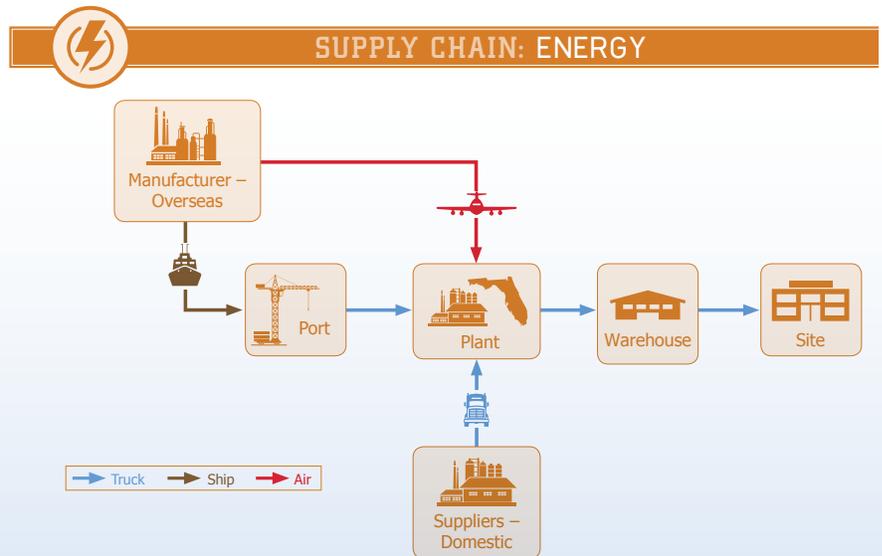
1. Cleantech
2. Life Sciences
3. Aviation/Aerospace
4. Logistics and Distribution
5. Defense and Homeland Security
6. Information Technologies
7. Financial/Professional Services



## Case Studies for SCM Decision Making

### Cleantech

- **Energy:** Focusing on mechanical methods for energy production; bio-fuel, wind power and solar cell.
- **Efficiency:** Industries working on technology and materials to conserve energy by producing low consumption fixtures, highly efficient design and construction materials, and other conservation measures.
- **Environment:** Technologies and industries related to environmental conservation, e.g. waste, waste-water, or environmental monitoring.

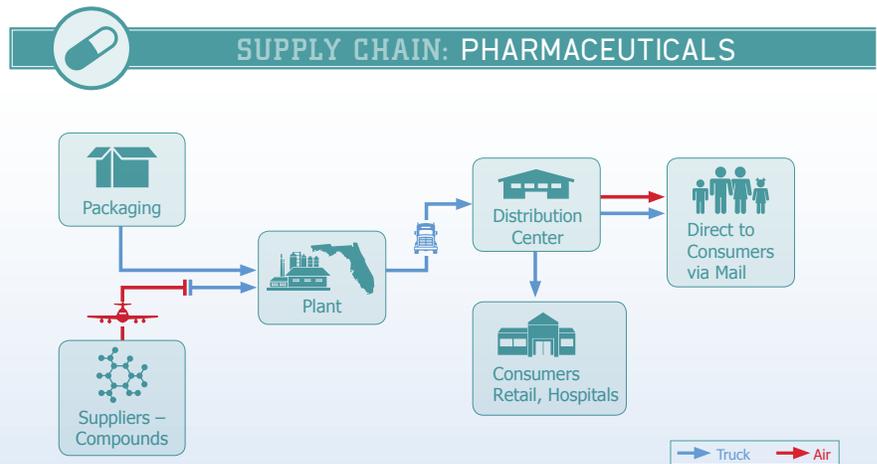


### CASE STUDY: ENERGY SOLAR PANELS FOR A SINGLE FAMILY RESIDENCE

Overseas manufacturer of silicon wafer may use ocean vessels or air cargo depending on the time frame and size of order from the domestic warehouse. Trucks are used to move domestic supplier of wholesale components such as wiring, hardware, and simple electrical components. Final stage is the transportation and installation of the panels to a specific customer which is done by truck.

## Life Sciences

- **Biotech:** Closely associated with businesses which focus on development of products, typically based on microorganisms, to improve the quality of health for individuals. These products tend to serve industrial needs.
- **Pharmaceuticals:** Development, manufacture, and distribution of compounds to combat health related concerns.
- **Medical Devices:** From low to high tech mechanical devices to substitute, permanently replace or otherwise affect a solution to a medical condition.

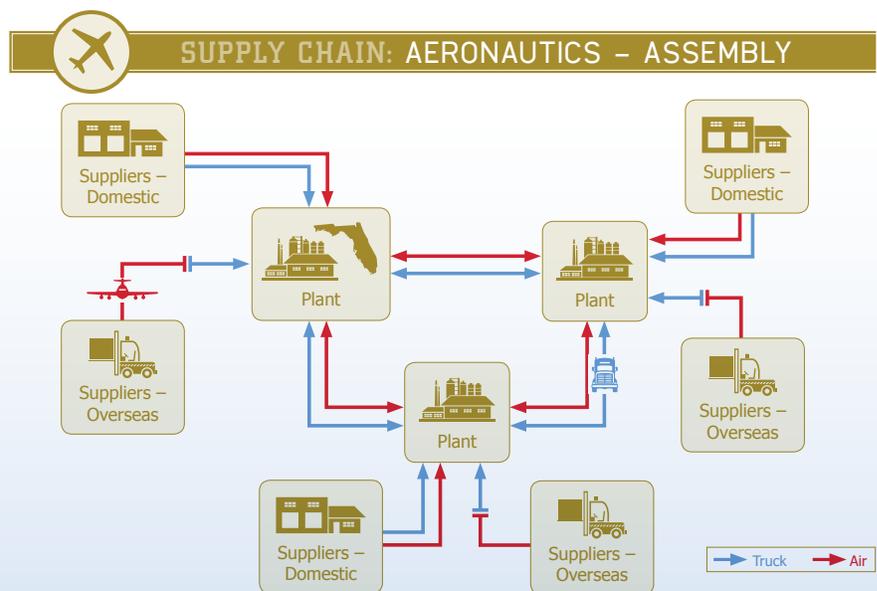


### CASE STUDY: PHARMACEUTICAL PRODUCTION AND DISTRIBUTION

Production may occur domestically or overseas, transportation is provided by trucks or aircraft. Pharmaceuticals have high value relative to weight and volume; either air or truck is used to transport them over large distances. The distribution network is complex because there are so many different places where pharmaceuticals are matched with their final user.

## Aviation/ Aerospace

- **Aviation:** Industries associated with commercial airline and private aircraft segment. This includes not only recognized airlines and airport support services, e.g. executive air services, but facilities involved in pilot education-flight training and MRO (Maintenance, repair, overhaul) services for aircraft.
- **Aerospace:** Encompassing space related industries, this segment also includes parts manufacturers, aircraft manufacturers, missile technologies, and other assembly-manufacturing related industries.



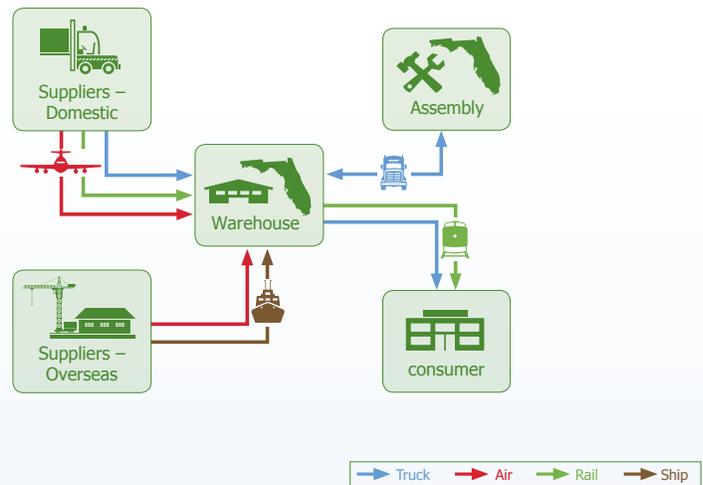
### CASE STUDY: AERONAUTICS ASSEMBLY

Domestic and international supplies of raw materials and specialized parts are transported by truck or air depending on value and weight. Multiple layers of assembly plants due to the highly complex nature of airplane production supported by truck or plane depending on the specific product or customer needs. Delivery of final product to distributors or directly to customers who may be located in the U.S. or overseas occurs through air and truck modes.

# Logistics and Distribution

- Value Added Logistics Services:** Businesses or organizations which service the needs of the transportation provider or user, while not necessarily a part of the formal provider or user company. e.g. 3PL (Third Party Logistics), customs brokers, distributors, back office.
- Defense Logistics:** Businesses that serve the defense industry or a related agency. These may participate through the manufacture or re-manufacturing efforts for parts or sub assemblies. This includes those that provide training and other forms of technical support to the defense sector.
- Specialized Logistics IT:** Businesses providing technical and computer support for systems related to transportation. Typically include TMS (Transportation Management Systems), FMS (Freight Management Systems), IMS (Inventory Management Systems), and homeland security needs.
- Wholesale Trade and Transportation:** Providers of transportation services and those which are classified users of infrastructural assets, e.g. airports, highways, ports.

## SUPPLY CHAIN: THIRD PARTY LOGISTICS



### CASE STUDY: COMMUNICATIONS SYSTEMS

This distribution network works in parallel to civilian networks. Materials must be procured and manufactured in a typical supply network. Additional components may include distribution and installation at domestic Department of Defense (DOD) sites or deployment overseas.



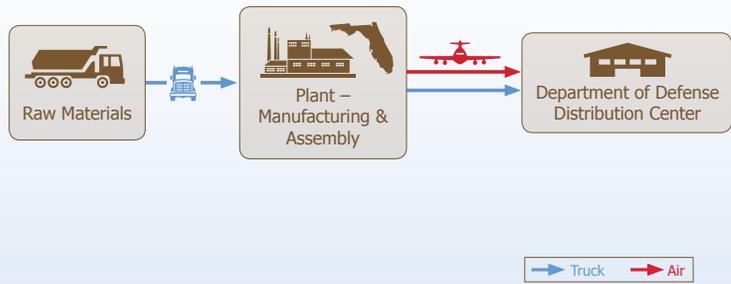
# Defense and Homeland Security

**Defense:** Industries immediately associated with the Department of Defense (DOD). This supports 20 military installations and three unified command centers located within the state.<sup>1</sup>

**Homeland Security:** Encompassing primarily labor oriented efforts, this is an emerging classification of businesses supplying agencies with materials to defend the country's borders, cyber-environments, and other areas through which a threat may pass.

1. [http://www.eflorida.com/Homeland\\_Security\\_Defense.aspx?id=9354](http://www.eflorida.com/Homeland_Security_Defense.aspx?id=9354), March 16, 2012

## SUPPLY CHAIN: DEFENSE - AEROSPACE PARTS



### CASE STUDY: COMMUNICATIONS SYSTEMS

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Courtesy of [www.af.mil](http://www.af.mil)



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