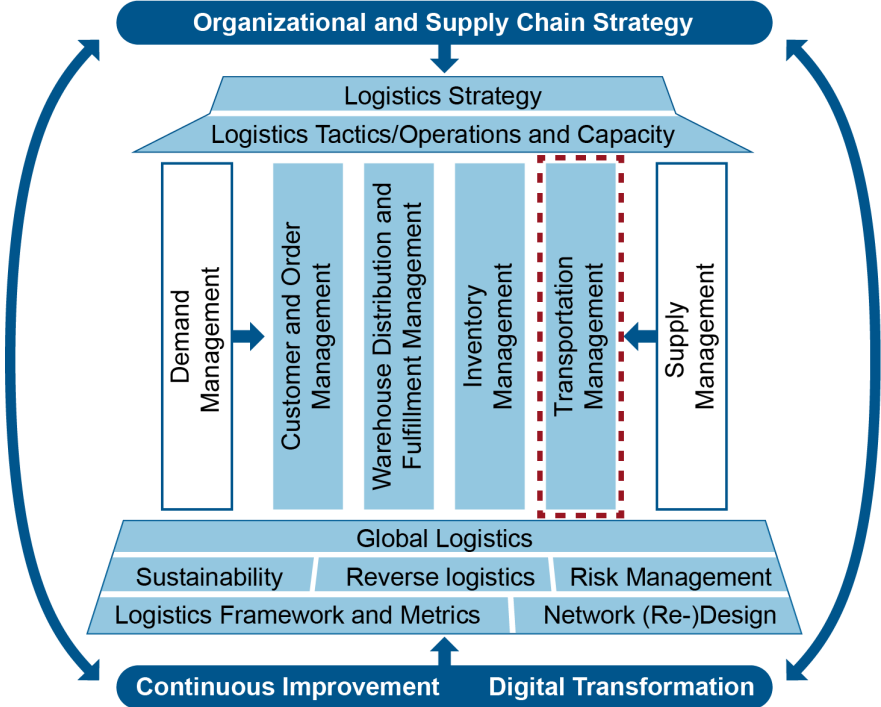


CLTD CERTIFIED IN LOGISTICS,
TRANSPORTATION AND DISTRIBUTION

MODULE 6: TRANSPORTATION MANAGEMENT

Module 6: Transportation Management

Module 6 Overview



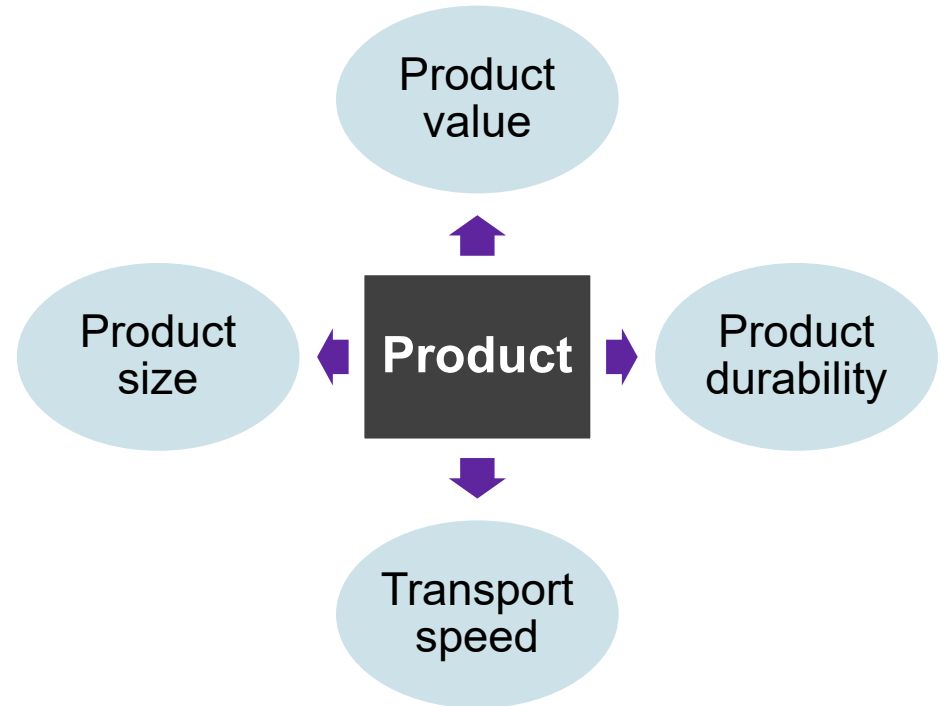
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MODULE 6, SECTION A: UNDERSTAND TRANSPORTATION FUNDAMENTALS

Transportation and Mode Selection

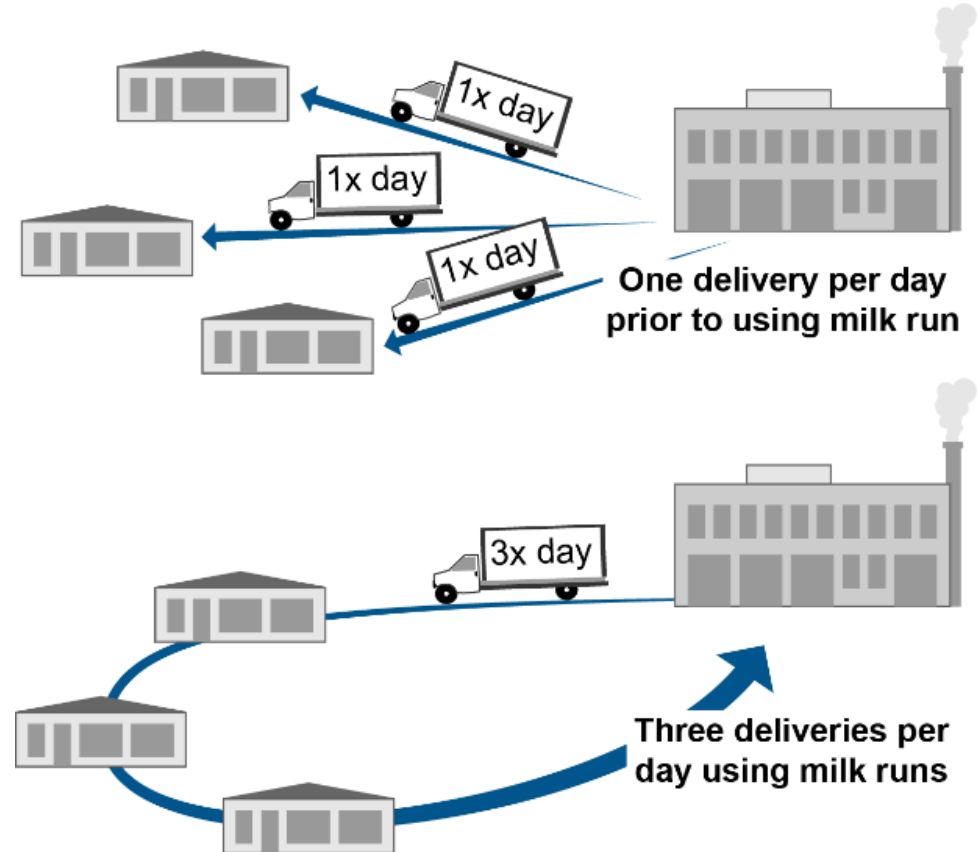
- Economy of scale
- Economy of distance
- Cost of velocity
- Cost-effective transport widens profitable sales range



Understand Transportation and Transportation Cost Structure

Terminals

- Pickup and delivery (PUD)
 - Hub-and-spoke
 - Milk run
- Break-bulk
- Relay
- Cross-docking



Asset-Based or Not

- Asset-based: owned or leased
- Non-asset-based: Brokers
- Vehicle costing provides
 - Vehicle details and fleet performance to control operations
 - Timely information on vehicle cost trends to allow for changes

Costing



Human resources—vehicle drivers



Machinery—vehicles



Materials—associated materials (tires, fuel, etc.)



Money—resource costs



Minutes—resource use/purpose(s)

Private Trucking

Pros



- Greater control
- Better service
- Guaranteed capacity
- Schedule flexibility/convenience
- Design fleet for specific needs
- Low cost if high utilization
- Security

Cons

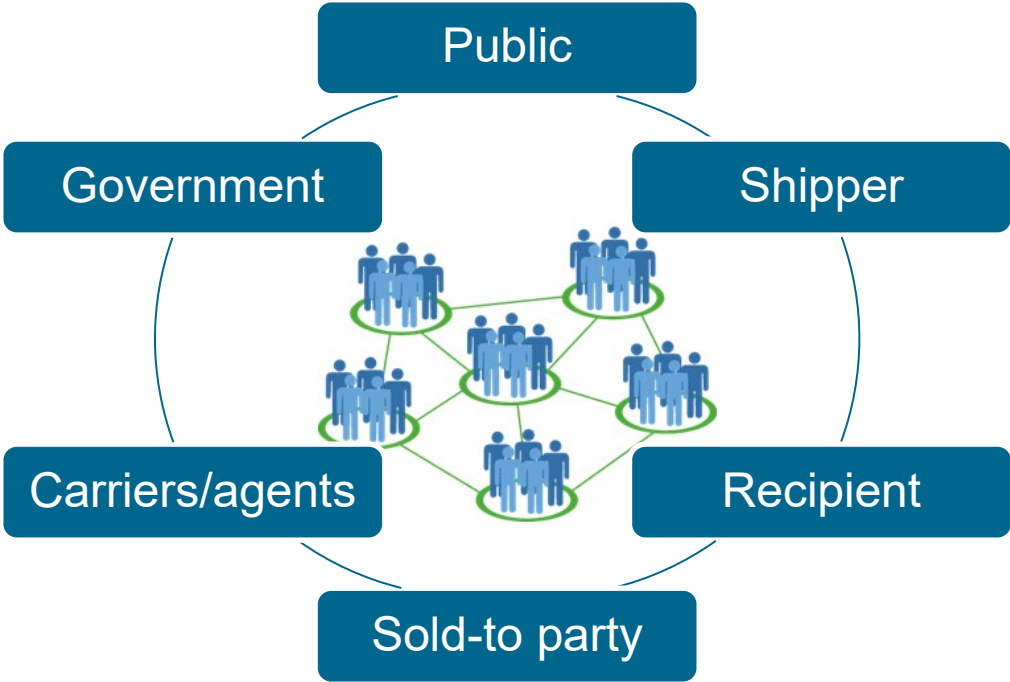


- Higher capital expenses
- Ongoing maintenance
- Scheduling/routing
- Increased liability
- Labor union dependent
- Capacity in peak seasons

Outsourcing Transportation

- No capital cost of starting and maintaining private fleet
- Reduces or eliminates risks
 - Accident liability
 - Regulations compliance
 - Unions

Transportation Stakeholders



Load Transport: Product Movement

Goods to destination while minimizing expenses and environmental impact

Freight
services

Terminal
services

Loading/
unloading

Value-added

Documentation

Diversion and
reconsignment

Product Storage

Transport mode

- Common to store products in trailers, containers, etc.
- Usually only for short time, as cost is high

In-transit storage

- Often used when there is a space shortage at receiver's warehouse

Asset-Based or Non-Asset-Based Carriers?



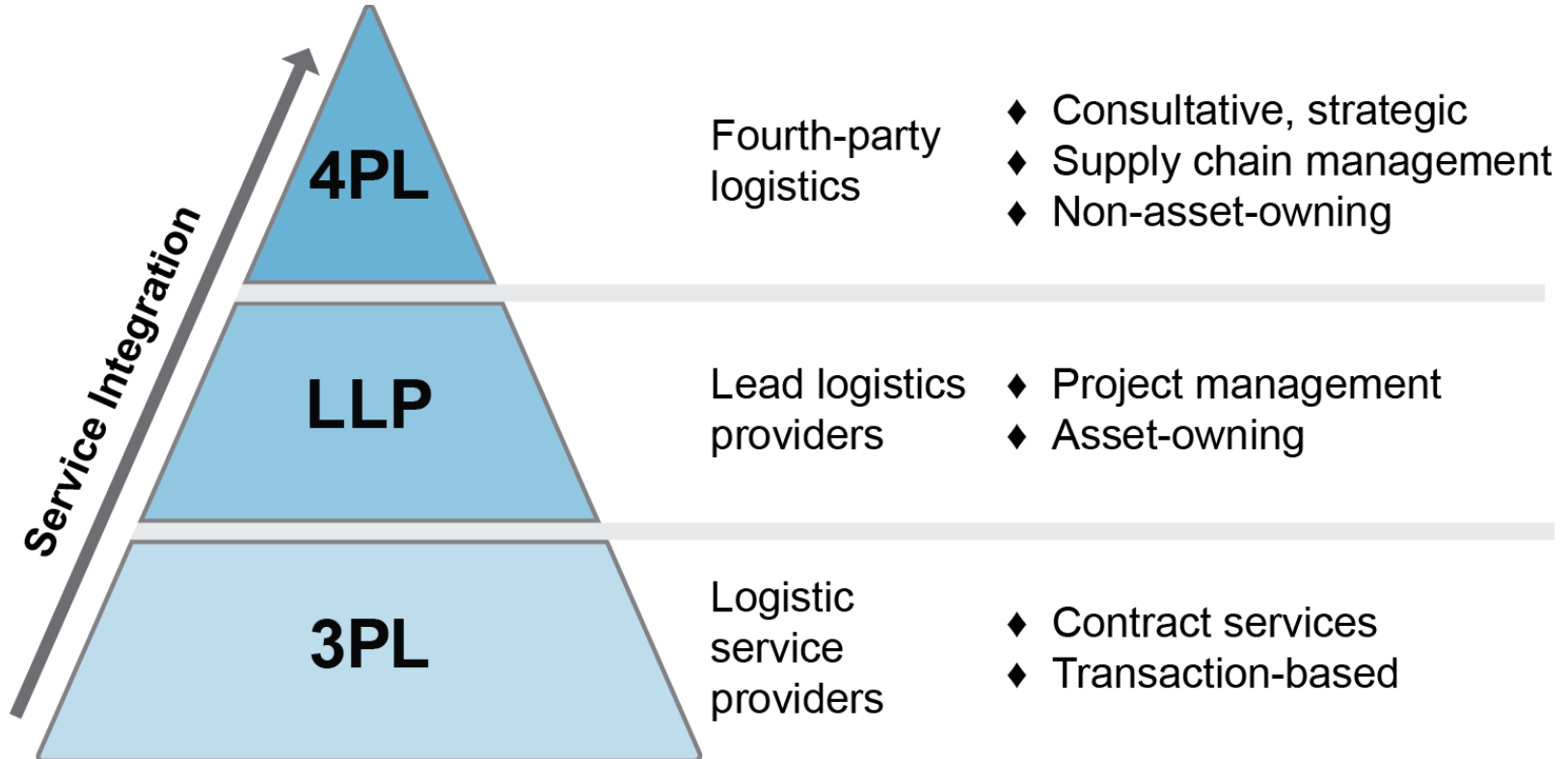
Sufficient support with existing assets?

Can flex services up or down based on market?

History of saving money for clients (e.g., asset utilization)?

Current capacity?

Service Provider Structure



International Freight Forwarder (IFF) Functions



- Groupage and booking space
- Advising on L/C acceptance
- Export declarations
- Air waybills, bills of lading, ASNs, etc.
- Importing country consular documents
- Cargo insurance
- General consultant on exporting

Broker Roles in Transportation

Freight broker

- Finds carriers
- Doesn't take possession (unlike forwarder)
- Negotiates terms
- Documentation

Customs broker

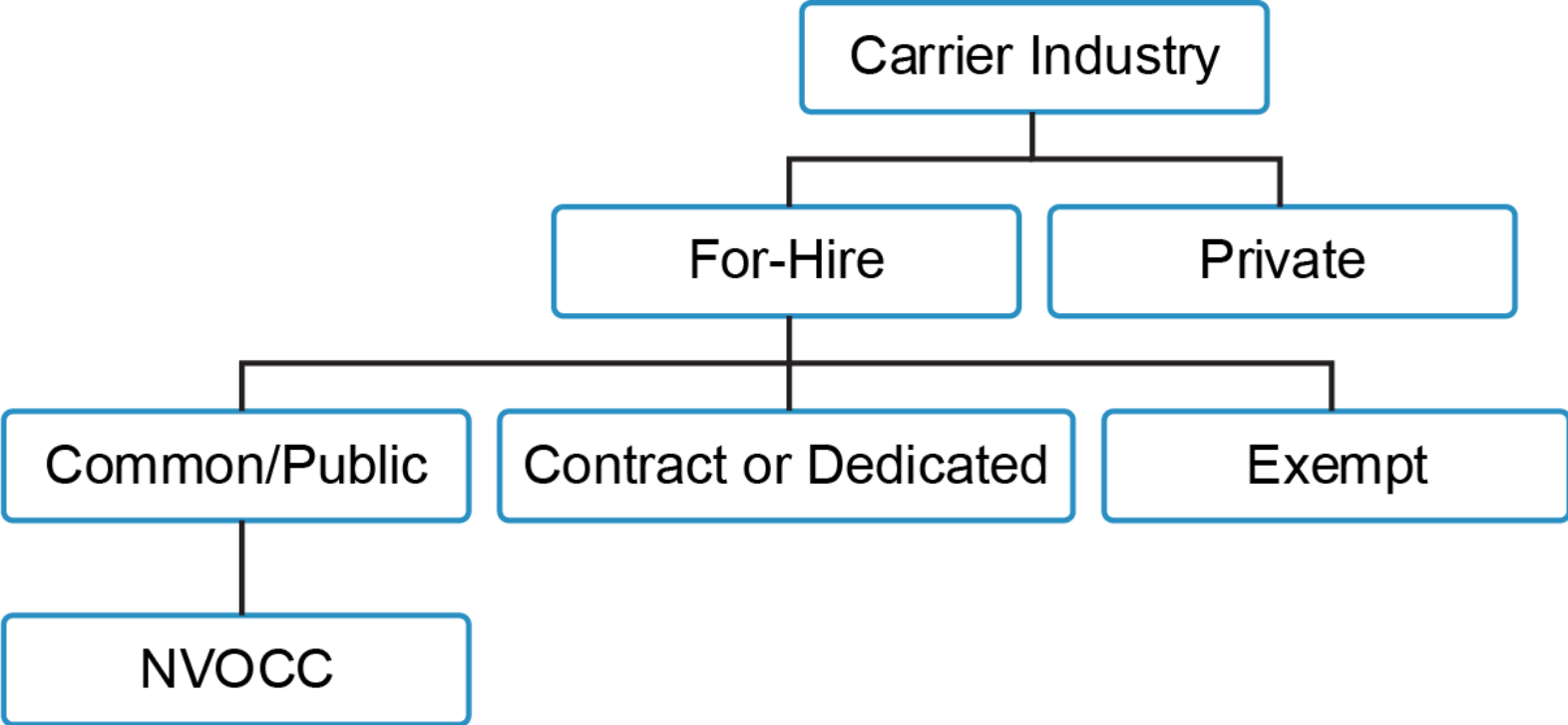
- Tracks and moves through proper channels
- International shipping documents

Other Transport Intermediaries

- Export management company (EMC)
- Export trading company (ETC)
- Shipping associations
- Shipper's agents
- Export packing companies

Differentiate Between Various Carrier Types

Carrier Types



Understand Modes of Transportation

Fixed and Variable Costs of Modes

Fixed costs

- Costs that do not change with the volume of goods transported.
 - Land
 - Facilities
 - Equipment
 - Salaries if not paid according to amount of cargo or distance traveled

Variable costs

- Costs that fluctuate with the volume moved.
 - Fuel
 - Maintenance
 - Border-crossing fees
 - Hourly rates or wages based on distance traveled

Understand Modes of Transportation

Industry Cost Overview

Mode	Fixed Costs	Variable Costs
Road	Low ↓	High ↑
Rail	High ↑	Low ↓
Air	Low ↓	High ↑
Water	Low ↓	High ↑
Pipeline	High ↑	Low ↓
Multimodal	Varies	Varies
Parcel, courier, express	Low ↓	High ↑

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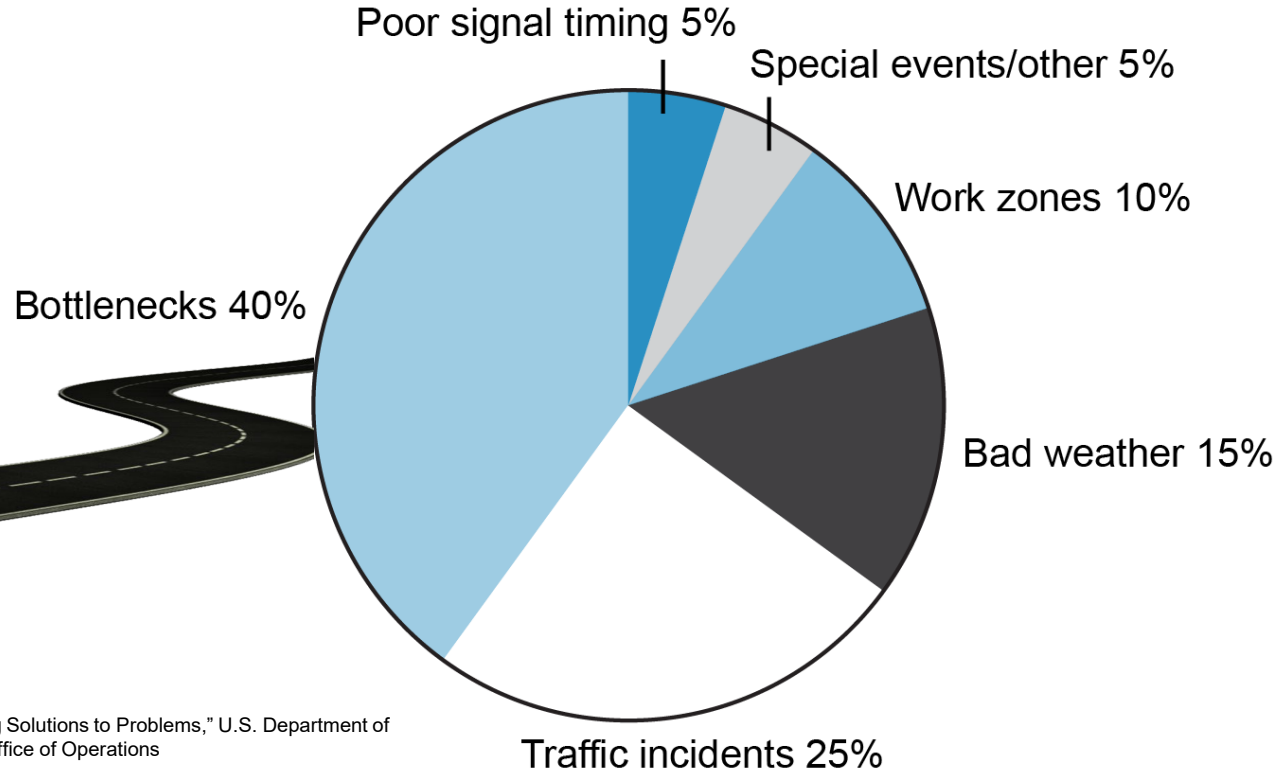
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MODULE 6, SECTION B: IDENTIFY ROAD TRANSPORTATION CHARACTERISTICS

Understand Road Infrastructure

Infrastructure and Sources of Road Congestion

- Highways
- Other roads
- Terminals



Source: "Traffic Congestion and Reliability: Linking Solutions to Problems," U.S. Department of Transportation, Federal Highway Administration Office of Operations

Identify Road Vehicle and Trailer Types

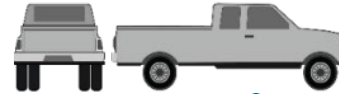
Common Road Vehicles: Single Units



Motorcycles



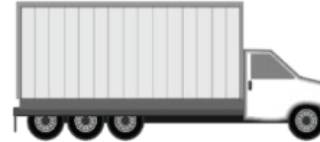
Pickups,
panels, vans



2-axle trucks



3-axle trucks



4+-axle trucks

Identify Road Vehicle and Trailer Types

Truck-Trailer Combinations (Semis)



Single trailer
(3 or 4)



Single trailer
(5+)



Single trailer
(6+)



Multi-trailer (5
or fewer)



Multi-trailer (6)



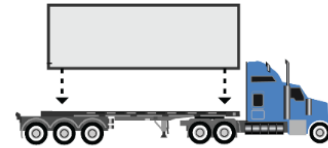
Multi-trailer
(7+)



Auto carrier



Gooseneck
trailer



Skeletal trailer

Consider Road Service Types

Freight Rate

Established price for transport, based on distance, weight, measure, equipment type, package, commodity, etc.

- Rate often refers to the price per unit weight (e.g., per hundredweight)
- Products grouped into uniform classifications based on similar
 - Density
 - Handling requirements
 - Stowability
 - Value characteristics
 - Liability

Consider Road Service Types

Freight Classifications

LTL

Less-than-truckload

Shipment will not use entire cargo capacity.

TL or FTL

Full Truckload

Shipment uses full cargo capacity.

Small parcel

Specialized carriers

Multiple shipments on single vehicle.

Cartage

Local, short-haul, and delivery

Move pallets in short hauls from origin to destination.

Types of Services

Local

- Local pickup—when a company uses multimodal transport
- Local delivery—from warehouse/ carrier to final destination

Multi-stop

- Serves more than one customer
- May be multiple stops along route

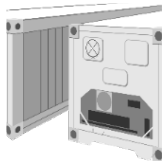
In-bond

- Origin in one country to destination in another

Line haul

- Drive between home terminal and reshipment terminal

Operating and Service Characteristics



Capability

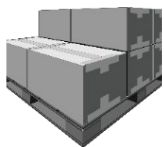


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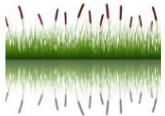
Cost structure



Flexibility



Capacity



Environmental

Speed



Safety



Cost Structure: Operating Ratio

$$\text{Operating Ratio} = \frac{\text{Operating Expenses}}{\text{Operating Revenue}} \times 100$$

Operating expenses:

- Fuel
- Truck and trailer lease or purchase payments
- Vehicle repair and maintenance
- Truck insurance premiums
- Permits and special licenses
- Tolls
- Driver wages and benefits

Consider Road Issues and Challenges

Issues and Challenges



Environmental impact

Capacity management

Cyclical/seasonal markets

Operating restrictions



Labor disputes

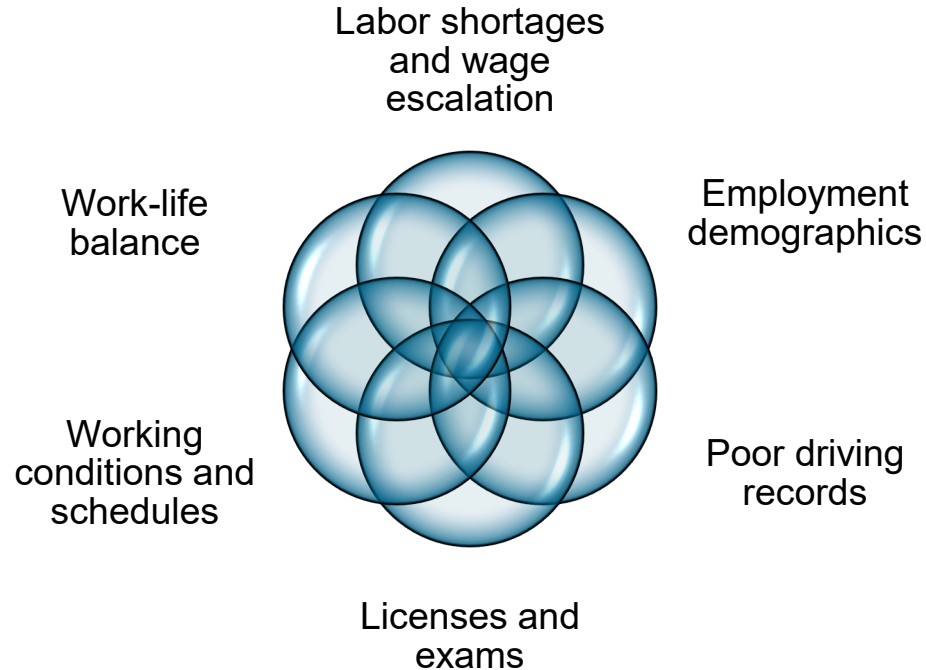
Hours of service

Security

Congestion

Consider Road Issues and Challenges

Capacity Management: Truck Driver Issues



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MODULE 6, SECTION C: IDENTIFY RAIL TRANSPORTATION CHARACTERISTICS

Understand Rail History and Infrastructure

Railroad Infrastructure and International Rail Use

- Rail infrastructure
 - Switching yards
 - Rights of way
 - Terminals, depots, power
- Internationally, unlinked national rail systems:
 - Penetration lines
 - Regional networks
 - Transcontinental lines



Identify Types of Operations

Types of Freight

Food
ingredients

Livestock

Farm products

Construction
materials

Nonmetallic
materials

Mined goods

Chemicals

Transportation
equipment

Break-bulk
goods

Bulk goods

Identify Types of Operations

Types of Railcars



Boxcar



Hopper car



Flatcar



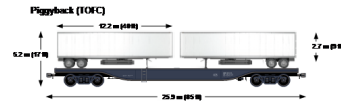
Tank car



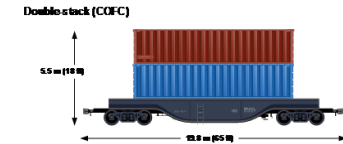
Refrigerated
car



Gondola car



TOFC



COFC

Rail Cost Structures

Variable costs

- Labor
- Fuel
- Power

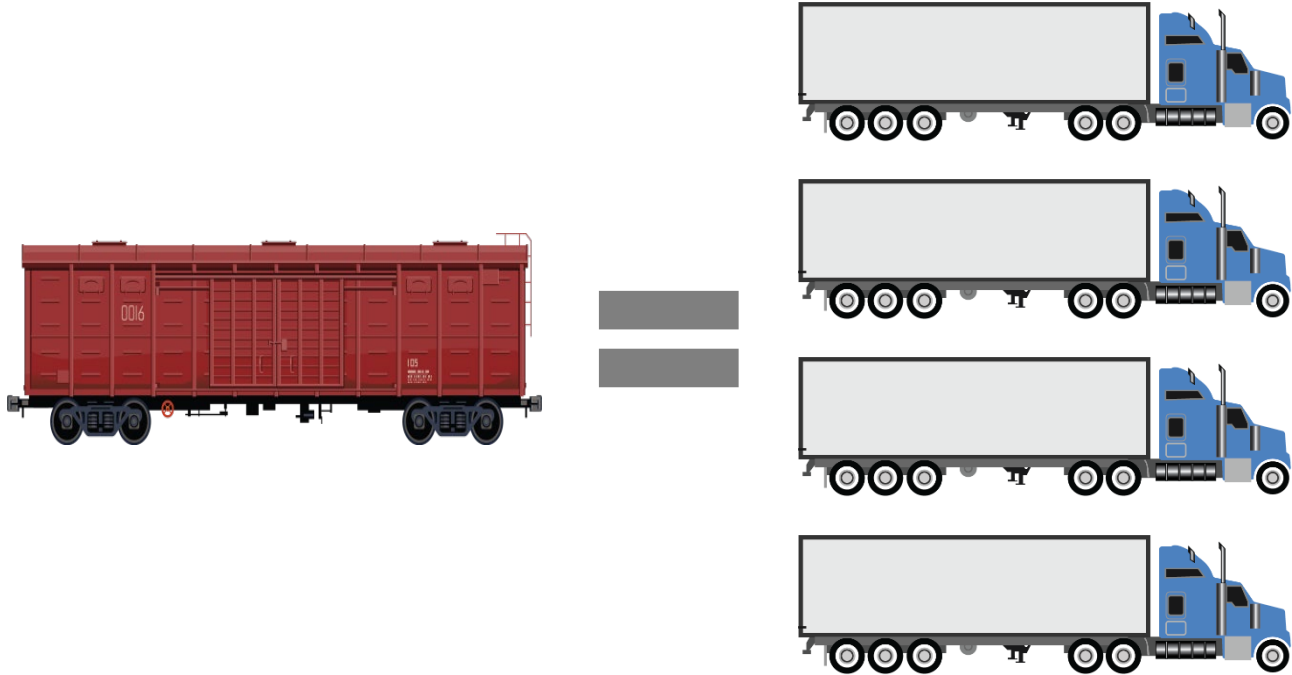
Semi-variable costs

- Maintain rights of way
- Terminal structures
- Equipment

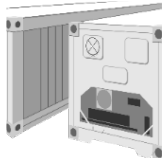
Fixed costs

- Property taxes
- Building maintenance
- Equipment maintenance

Rail Transport Capacity



Operating and Service Characteristics



Capability

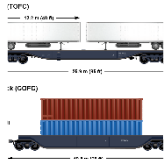


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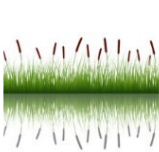
Cost structure



Flexibility



Capacity



Environmental

Speed



Safety



Consider Rail Issues and Challenges

Issues and Challenges—Rail

- Rail gauge differences (width of rails)
- Schedule flexibility
- Rigid operations
- Lead time
- Interconnectivity
- Derailment and vibration tests

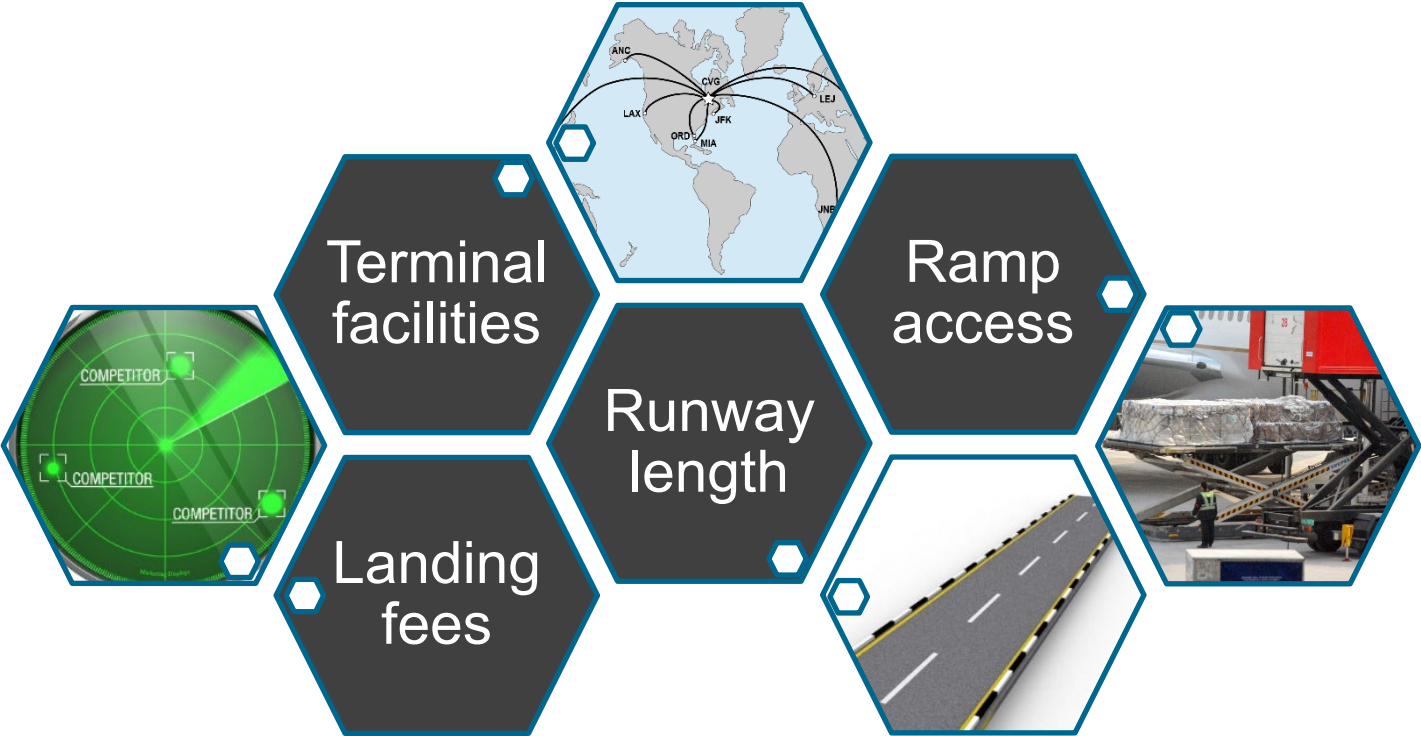


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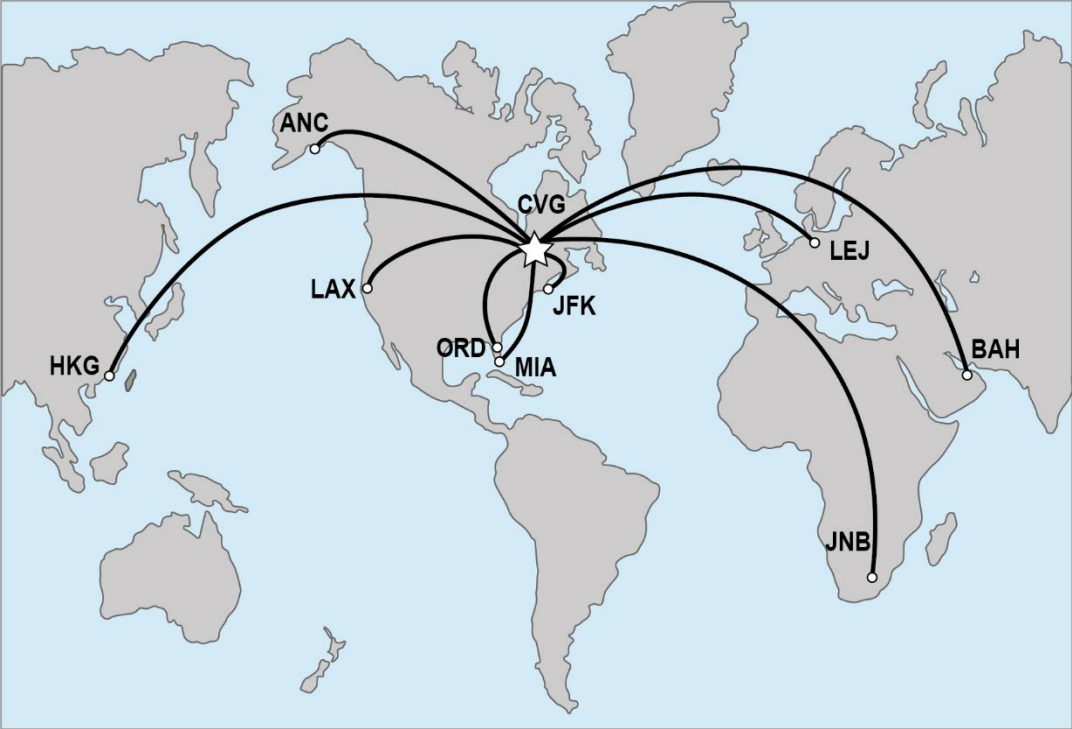
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TRANSPORTATION AND DISTRIBUTION

MODULE 6, SECTION D: IDENTIFY AIR TRANSPORT CHARACTERISTICS

Air Transport Infrastructure Considerations



Hub-and-Spoke Model: DHL Example (Abridged)



Types of Carriers: Combination Carriers

Freight and passengers

Freight on main deck and in hold

Freight can be bumped (passenger luggage)

Types of Carriers: Air Cargo Carriers

Letters, envelopes, packages, and freight

Integrated: door-to-door service

Nonintegrated carriers: air-only services

Scheduled flights to fixed destination carriers

Aircraft Body Types

Either of the following body types can be combination passenger and cargo or cargo-only:

- Narrow body
- Wide body

Larger specialized aircraft exist for project cargo.

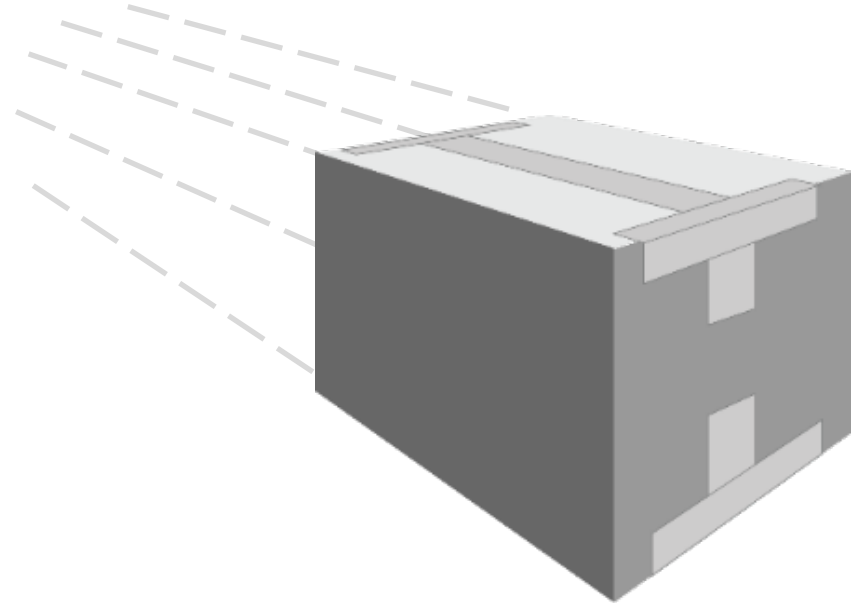
Unit Load Devices (ULDs)



Identify Air Market Structure and Sales Strategy

Market Structure

- Air transport is used for
 - Urgency
 - Practicality
- Main benefit is delivery speed.



Identify Air Market Structure and Sales Strategy

Air Freight Transport

- Perishable goods available all year
- Critical equipment available on short notice
- Humanitarian aid delivered quickly and effectively



- Aircraft dimensions limit cargo size and weight
- Air safety and security limit types of cargo
- Air cargo has high unit cost
- Carbon footprint



Identify Air Market Structure and Sales Strategy

Rates: Dimensional Weight

- Greater of weight or dim weight
- Dimensional Weight =
$$\frac{L \times W \times H}{\text{Artificially Selected Number}}$$
- Artificially selected number:
 - UPS: 166 cubic inches/pound for domestic
 - FedEx: 139 cubic inches/pound

Operational Efficiency: Load Factor

- Load factor is operating efficiency metric: percentage of plane's capacity used
- Load Factor = $\frac{\text{Cargo Volume}}{\text{Cargo Space}} \times 100$

Identify Air Operating/Service Characteristics

Operating and Service Characteristics

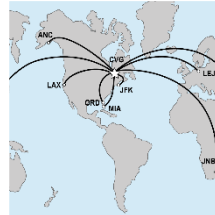


Cost structure

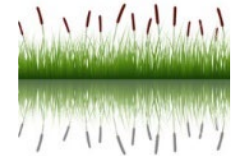


Accessibility/
flexibility

Capacity: Lanes
per week



Environmental



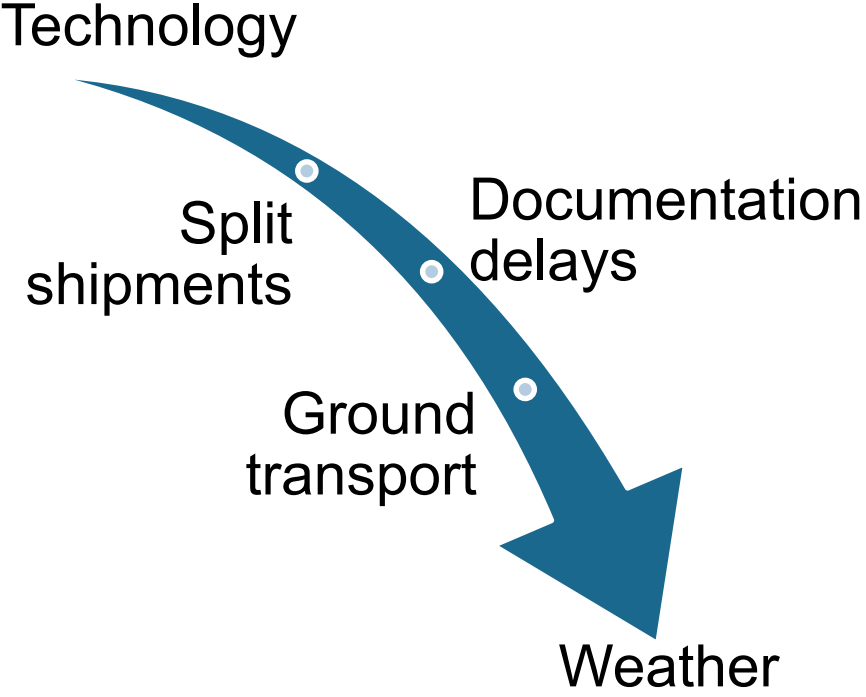
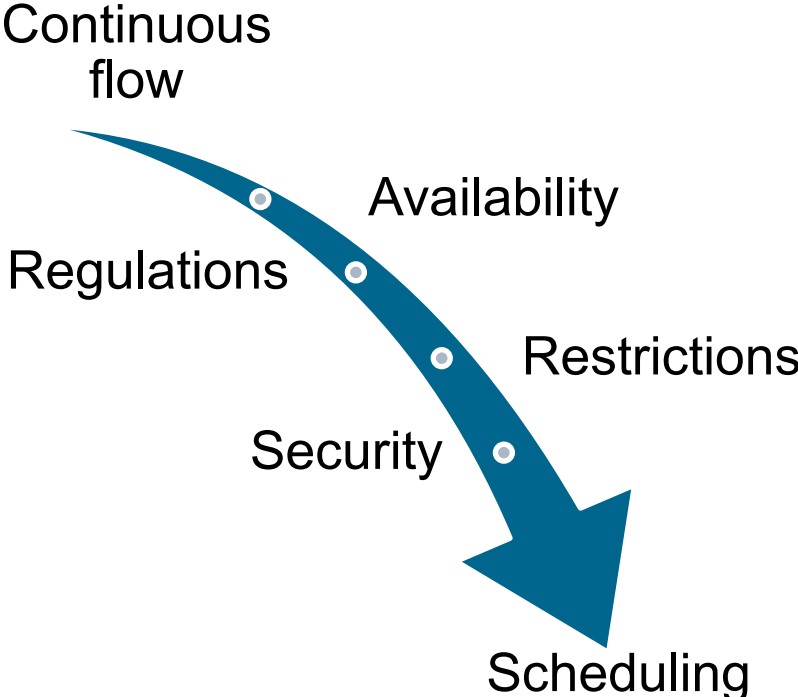
Speed



Safety

Consider Air Issues and Challenges

Issues and Challenges



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MODULE 6, SECTION E: IDENTIFY WATER (OCEAN AND INLAND WATERWAY) TRANSPORTATION CHARACTERISTICS

Water Transport Infrastructure

Inland ports

- Terminals for internal waterways located on canals, rivers, and intercoastal waterways

Seaports

- Terminals in a port for import and export

Water depth

- Channels leading to port and at wharf must be deep and unobstructed
- Dredged regularly and, on occasion, deepened for larger ships

Water Service Types

LCL

- Less-than-container load
- Less than cubic volume or weight capacity; shipped with other LCL cargo

FCL

- Full-container load
- Close to volume or weight limits; only one shipper's order

Bulk or break-bulk

- Bulk: loose, scooped, vacuumed, pumped, e.g., crude oil, grain
- Break-bulk: Large mass and volume, e.g., steel coils
- Uses capacity with high efficiency but risk of theft, contamination, and spillage

Identify Types of Carriers and Water Vessel Types

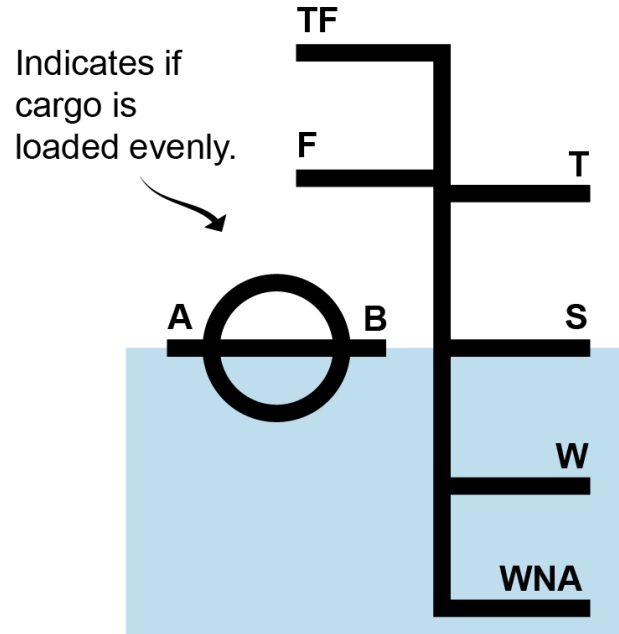
Types of Carriers

Liner carriers	<ul style="list-style-type: none">▪ Regularly scheduled voyage▪ Multiple regular stops make a string
Charter carriers	<ul style="list-style-type: none">▪ Contract basis, no standard schedules or specific routes<ul style="list-style-type: none">▪ Voyage charter▪ Time charter▪ Bareboat or demise charter
Private carriers	<ul style="list-style-type: none">▪ Used to lower costs or increase control
Common carriers: VOCCs	<ul style="list-style-type: none">▪ Asset-based, operates own vessels▪ Responsible for cargo from origin to destination
Common carriers: NVOCCs	<ul style="list-style-type: none">▪ Non-asset-based ocean freight consolidator▪ Issues its own bills of lading▪ Buys multiple container berths and sells in increments.

Identify Types of Carriers and Water Vessel Types

Weights and Measures

- Charges based on weight (tonnage)
- Deadweight (dwt): Max weight ship can carry
- Draft: Depth ship sits in water
- Plimsoll line: Marking on hull used when loading



T = Tropical
S = Summer
W = Winter
WNA = Winter North Atlantic
F = Freshwater
TF = Tropical freshwater
A/B = Indicates the registration authority

Identify Types of Carriers and Water Vessel Types

Water Vessel Types

Liner carriers

- RORO ships
- Bulk carriers
 - Handysize
 - Capesize
- Containerships

Containership sizes

- Small feeder and feeder
- Feedermax
- Panamax
- Post-Panamax
- Neo-Panamax
- ULCV

Identify Types of Carriers and Water Vessel Types

Water Vessel Types

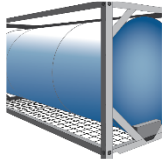
Tankers

- Very large crude carrier (VLCC)
- Ultra-large crude carrier (ULCC)

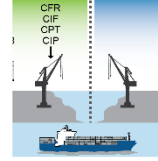
Other types of ships

- Mother and feeder vessels
 - Work together
- Offshore vessels (OSV)
- General cargo ships
 - Bring own handling equipment

Operating and Service Characteristics



Capability

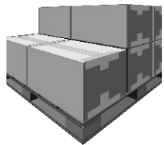
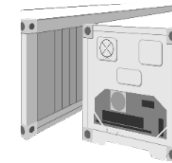


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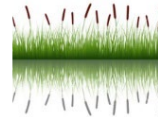
Cost structure



Flexibility



Capacity



Environmental

Speed



Safety

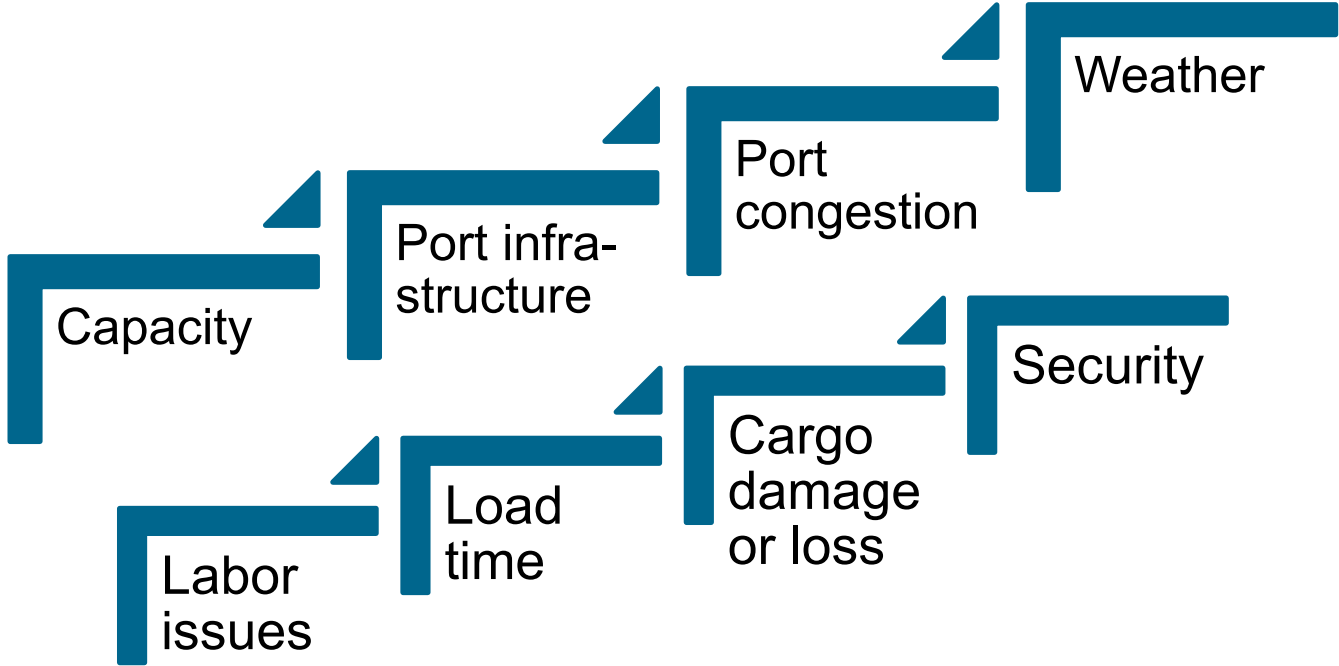


Port Facilities

- Unloading and handling facilities?
- Sufficient terminal access or berth for carrier?
- Warehouse/yard space for temporary storage?
- Multimodal transport and labor available?
- When will detention/demurrage begin?

Consider Water Issues and Challenges

Issues and Challenges



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MODULE 6, SECTION F: IDENTIFY MULTIMODAL, MULTI-STOP, AND CHARACTERISTICS OF OTHER MODES

Understand Multimodal, Multi-Stop, and Container Shipping

Multimodal

Ocean-truck

- Low cost, fast transit from port.

Ocean-rail, rail-ocean, or ocean-rail-ocean

- Land bridges.

Air-truck

- Fast transportation of in-demand items (e.g., fashion).

On-dock rail

- Rail often first loaded/unloaded at dockside.

Multi-Stop (Split Delivery)

2+ delivery destinations

Single or multiple customers

Hybrid between TL and LTL with special rates

Do not need break-bulk terminal

Consolidation terminal needed

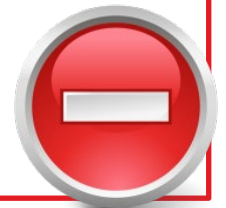
Diversion and reconsignment

Container Shipping

- Small, non-bulk products store conveniently and safely
- Secure and physically protected
- Far less inventory handling (AGVs, UAVs)
- Storage outdoors
- Speed of loading/unloading



- Fuel costs: container weight
- Closed: Smuggling easier
- Susceptible to loss, especially at sea
- Transport cost of empty containers more than new container cost
- Imbalance of trade by container type



Equivalent Units



*20-foot
equivalent units
(6 meters)*

ISO 668 and
ISO 1496;
20' x 8' x 8'

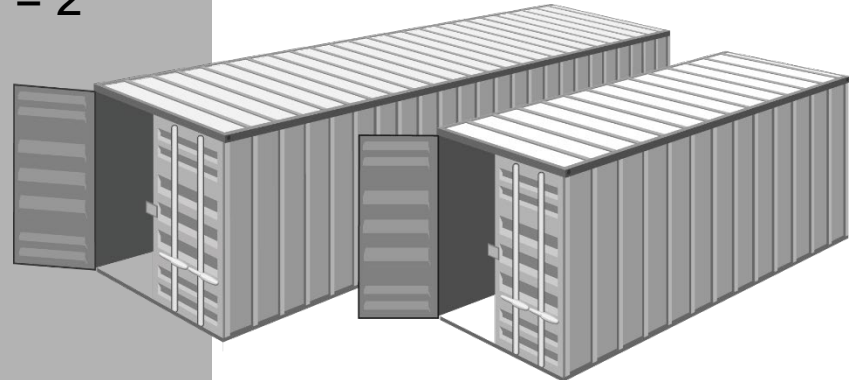
TEUS



*40-foot
equivalent units
(12 meters)*

Double length
of TEU
1 FEU = 2
TEUs

FEUS



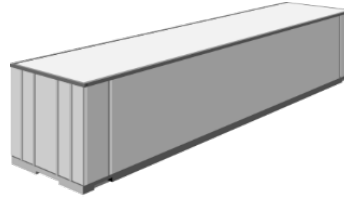
Container Types

Other types

- Pallet-wide
- Out-of-gauge (OOG)



General-purpose



High-cube



Flatrack



Open-top



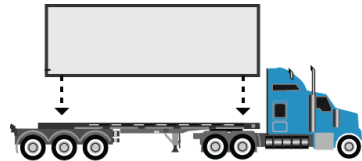
Tank



Temperature-controlled

Types of Multimodal Service

- Air-road (birdyback)
- Rail-road (piggyback)
 - Container on a flatcar
 - Trailer on a flatcar
 - Swapbody
 - Caisse mobile
 - Skeletal trailer
 - Extendable trailer
- Water-road (fishyback)
 - Lift-on, lift-off
 - Roll-on, roll-off
- Rail-water (trainship)
 - Land bridge
 - Mini land bridge
 - Micro land bridge

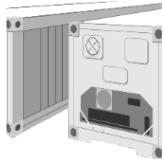


Multimodal Market Structure and Sales Strategy

- Use most efficient combinations that make sense for customers.
- Carriers base decision on:
 - Capacity.
 - Route.
 - Cost efficiency.
 - Delivery deadlines.

Understand Multimodal, Multi-Stop, and Container Shipping

Operating and Service Characteristics



Capability

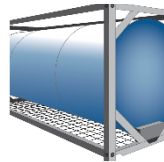


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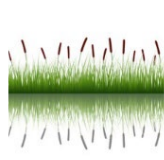
Cost structure



Flexibility



Capacity



Environmental

Speed



Safety



Issues and Challenges

Visibility

- More carriers
- Some use old technology



Ports of Entry

- Know destination port location for accurate routing and scheduling
- Challenge in less developed nations
- Specialized equipment need
- Drayage services
- Delay from one mode (e.g., rail)

Filling the Need

Fills common carrier and small package shipping gap



Parcel

- Transportation specialists
- Accept packages up to a certain weight



Courier

- Local
- Pick up and deliver important documents and packages



Express

- Guarantee delivery by a predetermined date

Market Structure and Sales Strategy

- Demand for parcel, courier, and express services has grown.
 - E-commerce
 - Consumer demand
- Integrators
 - Parcel delivery
 - Supply chain solutions
- Regional couriers
 - Local, personalized



Operating and Service Characteristics

Capability	<ul style="list-style-type: none">• Driven by general public's purchases
Cost structure	<ul style="list-style-type: none">• Market-based pricing• Most carriers publish transport services and prices.
Capacity	<ul style="list-style-type: none">• Dictated by commodities being shipped
Speed	<ul style="list-style-type: none">• Guaranteed overnight or same-day delivery.
Accessibility/ flexibility	<ul style="list-style-type: none">• Internet makes carriers available around the clock.• Door-to-door service: easy for consumers
Environmental efficiency/efficacy	<ul style="list-style-type: none">• Recyclable, less packaging• Alternative energy vehicles
Safety	<ul style="list-style-type: none">• Safety procedures, company rules, and preventive measures help carriers avoid most safety challenges.

Issues and Challenges

Speed

- Delivery date guarantees create customer expectation and cost if not met

Packaging

- Customers must follow parcel packaging guidelines
- Differ by carrier

Pricing

- Both size and weight impact pricing
- Websites for calculating costs

Identify Pipeline Transportation Characteristics

Types of Carriers

- Deliver liquid cargo for further refining or to customers
- Move crude oil/liquid cargo from producers to pipelines



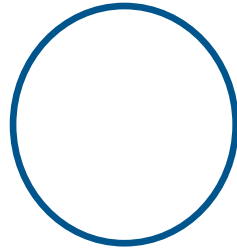
Identify Pipeline Transportation Characteristics

Pipeline Infrastructure

Gathering lines



Trunk lines



Refined product lines



Distribution pipelines



- Physical pipeline plant
- Tankers
- Liquefied natural gas (LNG) infrastructure



Identify Pipeline Transportation Characteristics

Pipeline Market Structure and Sales Strategy

- Dominated by small number of very large carriers.
- High start-up costs limit participants.
- Limited competition in industry.
- There may be joint ownership of high capital cost lines.
- Other modes support pipeline rather than compete.

Understand Multimodal, Multi-Stop, and Container Shipping

Pipeline Operating and Service Characteristics



Capability

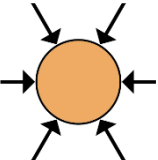


Accessibility

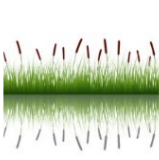
Cost structure



Flexibility



Capacity



Environmental

Speed



Safety



Identify Pipeline Transportation Characteristics

Issues and Challenges

- Government regulations: Many government agencies oversee pipeline industry.
- Political issues: Use law of eminent domain, pipeline use in sensitive ecosystems.
- Cross-country boundaries: Needs collaboration.
- Safety concerns: Enviably records for safety, but industry must be vigilant.

CLTD

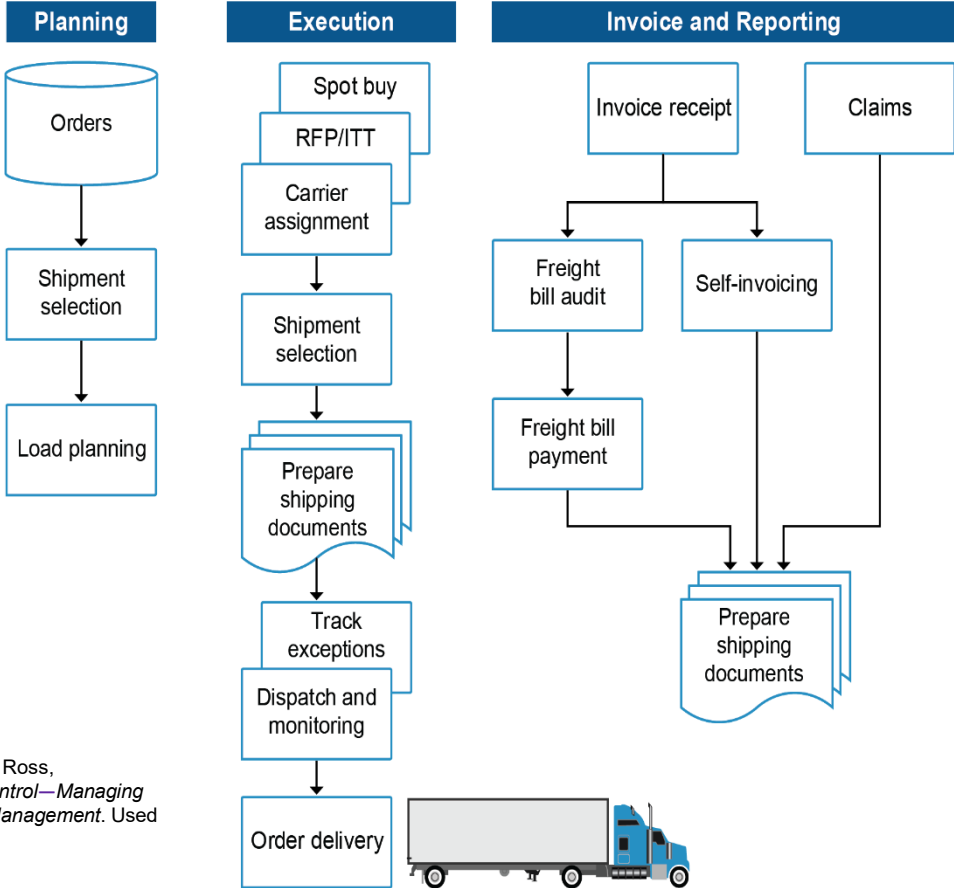
CERTIFIED IN LOGISTICS,
TRANSPORTATION AND DISTRIBUTION

MODULE 6, SECTION G: IMPLEMENT TRANSPORTATION MANAGEMENT

Transportation Management Tasks

“Planning, scheduling, budgeting of transportation assets, services, and related systems”

Source: Adapted from David Ross, *Distribution Planning and Control—Managing in the Era of Supply Chain Management*. Used with permission.



Product Labeling

- Weight
- Consignee's name
- Name of company
- Shipment number
- Number of units
(e.g., 1 of 2)



Product Considerations

- Temperature/humidity
- Bulk shipments
- Hazardous materials
- Perishables
- Live animals
- Classified/government material
- Prohibited goods
- Pharmaceuticals
- High-value goods
- Household goods
- Personal effects

Selection of Transport Mode

External considerations

- Country infrastructure
- Trade barriers
- Export controls, licenses
- Law and taxation
- Economic
- Culture/political
- Climate
- Regional/geographic

Customer considerations

- Service level requirements
- Delivery point constraints
- Terms of sale
- Order size preference
- Customer importance
- Product knowledge

Product considerations

- Volume-to-weight ratio
- Value-to-weight ratio
- Substitutability
- Package dimensions
- Packaging requirements
- Special characteristics

Characteristics of Transportation Modes

Characteristics	Road	Rail	Water	Air	Pipeline
Capability	Minimal limitations	Minimal limitations	Few limits	Limited	Very limited
Cost	Moderate/high	Low	Low	Very high	Very low
Capacity	Moderate	High	Very high	Very low	Very high
Speed of delivery	Fast	Moderate	Slow	Very fast	Slow
Accessibility/ flexibility	Very high	Very low/low	Low	Moderate	Very low/low
Damage	High (LTL only)	Very high	High	Very low	Low
Reliability	High	Low	Low	High	Very high
Multimodal capability	Very high	Very high	Very high	High	Low
Parcel delivery	Very high	Low	Very low	Very high	N/A

Source: Adapted from David F. Ross, *Distribution Planning and Control—Managing in the Era of Supply Chain Management*, and John J. Coyle, et al., *Managing Supply Chains: A Logistics Approach*.

Modal Capabilities

Mode	Strengths	Weaknesses	Product Characteristics	Cost
Road	<ul style="list-style-type: none"> ▪ Accessible and versatile ▪ Fast ▪ Customer service 	<ul style="list-style-type: none"> ▪ Limited capacity ▪ Higher cost 	<ul style="list-style-type: none"> ▪ High value ▪ Finished goods ▪ Low volume 	High
Rail	<ul style="list-style-type: none"> ▪ High capacity 	<ul style="list-style-type: none"> ▪ Accessibility ▪ Service levels ▪ Damage rates 	<ul style="list-style-type: none"> ▪ Low value ▪ Raw materials ▪ High volume 	Low
Air	<ul style="list-style-type: none"> ▪ Speed ▪ Load protection ▪ Flexibility ▪ International capabilities 	<ul style="list-style-type: none"> ▪ Accessibility ▪ Limited capacity 	<ul style="list-style-type: none"> ▪ High value ▪ Finished goods ▪ Low volume ▪ Time-sensitive 	High
Water	<ul style="list-style-type: none"> ▪ High capacity ▪ International capabilities 	<ul style="list-style-type: none"> ▪ Slow ▪ Accessibility 	<ul style="list-style-type: none"> ▪ Low value ▪ Raw materials or bulk commodities ▪ Containerized finished goods 	Low
Pipeline	<ul style="list-style-type: none"> ▪ In-transit storage ▪ Load protection ▪ Efficiency 	<ul style="list-style-type: none"> ▪ Slow ▪ Limited network 	<ul style="list-style-type: none"> ▪ Low value ▪ Liquid commodities ▪ Not time-sensitive 	Low

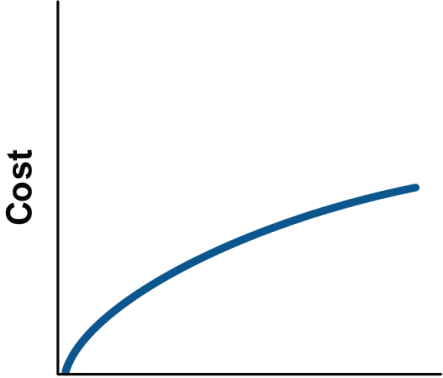
Distance, Weight, and Density

Cost per unit of weight decreases as load size increases

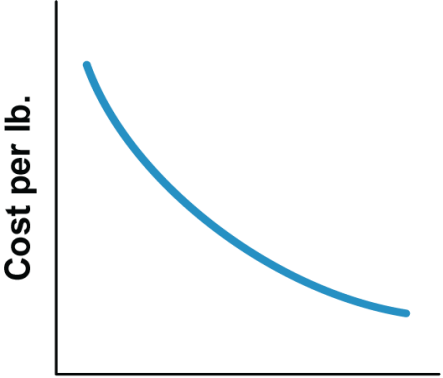
Distance

Weight

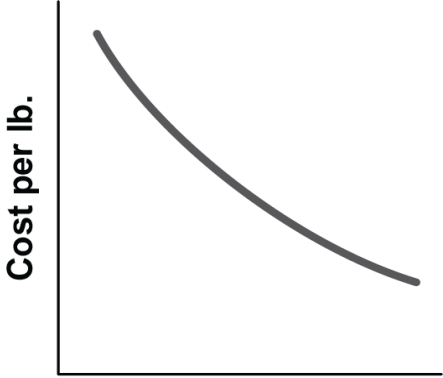
Density



Distance



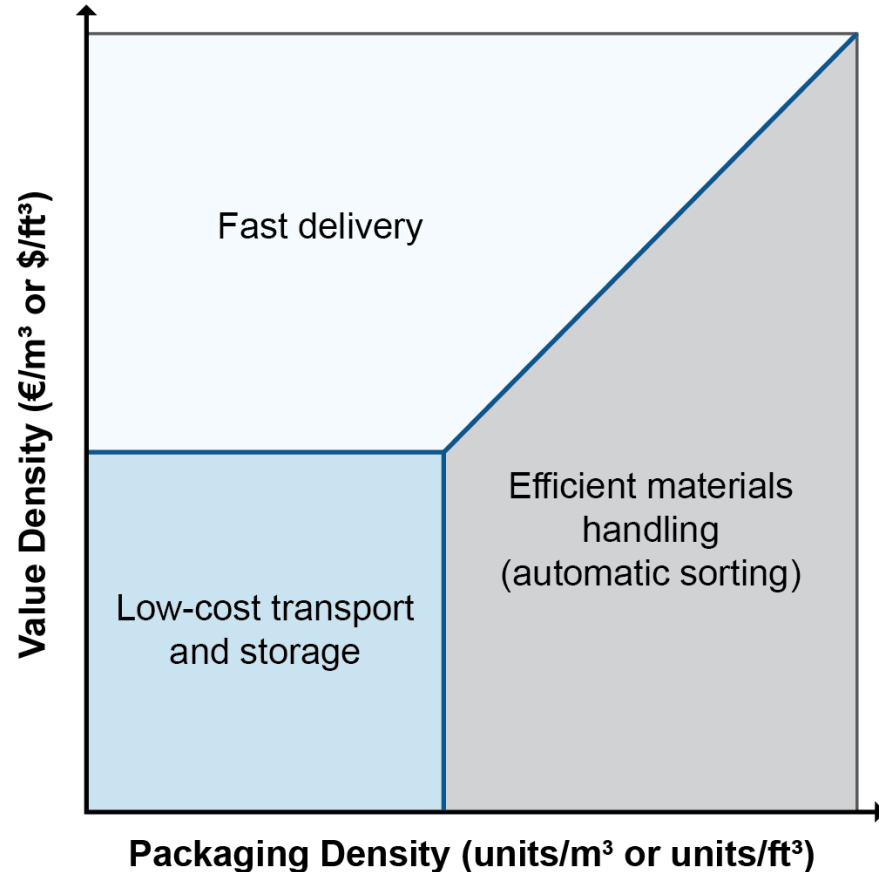
Weight



Density

Value Density vs. Packaging Density

- Lower value products need lower cost transport
- Speed is a component of cost.



Line-Haul Services

Reconsignment

Diversion

Groupage or
Pooling

Stopping in
transit

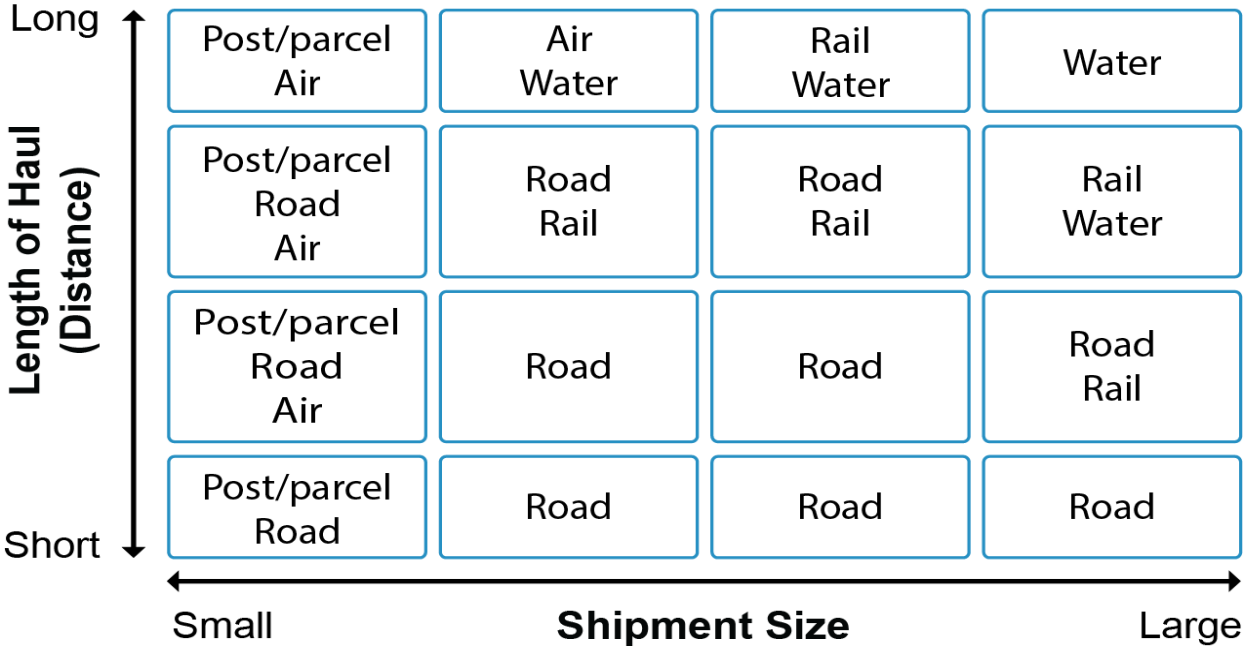
Transit privilege

Pickup and
delivery

Terminal
handling

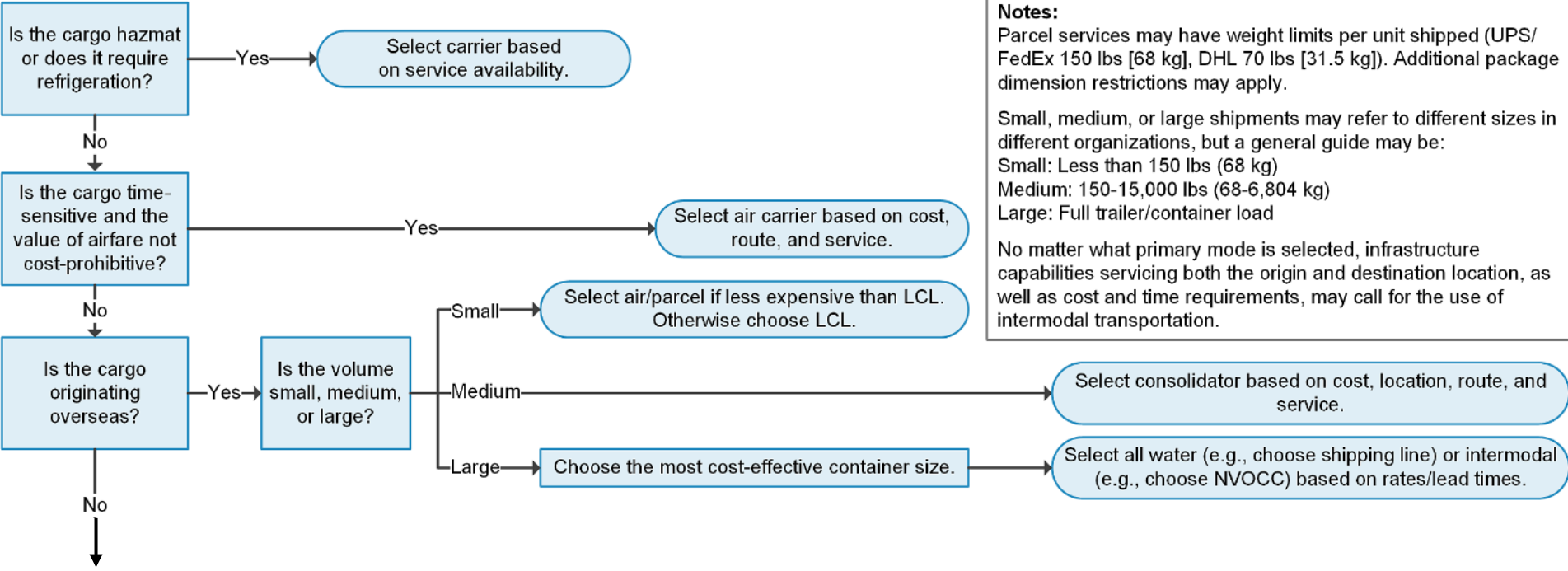
Selection Matrix

- Consider freight volume or load size and delivery distance
- Cost is secondary to distance (schedule)



Source: Adapted from Alan Rushton, Phil Croucher, and Peter Baker, *The Handbook of Logistics and Distribution Management: Understanding the Supply Chain*, 2014.

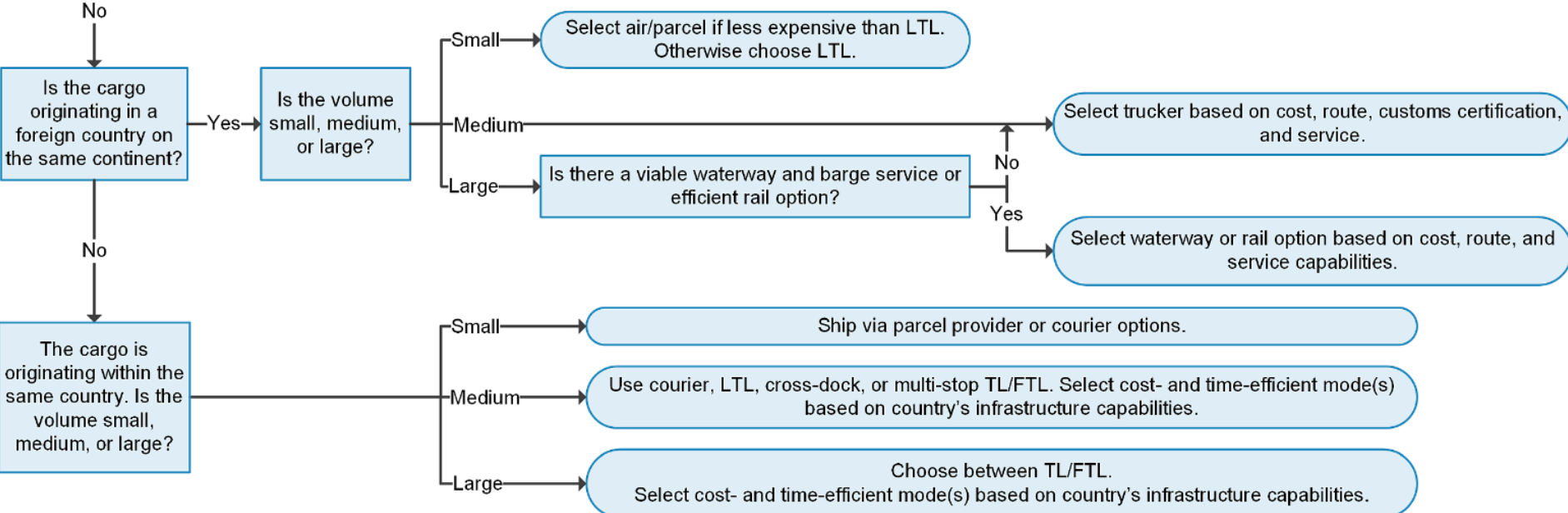
Develop/Execute Transportation Management, Network Design, and Mode Selection



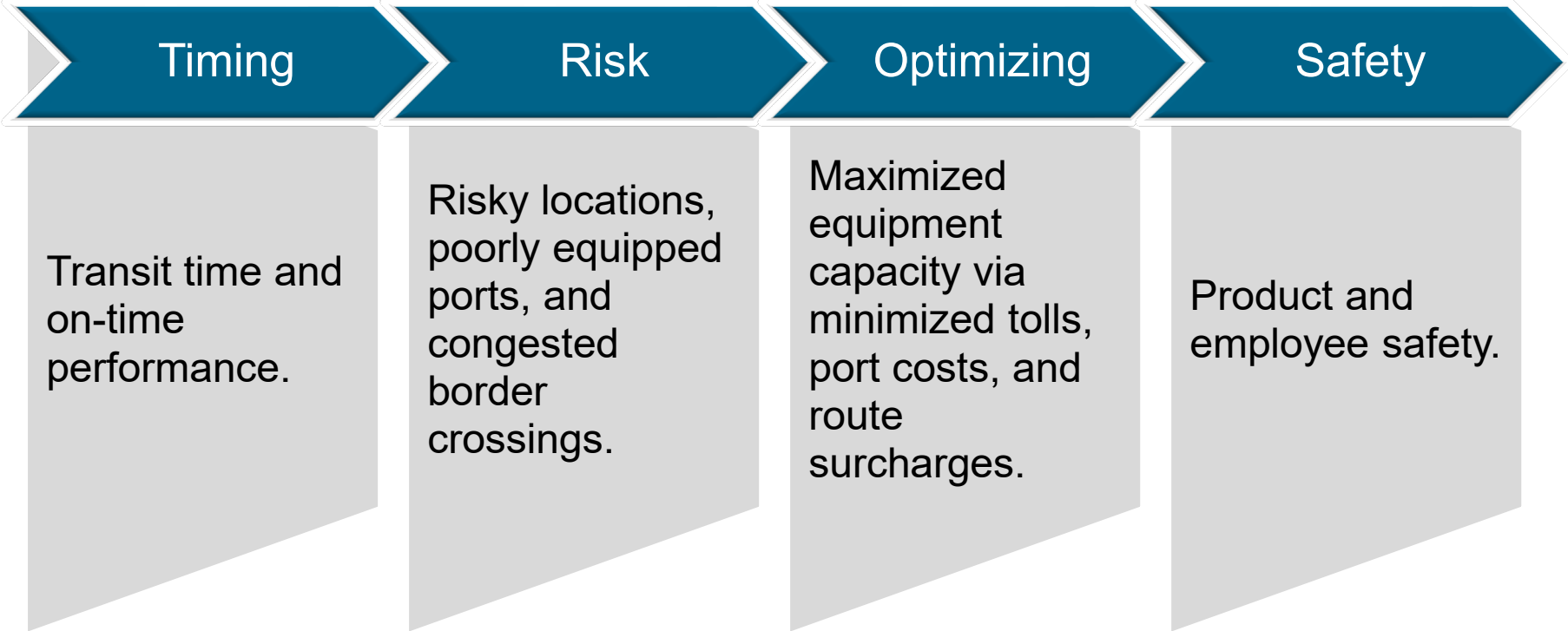
Notes:
Parcel services may have weight limits per unit shipped (UPS/FedEx 150 lbs [68 kg], DHL 70 lbs [31.5 kg]). Additional package dimension restrictions may apply.
Small, medium, or large shipments may refer to different sizes in different organizations, but a general guide may be:
Small: Less than 150 lbs (68 kg)
Medium: 150-15,000 lbs (68-6,804 kg)
Large: Full trailer/container load
No matter what primary mode is selected, infrastructure capabilities servicing both the origin and destination location, as well as cost and time requirements, may call for the use of intermodal transportation.

See next slide

Develop/Execute Transportation Management, Network Design, and Mode Selection



Route Planning and Scheduling



Business Intelligence (BI) for Transportation Managers

- Routing and scheduling
- Performance
- Distance requirements
- Vehicle details
(e.g., age; vehicle weight; type of body, axle, engine)
- Cargo capacity
- Idle time
- Maintenance details
- Fuel used
- Delivery details

Facilitate Carrier Negotiations and Selection

Insourcing vs. Outsourcing for Logistics Services

Will organization differentiate on...

- Customer service?
- Cost control?
- Integration?
- Data?
- Flexibility?



Facilitate Carrier Negotiations and Selection

Statement of Work (SOW) for Carrier Selection

Detailed and specific document that describes the required work in terms of scope

Transportation
need

Selected
transport
mode

Frequency
needed

Transportation
lanes

Facilitate Carrier Negotiations and Selection

Carrier Selection Process

1. Clarify requirements and scope.
2. Identify type of provider needed.
3. Locate and research potential providers.
4. Prepare RFP/ITT or equivalent.
5. Evaluate and compare responses.
6. Select a contractor and negotiate.
7. Finalize contract and sign.

Facilitate Carrier Negotiations and Selection

Requests for Information (RFI)

- Preliminary planning step before RFP or RFQ
- Information from providers about their capabilities
- Used to build short list of contractors
 - Adequate abilities
 - Interest

Facilitate Carrier Negotiations and Selection

Key Sections of an RFP/ITT

Statement of requirement

Statement of purpose

Background information

Scope of work

Performance standards

Delivery schedule

Contract terms and conditions

Payments, incentives and penalties

Facilitate Carrier Negotiations and Selection

Alternative: Online Shipper Auctions

- Buyers bid on services
 - Cost-effective deal
 - Publish shipment requirements
 - Time to submit bids
- Shippers fill excess capacity

Facilitate Carrier Negotiations and Selection

RFP/ITT Evaluation Criteria

Transit time average and reliability

Equipment availability and capacity

Geographic coverage

Product protection

Rates

Facilitate Carrier Negotiations and Selection

Contracts

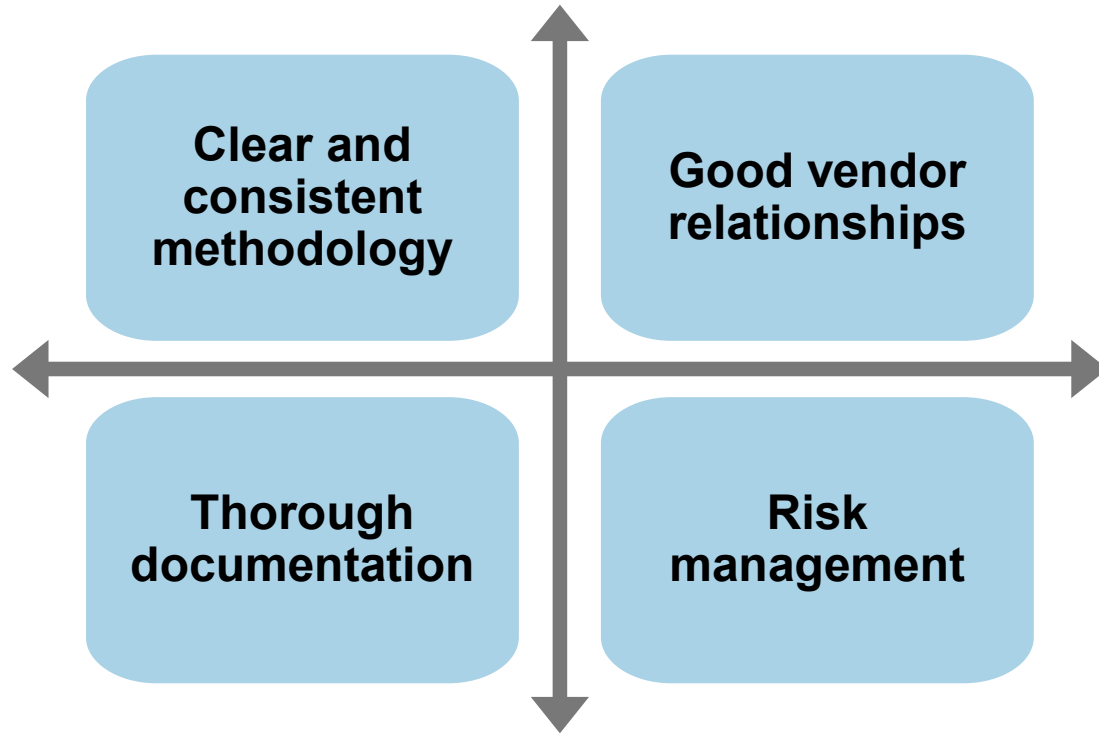


Contracts

- Oral or written
- Single purchase
- Delivery of products over defined period

Facilitate Carrier Negotiations and Selection

Contracting Best Practices



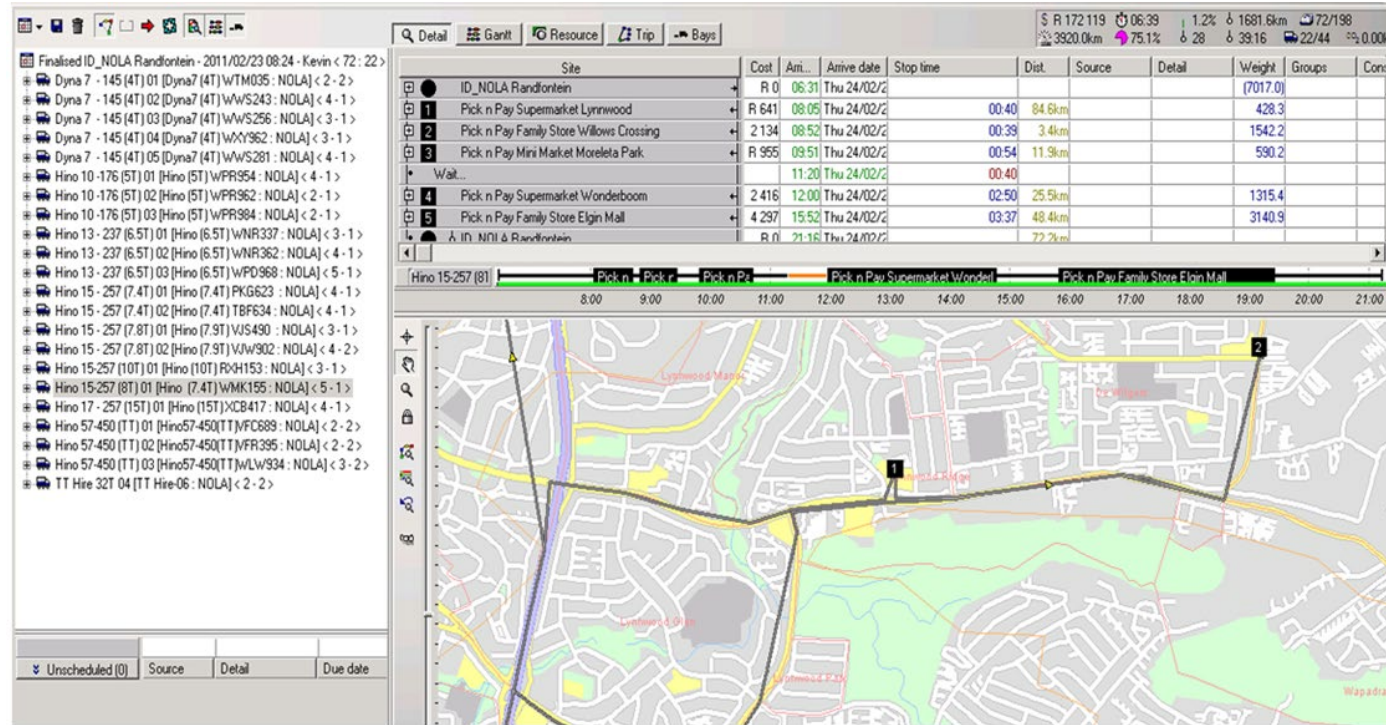
Optimize the Fleet Management Process

Transportation Management Systems (TMS)

- Optimizing fleet: planning and executing across entire shipping system, including by facilitating RFP bids
- Routing and rating
- Executing shipment across multiple modes
- Tracking and tracing loads
- Freight settlement
- Hybrid planning, execution, evaluation capabilities
- Reduce freight costs by 6 to 10%

Optimize the Fleet Management Process

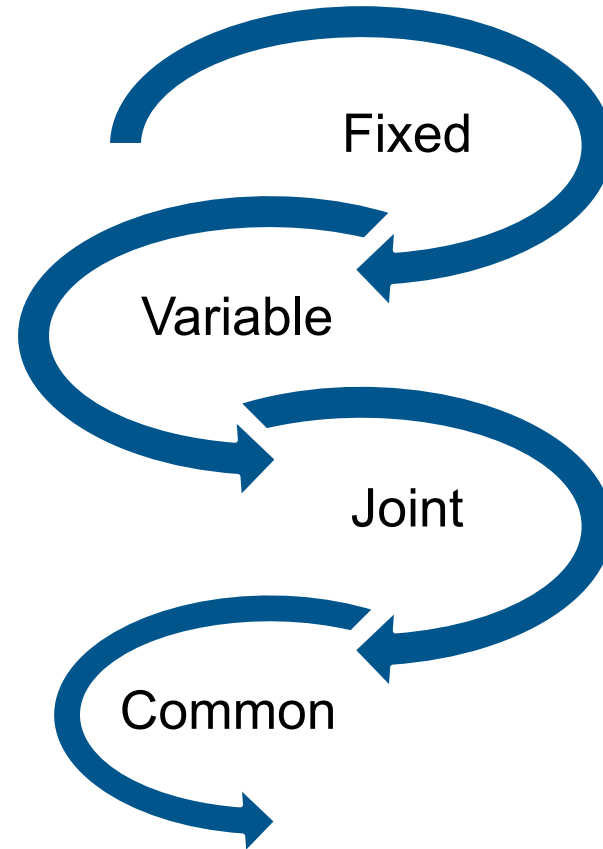
Automated Route Planning



Understand Rate Structures

Types of Charges

Understand these costs before pricing.



Understand Rate Structures

Assigning a Rate Tariff



Understand Rate Structures

Determinants of Tariffs: Drivers

Distance

Weight

Density

Stowability

Handling

Liability

Market

Understand Rate Structures

Rates Per Mode

Road

- LTL/TL
- Per-truckload
- Discount

Rail

- Multiple-car
- Unit-train

Air

- Weight or dim weight
- Density rates
- Deferred delivery

Water

- Container basis
- Additional charges for international shipping

Pipeline

- Per-barrel basis
- Point-to-point

Understand Rate Structures

Other Rate Structures

- Contract
- Distance
- Corporate volume



- Deficit weight
- Dead freight
- Weight break

Understand Rate Structures

Accessorials

- Advance notice
- Hazardous surcharge
- Environmental services
- Bill of lading correction fee
- Liftgate
- Limited access fee
- Overweight
- Detention
- Demurrage
- Per diem
- Storage
- Truck order not used
- Out of Gauge (OOG)

CLTD

CERTIFIED IN LOGISTICS,
TRANSPORTATION AND DISTRIBUTION

MODULE 6, SECTION H: CONDUCT TRANSPORTATION ADMINISTRATION

Prepare and Use Transportation Documentation

Bills of Lading

- Master bill of lading (MBL)
- House bill of lading (HBL)

Customer Order No.		No. Packages	Weight	Pallet/Slip Y (other) N		Additional Shipper Info	
GRAND TOTAL							

HANDLING UNIT		PACKAGE		Weight	H.M. (oz)	COMMODITY DESCRIPTION	LTL Only	
Qty	Type	Qty	Type				NMFC #	Class

Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property as follows: "The agreed or declared value of the property is specifically stated by the shipper to be not exceeding _____ per _____"

NOTE Liability Limitation for loss or damage in this shipment may be applicable. See 49 U.S.C. - 14706(c)(1)(A) and (B).
Received, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications, and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

Shipper Signature

SHIPPER SIGNATURE / DATE This is to certify that the above named materials are properly classified, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT.	Trailer Loaded: <input type="checkbox"/> By Shipper <input type="checkbox"/> By Driver	Freight Counted: <input type="checkbox"/> By Shipper <input type="checkbox"/> By Driver/pallets aid to certain <input type="checkbox"/> By Driver/Pieces	CARRIER SIGNATURE / PICKUP DATE Carrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and/or carrier has the DOT emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted.
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Date: _____ Page 1 of _____

STANDARD TRUCKLOADBILL OF LADING

SHIP FROM
Name: _____
Address: _____
City/State/Zip: _____

SHIP TO
Name: _____
Address: _____
City/State/Zip: _____

SPECIAL INSTRUCTIONS:

Bill of Lading Number: _____
CARRIER NAME: _____
Trailer number: _____
Seal number(s): _____

THIRD PARTY FREIGHT CHARGES BILL TO:
Name: _____
Address: _____
City/State/Zip: _____

CUSTOMER ORDER INFORMATION

COD Amount: \$
Fee Terms:
Collect: Prepaid: Customer check acceptable:

Tracking and Tracing

Tracking

- Current location of shipment

Tracing

- Shipment believed lost
- Shipper must initiate
- Carrier's responsibility to provide information

Consolidating and Optimization

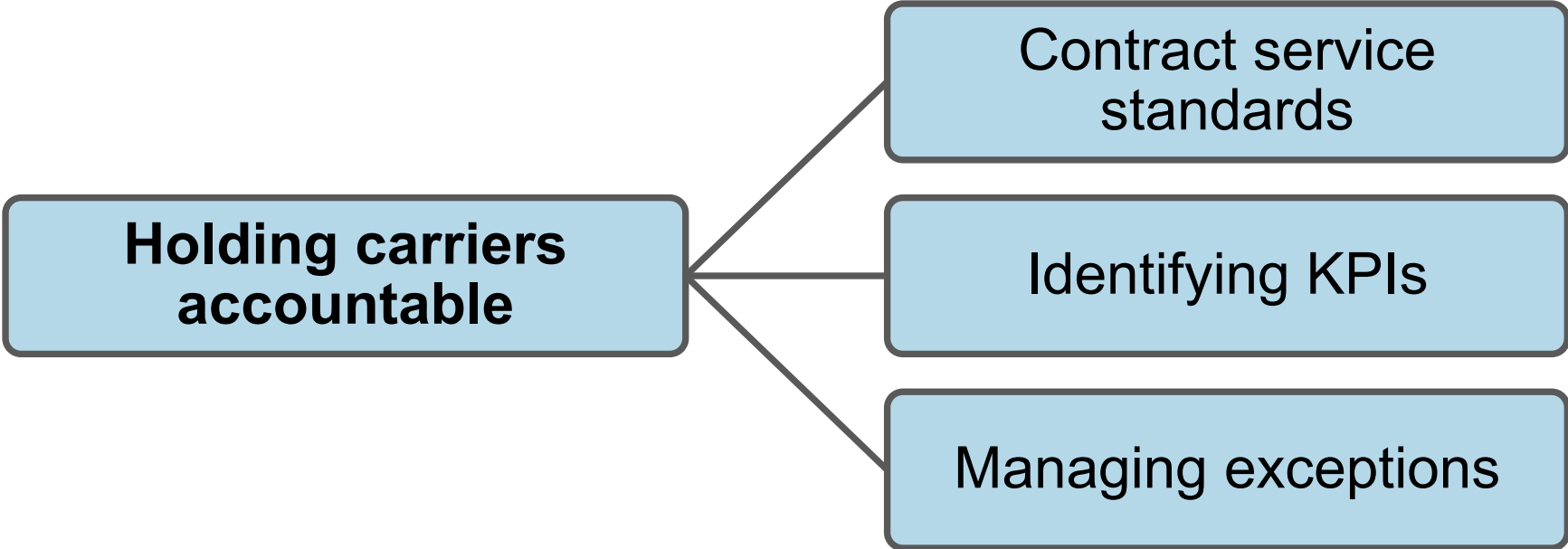
Consolidating

- Reduce costs
- Reactive
 - Market area
 - Scheduled delivery area
 - Pooled delivery
- Proactive
 - Preorder planning
 - Multivendor consolidation

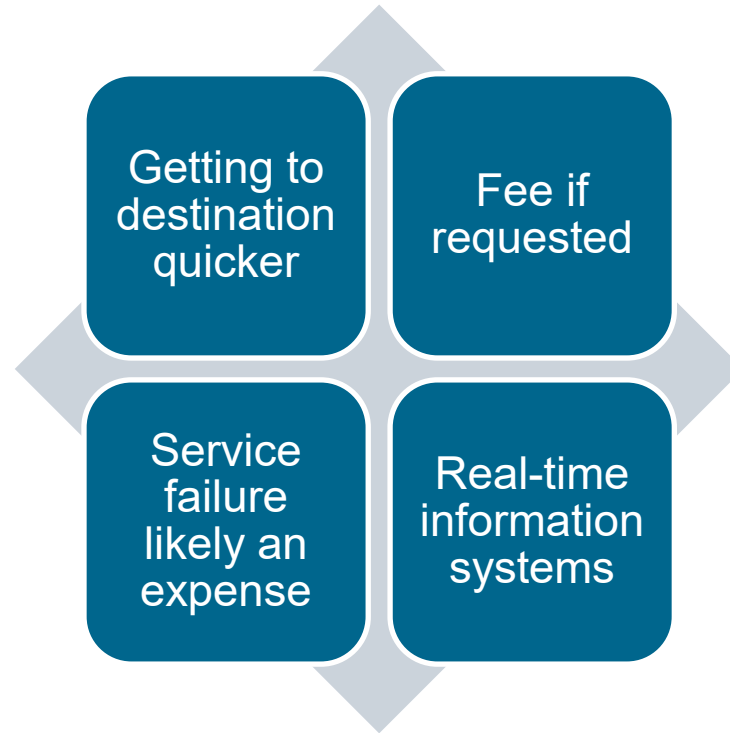
Optimization

- Load planning
- Planner selects orders for shipment schedule
- Optimize space for single destination
- Optimize sequence for more destinations

Exception Management



Exception Management: Expediting



Routing

Routing

- Making best origin and destination decisions to balance cost and service.
- ASNs help organization plan arrival, schedule the delivery, and redeploy if needed.
- Effective routing is the key.

Freight Settlement

Freight settlement

- Document that compares freight order invoice as received to invoice as expected.
- Authorizes payment if consistent
- Traffic department with external provider expertise for specific commodity group

Freight Pay and Audit (FP&A)

- Audit carrier invoices for correct rate, discount, fuel surcharge, and accessorial charges
- Automate
- Resolve vendor disputes in real time using visibility tools
- Manage freight claims and freight settlement

Freight Claims

Reimbursement Request for Loss or Damage



Time to submit



Filing process

