

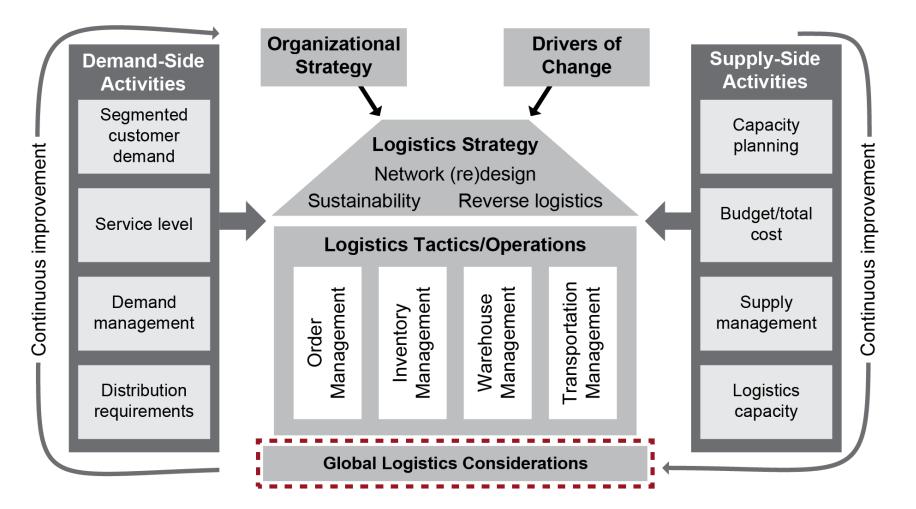
MODULE 9: GLOBAL LOGISTICS CONSIDERATIONS





Module 9: Global Logistics Considerations

Logistics Planning and Control







MODULE 9, SECTION A: INFRASTRUCTURE AND SYSTEMS





Demand for Transportation

- Aggregate demand for transportation is inelastic.
- Freight rate decreases will not increase demand for transportation noticeably.

Elasticity =
$$\frac{\% \text{ Change in Quantity}}{\% \text{ Change in Price}}$$



Market Structure Impact on Transportation Pricing

- Regulated
 - U.S. deregulated in 70s
- Cost-of-service pricing
 - Sets floor

- Value-of-service (VOS) pricing
 - Valuable inventory charged premium
 - Service profile affects price
 - Competition reduces price
 - Sets ceiling



Market Structures



International Trade Theories

Absolute advantage

 Advantage if make more of a good with same labor and resource inputs

Comparative advantage

- Trade focuses resources on efficient item
- Increases satisfaction in both countries

Heckscher-Ohlin factor endowment

- Labor
- Capital
- Land
- Entrepreneurship



International Trade Theories

International product life cycle

- Stage 1: Local country proprietary technology
- Stage 2: Developed countries, substitutes
- Stage 3: Outsource for lower production costs

Cluster theory

- Proximity to suppliers and competitors
- Logistics cluster theory: Logistics and manufacturing hubs (Memphis, Tennessee, FedEx hub)



Transportation Infrastructure



Canals and waterways

- Critical waterways in international shipping:
 - Bosphorus Strait
 - Panama Canal
 - St. Lawrence Seaway
 - Suez Canal
 - Mississippi, Rhine, etc.

Port constraints

- Panamax containerships
- Indented berths: 300 containers per hour
- Unions, strikes
- Delays (operating hours, rail or road congestion)
- Risk of flooding, refrigeration failure in container yards





Rail

U.S.: Private ownership

Land bridges



- Russia, Brazil, Europe: Rail gauges
- Europe: Passenger top priority
- China: Investing in high-speed passenger lines

Roads

- Road metric: Usability + traffic congestion
- Even/odd license plates
- Motorcycle/moped
- City entry tax
- Limited access highways
- High-speed tollways



Transportation Infrastructure

Warehouses



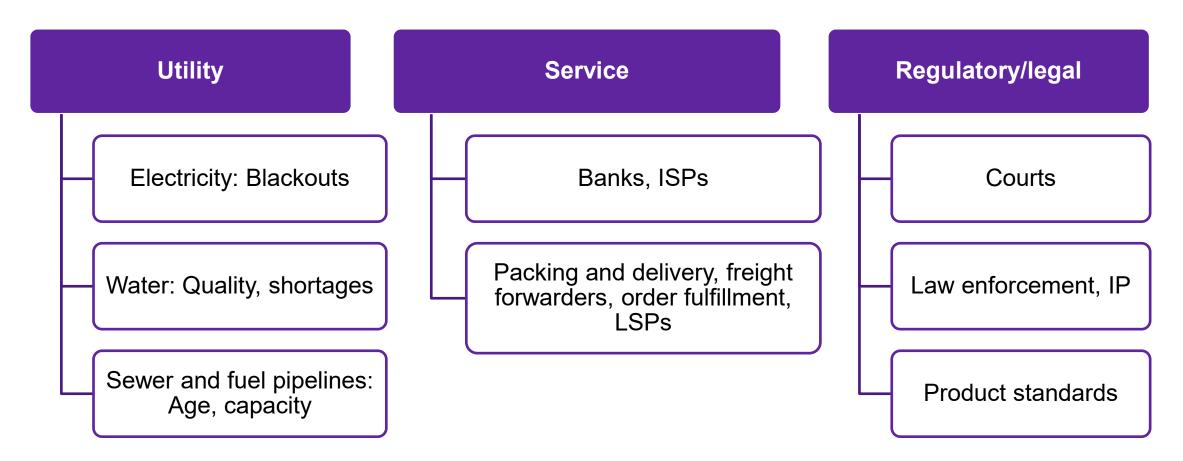
- Shipment layover point
- Warehouse space and conditions require research
 - Locations
 - Environment exposure

Airports

- Runways are big constraint
- Airport noise
- Cargo air hubs
 - Hong Kong, Chek Lap Kok
 - Memphis, Tennessee
 - Shanghai, Pudong
 International

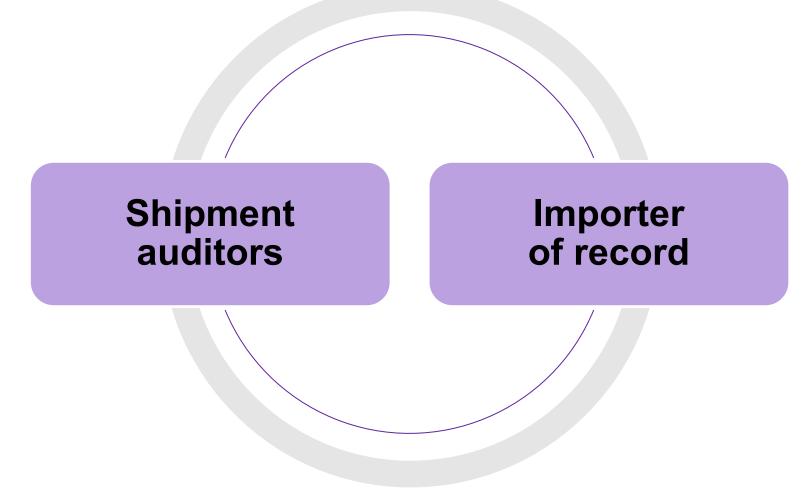


Other Infrastructures



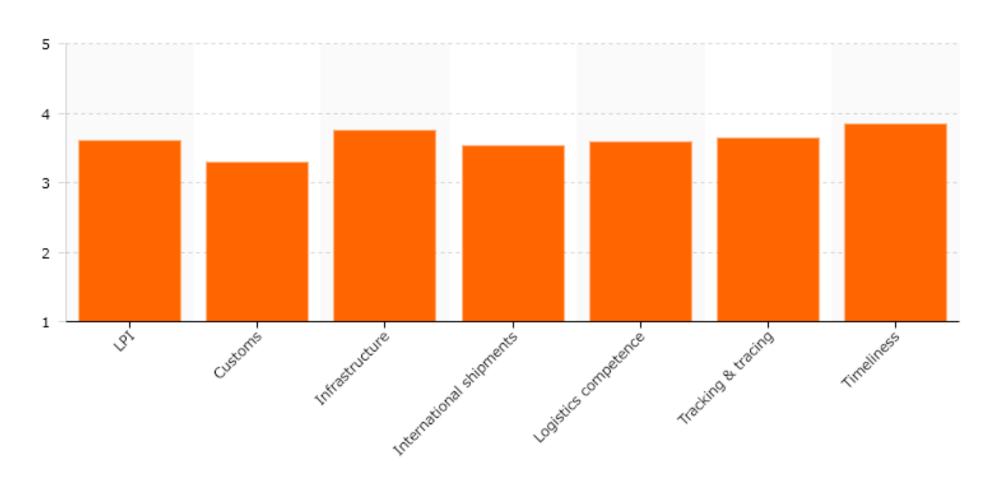


International Trade Specialists





Logistics Performance Index (LPI): China, 2018





Lead Time Considerations

- International order preparation time
- Document processing time
- Approval time per transaction
- Number of ASNs filed
- Containers/loads inspected

- Customs appeals, time
- Inland transportation time
- Vessel time in port/ turnaround
- Days of port shutdowns
- Days of delays at ports



Global Supply Chain Cost

- TCO, NPV, exchange rates
- Cost of lead time
- Cost of lost sales

- Cost of flexibility (or inflexibility)
- Cost of quality
- Cost of added risk

Risk and Exception Management

- Number/cost of documents/approvals
- Number of government agencies with inspection rights
- Percentage of containers inspected, intensity level
- Percentage of shipments damaged/stolen
- Number of borders crossed/time waiting at borders
- Ease of crossing borders





MODULE 9, SECTION B: REGULATIONS





Topic 1: International Trade

Free Trade Agreements (FTAs)

- FTAs are "treaties between nations that agree to eliminate tariffs, quotas, and preferences on many goods and services traded between them."
 - Novack et al. in
 Transportation—A Global
 Supply Chain Perspective

- Faster/more transactions
- Opens trade/international freight demand
- Removes trade barriers and transport permit restrictions
- Frees capital and reduces or eliminates duties
- Has testing/documentation standards



Topic 1: International Trade

Trade Blocs and Trade Compliance

Trade bloc (or trading bloc)

"An agreement between or among countries intended to reduce or remove barriers to trade within member countries. Frequently, but not always, those countries are geographically close."

 – (ASCM Supply Chain Dictionary)

Trade compliance

- How organizations manage their fulfillment of government regulations
- Regulations affect:
 - Product classifications
 - Documentation requirements
 - Valuation
 - Record-keeping practices



Topic 2: International Transportation Regulations

International Transportation Regulations

Policies and regulations

- Tariffs
- Import quotas
- Prohibited imports
- Embargos
- National holidays (e.g., Chinese New Year)

International Air Transport Association (IATA)

- 260 airlines (85% of traffic)
- e-Air Waybill (e-AWB) default contract of carriage
- IATA cargo strategy: safety, security, efficiency
- Global Air Cargo Advisory Group



Topic 2: International Transportation Regulations

Anti-Bribery and Anti-Corruption Practices

- Bribery violates United Nations Global Compact.
- OECD Anti-Bribery Convention:
 - Countries must develop regulations.
 - Organizations can't deduct bribery as a business expense.
- Bribery Act, 2011 (U.K.):
 - Passive bribery
 - Active bribery
 - Failing to prevent
 - Bribe official to obtain or retain business

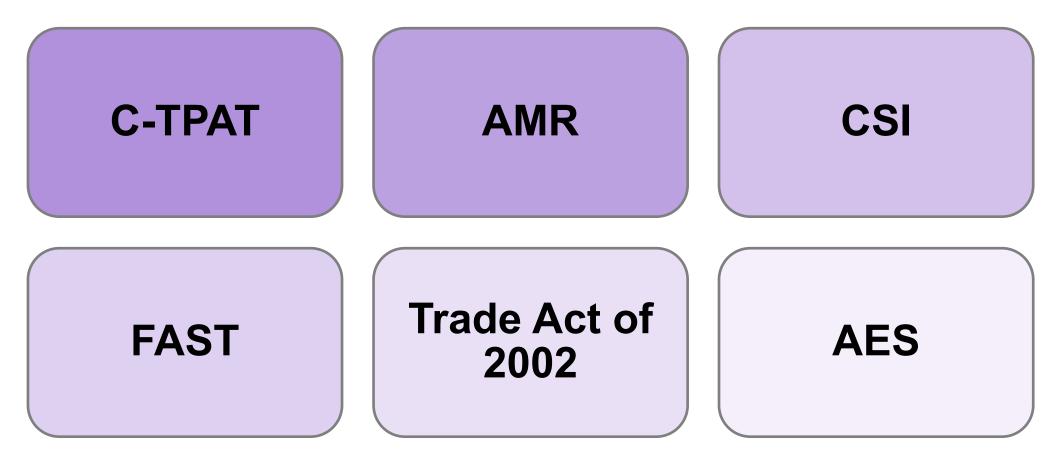
International Complexities

- Multiple modes of transport
- Longer transit times
- Less visibility/knowledge of location; theft risk
- Much more paperwork
- Noncompliance fines
- Taxes, fees, tariffs
- Market exchange rates

- Rail gauge, railcar/truck transfer
- Driver side shift
- Foreign street signs, GPS
- Some borders close
- Speed limits (less for truck)
- Poor road conditions
- Truck size, weight limits



Security: Regulatory Initiatives





Security

- Alarms: breaking glass
- Explosives detectors in RFID tags
- Immobilization equipment
- Less breakable glass, visible registration number
- Key security, driver in-yard moves
- Prearranged secure trailer areas
- Multi-vehicle convoys
- In-transit tracking and visibility
- Warehouse location, gate, fence, guards

Labor Safety

- Driver fatigue
- Speeding
- Maximum driving time for trucks in the EU
- U.S. 2010 Compliance, Safety, and Accountability Act (CSA) ratings
- Unsafe driving
- Crash history
- Hours of service

- Fitness
- Alcohol and substances
- Maintenance
- Cargo



Hazards and the Environment

- Loading and unloading
- Packaging
- Routing
- Identification and labeling
- Documentation



- Mode affects jurisdiction.
 - U.S. examples: road— 49CFR; rail—FRA
 - International: air—ICAO, ocean—IMDG
- UN GHS labels
 - Pictogram, signal word
 - Hazard statement
- U.S. EPA
 - Noise
 - Air pollution



Import/Export Regulations

- Incoterms used to indicate responsibilities
- Harmonized system codes identify cargo
- Preferential fees, duties, and taxes
 - Import tariffs and preferential duties based on country agreements
 - Anti-dumping duties
 - Other fees (value-added tax, general services tax, harbor fees, control taxes, excise taxes, trade promotion fees)



Export Regulations

- Export quotas and taxes
- U.S. CCL
 - ECCN, EAR99 classification, export license
- Restrictions
 - Denied persons, specially designated nationals, unverified and entity lists
- Deemed exports
 - Controlled technology, biochemical, agriculture
- U.S. OFAC and ITAR
 - Military, defense-related, space technologies
- Importing country and end-use certificates







MODULE 9, SECTION C: CUSTOMS CLEARING AND DOCUMENTATION





Topic 1: Import/Export Process and Invoices

Import/Export Process

- 1. Book ocean 2 weeks in advance, truck or air 5 days, rail 2 hours.
- 2. Prepare shipment for cargo ready date.
- 3. Create commercial invoice, packing list, other required documentation.
 - Dray picks up empty container; shipper loads.
- 4. Dray/trucker delivers to port.
 - Carriers not certified in both countries terminate load in staging yard. Crossborder driver brings to other staging yard. Handoff to line-haul driver.
- 5. Customs broker files and obtains export clearance.
- 6. Shipment is loaded on vessel and status changed to COB.
- 7. Customs broker collects documents and files import clearance entry.
 - Most clear at wheels up or on water.
 - Some flagged for customs inspection at bonded destination port or port of unloading. Consignee arranges shipping to inspection facility.

Topic 1: Import/Export Process and Invoices

Import/Export Process (continued)

- 8. Delivery order or tender issued.
- 9. Cargo offloaded to driver pickup area.
 - Pay terminal charges including demurrage and get original bill of lading documents; dray dispatch gets terminal appointment if needed.
- 10. Dray tractor picks up empty chassis, then container.
- 11. Dray or trucker picks up freight and delivers to "door" for live unload or drop in yard.
 - Gate guards match seal number to paperwork; dray gets an empty, if available, for return to terminal.
- 12. Consignee unloads cargo and tells dray of empty. Receive and distribute further as needed.
- 13. Dray picks up empty and returns it and perhaps chassis to terminal.
- 14. Billing and accounting of landed cost.

Topic 1: Import/Export Process and Invoices

Types of Invoices

Commercial

- Widely used
- Provided by seller with shipment, unless payment terms specify to importer or bank
- Customs uses for valuation

Pro forma

 "A quote provided by the seller/exporter prior to delivery of products or services, informing the buyer/importer of the price. This document is submitted to customs for valuation purposes." -Dictionary

Consular

- Special invoice for goods sent to importer's country in language of importer's country
- Importer's consulate provides stationary
- May require government signature



Topic 2: Import Documentation

Import Documentation

- Certificates of:
 - Origin
 - Manufacture
 - Inspection
 - Free sale
 - Insurance
- Import license
- Carnet

The undersigned				(OWNER OR AGENT, & TITLE)	
for				(OWNER ON AGENT, & TITLE)	
		me and Address o	f Shipper)		
declares that the fo	ollowing mentioned	goods are shi	pped via		
on the date of		consigned to			
				(Name and address of Consignee)	
(ADDRESS)					
(CITY, POSTAL CODE , CO	DUNTRY)			S	
Marks and Numbers	No. of Pkgs Weight in Kilos		in Kilos	Complete and accurate	
AS ADDRESSED	Boxes or Crates	Gross	Net	Description of Goods	
The undersigned he	reby declares that			Notary Signature ints are correct and that	
all the goods were p					
The	Cham	ber of Comme	rce certifies, in	reliance on the exporter's representation and not	
on the basis of indep named in this docum	pendent verification			dge and belief, the products	
	Secretary on behal	f of the Chamb	er of Commerc	e.	
Acting as Assistant S					

PICS

Topic 3: Export Documentation

Export Documentation

- Electronic export information (EEI)/shipper's export declaration (SED)
 - AESDirect
 - Owner/Importer/Consignee/ Agent Declaration
- Returned products
- Export licenses
- Export taxes and quotas
- Declaration for Free Entry of Returned Products

	U.S. Customs an DECLARATION I	HOMELAND SECURITY d Border Protection FOR FREE ENTRY MERICAN PRODUCTS	Form Approved
Any text that scrolls will not print	19 CFR 7.8, 10.1, 10.5, 10.66, 1	10.67, 12.41, 123.4, 143.23, 145	OMB No. 1651-0
1. PORT	2. DATE	3. ENTRY NO.	& DATE
4. NAME OF MANUFACTURER		5. CITY AND S	TATE OF MANUFACTURE
6. REASON FOR RETURN		7.11.5. DRAM	BACK PREVIOUSLY
C. REASON FOR RETORN			
		8. PREVIOUSI	LY IMPORTED UNDER HTSUS 9813.00.0
9. MARKS, NUM	IBERS, AND DESCRIPTION OF ARTIC	CLES RETURNED	10. VALUE*
of any documentation or other evidence 11. I declare that the information given - manufacture or other means; that n of exportation of articles with benefit notice(s) has have be 12. NAME OF DECLARANT	that you have that will support or sub above is true and correct to the best of United States and are returned without o drawback bounty, or allowance have to drawback was was were f een abandoned. 13. TITLE OF DEC	stantiate your claim for duty free st my knowledge and belief: that the 2 thaving been advanced in value or been paid or admitted thereon, or or filed upon exportation of the mercha CLARANT	atus as American Goods Returned. Inclose described above are the growth, improved in condition by any process of an any part thereof, and that if any notice(s indise from the United States, such
of any documentation or other evidenc 11. I declare that the information given a production, and manufacture of the manufacture or other means; that no of exportation of articles with benefit notice(s) has have be	that you have that will support or sub above is true and correct to the best of United States and are returned without o drawback bounty, or allowance have to drawback was was were f een abandoned. 13. TITLE OF DEC	stantiate your claim for duty free st my knowledge and belief: that the 2 thaving been advanced in value or been paid or admitted thereon, or or filed upon exportation of the mercha CLARANT	articles described above are the growth, improved in condition by any process of an any part thereof; and that if any notice(s
of any documentation or other evidence 11. I declare that the information given - manufacture or annufacture of the manufacture or other means; that n of exportation of articles with benefit notice(s) has have be 12. NAME OF DECLARANT	e that you have that will support or sub above is true and correct to the best of United States and are returned without o drawback bounty, or allowance have to drawback	stantiate your claim for duty free st my knowledge and belief: that the 2 thaving been advanced in value or been paid or admitted thereon, or or filed upon exportation of the mercha CLARANT	atus as American Goods Returned. Inclose described above are the growth, improved in condition by any process of an any part thereof, and that if any notice(s indise from the United States, such
of any documentation or other evidence 11. I declare that the information given - manufacture or other means: that n of expontation of articles with benefit notice(s) has have be 12. NAME OF DECLARANT 14. NAME OF CORPORATION OR PAIL 16. SIGNATURE OF AUTHORIZING CI NOTE: If the owner or ultimate com	e that you have that will support or sub above is true and correct to the best of United States and are returned without o drawback bounty, or allowance have or anabandoned. I a. TITLE OF DEC RTNERSHIP (If any) BP OFFICER signee is a corporation, this form m yee or agent of the corporation wh	stantiate your claim for duty free st my knowledge and belief; that the a having been advanced in value or been paid or admitted thereon, or o lied upon exportation of the mercha CLARANT 15. SIGNA' 15. SIGNA' nust be signed by the president, o holds a power of attorney and	atus as American Goods Returned. Inclose described above are the growth, improved in condition by any process of an any part thereof, and that if any notice(s indise from the United States, such



Topic 4: International Transportation Documents

International Bills of Lading

- Legally binding carrier/ shipper contract
 - Exporters paid
 - Importers get goods
- Carrier signature: Proof that carrier received goods
- Consignee signature: Receipt for goods
- Basis for freight claims

- Mode
 - Ocean bill of lading
 - Through bill of lading (multimodal)
 - Uniform bill of lading
- Condition
 - Clean
 - Claused (soiled or foul)



Topic 4: International Transportation Documents

Waybills, Packing Lists

- Air waybill (AWB)
- Road waybill
- Rail waybill
- Packing list

					0.0)1-12345678				
Shipper's Name and Address	Shipper's Acco	unt Number	Not Negotiable Air Waybill							
			Issued by							
Consignee's Name and Address	Consignee's Acc	ount Number	Copies 1, 2 and 3 of this Air Waybill are originals and have the sam t Number It is arreed that the coords described herein are accested in anna							
			It is agreed that the goods described herein are accepted is approved good order and condition (except as noted) for carrings SUBJECT TO THE CONTINIONS OF CONTRACT ON THE REVERSE HEREOF. ALL GOODS MAY BE CARRED BY ANY OTHER MEANS INCLUDING ROAD OR ANY OTHER CARRED (NLBSS SPECIFIC CONTRACT IN THE SUBJECT IN THE SUPPER. AND SUPPER ACRESS THAT THE SUBPRIMENT MAN APPROPRIATE. THE SUBPER. AND SUPPER ACRESS THAT THE SUBPRIMENT MAN APPROPRIATE. THE SUBPER. AND SUPPER ACRESS THAT THE SUBPRIMENT MAN declaring a higher value for carrings and paying a support and paying the subport matching of the declaring a higher value for carrings and paying a support matching the regulard.							
ssuing Carrier's Agent Name and City			Accounting Information							
Agent's IATA Code	Account No.		1							
Airport of Departure (Addr. of First Carrier)	and Requested Routing		Reference Number Optional Shipping Information							
To By First Carrier Routing and De	stination to by	to by	Currency CHGS Code	WT/VAL Other C	Declared Value for Carriage	Declared Value for Custom				
Airport of Destination	Requested F	light/Date	Amount of Ir	surance INSURAN	ICE - If carrier offers insu	rance, and such insurance ditions thereof, indicate amount				
landling Information				to be insu	red in figures in box marked	"Amount of Insurance".				
-						SCI				
These commodities, technology or softwarn accordance with the Export Administ	ation Regulations. Ultimate	Destination			Diversion contrary to U.S. law prohibited.	301				
No. of Gross kg Rate Clar Pieces Weight Ib Com	SS Chargeable modity Weight		arge	Total	Nature and (incl. Dime	Quantity of Goods nsions or Volume)				
Prepaid Weight Charge	Collect	Other Charges								
Valuation Charge		1								
Tax	/	1								
Total Other Charges Due Agent Shippe contai accorr			Suppor centiles that the particulars on the face hereof are correct and that insolar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by ai coording to the applicable Dangerous Goods Regulations.							
Total Other Charges Du	a Carrier			~						
				Signature of Shipper or his Agent						
Total Prepaid	Total Collect									
	Total Collect Charges in Dest. Currency									
Currency Conversion Rates CC		Executed on (date Total Collec		at (place)	Signatur	e of Issuing Carrier or its Age				

Customs Clearance, U.S. Example

- 1. Importer files entry 7 to 10 days before arrival.
 - CBP entry summary, commercial/pro forma invoice, shipping forms, packing list, bond posting evidence.
- 2. Customs notified of arrival; carriers apply for release.
- 3. Customs can examine and verify value, duty status, labeling, origin, prohibited items, and match.
 - If issues: hold, export, or destroy.
- 4. Customs determines duty based on Harmonized Tariff Schedule (HTS).
- 5. Customs releases goods to importer, customs bonded warehouse, or foreign trade zone (FTZ).



Harmonized System of Classification and Tariffs

- Partial basis for duties
 - Harmonized code
 - Invoice value
 - Import country or countries
- Six-digit root plus four digits for country subcategories
- Customs may issue binding ruling on classification
- Can sometimes appeal





Harmonized System of Classification and Tariffs

- Harmonized Tariff Schedule
- "Rates of Duty" columns: One column per class, up to four.
 U.S. has several columns:
- Column 1: Normal trade relations (NTR)



Valuation

- Begins with value identified on exporter's invoice
- Can be different by country
 - Landed value
 - U.S.: Free carrier (FCA)/Free Alongside Ship (FAS)
 - Cost, Insurance and Freight (CIF) method
 - Comparative method
 - Deductive method
 - Computed or reconstructed method
 - Method of last resort

Other Taxes

- Value-added tax (VAT)
- Goods and services tax (GST)
- Consumption taxes
- Exemptions for some member countries in free trade agreements





MODULE 9, SECTION D: FINANCE AND PAYMENT OPTIONS/CURRENCY AND TAX CONSIDERATIONS





Section D: Finance and Payment Options/Currency and Tax Considerations

Obligations and Risks of International Trade

Obligations

- Importer-exporter contracts
 - Sales
 - Insurance
 - Carriage (also with carrier)
 - CISG
- Contract between
 - Exporter/importer and bank
 - Exporter and distributor/agent

Risks

- Often no firsthand knowledge of counterparty
- Commercial risk
 - Non-, partial, or late payment
 - Failure to deliver or unacceptable goods
- Country risk
- Limited recourse

Contract Terms and Conditions

- Language
- Product specifications
- Pricing
- Order requirements
- Conditions for incentives and application of penalties
- Security requirements
- Status update requirements

- Quality checks
- Problem resolution steps
- Legal entity that will govern agreement
- Contract termination process
- Payment terms
- Transfer of ownership

Incoterms® Trade Terms

Example:

- Exporter tasks and payments
- Importer tasks and payments
- Point of delivery
- Categories
 - Any mode
 - Sea and inland waterway

 Not legally binding unless written into contract, standard terms in contracts of sale (not transfer of title)



Incoterms 2020[®] Definitions

Terms for Any Mode or Modes of Transport

EXW Ex Works (buyer takes over goods at seller's location; loads vehicle)

- **FCA** Free Carrier (seller delivers to main carrier; buyer loads)
- **CPT** Carriage Paid To (seller selects and pays for main carriage)
- **CIP** Carriage and Insurance Paid To (seller pays main carriage and insurance)
- **DPU** Delivered at Place Unloaded (seller delivers goods to a location and unloads)
- **DAP** Delivered at Place (seller delivers goods and buyer receives and unloads)
- **DDP** Delivered Duty Paid (seller incurs all costs, including import duty)

Terms for Sea and Inland Waterway Transport

- **FOB** Free on Board (seller puts goods on ocean vessel)
- **FAS** Free Alongside Ship (buyer lifts cargo onboard)
- **CFR** Cost and Freight (seller selects/pays for main carriage)
- **CIF** Cost, Insurance, and Freight (seller pays main carriage and insurance)



Incoterms[®] 2020: Buyer/Seller Responsibilities

	Terms for any Mode or Modes of Transport							Terms for Sea and Inland Waterway Transport			
	EXW	FCA	CPT	CIP	DPU	DAP	DDP	FAS	FOB	CFR	CIF
Export packing	S	S	S	S	S	S	S	S	S	S	S
Export clearance	В	S	S	S	S	S	S	S	S	S	S
Inland transport (domestic)	В	<i>B</i> / S	S	S	S	S	S	S	S	S	S
Forwarder's fees	В	В	S	S	S	S	S	В	В	S	S
Loading on vessel	В	В	S	S	S	S	S	В	S	S	S
Ocean/air freight	В	В	S	S	S	S	S	В	В	S	S
Cargo insurance	*	*	*	S	*	*	*	*	*	*	S
Duties, taxes, customs clearance	В	В	В	В	В	В	S	В	В	В	В
Delivery to destination	В	В	В	В	В	В	S	В	В	В	В

*Incoterms® 2020 recommend explicitly stating who will pay for the insurance in a contract or quote.

Source: International Chamber of Commerce, www.iccwbo.org.

(B = Buyer, S = Seller)

Terms and Conditions

- Incoterms[®] 2020 recommend explicitly stating who will pay for the insurance in a contract or quote.
- Incoterms[®] trade terms indicate where risk/liability is transferred but obligate buyer or seller to carry insurance only when explicitly noted in the term.
- Most firms maintain cargo insurance as backup.



Avoiding Acronym Confusion: Free on Board (FOB)

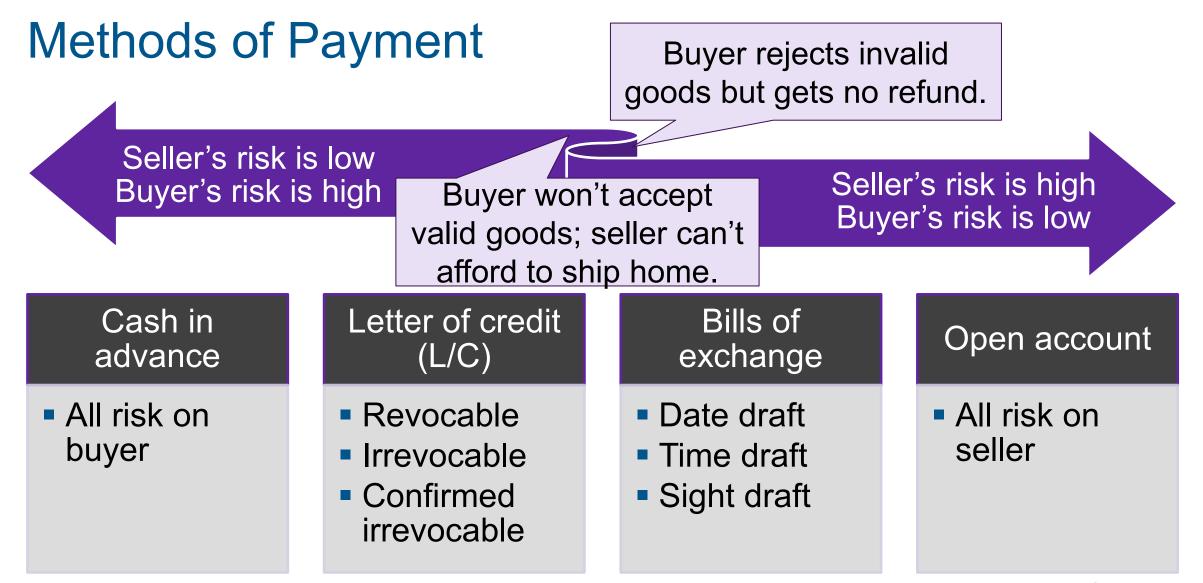
Incoterms[®] 2020 Free on Board (FOB):

ICC trade term used only for international shipments to be delivered to an ocean shipping line at a port of departure. Seller puts goods on main transport vessel.

• U.S. Domestic FOB Origin, FOB Destination:

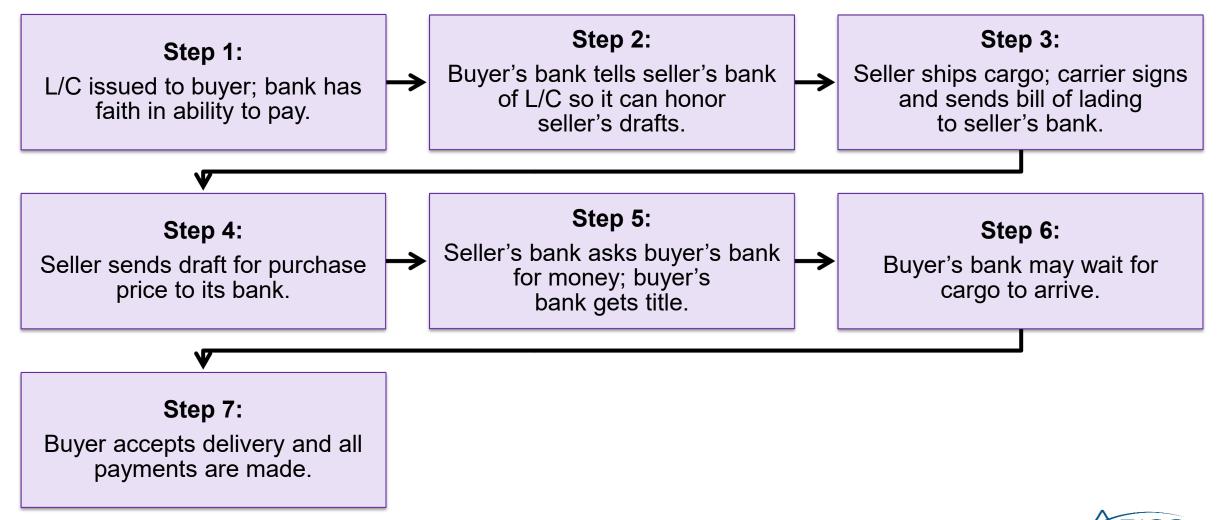
Uniform Commercial Code (UCC) terms used to indicate the physical point where title passes from seller to buyer and risk and responsibility for loss and damage. Used in United States domestic shipping.







Letter of Credit (L/C) Process



Selecting a Currency and Hedging

- Convertibility and risk of fluctuation
- Hard vs. soft currencies
- Time of sale vs. time of payment
- If one party's currency used, other assumes risk
 - Exporter: Offer importer currency as sales tool

- Third country currency: Both assume risk
- International Monetary Fund's Special Drawing Rights
- Hedging transaction exposure
 - Forward
 - Money market



Transfer Pricing

Arm's-length transfer pricing

 When companies set prices based on the market (as if to a customer that has no relational ties to them).

Other methods of transfer pricing

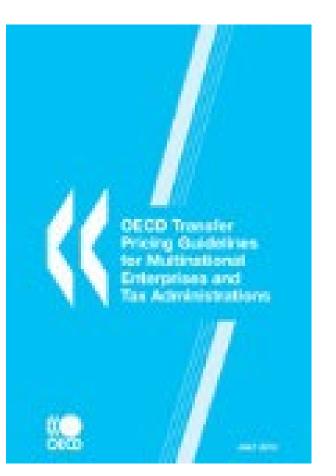
 May allow a subsidiary or division of a company to sell a product to another division or subsidiary that is located in a lower-tax country at a lesser price.



Transfer Pricing

Organisation for Economic Co-operation and Development (OECD) publication:

"Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrators"





Foreign/Free Trade Zones (FTZ)

- In U.S., called "foreign"; internationally, called "free."
- Ship to zone re-export with no duties or quotas.
- Duties, quotas, local taxes deferred until sold in country.
- Can reassemble, transform, repackage, store, clean, test, grade, repair, or combine.
- Inverted tariff structure where parts tariffs higher than finished good.
- Hold indefinitely (e.g., wait for quota).
- Reduce risk of inspection rejection.