EXAMINER'S REPORT
NOVEMBER 2020

LOGISTICS & MULTI-MODAL TRANSPORT

1. Explain how container lines implement slow steaming programs to reduce their costs, while maintaining a weekly service. Discuss the advantages and disadvantages to the line and to the customer which arise from slow steaming. Include examples from a trade of your choice to support your answer.

In describing the concept of slow steaming, it is important to explain that when applied to container services, it is a more complex process than just reducing the speed of the ship, lengthening round voyages, and reducing the capacity generated.
Because the majority of container services operate on weekly fixed day schedules, in such cases, slowing down the ships also requires an additional vessel(s) in order to maintain the weekly frequency. It is therefore an exercise in cost reduction rather than capacity reduction, and was initially adopted by the lines during the global economic crisis when they had surplus ships which could be employed in this way. The benefit of the bunker costs saved therefore has to be offset by the cost of the additional vessel(s).

However slow steaming has continued to be standard practice when lines design their networks, notwithstanding changes in demand for container services, and fluctuating bunker prices.

The advantages/disadvantages can be summarised as follows:
Advantages/Disadvantages to the lines:

- Network cost savings
- Utilising otherwise surplus vessels – helps supply/demand balance
- Environmental benefits (reduces CO2 emissions)
- Improves reliability – with a reserve of speed, vessels can speed up to meet terminal berthing windows
- The cost of providing containers increases, as containers are used for a longer time on each trip
- If bunker prices reduce dramatically, the short term network cost savings from slow steaming may vanish

Advantages/Disadvantages to customers:

- The lines' cost savings are generally passed on to customers in lower freight rates
- Environmental benefits (note is generally claimed by both lines and customers)
- Improved schedule reliability provides supply chain benefits, however
- Longer transit times may have negative supply chain implications (more stock in transit, later arrival dates for cargo)

2. Explain in detail FOUR of the following terms, and their significance in multi-modal transport
i. Hamburg Rules
ii. Montreal Convention
iii. VGM
iv. IMDG Code
v. 3PL
vi. ICD

For each term or abbreviation, the student should cover the following:

- The meaning of the term/abbreviation
- Its context/origin
- A detailed description of what it represents
- Its significance in multimodal transport and the supply chain

The following are specific points to which the student should refer for each of the six parts of the question:

(a) **Hamburg Rules**

Explain the role of Hamburg Rules as a Cargo Liability Convention
Reason for their development, when adopted, when they came into force
Main provisions of the rules, and reference to key differences from other conventions (e.g. Hague Visby) '
Reason for low take up by states
Role in multi-modal transport (better protection for shipper, extension to cover time in port, liability calculated per kilos more relevant to container transport)

(b) **Montreal Convention**

Adopted by ICAO member states in 1999
Modernised/replaced the Warsaw Convention
Some states still apply Warsaw Convention + Hague Protocol
Covers passengers, baggage and cargo on international commercial flights
Liability limit for cargo loss/damage/delay – originally set at SDR17 per kilo
Limit updated periodically by ICAO – latest revision was to SDR 22 per kilo from 28.12.19
Importance for multimodal shipments by air

(c) **VGM**

Verified Gross Mass
Part of SOLAS Convention, effective 1 July 2016
Developed following several incidents related to incorrect declaration of container weights (including MSC Napoli)
Shipper must provide verified gross mass (VGM) of the container before loading (cargo + dunnage + tare weight of container)
Two methods are available for determining VGM
If no declaration, the container will not be loaded on the ship; container terminals may weigh the container as agent for the shipper and will charge for doing so
Important for smooth and safe execution of maritime leg of multimodal transport

(d) **IMDG Code**

International Maritime Dangerous Goods Code
Produced by IMO, and applied by law in all states which are signatories to SOLAS Convention
Ensures safe door to door transport of hazardous cargo, as defined in the code
Provides a grouping/classification of all dangerous goods, based on their hazard (nine classes)
Defines packaging, labelling and documentation requirements
Sets out the principles of where cargo of different hazards may be stowed on ships
Provides advice on emergency response

(e) 3PL

3rd Party Logistics (provider)
Distinguish from other types of logistics operators/service providers
Why they are used by shippers/what are the advantages
Brief description of functions/services performed by 3PLs, and how they benefit LMT users

(f) ICD

Inland Clearance (or Container) Depot
Explain the role played by ICDs in through transport movements – including transfers, customs clearance/release away from port; staging point for inland movements, connection between rail and road, storage for empty containers, packing/unpacking containers, maintenance and repair of containers
Describe main facilities, equipment, infrastructure provided
Explain the advantages of using ICDs for operators and customers using multimodal transport

3. Answer BOTH parts of the question
An importer in Europe buys consumer goods from China.
a) What choices of mode of transport and route are available to the importer and what factors are important when deciding these?
b) If this importer decides to send its goods by sea, how should it decide which shipping line is to carry the goods?

The route specified in the question (China to Europe) gave students the opportunity to consider the following modes for the main leg of the journey:

- Air
- Sea
- Sea/Air
- Rail

(road is in theory possible for the complete journey, but hardly used)

While Sea/Air has declined in importance in recent years, the use of rail services across Central Asia has been increasing dramatically in the last few years, driven by various Chinese strategic initiatives ('One Belt, One Road').

Students were expected to give a brief description of how these various modes operate between China and Europe, and then to discuss the various factors which determine how a choice is to be made between modes. These factors include:

- Door to door cost (may depend on exact origin/destination in China/Europe)
- Type of goods (e.g. weight/hazard/perishability)
- Quantity of goods
- Value of goods/urgency
- Supply chain requirements for speed, reliability, frequency

The second part of the question asked students to consider how to differentiate between the different Lines which offer services by sea from China to Europe. The factors discussed should include:

- Schedules offered (reliability/frequency/transit time/direct or transhipment)
- Space and container availability
- Freight Rate (price and other terms)
- Customer Service levels
- E Commerce systems (e.g. on line quotes/bookings/track and trace etc.)
- Inland operations (cost, modal choice, inland pick-up and delivery points)

4. Define 'logistics' and explain how the key features of multi-modal transport and logistics services have enabled businesses to expand the outsourcing of the supply of goods globally. Support your answer with examples.

The first part of the question required a definition of logistics. There are several ways to provide such a definition, but it is important to mention that logistics covers more activities than just the transportation of goods, and covers the management and information services needed to support a supply chain, as well as the physical activities, which can extend to warehousing, packaging, etc. There are many features of logistics and multi modal transport services which support the global trading and sourcing of goods. These include:

- Regular, reliable and frequent services enable products to be sourced from almost anywhere globally
- Adequate capacity on individual routes to ensure regular supply
- Containerisation, and proper packaging and handling to ensure goods are protected from damage/pilfering ensure arrival in good condition for sale/use at destination
- Information systems providing vital visibility on the supply chain, e.g. stock management, in transit and at warehouse – information in real time; exception reports so that corrective action can be initiated quickly in case of delays
- Providing confidence to the customer that goods will arrive as scheduled, and managing any delays, and consequences of delays, including clear and timely communications with all parties involved
- Warehousing/cross docking/distribution services available to support required inventory and ensure continuity of supply
- Other value added services as needed (forwarding, documentation customs clearing, calling forward cargo, consolidation etc) to ensure unforeseen costs are minimised and no delays.
- Supply chain management to reduce overall costs, so making it cost effective (relative to the value of the goods) to source from cheaper suppliers, even if they are further away
- Logistics can combine different modes of transport to give an optimum balance between speed and cost, and manage supplies from different sources, providing resilience in the supply chain

It was important to include relevant examples of supply chains in the answer to demonstrate how logistics and multimodal services provide this support.

5. As a salesperson for a multi-modal transport service, with sea as the main leg, what are the important service factors you would put forward to your customers as justification for paying a higher freight rate than that of your competitors.
Use examples, and explain why each service factor can provide a financial advantage for the customer.

The importance of service factors in multi-modal transport, and in the management of supply chains is a constant theme for logistics businesses. This question gave students an opportunity to demonstrate their knowledge both of the service factors which are important to users of these services, and of how to assess their value for the customer.

The key service factors which should be covered by students are:

- Speed
- Frequency
- Reliability
- Transparency of data on cargo movement, for supply chain management purposes

A description of what is meant by each service factor, and why it is important should be included, together with the financial value which could be attached to each factor, in order to justify being prepared to pay a premium on the freight rate for a better quality of service.

For example, a faster service would reduce the cost of stock in transit, and a more reliable service enables an importer to manage with lower safety stocks.

Practical examples for each service factor were essential to achieve a good pass mark.

There are a number of other relevant service factors, for example:

- Speed/accuracy of documentation
- Expert assistance/advice with cargo transport and related issues
- Range/quality of E Commerce products (ease of access to information/time saving)
- Guaranteed space availability per sailing

In each case it was important to show that high service standards could reduce the user's costs, or help to generate extra revenue.

6. Answer BOTH parts of the question.
a. Discuss the advantages and disadvantages of buying or leasing containers for a multi-modal transport operator.
b. The cost of repositioning empty containers has an impact on the profitability of a multi-modal container operator. Discuss how an operator can reduce or avoid these costs.

Part (a)

The choice between owning and leasing containers is an important decision for multi-modal transport operators.

The main advantages and disadvantages of owning or leasing are as follows:

Advantages of Owning:

- Owning is cheaper in the long run, as it avoids paying a price which includes a profit element for the leasing company
- Containers can be built to the operator's specification, and the operator also controls the standards for maintenance and repair
- Containers will have the operator's colours/logo which increases brand awareness
- Containers from the owned fleet will always be available, rather than being dependent on short term availability in the leasing market

Disadvantages of Owning

- Capital has to be committed to the purchase, or the money borrowed, which may be expensive and/or stretch the operator's financial resources
- If demand reduces unexpectedly, it may be hard to dispose of surplus owned containers (which have a life of up to 18 years) and if newer containers are sold, there is likely to be a financial loss

Advantages of Leasing

- It is easier to adjust the fleet size in response to fluctuating demand for containers
- No requirement for capital financing
- Some types of leases allow pick up at one location, and drop off at a different location, which can be used to reduce imbalance costs

Disadvantages of Leasing

- In general, leasing is more expensive than owning containers
- If relying on the pick up of leased containers to meet customers' bookings, there is a risk that business will be lost if containers are unavailable
- Leasing companies may impose high charges to repair damage (even if only fair wear and tear) when containers are off hired at the end of the lease

Part (b)

There are a number of possible ways to reduce/avoid the cost of repositioning empty containers, including:

- Using leased containers which can be picked up at origin and dropped off at destination on the dominant leg
- Lease surplus containers out to third party for a one way trip (sometimes referred to as 'cabotage')
- Offer low freight rates (based on marginal pricing) to secure more cargo moving from surplus to deficit locations
- Offer alternative container types (if others are readily available)
- Delay the booking until containers are available
- Ensure that control systems are effective to ensure that container stocks are used to best advantage (including possibly reducing safety stocks of containers at shortage locations in the short term)

7. Describe the different data elements which will appear on a combined transport bill of lading for an FCL container, and for each element explain its importance to the parties to the contract of carriage

This question asks the student to describe all the various data items which appear on the bill of lading. It is important that the items are not just listed, but their relevance to the contract between the parties is explained.

For example, the cargo details provide a record of the goods for which the receipt is given by the carrier; for shipment under a letter of credit, the cargo details will be checked, and the bank will ensure no endorsement for missing damaged/goods before the shipper is paid.

The following are the main items appearing on the bill of lading which should be covered in the answer:

- Shipper
- Consignee
- Notify Party
- Place of receipt/delivery
- Port of Loading/Discharge
- Cargo details – if FCL as declared by shipper; any endorsement by carrier
- Freight payable details
- Vessel/voyage
- Shipped on Board (date, port)
- Identification of carrier and signature (carrier/master/agent)
- Date/Place of Issue + number of originals

8. Answer BOTH parts of the question.
a. At what stages of a through transport movement is congestion commonly found,and what causes the congestion? Give detailed examples.
b. Explain the consequences of congestion both for the providers and the users of a service, and the steps they can take to limit the impact on their business.

Congestion is a wide ranging problem in all transport and distribution systems, and it was important that in answering the question, a student considered as widely as possible where the problems

occur, the causes and the potential solutions. The widely reported problems of congestion, particularly at ports, arising as a result of the Covid-19 enabled students to introduce topical elements into their answers.

Part (a)

The main points of congestion are at **modal interfaces** – ports (where congestion can occur at various pinch points for both ships and cargo); also ICDs and railheads. Congestion can also occur on road/rail systems, at canals waiting for transits, etc.

There are a number of causes of congestion, including:

- Shortage of equipment (e.g. cranes at terminals)
- Shortage of land (e.g. yard space, shortage of berths)
- Lack of capacity (roads, rail systems, canal transits)
- Problems of peaks, for example due to ship/container arrivals at certain times/days
- Shortage of labour
- Bad weather

Part (b)
The consequences of congestion are wide ranging, and it is important to discuss these from both the perspective of the user and the provider of the transport service.

Consequences can be grouped under the following headings:

- Operational consequences, for example delays to ships, cargo etc. There are also knock on effects – if a ship is delayed on a port call, there may be delays at later ports, or on the next round voyage, or port calls get omitted in order to regain the schedule
- Increased costs to both providers and users, either as a direct consequence (e.g. congestion surcharges, hiring in more equipment), or an indirect consequence (e.g. airfreighting goods to avoid running out of stock)
- Ongoing impact on the business, where reputation suffers, due to reduced reliability etc., so that financial losses go beyond the congestion event itself

There are numerous steps which can be considered to reduce/remove congestion, with various measures being possible on different timescales.

In the short term, actions may be limited, e.g. securing extra resources – hiring in extra labour or equipment if available; better operational planning can also help reduce congestion e.g. vehicle booking systems at container terminals can reduce vehicle queues with little extra resource needed, or longer gate opening hours.

On a longer timescale, investment in more infrastructure or equipment may be required, or focusing on particular business sectors/activities which are more productive (e.g. store empty containers away from the container terminal, rather than use up valuable yard space).

From the user's perspective, it may be wise to review the supply chain, and look for alternative routes/modes, as well as having 'back up options' available.

Student should avoid focusing on just one aspect of congestion. Examples are vital in order to secure a good mark on this question.