AN ASSESSMENT OF MULTIMODAL TRANSPORT CORRIDORS: EUROPE - IRAQ

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Introduction and Literature Review

The United Arab Shipping Company (UASC) was established in July 1976 by six countries (Bahrain, Iraq, Kuwait, Qatar, Saudi Arabia and U.A.E). The main mission of this line is providing shipping services to the Arabian Gulf region and the Middle East by linking this area with international ports and expanding into global trades (Dean, 2004). Currently, UASC is one of the largest shipping lines for containers to the Middle East. UASC intends to strengthen and expand its services and lifting to Iraq to achieve early entry to the Iraqi market, which is expected to have significant potential in terms of transported cargoes, either to the domestic market or for the governmental and project sectors. The key aim of this paper is to explore and evaluate the various multimodal transport corridors currently being used from Europe to Iraq for the import of general merchandise, consumer goods and rebuilding materials. The research is based on UASC containers' lifting and services to Iraq in recent years.

The transport network could be defined as a combination of transport routes, including railways, shipping routes, highways and inland waterways, which link different nodes along the transport chain, such as rail terminals, sea and airports. Each transport node enables the transported cargoes to be switched to another mode according to an agreement between shippers and consignees. The transport network represents the supply part of transportation, thus the quality of the network relies on the cargoes' flow conditions and the connectivity degree between transport modes (Steiner, 2009). Some shippers and consignees tend to assume that cargoes move directly from their origin to destination. However, this is not the case for all transported shipments, since many factors should be taken into consideration while determining the length and structure of the transport chain, such as shipment size, transport distance and geography (Banomyong and Beresford, 2001).

Transport networks thus have different frameworks. The 'direct link' network represents an absolute direct connection between origin and destination using one mode of transport and no involvement of any nodes, and normally this network design may be applied for a short distance with a low volume of cargo. In the 'Hub-and-Spoke' system, one node is dedicated as a centre to distribute or tranship freight traffic to other smaller nodes in the same region. The core advantage of this network is to link a large number of origins with wide hinterlands, backed by regular and reliable services. Furthermore, a 'Connected Hubs' network has a similar layout, but the main disparity is its ability to connect several hubs in one region with the hubs of another (Woxenius, 2007). In liner shipping, hub-and-spoke networking has become predominant since the mid 1990s. The shipping lines found that hub-and-spoke networks were the most appropriate networking pattern towards enhancing the 'load factor' for their deployed vessels, reducing operating costs and guaranteeing service regularity to hinterland ports (Global Insight, 2005). In this type of network mother vessels make scheduled and direct calls to main hubs, leaving feeder vessels to distribute containers to other smaller ports.

In contrast, in 'Corridor' networks, the volume of the transported cargoes is high and the distances are longer, which require several modes to be utilised within the transport chain, and cargoes may be handled several times before reaching the final destination. The transport operators have flexibility to design the appropriate corridor and select the appropriate modes and nodes. Thus, transport corridors could be divided into maritime, inland waterway, land or a combination of routes and modes. However, other factors may affect the corridors' design, such as transport infrastructure, and some transport modes, like rail and shipping, need more pre-planning to manage costs and delivery time. A good example of corridors is the corridor between Japan and Boston-Washington in the USA (Banomyong and Beresford, 2001).

Research Methodology

The methodology underpinning this paper is case study research based on real-time commercial data and information obtained from interviews. According to Yin (2003), adopting a case study methodology is considered sensible when little is formerly known about the researched area, and the aim of the study is to achieve a comprehension of the case being researched. Data collection relied on a combination of primary and secondary data. Primary data were collected from the UASC Middle East office in Dubai, UASC-Iraq branch and other UASC agents in Jordan, Jeddah, Dubai and Lattakia, as well as the UASC European office in London. Information and statistics were collected in respect of shipping services, main transported shipments, cargo handling operations in Europe and the Middle East by UASC agents. Further, trade route descriptions from Europe to Iraq, UASC's client's modal choices, and container lifting statistics were also obtained. Secondary data were collected from the relevant academic literature and from other public sources. Some constraints emerged while conducting the research, such as the confidentiality of some data regarding UASC's future strategies in Iraq, the availability of data with respect to UASC clients' preferences, and the availability of accurate statistics about the Iraqi transport sector due to the Iraqi political situation.

In order to gain a better understanding of the current freight transport to Iraq and factors influencing modal choice, a case study of multimodal corridors from EU to Iraq based on United Shipping Company (UASC) services was conducted to evaluate and analyse these corridors. The UASC line was chosen due to several factors: firstly, the robustness of the shipping services provided by the line to the Middle Eastern ports; secondly, the line is interested in the Iraqi markets and has new strategies to develop its presence and contribution to shipping services to Iraq; and finally, the lead author has a direct professional relationship with the shipping line meaning that data collection was well supported by the management. Accordingly, different regional offices and agents, in London, Dubai, Amman, Baghdad and Mersin were approached. The aim was to collect information and data with respect to pre-carriage services and costs for outbound boxes to Iraq from Europe, the mainly utilised inland modes and main factors affecting modal choice based on agents and shippers' perspectives, and main loading ports and other destination hubs.

For the second stage, the aim was to collect statistics relevant to import container volume to Iraq from Europe and West Mediterranean, freight rates for the shipping leg from Europe to several Middle Eastern ports and other relevant charges, destination ports' conditions, capacities, descriptions of inland trade routes from Iraq's neighbouring countries' ports to Baghdad, and factors affecting routes and modal choices based on consignees perspectives. The responses of the offices varied: some of the feedback provided thorough information about the case, whereas elsewhere it was relatively basic, which led the authors to seek assistance from other resources within the company. The outputs were carefully assessed based on the general multimodal transport literature. Then, a specific model was adopted to analyse each multimodal corridor to Baghdad.

Multimodal Corridors to Baghdad based on UASC line lifting and services

The geographical location of the country, as a result of having limited access to the sea, puts Iraq in a similar position to landlocked countries, and war and military conflicts have placed other burdens and obstacles on the country in terms of its international trade transactions. The ports in the south are deemed obsolete and small, and their activity has been drastically affected by previous wars. The quality of shipping services' and operations' has also therefore declined. Accordingly, the country has started utilising other inland alternatives, which involve international trade corridors through some neighbouring countries, and domestic road and railroad networks have been developed and expanded to counteract the implications of the sea gateway limitations. However, the social consequences and internal conflicts resulting from the recent war have inflicted the country with instability and insecurity, which have negatively reflected on the domestic economy and cargoes flow and transport services crossing borders from some neighbouring countries have also been affected due to high risks on roads and delays at borders. For the time being, inbound cargoes are still moving to Iraqi cities from different routes, despite uncertainties and the inhibiting influence of poor reliability.

UASC services to Iraq have developed primarily to cater for shipments mainly from the Far East and Europe, discharged at Khorfakkan Port(1) and then transhipped to Um Qasr port. The imported volume from Europe and Western Mediterranean had reached its peak during 2001, but thereafter the volume started to diminish, due to the impact of the 2003 war, especially the period between 2003 and 2007 and subsequent instability with increased regional tensions culminating in the civil unrest stemming from the expansion of the Islamic State in northern Iraq and Syria. . Market demand has subsequently increased and all previous governmental restrictions have been abolished, enabling significant increases of cargo flow to the Iraqi markets. Accordingly, the line took several steps to exploit Iraqi market emergence and attempt to improve its presence in such high potential market, which resulted in gradual increases of UASC containers' lifting to Iraq, starting from 2007 until now from the Far East, EU, USA and WMED. In the context of exports to Iraq, UASC, through its offices and agents has worked jointly to develop cargo lifting to Iraq from different European origins, as a part of a marketing campaign to revive business to Iraq. Therefore, the level of cargoes from Europe and Western Mediterranean to Iraq increased gradually from 2004, originating mainly from Germany, UK, Poland, Sweden, Belgium, Denmark, Italy and Spain; and Antwerp, Hamburg and Valencia ports have been used for the overwhelming containers' volume transported by UASC to Iraq.

UASC Corridors from North Europe to Baghdad

Most cargoes shipped by UASC from northern Europe to Iraq include food stuffs, machinery and aid cargoes. A high proportion of UASC cargoes start from Germany, notably Munich and it is these routes that are now discussed. Cost and transit time are the main factors affecting modal choice for shipments from northern Europe to Iraq. Market recession and the demand nature of the Iraqi market put a direct impact on shippers' tendency to find cheaper transport methods. However, the contractual agreements with the Iraqi consignees oblige shippers to take transit time into consideration as well. Therefore, German shippers tend to use one mode to reduce switching between modes (which often carries both a time and cost penalty). Trucking is used for time sensitive cargoes and railroad for other general shipments. Moreover, those shippers tend to exploit Inland Depots near Munich in the shipment process, stuffing UASC boxes before loading by the designated mode, since UASC has a stock of empties at some of these depots, and thereby squeezing transport costs. Customs' clearance formalities can also be arranged in some instances.

Corridor 1: Munich – Antwerp - Jeddah - Aqaba - Baghdad (Table 1)

Containers normally take one day to reach Antwerp port from Munich ICDs, using road transport only, since the railroad tends to be expensive and the network is not extensive. Then, two days are needed to ship boxes through UASC services. The transit time between Antwerp and Jeddah ports is 11 days, and from Jeddah the boxes are transhipped to Aqaba port within 3 days. At Aqaba port, containers take about two days to be cleared and loaded onto trucks, since no other modes are utilised for boxes for Iraq. Thereafter, the inland route starts from Aqaba port – Maan – Zarka – Turaibeel (Iraqi border), and then UASC boxes are switched to Iraqi trucks, according to governmental instructions, to achieve the final leg to Baghdad via Highway 10. The overall transit time for this inland transport is about four days. In total, containers need 22 days to reach Baghdad from Munich, crossing about 10,504 km.

Table 1. Corridor 1: Munich – Antwerp – Jeddah – Aqaba – Baghdad

Route Progress	Transit Time (day)	Cost (USD/TEU)	Mode	Distance (km)
Munich ICD	-	160	-	-
Antwerp Port	1	1210	Trucking	620
Antwerp Port	2	200	Port Charges	-
Jeddah Port	11	1423	All water	7400
Aqaba Port	3	0	Transhipment	1062
Aqaba Port	2	200	Port Charges	-
Iraqi Border	2	1500	Trucking	850

1 Hub port located on the Arabian Sea – UAE.

Baghdad	2	0	Trucking	572
Total	23 Days	USD 4693		10,504 km

With regard to the cost factor, the processing and stuffing of each TEU in Munich ICDs costs almost USD 160 on average, trucking to Antwerp port costs about USD 1,210 per TEU, and the Antwerp port processing cost is USD 200. Regarding UASC ocean freight from Antwerp port to Aqaba, via Jeddah, the costs are USD 1,423 all inclusive, and each TEU costs USD 200 in Aqaba Port. The final inland cross-boarding from Aqaba to Baghdad adds an extra USD 1,500 in total. This route has higher pre-carriage costs compared to other routes. However, the shorter transit time has attracted some businesses to move to this route, especially technology items, which have been shipped according to L/Cs that are issued by Jordanian banks (for account Iraqi Consignees), which recommend using Aqaba port and a shorter transit time to release payment. The shipping leg is predominant at 81 percent of the total corridor's distance. On the other hand, there are still some security problems along the inland route inside Iraq, and therefore some clients tend to use other safer corridors to ensure better cargo delivery. Currently, the cargoes' proportion on this route is still low, with almost 12 percent of total UASC containers transported from Northern Europe to Iraq, indicating that cost and safety factors are still predominant.

Corridor 2: Munich – Hamburg - Khorfakkan - Um Qasr - Baghdad (Table 2)

This route begins from Munich towards Hamburg Port for 2 days, using the railroad mode, and 2 days are required for containers to be loaded onto a UASC vessel. The shipping mode on this route crosses the Red Sea towards the Arabian Sea and discharges containers at the UASC Gulf hub (Khorfakkan Port). The transit time for this leg is the longest at 18 days. Thereafter, containers are transferred to another local base port (Jebel Ali), and then containers are transhipped by feeders to Um Qasr Port (Iraq), taking about 8 days. At Um Qasr Port, UASC containers will be inspected and cleared in 2 days. Finally, containers are trucked from Um Qasr – Basra – Amara – Kut, and then, Baghdad, since the railroad mode is still inefficient to carry containers, taking about one day to reach the delivery point and covering about 610 km on Highway 6.

Regarding the cost factor, USD 160 for container stuffing at ICD, the pre-carriage charges from Munich to Hamburg Port using the railroad mode cost USD 549 and USD 250 at Hamburg port. Then from Hamburg to Um Qasr via Korfakkan, the freight rate increases on this route to USD 2,321 per TEU, covering the all-water mode. At Um Qasr Port, each TEU costs about USD 655, which covers customs clearance, handling, x-ray, and delivery order. Finally, the Um Qasr to Baghdad leg costs USD 630 per TEU.

Table 2. Corridor 2: Munich – Hamburg – Khorfakkan – Um Qasr – Baghdad

Route Progress	Transit Time (day)	Cost (USD/TEU)	Mode	Distance (km)
Munich ICD	-	160	-	-
Hamburg Port	2	549	Railroad	610
Hamburg Port	2	250	Port Charges	-
Korfakkan Port	18	2321	All water	11610
Jebel Ali Port	2	-	Transhipment	322
Um Qasr Port	6	655	Port Charges	953
Baghdad	3	630	Trucking	610
Total	33 Days	USD 4565		14,105 km

This route is mainly used for capital goods and high volume shipments, such as wheat or food stuff, for Iraqi ministry accounts. Some delays can occur, especially in Um Qasr Port, where the berths are still inefficient, superstructures are obsolete and limited, and port management capabilities are poor. Such conditions have led to congestion in the port, which creates vessel queues. Nevertheless, most shipments under contract with government parties are discharged at Um Qasr Port, since there is a governmental instruction to all state companies to contribute in port business revival, and any delay which may happen at Um Qasr Port

would be covered by the governmental end-users. Such factor could be a new factor that affects modal choice, causing shippers who have signed contracts with the Iraqi Government to exploit the route via Um Qasr and to focus on the transit time of the route before discharging at Um Qasr. This leaves the government to bear the costs of any delay which could happen later, especially where such contacts have volume cargoes and include several partial shipments, and any delay, if calculated, would incur high costs. Accordingly, about 70 percent of UASC inbound boxes from Northern Europe are discharged at Um Qasr.

UASC Corridors from West Mediterranean to Baghdad

These corridors have been initiated from Spain. This country has regular shipments to Iraq, transported mainly through L/Cs opened by Jordanian or Emirates banks. Cargoes include tiles, industrial ceramic, hey, paper and waste paper. UASC has robust services from Spain to the Middle East using Valencia Port as a hub for Western Mediterranean services linking Port Said, Jeddah and Khorfakkan directly. In this regard, UASC utilises two scheduled services from the Mediterranean to the Middle East, namely, AMC1 and AMC2, calling at Valencia every Wednesday and Friday. The following corridors' analysis will focus on tiles' shipment movement from Castellon (2) to Baghdad, since Spanish tiles have a massive market in Iraq. Trucking is deemed to be the predominant mode used to transport tiles' containers to Valencia Port, compared to railroads, due to high costs of rail services and the limitations of its network, therefore, about 90 percent of containers are transported by the former mode. In terms of logistics, ICDs' role for Spanish tiles is still negligible and most shippers, through their forwarders, tend to handle shipments at factories directly. For tiles' business, shippers tend to find the cheapest trade route to transfer their products, as a result of high competition, putting other factors in a less preferred position.

Corridor 3: Castellon – Valancia - Khorfakkan – Jebel Ali – Um Qasr – Baghdad (Table 3)

In Castellon, tiles' shipments are normally stuffed in 20' containers, due to the cargoes' weight and volume. Each box is transported by a truck to Valencia Port within one day, a distance of about 65 km. In the port, container handling and loading operations require about two days before vessels depart. The shipping leg for this route runs from Valencia – Khorfakkan – Jebel Ali to Um Qasr, a distance of 9,443 km within 20 days. At Um Qasr Port, containers require 2 days, under normal circumstances, to be discharged, cleared and loaded onto trucks. Finally, the inland mode requires one day to reach Baghdad, crossing about 610 km to the final destination, using Highway 6.

Costs start in Castellon shippers' premises with USD 145 per TEU, and trucking to Valencia Port costs about USD 326. In Valencia Port, the total charges per TEU are USD 196, and then the shipping leg from Valencia to Um Qasr costs about USD 1,441, including all charges. At Um Qasr Port, each container costs about USD 655. In the final leg, the trucking mode costs USD 630 per TEU to Baghdad. The private sector is the main user of this route importing tiles to the Iraqi market. The consignees deem Um Qasr to be a reasonable gateway to Iraq, since the route to Baghdad is safer than other routes from Syria and Jordan, and the entire motorways used for the final trucking leg are well monitored and protected by the police and army. Moreover, personal relationships can play a significant role in facilitating container clearance, waiving some ports' costs and demurrages, exploiting the ports' premises, helping the consignees to minimise transit time and ensure safer delivery, since Spanish tile shipment is costly and Iraqi customers tend to bear extra costs to attain a higher level of safety and attempt to squeeze the transit time through these inappropriate approaches.

2 The biggest ceramic tiles production area in Spain, located in the south.

Table 3. Corridor 3: Castellon – Valancia - Khorfakkan – Jebel Ali – Um Qasr – Baghdad

Route Progress	Transit Time (day)	Cost (USD/TEU)	Mode	Distance (km)
Castellon	-	145	-	-
Valencia Port	1	326	Trucking	65
Valencia Port	2	196	Port Charges	-
Korfakkan Port	12	1441	All water	8168
Jebel Ali Port	2	-	Transhipment	322
Um Qasr Port	6	655	Port Charges	953
Baghdad	3	630	Trucking	610
Total	26 Days	USD 3197		10,118 km

Corridor 4: Castellon – Valencia - Port Said – Latakkia – Baghdad (Table 4)

The route begins from Castellon and containers take about one day to be trucked to Valencia Port, a distance of 65 km. Two days are then required for port operations until loading. The shipping mode starts from Valencia Port to Lattakia, via Port Said, taking about 9 days and 3,660 km. At Lattakia port, each container needs about 3 days to be handled, checked and cleared. The inland route can only use the trucking mode from the port to the border with Iraq, since no railroad services are available for container transport. This route runs from Lattakia – Tartous – Homs - Palmyra and Alwaleed border point, crossing about 650 km within one day. At the border, if there is no delay boxes can be cleared and switched to Iraqi trucks in one day, and it takes another day to travel 446 km on Highway 1 to the final destination in Baghdad. The costs start accumulating as usual during cargo stuffing operations, which include USD 145, USD 326 for trucking to Valencia Port and USD 196 per TEU for the port's charges. The shipping mode up to Lattakia costs USD 795 in total. On the Syrian side, each box costs USD 260 in the port, USD 250 at the border and USD 1,750 in total for trucking from the port to Baghdad. Lattakia Port conditions are relatively poor and the main berths and handling equipment are mainly designated for break bulk cargoes.

Table 4. Corridor 4: Castellon – Valencia - Port Said – Latakkia – Baghdad

Route Progress	Transit Time (day)	Cost (USD/TEU)	Mode	Distance (km)
Castellon	-	145	-	-
Valencia Port	1	326	Trucking	65
Valencia Port	2	196	Port Charges	-
Port Said	7	795	All water	3088
Lattakia Port	2	260	Port Charges	572
Iraqi Border	4	250	Trucking	650
Baghdad	1	1750	Trucking	446
Total	17 Days	USD 3722		4,821 km

Further, the Syrian government has its own influence on the port, through some restrictions to control transhipments, resulting in a limited number of containers crossing the port, and high charges for each container. Accordingly, port competitiveness has been enormously affected and traders normally attempt to find other alternatives; however, the route is still viable for time-sensitive shipments, where shippers have to achieve shorter transit time to comply with their swift delivery commitments. In terms of transport conditions inside Iraq, there are still some security concerns, and consignees tend to arrange for convoys to protect their shipments. Therefore, container movements on this route are relatively small (at almost 9 percent), since UASC clients have been influenced by safety concerns and cost, and may decide to find other safer and cheaper routes, despite being able to save time by using this route. The Confidence Ratio for this corridor is about 2.3. Another factor that affects the modal selection is the stringent governmental system, which directly affects cost, for instance, the railroad can be utilised for domestic cargoes only and any international traffic can use the trucking mode exclusively.

Corridor 5: Castellon – Valencia - Jeddah – Aqaba – Baghdad (Table 5)

On this route containers are transported 65 km by trucks to Valencia Port from Castellon in one day, and two days are required in the port before vessel departure. The all-water leg requires 9 days and crosses 4,422 km to Jeddah Port. In the second shipping phase, UASC transhipts its boxes to Aqaba Port after 3 days, through 3rd Party Feeders, crossing about 1,062 km. At Aqaba Port, each container requires two days for processing, and one day to get to the Iraqi border, where containers could be delayed for two days as a result of swapping trucks. The final road leg needs another day to reach the final delivery point in Baghdad, passing about 1,422 km in total on Highway 10.

Table 5. Corridor 5: (Castellon – Valencia - Jeddah – Aqaba – Baghdad)

Route Progress	Transit Time (day)	Cost (USD/TEU)	Mode	Distance (km)
Castellon	-	145	-	-
Valencia Port	1	326	Trucking	65
Valencia Port	2	196	Port Charges	-
Jeddah Port	9	1066	All water	4422
Aqaba Port	3	0	Transhipment	1062
Aqaba Port	2	200	Port Charges	-
Iraqi Border	2	1500	Trucking	850
Baghdad	2	0	Trucking	572
Total	21 days	USD 3,433		6,971 km

Container stuffing at Castellon costs USD 145 per 20' container and USD 326 for the road leg to Valencia Port. At the port, each TEU costs USD 196 for handling and loading operations. For the shipping leg, all inclusive charges from Valencia to Aqaba port, via Jeddah cost about USD 1,066. In Aqaba port, container handling and clearance charges are USD 200 per box, and finally, USD 1,500 as a total charge from Aqaba to Baghdad, including all charges for trucking and borders crossing. This route is often chosen by Iraqi consignees who have a business presence in Jordan and it is easier for them to arrange payments through Jordanian banks. Furthermore, the Jordanian government adopted some steps to facilitate cargo transit to Iraq via Aqaba to attract more businesses and to revive the bilateral agreement that had been signed with the former Iraqi regime. Therefore, a good proportion of tiles' shipments towards Baghdad is discharged and transported to Iraq to entertain financial and operational privileges that could be attained via this route. However, some security issues which have occurred in the past still affect the route's popularity, despite the highway used in this route being well protected by police and only minor incidents happening during the last 12 months.

Findings and Conclusion

This paper has focused on some of the multimodal corridors initiated from North Europe and West Mediterranean zones to Iraq, based on UASC line services and lifting. Several important points have been raised during the discussion, implying that modal choices could vary between shippers and consignees, based on differences between countries of origin and destination. In Northern Europe, the cost factor still has a prominent influence on modal choice, and thus, on route selection. This can be seen from the two corridors starting from Munich, where shippers trade off between cost and transit time and prefer to use cheaper modes and a trade route with a longer transit time and distance, rather than a route with shorter transit time but with higher costs. On the Iraqi side, and beside the cost factor, safety has a direct impact on modal and route choice by the Iraqi consignees, and the tendency is to divert containers to safer routes despite bearing higher cost and longer transit time. Thus, Iraqi consignees mainly trade off between safety versus transit time, and safety versus cost.

Governmental policy also has some impact on modal choice, encouraging state companies and ministries to monitor and steer the flows to optimise both cost and reliability, but sometimes incurring higher costs and longer transit times. In such cases the shipping mode will be extended covering longer distances, and the shorter shipping leg combined with road mode via neighbouring counties neglected for the sake of complying with these instructions. Therefore, such governmental intervention could be regarded as a new factor that affects

modal and route choice. Personal relationships therefore have a direct influence in this regard. The case of Iraqi corridors highlights that modal choice is also related to route choice. This can be found when Iraqi consignees tend to use routes via Um Qasr port, which have a longer shipping leg, rather than other routes which include a shorter shipping leg and longer inland mode, indicating that modal choice diversification does not necessarily include shifting to another mode, but could be as an extension of the same mode, which leads to the use of a particular corridor.

The Iraqi Port's conditions and the longer transit time have not strongly affected customers' choices, and port users still believe that using the longer and more costly corridor is reasonably justified by the safety factor, which cannot be achieved on other routes. Customer's modal choices after the shipping leg are limited to one mode only, making customers focus on better available corridors. In summary, the multimodal transport concept is essential to transport cargoes from Europe to Iraq and several multimodal corridors are being used. Seaports located in the neighbouring countries have become vital for linking transport legs in some of multimodal corridors to Iraq, since the Iraqi ports are still primitive and have poor access to the main sea routes. Nevertheless, the direct corridors to Iraq via its minor seaport are still more attractive compared to other routes as a result of safety concerns and governmental instructions. The UASC line has utilised several corridors to Iraq and increased deployed tonnage and services enabled to meet demand on transport from Europe to Iraq, and to diversify the choices available to its clients. The importance of UASC's services is well perceived in such corridors, since the shipping leg has the biggest proportion of all these corridors, which has contributed positively in developing businesses to Iraq.

Finally, an interesting finding of this paper, emerging from the case study routes, is that there is a fairly strong inverse relationship between overall transport costs and speed. That is to say, for the movements originating in Munich the slower route (Route 2) is significantly cheaper than the quicker route (Route 1). Although this comparison is dependent on a comparatively limited set of data, this inverse relationship is also visible with the shipments originating in Castellon. The three Castellon – Baghdad routes show a clear inverse relationship between cost and speed. Route 3 is both the slowest and the cheapest, Route 4 is the fastest and most expensive and Route 5 is between the other alternatives in terms of speed – cost performance. The data enable us to reach a tentative conclusion that sourcing unitised freight from Munich implies that there is trade-off of 9 days additional time for a $500 saving in freightage. From Castellon, for a 10 day time penalty freightage appears to be around $150 lower. This opens opportunities for testing the time / cost sensitivity of unitised freight more rigorously in both unstable and stable commercial environments.

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