



PROPOSAL OF LOGISTIC COST REDUCTION IN CONSIGNMENT CONSOLIDATION

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Abstract:

One of the ways of increasing effectivity in logistics is by reducing the total cost while sustaining the level of quality of the logistic services provided. Such as transportation of goods. Transport costs depend on a mode of a transportation channel and specifics of the goods and consignments that are being transported. The costs may vary substantially and are subject to weight and volume of the consignment, transport distance – meaning distance between the place of consignment collection and the place of its delivery. Another considerable factor is a type of transportation mode. Article points at reduction of transportation costs in a form of a case study of consignment consolidation of four different export frameworks targeting transport from Slovakia to Indianapolis in USA, Colombo in Sri Lanka, Dubai in UAE and Alger.

Key words: *consignment, consolidation, costs, transportation*

1 INTRODUCTION

Transportation costs of the most developed economies in the world reached the tops as high as 60% of the total costs in last 15 years. The warehouse and depot operational costs and inventory maintenance costs posed approximately 36%. The most expensive logistic in Europe, in terms of aforementioned facts, is the Spanish one. Mostly due to a great size of the country and therefore long distances goods have to travel to reach their customer. On the other end is England with the least costly logistics. The prices on logistic market trend to decline but they keep rising as far as logistic processes are considered. Based on a global research the logistics costs vary between 10 to 30 % of the total costs, the number varies for any given company.

2 LOGISTICS COSTS

Nowadays, in times of massive influence of the economic crisis affecting economy of every country, the effort to minimize costs is more important than ever before. Logistics costs take a marginal portion of the total costs. Logistics costs are defined by many authors [1], [2], [4], [5], [6]. As per definition of Malindžák, distribution costs are expressed as a sum of all costs related to execution of acquisition and logistic distribution processes [1]. These costs are linked to realization of objective information and nominal flows, mostly they are costs related to transportation, storage, financial assurance, insurance and communication costs. With a reference to Šulgan [2], the logistics costs are defined as a demand of a logistic control and comprise labour cost, interest, depreciation, fuelling costs, forwarding and energy costs, insurance and handling expenses. According to author Bazala [4] we understand logistics costs as a sum of all the expenses related to organization, control and logistic process execution itself. It represents the costs of all the used links in a logistic supply chain. Authors Pražská and Jindra [6] divide logistics costs into the same groups as Schulte [5]. That is a division to scheme control supply costs, warehousing and storage expenses, transport cost and handling cost.

If we want to choose the right transportation mode that is characterized by a low transport cost it is essential to know the elementary parameters defining the transportation system. Such as nature of the goods transported, frequency of distribution, time spent in a transit zone, transport routes and legislation. Reflexion of these parameters effects directly the controllability of the system. That exact system must assure optimal exploitation of the transport capacity, flexibility, high quality level of the service and transparency of every action during operation.

Cargo agencies act as brokers in aviation and maritime cargo transport. They represent interface between a shipper or a consignee and a carrier. They usually offer a wide range of services [8]. Cargo agent becomes a delegate of freight carriers and acts on their behalf. Agent's job is to prepare and process the consignment and all the relevant documents all the way to delivery to a carrier. The remuneration is in a form of broker's commission paid by a carrier. It usually represents 5% of the invoice price.

3 SHIPMENT CONSOLIDATION CASE STUDY

In order to minimize costs for the customers it is necessary to analyse existing system and break it down into divisible elements. The main emphasis is on a search for potential cost savings of the export companies that are interested in exporting their goods and offering them on a global market at competitive prices. Objective of the analyses is to find opportunity of the market to achieve transport cost reduction.

Manufacturers – who act as shippers in this case – provide transportation using dispatch companies and carriers. Every consignment is usually transported individually to the consolidation warehouse. The highest transport cost to a catchment depot is for companies shipping from Eastern Slovakia. The goods are commonly shipped to a consolidation depot in Bratislava, Slovak Republic or Prague, Czech Republic. It is imperative to calculate the transportation costs either to Bratislava or Prague bearing in mind the difference in storage cost of both depots is not high. Maritime tariff from Prague is preferable to the one from Bratislava. Transport options, availability and capacity are ample. Number of carriers that are interested in providing their service is sufficient as well and they are able to adjust their fleet accordingly. Transport time to a catchment depot in Bratislava is within 24 hours, to Prague sometimes even 48 hours.

1. Consignment consolidation (table 1) – transport of a consignment from Prešov, Slovakia to Indianapolis, USA. Weight – 3080 kg. Total cost savings achieved 20.64%.

Table 1. Prices of the consignments of 3080 kg to USA

Cost Item	Export via Bratislava	Proposed consolidation	Savings
Brutto weight	3 080	3 080	-
Volume [cbm]	10.07	10.07	-
Transport time [days]	37	30	7 days
Goods value [€]	18 000	18 000	-
Terminal fees [€]	25	25	0
Transport cost to consolidation warehouse [€]	250	148	40.80%
Handling fees [€]	30	21	30%
Custom fees [€]	50	25	50%
Administration fees	10	10	0
Transport cost warehouse – Indianapolis [€]	988	828	16.20%
Insurance [€]	81	81	0
Total costs	1 434 €	1 138 €	20.64%

2. *Consignment consolidation (table 2)* – export of consignment of a bigger volume from Krompachy, Slovakia to Colombo, Sri Lanka. Weight 1120 kg. Total savings achieved 27.10%.

Table 2. Prices of the consignments of 1120 kg to CFR Colombo, Sri Lanka

Cost Item	Export via Bratislava	Proposed consolidation	Savings
Brutto weight	1 120	1 120	-
Volume [cbm]	12.28	12.28	-
Transport time [days]	36	28	8 days
Goods value [€]	14 000	14 000	-
Terminal fees [€]	25	25	0
Transport cost to consolidation warehouse [€]	220	148	32.73%
Handling fees [€]	30	21	30%
Custom fees [€]	50	25	50%
Administration fees	10	10	0
Transport cost warehouse – Colombo [€]	528	383	27.46%
Insurance [€]	63	63	0
Total costs	926€	675€	27.10%

3. *Consignment consolidation (table 3)* – cargo in third scenario is a weigh-challenging shipment from Žilina, Slovakia to port of Dubai, UAE. Weight 5720 kg, volume only 5.72 cbm. As per calculation total savings are 36.38%.

Table 3. Prices of the consignments of 5720 kg to CFR Dubai, UAE

Cost Item	Export via Bratislava	Proposed consolidation	Savings
Brutto weight	5 720	5 720	-
Volume [cbm]	5.72	5.72	-
Transport time [days]	39	31	8 days
Goods value [€]	25 000	25 000	-
Terminal fees [€]	25	25	0
Transport cost to consolidation warehouse [€]	230	105	54.35%
Handling fees [€]	30	21	30%
Custom fees [€]	50	25	50%
Administration fees	10	10	0
Transport cost warehouse – Dubai [€]	166	98	40.96%
Insurance [€]	113	113	0
Total costs	624€	397€	36.38%

4. *Consignment consolidation (table 3)* – shipment is much lighter, transported from Slovenská Ľupča, Slovakia to Alger. Weight is only 520 kg, volume of 7.2 cbm. Total cost savings are 25.77%.

Table 4. Prices of the consignments of 520 kg to CFR Alger

Cost Item	Export via Bratislava	Proposed consolidation	Savings
Brutto weight	520	520	-
Volume [cbm]	7.2	7.2	-
Transport time [days]	29	22	7 days
Goods value [€]	9 000	9 000	-
Terminal fees [€]	25	25	0
Transport cost to consolidation warehouse [€]	170	105	38.24%
Handling fees [€]	30	21	30%
Custom fees [€]	50	25	50%
Administration fees	10	10	0
Transport cost warehouse – Alexandria [€]	454	352	22.47%
Insurance [€]	41	41	0
Total costs	780€	579€	25.77%

4 CONCLUSIONS

The total cost savings in proposed consolidation scenarios of this case study are achieved by reducing the transport cost of the transport to a consolidation depot in Prague. Other means of cutting the costs are by saving on handling fees and customs fees. Lower tariff may be achieved by using the same proposed way in maritime shipping. From the transport time point of view

there is transport time reduction by 7 to 8 days. Average and total costs savings for the reviewed consolidation cases are listed in table 5.

Table 5 Total costs saving – consolidation of four consignments

Consolidation	Volume [cbm]	Brutto weight [kg]	Export via Bratislava [€]	Proposal [€]	Cost savings [%]	Cost savings [€]
Prešov – CFR Indianapolis	10.07	3 080	1 434	1 138	20.64	296
Krompachy – CFR Colombo	12.28	1 120	926	675	27.1	251
Žilina – CFR Dubai	5.72	5 720	624	397	36.38	227
Slovenská Ľupča – CFR Alger	7.2	520	780	579	25.77	201
Total cost saving				975 €		

Slovakia is a land lock country and as such it has a good pre-conditions for an international cross-border co-operation in transport logistics. Above all, in the area of export beyond EU borders and as well in importing goods from third countries. The objective of the submitted study was to bring cost savings to export companies of Slovakia's regions and improve their ability to compete on a global market.

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