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## OUTSOURCING LOGISTICS AT PETROL STATIONS IN SLOVENIA

### ABSTRACT

The environmental disburdening by means of outsourcing logistics (sorting, bundling, transport) is today significantly more present, since this has been regulated by the law provisions on environmental protection and the economic reasons. Outsourcing logistics in this field with its activities such as: improvement in assembling separate fraction, introduction of new, i. e. additional boxes, usage of specific vehicles for collection and dispatch, reestablishment of information systems and organization of a centre for disburdening of the environment (sorting, bundling and waste disposal) is contributing largely to a better accomplishment of the mission of logistics rationalization and adaptation to new law claims on environmental protection.

### KEY WORDS

logistics, petrol stations, outsourcing logistics, environmental protection, economics

## 1. INTRODUCTION

Considering the expanding and constant presence of outsourcing logistics in its specific activity of disburdening environment in the field of petrol stations as well as the general and basic principles of logistics, particularly the tertiary logistics, as the problem of our research we have analyzed the economic and ecological advantages and disadvantages of outsourcing the supply, which directly meets the traffic aspects (the dynamics of traffic routes and infrastructure), the environmental aspect (e. g. legal acts, legally adopted regulations and firefighting aspects) as well as commercial servicing elements being applied at the petrol station grounds.

The research issue is based on a case of outsourcing logistics covering the field of disburdening the environment at and the environment surrounding the petrol stations, the expertise which has helped us to establish the advantages as well as the threats of outsourcing logistics, when "to do something by yourself" and when "to buy". Characteristics, which are to be considered as the advantages of outsourcing logistics at the Petrol d. d. oil company have to be transferred on performing the technology of waste transport from the petrol station. Further, the critical issues have to be exposed and emphasised by applying outsourcing logistics.

The scientific hypothesis is also determined. We know much about outsourcing logistics at petrol stations and the operation of these. The development degree is based on ecological outsourcing logistics at petrol stations (Petrol d. d.). It is possible to suggest the activity that will take place and assure stability and vegetation at petrol stations in Slovenia.

## 2. SPECIFIC CHARACTERISTICS OF PETROL STATION OPERATION IN SLOVENIA

### 2.1 Basics about petrol stations

Petrol stations are retail trade objects. They have the traffic function and are part of the technical infrastructure. Petrol stations are situated on traffic surface. The vehicle arrives and leaves the surface. There is also a resting place and workshop for vehicles. These days at petrol stations, there are bars, restaurants, carwashes and resting places. Because of many

activities that take place at petrol stations there is also more and more waste.

Progressive technology is used to build human-friendly objects. Building such places is difficult, and they should be able to receive a lot of people, because of more and more road traffic. We should not only consider project plans, but also construction, logistics and environmental issues. There are different rules important at petrol stations. Because of the overall progress, petrol stations look like specific logistic centres.

Disburdening environment at petrol stations is part of the area of logistics outsourcing. It considers collecting, disposal, removal of dangerous waste (motor oil, batteries, and dangerous packaging waste), plastic packing, pasteboard and wastepaper. The number of waste cans depends on the size of the petrol station.

## 2.2 Logistic activities at petrol stations

Talking about outsourcing logistics, one realizes that it is a comprehensive field of study. It may be said that disburdening environment, logistics transport activity, logistics handling activity and logistics utility activities are part of a large group called outsourcing logistics.

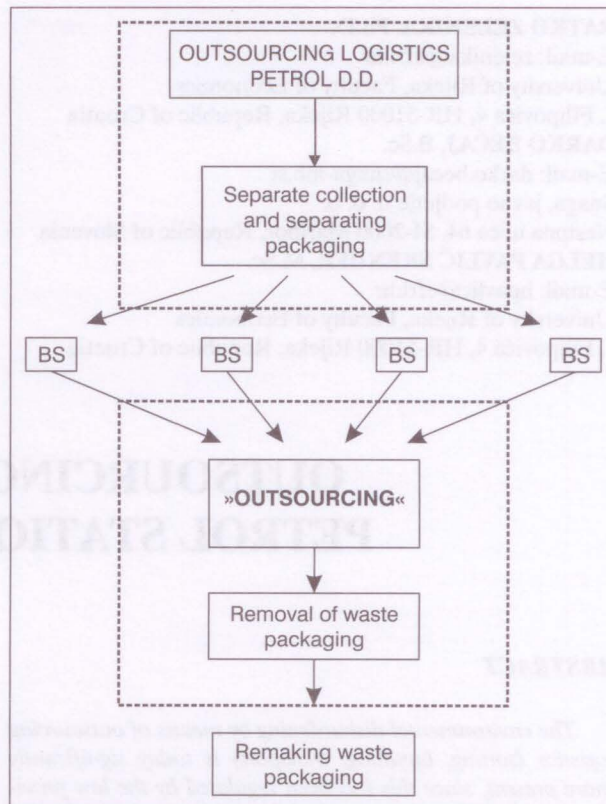
The mission of transport logistics is to bring different packages quickly, safely, rationally from one place to another. This means satisfying the customer's needs in any way. [7,430]. Handling logistics is tertiary logistics. It allows quick, safe and rational handling of different useful things at different places (salons, warehouses and logistic centres). It is also part of industrial process and industrial service. [7,441]

Without such logistics we cannot make space transformation of material things (raw material, by-product, and product).

Utility logistics as science and as activity is very important for today's society. It has a mission in different activities:

*Collecting and removal of separate fractions.* These activities include: collecting waste and separate fractions from housekeeping and institutions and removal from waste and separate fractions. This is possible with the help of waste cans and containers.

In such a way we can effectively remove waste, motor oil, batteries and dangerous packaging waste from petrol stations. At Petrol d. d. outsourcing in discharging logistic is in full usage. However, it means also something else. Because of the legal obligation of discharging waste, it is also of big advantage in the media. Petrol d. d. is the biggest oil group in Slovenia. With outsourcing logistics they achieve economic and ecological goals. The economic and ecological goals are connected, because of the reduction of natural raw



Scheme 1 - Outsourcing logistics at Petrol d.d.

Source: author on basis of experience

material. This also means lower burdening of the environment and company's costs.

Petrol d. d. Company has its own supervision on collecting separate fractions at petrol stations. The scheme shows outsourcing in discharging logistics at Petrol.

## 2.3 SWOT analysis of outsourcing logistics at petrol stations

SWOT analysis defines the strengths, weaknesses, opportunities and threats of collecting separate fractions, discharging waste packaging, handling mechanization, transportation and giving second material into production.

SWOT analysis could be efficient, if it were made by company's employees. They have more information, practical experience and wisdom they collected while the company was growing. To focus on advantages, weaknesses, opportunities and threats, we need information from the company and the environment. [11,644]

*Strengths* collecting separate fractions, discharging waste packaging, handling mechanization, transportation and giving second material into production (S):

- pure material,
- more options to reproduce,

- nice environment,
- making good company image,
- ecological sense,
- lower costs.

*Opportunities* that appear (O):

- the option of enlarging the service size,
- strategic connections to business partners,
- adaptation to customers' needs,
- exploitation company image,
- more information,
- development in the field of logistics,
- access to new market,
- trading in different geographical places,
- spreading distribution.

*Weaknesses* collecting separate fractions, discharging waste packaging, handling mechanization, transportation and giving second material into production (W):

- legal obligation,
- costs for separating waste,
- costs for more waste cans for separating,
- unpreparedness of employees to collaborate (no motivation).

*Threats*, that can affect the operation of a company (T):

- flexible competition,
- decreasing purchasability,
- decreasing prices,
- decreasing company image.

*Strengths and opportunities.* These two factors represent the foundation for further operation in a company, but only if they are suitably used. If we add unused potential to strengths and opportunities it may be said that a company has a chance to enlarge services in different fields (strategic connections to business partners, access to new markets, exploitation of company image and others).

The external user is confronting weaknesses and threats. Above all, these are flexible competition, decreasing prices and company image, vulnerability of a company, constantly decreasing service costs and others. It may be said that above all there is fear of not being chosen by a customer.

Such rejections may mean great losses on the market field for a company.

*Strengths and weaknesses.* It is important that a company senses the opportunities, but it also has to have useful knowledge to use such opportunities. Every company has to control internal activities, only in this way can it react properly on the market.

Above all, weaknesses are those that obstruct a company. If those were eliminated the output of a company would rise. Such weaknesses can be found in the foundation phase, or can appear later from differ-

ent imperfections, mistakes and wrong treatment of leadership or management. [5,32]

Strengths represent a factor which means good market place of a company. This strength can be a skill, an ability, or something that gives a better position regarding competition (better product, new technology, better image, and better services for customers). The weakness shows poor market place and bad balance). The definitions for strengths and weaknesses should be made together. Some are more important than others and some are not. Some should be increased and kept, others not. [5,32]

The foundation ability should be distinguished from the foundation advantages. Foundation advantages do not come from services but rather from benefits that are a product of long-term decisions or good accidents. [2,81]

Longing to eliminate all weaknesses, a company cannot do so, and it cannot use all the advantages. Therefore it has to make a decision:

- should it focus on those opportunities, for which it has proper advantages,
- or to focus on opportunities, from which some advantages may be obtained?

*Opportunities and threats.* Market opportunity is an external factor and represents the needs of a market which can be satisfied by a company. The opportunities are classified according to the extent to which they attract the companies, i. e. what is the possibility for the company to use them successfully. Market threats are external factors, and can have a negative effect on a company. This can result in reduced sale and decreasing profit. Such threats are measured according to their importance and the probability of occurrence. [2,80]

### 3. ANALYSIS AND EVALUATION OF OUTSOURCING LOGISTICS AT PETROL STATIONS IN SLOVENIA

#### 3.1 Generally about outsourcing logistics at petrol stations

Petrol d. d. has made a decision about outsourcing logistics for separate fraction. The decision is based on cost analysis. All collected quantities and costs confirm a good decision. At petrol stations, 230 (79%) tons of waste paper and 62 (21%) of waste plastic were collected. These two fractions are still the most important parts of packaging and have ecological characteristics. This is the reason why there is a lot of waste. Waste plastic belong to a group of materials which are developing very fast. They have a shape of plastic bottles, bags, wraps and dishes. Because of their structure both packagings are highly inflammable. This should

be considered when choosing the method of transportation, collecting and disposal.

Collection and separation of waste can be indicated as typical tasks of outsourcing logistics. When collecting waste, we look at a homologous stream, and to do so, we have to separate mixed waste. We achieve this by setting up waste cans for separate waste. The users separate waste in the beginning. This is how we unite different procedures into one mission. This is called collecting separate fractions. With this method we make good options for renewed usage. The problem that appears is the process organization in cooperating employees at petrol station. In the beginning there must be enough waste bins. The bins are different in shape and colour.

Extra costs that appear and space that is needed also need cartage. Most part of transportation must be organized for small quantities. Responsible persons get more obligations. Experience has shown: more obligation, less cooperative the employees. Collecting processes have three characteristics: quantity of waste, frequency of occurrence, basic structure of collected waste.

The waste quantity is a result of frequency of occurrence in time. Frequency of occurrence is the time at which most of the waste is collected. With this information we can define capacity. The analysis of the basic structure of collected waste should guarantee the exact situation. Collecting separate fractions is the condition for repeated handling. [3,49]

### 3.2 Competitive position and adjusting to market

There are different ways for making a good price. In transportation we should consider a way of covering all costs. But there are also ways, like partial costs. In outsourcing logistics, which deals with transportation, all prices are formed in a specific way. The prices for transportation are different than in any other activity. From an external view, the costs can be divided into transportation phases. The company looks forward to a higher profit. The profit is the result of quantity of income and the incurring costs. We must also consider unloading and reloading operation that take place, costs of transportation and final operation, such as unloading.

Establishing transportation prices is related to primary matter from the business process, from inquiry and offer. In this activity transportation prices are top secret. This is the consequence of competition.

The power of competition in making transportation prices is very big. The decision made by Petrol d. d. is based on professionally and financially interesting offer. There are other competitive companies on the market. If the transparency of a market is strong, com-

petitive companies will have easier way to know the risks that appear. Fixed prices do not show the market needs. The number of companies on the market and their share affect the typical behaviour, when their plans are based on profit. Compromises must be taken between the behaviour of companies and the market size. This transportation service is designed from the transportation distance, transportation place, and transportation time and from the transported object. The most important thing is the object that is transported. Because of different objects, different handling is needed. Where specifically the object is present, special transportation is needed. This shows a typical inquiry which is not often present. On the Slovene market only a few oil groups offer resting places, restaurants and bars.

### 3.3 Outsourcing logistic costs at petrol stations

Because of non-typical transportation the prices are non typical, too. Interdependence between costs reflects successfulness of a company and different price systems. The rational transportation system is the basis for the formation of prices.

The need for lower transportation costs can be expressed in this way: the bigger productivity, the lower the price per unit. With competition analysis of different companies we get the total amount of costs that are related to transportation. [8,181]

The sales level is affected by the logistic costs. This means also profit and activity of a company. Logistics also affects profitability and success. The costs are at different levels. Cost analysis provides exact evaluation of logistic costs. But we also have to calculate the part that is represented in the entire company's costs. [10,123]

The logistic costs are compared to the costs that are made by other activities to see the meaning of macro logistics.

The cost coverage threshold tells us, how many incomes the company must have to cover the all costs and to operate with a positive zero. All incomes that are higher than the costs represent profit. It is in the interest of every company to cover all the costs and to achieve profit. Table 1 shows technical characteristics of a vehicle, which is used for outsourcing logistics at petrol stations.

The transportation costs are calculated on the basis of average items:

- fuel costs (average number of kilometres covered in transportation of waste packaging from petrol stations multiplied by the consumed fuel and fuel price);
- employee costs (wages, other employees costs and protection equipment);

**Table 1 - Transportation costs analysis for utility vehicle**

Transportation costs for utility vehicle in year 2004*			
Nr.	Cost type:	Costs at a yearly level (€):	Cost part (%)
1.	Fuel	25,164.00	38.21
2.	Employee (work)	23,333.00	35.43
3.	Depreciation	14,291.00	21.70
4.	Maintenance	2,000.00	3.03
5.	Insurance (Registration)	1,168.00	1.77
	Sum:	65,845.00 €	100

Source: according to external performer

\* evaluation in the year 2004

\*\* gas price as of 14 April 2004 at petrol stations in Slovenia was 0.71 euro. Average number of kilometres covered: ~1700 km (~88,400 km/year);

- depreciation costs (depreciation period 7 years);
- maintenance of a vehicle (repairs, technical overhaul, tyre replacement, washing, lubrication, toll);
- insurance of a vehicle.

In our example, the company must realize at least 65,845 euro of incomes on yearly basis, to cover all the costs. If incomes are higher, the company will realize profit; otherwise, it will make loss. The highest costs are for the fuel (38%) and employees (35%). According to the obtained data the external operator covers the transport costs of the waste packaging from the petrol stations.

#### 4. CONCLUSION

The decisions about services that a company should outsource or cover by itself are the most important ones when considering the competition of companies. They belong to strategic management, which also makes decisions on long-term development issues. All these decisions are the basic need for gaining advantage over other companies on a market. Although outsourcing logistics can reduce costs, it cannot reduce costs on a total basis.

For outsourcing logistics we need further decisions and analyses. First, we have to make the primary analysis; information about inquiry and competition. Then we need to eliminate some activities but without threatening expert knowledge and experience. All activities are not suitable for outsourcing logistics. They must be reduced to a minimum.

The biggest competition advantage is the price and the quality of services. The most important advantages in this activity for ecology and transportation are safety, punctuality and quality. Outsourcing logistics is a very specific activity at petrol stations; it is limited by

the number of petrol stations, space and handling technology.

The result of handling and transporting separated fractions are big costs. If Petrol d. d. company wanted to transport such waste, it should achieve more than 15 million incomes per year to cover all the costs, which are connected to the organization and technology of collecting and handling waste. The decision on choosing an external partner was correct.

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#### POVZETEK

#### RAZBREMNILNA LOGISTIKA NA BENCINSKIH SERVISIH V SLOVENIJI

*Razbremenjevanje okolja s pomočjo razbremenilne logistike (sortiranje, zbiranje, transport) je v podjetjih današnjega časa vedno bolj aktualno, saj nas k temu zavezujejo zakonski predpisi o varstvu okolja in ekonomski razlogi. Razbremenilna logistika na tem področju s svojimi aktivnostmi kot so: racionaliziranje zbiranja ločenih frakcij, uvedba novih oz. dodatnih zabojnikov, uporaba specifičnih vozil za zbiranje in odvoz, vzpostavitev celovitega informacijskega sistema in ureditev centra za razbremenjevanje (sortiranje, zbiranje in ravnanje z odpadki) odločilno vpliva k uresničevanju nalog v zvezi z racionalizacijo logistike, prilagajanjem zakonskim zahtevam glede varstva okolja.*

#### KLJUČNE BESEDE

*logistika, bencinski servisi, razbremenilna logistika, varovanje okolja, ekonomičnost*

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