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STATIONARY TRAFFIC – THE CONTEMPORARY PHENOMENON IN THE LOGISTICS SYSTEM OF A TOURIST DESTINATION

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Abstract

For tourism as one of the most propellant and yet at the same time one of the most sensitive and most flexible industries, slowly but surely, the time of counting tourist arrivals and their overnight stays is coming to an end. Tourist experiences are becoming a part of the economic offer, together with the goods and services, i.e. they are the response of the service provider to the demand of the contemporary user (tourist) who wants to be treated in a personalised and memorable manner. In this way the need for a balanced coordination is created, i.e. preparation, implementation, monitoring and correction in management of life and of activities in every single tourist destination – from the urban planning, the utility infrastructure, the offer of original tourist products all the way to ensuring sufficient parking lots. Location of the parking capacities, their arrangement in space, the number of parking lots and the distance from tourist attractions are the fundamental determinants in providing the quality stationary service for tourists' cars which, integrated with the remaining tourist services, represents also the determinant of the destination's quality tourist product.

Keywords: stationary traffic, logistics system, tourist destination

1. INTRODUCTION

A tourist destination is a functional unit consisting of many factors, primarily hospitality, tourist attractions, transport capabilities and facilitation activities which the tourist market recognises as the carriers of the tourist offer. Also, a tourist destination as a location represents the reason for people to travel. Activities in a tourist destination imply the movement of people, transfer of goods, information and energy, waste treatment and transfer of knowledge and capital. The optimisation of the mentioned courses on a certain territory is the objective of the tourist destination's logistics. In this complex task, the logistics utilises transport, its capacities and organisational forms.

Most of the transport flow on the territory of a tourist destination consists of passenger courses and is realised through road transport. Passenger courses in a destination continually go from the state of motion to a parked state, but the pattern according to which the changes happen differs depending on the type of passenger courses (tourists, local residents, transit passengers, excursionists and others).

The modern tourist prefers several shorter trips during the year, during which a complete and high quality tourist product is expected. This means that in a short period of time, tourists want to have the entire offer of a destination at their disposal. They also want a connected unit that will fulfil their expectations and will not put them in a situation where they have to spend a lot of time and effort finding out whether the destination really provides everything they were offered when they were deciding on their trip. Because of this demand, destinations need to be well-organised, their offer should be connected as a whole, prices should be realistic and the offer should constantly be renewed and enriched so that the destination has the longest possible lifecycle.

The tourist destination's offer should be planned, organised and connected into a whole, and the destination, which has numerous and diverse activities, should be managed in a way that makes it recognisable in the tourist market. The destination's offer is a mosaic of various services and products, such as: accommodation, food, attractions, other tourist services and facilities, transport, other infrastructure and institutional elements. Other elements of the tourist offer are: sports and entertainment, shops and repair shops, tourist information, post offices and telecommunications, emergency intervention services, staff education, promotion and sales, and banking and financial services. The connection of all the elements that are part of a destination's unique tourist product assumes numerous diverse processes, including transport processes, while the parking process of guests' cars is also of great importance.

2. THE CONCEPT AND OBJECTIVES OF LOGISTICS IN TOURISM AND TOURIST DESTINATIONS

Logistics is a scientific discipline that deals with finding methods of optimisation of the flow of materials, goods, information, energy (and people) with the objective of having the largest economic effect. In order to fulfil its task, logistics uses scientific instruments and scientific knowledge of many disciplines, so it should be seen as an interdisciplinary and multidisciplinary field.

Logistics in tourism is the space and time transformation of materials, people, information, energy, knowledge and capital with the objective of establishing a quality tourist service with minimum expenses. The objectives of logistics in tourism are: optimisation of the flow of goods, people, information, energy, knowledge and capital in order to produce a tourist service that satisfies customers. Image 1 shows the objectives of logistics in tourism: reduction of expenses and achieving tourist satisfaction in a tourist destination.



Picture 1 Objectives of logistics in tourism

Source: (Vučetić, Š.,2011, pp. 320).

The logistics of a tourist destination is the optimisation of the flow of people, materials, information, energy, waste, knowledge and capital on a certain territory in order to offer a quality tourist product. The conclusion is that its basic objective is to harmonise all material and non-material courses related to tourism in order to provide a high quality tourist offer at a destination, but also to ensure the higher efficiency of all business systems in its territory.

A systematic approach requires the inclusion of all activities and groups of activities, as well as processes among and within them, which interact in a complex manner, to manufacture a product that is attractive and acceptable to the tourist market. Therefore, the logistic system of a tourist destination includes the following main parts: hospitality subsystem, facilitation subsystem, transport

subsystem, tourist attraction subsystem, and destination management and organisation subsystem.

The modern tourist has timely information and is aware of the price and quality of a service offered in the market. As a user of the tourist service, they will choose the service that is most acceptable in terms of price and which they assess is of sufficient quality in relation to the money spent. It needs to be pointed out that one should not insist on the lowest price of an offered tourist service because that is not and will not be the objective of logistics in tourism. Therefore, it is important to put precisely the service user, i.e. the tourist, into the focus of the research of tourist service satisfaction. This leads to the improvement of the tourist offer and the satisfaction of the users of various services.

In the complex logistic system of a destination, which aims for the optimisation of logistic courses as an assumption for a high-quality tourist product, transport activity plays an important role, which is also present in the operative and information subsystem. From a functional point of view, the transport subsystem enables all physical and most information courses in the destination.

Scientific considerations and the practical application of logistics in tourism, as well as in transport, become possible when it is obvious that the application of logistic principles outside the flow of goods and information, and also outside the economy, can result in very favourable effects reflected in higher quality and cheaper products and services.

3. TRANSPORT SUBSYSTEM IN THE LOGISTIC SYSTEM OF A TOURIST DESTINATION

The primary objective of transport at a tourist destination is to fulfil the tourist demand. It is articulated between the emission market and the destination with the purpose of transport availability, then in the territory of a microdestination (settlement) with the purpose of the availability of the tourist offer, and in the micro-destination and nearby territory with the purpose of familiarising tourists with the attractions and supplying the destination with products for the needs of tourists.

This functional structure of the transport subsystem in a tourist destination is based on the role which transport has in the destination's tourist product and the transportation distance. The primary function of transport is connecting the emission market with the destination. The selection of the transport mode is primarily affected by demographic, geographic and psychosocial factors, as well as tourist behaviour. Tourist flows significantly affect the entire transport towards the tourist destination, primarily the utilisation of the capacities of roads and accompanying facilities, environmental devastation and transport safety. However, a tourist destination can also direct tourist flows

towards preferred transport forms with modern infrastructure and inform people about tourist attractions and events on chosen transport routes.

Transport towards a destination is also determined by the transport on the destination's territory. Giving an advantage to road transport also necessarily leads to a dominant role of this transport form in a micro-destination, with all the positive and negative consequences. One of the most significant negative consequences is an insufficient capacity of the streets, local roads and parking spaces. Therefore, the national transport politics for reaching strategic decisions on transport connection should always bear in mind that this determines a potential transport reality during the tourist season in the destination.

The role of transport in the increase of the attractiveness of a tourist destination primarily depends on the geographic characteristics of the territory, purchasing power of users, business 'climate', which will more or less encourage these forms of tourist and transport offer, product promotion and similar. The market recognisability and attractiveness to tourists of numerous destinations in global proportions exists thanks to the success of transport in presenting a destination.

The task of the logistic concept (Zelenika&Pupavac,2008) of a tourist destination is to include all transport courses into a functionally harmonious whole. Sufficient capacity and an appropriate location are the starting point for harmonisation. It is necessary to harmonise the national transport strategy and transport politics with the local ones and to harmonise the local transport politics with the objectives of tourism development. The modernisation and construction of transport infrastructure, selection of the direction and location on a microdestination level is mostly entrusted with local administration bodies that are in charge of transport, but they need to closely co-operate with the bodies in charge of tourism development.

Logistics supports the management of logistic courses in a destination. Since tourist courses and the destination need to be managed, this management should also include logistic courses (transport and other logistic courses) in the destination. The transport process is a heterogeneous phenomenon depending on the type of transport and the transport means, length and duration, transport effect and ratio of time in motion and in parking. It is precisely the alteration of motion and parking of transport means in a tourist destination that is the characteristic of the transport process that burdens the existing infrastructure more than others. The situation is most complex in road tourist destinations, especially those to which tourists arrive in their own cars.

4. PARKING – A FACTOR OF LOGISTIC SYSTEMS IN TOURIST DESTINATIONS

The role of transport, and especially individual transport, is of extreme importance in tourism. The average proportional representation of certain

categories of vehicles important for tourism in the overall global vehicle 'population' distinctly favours personal cars (85 to 90%), while there are considerably fewer buses (0.5 to 1%) and motorcycles (1 to 2%). Road transport is the dominant form of transport in which tourists arrive in Croatian tourist destinations. The latest research carried out by the Institute for Tourism in 2010 gives the following indicators: 90.4% of tourists use road transport (cars, cars with travel trailers and buses) to arrive to tourist destinations in Croatia, 8.6% of tourists use air transport, 0.7% of tourists use sea transport (ship, ferry and yacht), while 0.3% of tourists use rail transport. The data shows the preference that tourists give to road and air transport when they arrive at Croatian tourist destinations. The use of sea and railroad transport falls far behind.

Most tourist destinations are characterised by great transit transport of motor vehicles through the centre, a great number of cars belonging to tourists during the tourist season, lack of car parking spaces, numerous contents (storage and industrial plants) that continue traditional production in centres, but should be moved from there, and an increasing number of shopping centres in the very centre of a destination. It is known with certainty that transport intensity depends on the amount of travel. The amount of travel per person, i.e. tourist, or the amount of cargo depends on numerous transport, urban and other economic factors, i.e. activities of individuals, groups and economic activities. The number of tourists and visitors' cars, which considerably increases during the tourist season and creates large problems for normal transport, is an extremely important factor that affects the intensity of road transport.

Transport problems in tourist areas are extremely complex due to a great increase in transport during the tourist season in relation to the remainder of the year. Destinations with a large percentage of motorised tourists are sometimes paralysed with road transport. Identifying and resolving the transport problem as a whole, and especially the problem of parking, is always lagging behind in relation to resolving other transport issues. The development of a transport network is always exposed to issues, which are sometimes caused by an extremely unfavourable terrain configuration, which requires complex technical solutions and usually great investments (Pupavac & Maršanić, 2010).

In the process of providing a tourist service, the placement of tourists and visitors' cars is an important link in the overall quality of a tourist destination's offer. Many tourist destinations have increased needs for accessibility which cannot be fulfilled in a quality way without interventions in the existing communal structure (Mrnjavac, 2006), both in organisational and technical terms. Regardless of the means of arrival (bus, personal cars), there is an increasing disproportion between the transport demand and the existing road infrastructure.

This disproportion is most obvious in the organisation of parking in tourist centres – the abundance of content in the centres is the reason why many tourists, as well as local residents, decide to arrive by some form of road transport

to the city centre. The existing state of parking in tourist destinations is unsatisfactory due to the undeveloped and non-established scientific approach in the forecasting, planning, designing and organising of parking based on the interaction between the purpose of surfaces and generation of trips during which parking issues occur.

The structure of the transport subsystem in a tourist destination shows that most of the transport courses consist of passenger courses, where it is sometimes impossible to separate the courses of tourists from the courses of other passengers because they use the same transport capacities, i.e. transport means (public transportation) and infrastructure. Passenger courses in a destination continually go from the state of motion to a parked state, but the patterns according to which changes happen differ depending on the type of passenger courses (tourists, visitors, local residents, transit passengers, excursionists). The diversity of motives that encourage them into motion also affect the selection of the parking location, parking duration, frequency of the need for parking in a day, a week, etc. and the expected standard of the parking service and willingness to pay for it (Mrnjavac, et al, 2008).

Tourist destinations should count on a multifold increase in the demand for parking spaces during the tourist season compared to low season, when the demand for parking is generated mostly by local residents. In accordance with that, the infrastructure intended for the parking of tourists' cars in the low season period will be unused, both due to the size of its capacity and the location that is adjusted for hospitality facilities or tourist attractions. Basically, garage facilities in destinations with extremely pronounced seasonality (short season) would not be profitable due to an unfavourable ratio between the investment and short length of time during which it is possible to charge for the service.

A tourist destination is the reason that travel takes place, and the tourist goods and services in it cause needs. The tourist and developmental policies in general are usually directed to an increase in tourist accommodation capacities in hotels, camps and private apartments and rooms. An increase in the number of tourists and overnight stays leads to an increase in the vehicles in motion, a higher demand for parking spaces and pedestrian needs, which is generally not resolved in time and in an appropriate way. Transport congestion in almost all tourist cities is a daily phenomenon during the tourist season due to the lack of parking spaces.

5. LOGISTICS IN THE PARKING POLICY SYSTEM IN TOURIST DESTINATIONS

The need for car parking in a tourist destination is one of the basic determinants of the tourist demand in transport (Pupavac,2009). Research into visitor satisfaction in destinations shows a lower level of satisfaction if there is not enough parking capacity, which leads to the conclusion that sufficient

capacity and the proper location of parking spaces increases tourist satisfaction, as well as the quality of the tourist product from their point of view. In accordance with that, the basic objective of parking policy is to increase the accessibility of tourist content and mobility within the tourist destination.

It should be noted that the quality of a tourist destination, apart from many tourist factors, also includes a satisfactory number of parking spots, both for local residents and for tourists who visit it (Maršanić, 2012). In relation to this, fulfilling the demand for parking spaces for tourists is equally important for visitors as other tourist services. If it is impossible to find a parking space within a reasonable amount of time and in a location that is a reasonable distance from the tourist content, visitors are disabled from 'consuming' and using the tourist services regardless of how attractive they are and how good their quality is.

Particularly burdened parking lots in a tourist centre are treated as parking spaces at which high parking prices and parking time restrictions discourage car parking. Considering the specificities of tourist destinations, for instance on the Croatian coast, it is necessary to organise a parking structure that can be classified in four basic groups (Maršanić,2012):

- 1) Reviewing the basic transport directions that give access to the centre of a tourist destination, it is necessary to organise a certain number of parking locations that are relatively far from the centre itself, but are extremely stimulated, either through their own organisation or fees and especially favours tourists and visitors. This group of parking lots is often organised in a way so that parking is free and of unlimited duration.
- 2) So-called access parking lots are most often organised on bigger surfaces that are a natural location for the access to the central core and are also close enough to the historical core where almost all the social, cultural and business activities are carried out. Parking in these access parking lots should be supported with lower parking prices, unlimited parking duration and various other privileges for local residents, as well as tourists. Also, a discouraging parking price on other parking lots and with other parameters is also beneficial so that the transport is stopped in the locations of the access parking lots and there are fewer vehicles entering the centres of tourist destinations.
- 3) In the locations closer to the centre of a tourist destination, street parking lots should be organised. They are usually open and provide for short stops, so they apply charging technologies that are actually discouraging, but still not exclusive. Charging in this part of town is mostly carried out through parking metres (only exceptionally through manual charging), which implies the use of these parking spaces mostly by local residents, employees and other more or less permanent users who usually use these parking spaces in order to perform their jobs or because they live in that part of the tourist destination.
- 4) A pedestrian zone is organised in the very centre of a tourist destination through banning traffic. However, considering the needs of residents

and deliveries, traffic is organised according to a special regime. Generally, a pedestrian zone consists of several connected streets and squares in which traffic is forbidden for all motor vehicles, except for residents and deliveries, and they are also allowed to drive only during certain times of the day. Such streets are generally redesigned in a way so that the classic road is eliminated and they contain large-sized pedestrian surfaces and greenery, with the addition of urban equipment that emphasises the pedestrian function of the street. This visually and functionally determines and marks the street's character. Public transportation of smaller dimensions is generally tolerated within the pedestrian zone (vans and mini buses), as well as bicycles. Larger tourist destinations can have several pedestrian zones that do not necessarily create a spatial continuity. This location includes all potential users with an adequate privileged regime, and special cards are usually used for entrance into such zones, so that the narrow centre of the tourist destination charges with precisely this medium.

Parking time restrictions in the mentioned parking structures apply to all types of users. Most tourist destinations have decided to introduce the 'pedestrian zone' regime in the centre of the historical or tourist core. Traffic is forbidden to all vehicles within that zone, except to delivery vehicles, intervention vehicles and residents' cars, but exclusively for the needs of supply and various interventions. Parking gates denying access are planned in this territory, while the identification and permission to pass is carried out through a special parking card. The territory of the old and historical core itself is specific and, as such, is specially treated in order to ensure maximum comfort to the residents of this part of the town and the delivery service, but not to the benefit of the basic requirement — that this type of core is reserved exclusively for pedestrians considering its historical, cultural and tourist value. Administrative centres and attractive zones of the coastal belt are most often defined as locations with high prices and restricted parking times.

Parking policies cannot be restrictive, but should be a developmental factor of each tourist destination, meaning that they should mostly be proactive. A proactive parking policy is capable of anticipating stages in the developmental process of each destination attractive to tourists and of harmonising the parking capacities with the parking requirements.

The first stage in the developmental process of a tourist destination is characterised by few visitors, untouched natural beauties, a poor tourist offer an low demand for parking capacity.

Substantial problems with tourist and visitor car parking usually do not appear in the second stage of development, so street parking and occasional arranged parking surfaces in tourist destinations can ensure most of the necessary parking spaces.

A disproportion between the transport demand and the existing road infrastructure in tourist destinations appears in the third stage. The transport quality (roads, traffic connection, parking capacities) becomes one of the basic

factors of the concept of the attractiveness of any tourist destination in this stage of development. Parking policies in this stage of development concern restrictions, control and charging of street parking in central areas. Proposals that enable the resolving of parking issues are considered, especially: 1) connecting streets with the main roads, 2) turning two-way streets into one-way, with the possibility of side parking, and 3) reconstruction of crossroads and construction of new connections with the purpose of the better regulation of transport courses and a reduction in the number of critical conflict points, etc.

In the fourth and fifth stage of development of a tourist destination, parking policy is characterised by the search for new free and temporary (seasonal parking lots) parking capacities and the construction of garage and parking facilities, even though that rarely happens.

And, finally, two things can happen in the sixth stage of development – first, the number of arrivals of tourists and visitors starts to decrease precisely due to insufficient parking spaces, which directly affects the income from tourism and other sources. Secondly, after identifying the issue, cities take all necessary action to resolve the problems and they are prepared or are preparing for the seventh stage of development, which implies the application of the proper parking policies and the application of technologically modern solutions in the field of parking activities.

6. CONCLUSION

The logistics of a tourist destination is the optimisation of the flow of people, materials, information, energy, waste, knowledge and capital on a certain territory, with the purpose of offering a quality tourist product. The basic challenge of the logistics of a tourist destination is to optimally organise the logistic courses between the mentioned parts and within each of them.

Activities in a tourist destination imply the movement of people, transfer of goods, information and energy, waste treatment and transfer of knowledge and capital. The optimisation of the mentioned courses in a certain territory is the objective of the tourist destination's logistics. In this complex task, the logistics uses transport, all its capacities and organisational forms.

The transport process is a heterogeneous phenomenon considering the transport manner and transport means, length and duration, transport effect and the ratio of time in motion and parking. It is precisely the alteration between motion and parking of transport means in the territory of a tourist destination that is the characteristic of a transport process that burdens the existing infrastructure more than others.

Passenger courses in a destination continually go from the state of motion to a parked state, but the patterns according to which changes happen differ depending on the type of passenger courses (tourists, local residents, transit passengers, excursionists). The diversity of motives that encourage them into motion also affect the selection of parking locations, parking duration, frequency of the need for parking in one day, week, etc., and the expected standard of the parking service and willingness of pay for it.

Transport management in tourist destinations thus becomes a priority problem not only for transport planners, but also for tourist employees, since transport, which has actually enabled the development of many tourist destinations appears more and more as a limiting factor in the quality of a tourist destination. It is realistic to expect that transport issues in tourist destinations will continue to increase and their efficient resolving requires new ideas and an interdisciplinary approach. This means that transport, tourist and other experts need to determine the rate of desirable growth in tourism and the accompanying transport in accordance with the principles of sustainable development.

Since people do wish to leave their cars behind even during holidays, traffic congestion, noise and pollution are all moved from the cities where they live to the tourist destinations where they go to have a rest from all of this. The understanding of transport issues, especially of parking issues in today's generally inherited cores of larger and smaller tourist destinations, shows that a problem exists. In the context of current and expected parking issues, it is necessary to turn attention to some of the actions that should be taken as soon as possible with the objective of the humanisation of tourist centres, but also the realisation of possibilities for more successful forming and structuring of tourist destinations in the future. The implementation of certain policies and measures could stop today's uncontrolled processes and relations in destinations that are attractive to tourists but the chaotic nature of which, unless stopped, could cause a non-functional, unattractive and unhealthy environment.

Therefore, parking plays a very significant part of mobility management. However, if one wants to expand the scope of the policies from mobility policies towards the politics of fast sustainable development of a tourist destination, parking and parking lots must be nested into urban planning policies and environmental protection.

REFERENCES

Maršanić, R. (2008). *Parkiranje u turističkim destinacijama*, IQ Plus d.o.o.: Rijeka.

Maršanić, R. (2012). Kultura parkiranja, IQ Plus d.o.o.: Rijeka.

Mrnjavac. E. (2006). *Promet u turizmu*, Fakultet za turistički i hotelski menadžment: Opatija.

- Mrnjavac, E., Stipanović, C., Maršanić, R. (2008). Stationary traffic an element of the logistics system of a tourism destination, *Proceedings of the International Scientific Conference Development of transport, ITS and logistics, ZIRP '08*, Rovinj, Faculty of Traffic and Transport Sciences, Zagreb.
- Pupavac, D., Maršanić, R. (2010). Osnovne postavke optimizacije gradskih parkirališnih kapaciteta, *Ekonomski pregled*, Hrvatsko društvo ekonmista, 61, (7-8), 476-485, Zagreb.
- Pupavac, D. (2009). *Načela ekonomika prometa*, Veleučilište u Rijeci: Rijeka.
- Zelenika, R., Pupavac, D. (2008): *Menadžment logističkih sustava*, Ekonomski fakultet u Rijeci: Rijeka.
- Vučetić, Š. (2011). Logistics management as a function of sustainable development of tourist destination. In *Proceedings of the XI. Scientific Symposium Business Logistics in Modern Management*. Osijek, Faculty of Economics Osijek, pp.319-328