Carsharing situation in Croatia

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CARSHARING SITUATION IN CROATIA

Abstract

Carsharing is becoming very popular in the western world as an effective method to contain rising prices of fuel and vehicles. It was brought about as a possible solution to the changing condition of growing economies and population where there is an increased need for travel but there is also a need for expense economizing. Due to its role in reducing fuel consumption, controlling pollution and traffic congestion, there is an increased usage of carsharing services as an alternative transportation option in big cities. Today, worldwide several different carsharing methods are being used.

This paper examines the current situation of carsharing in the world and two initiatives for starting carsharing programs in Croatia. The main goal of this paper is to define what carsharing is, how successful it is in the world and if there is potential for it in Croatia. The most developed carsharing regions in the world are Western Europe and North America. In the last several years Asia, Australia and South America have started carsharing projects and have the biggest growth in members and vehicles. Carsharing is still not recognized in Croatia. There were a few initiatives for starting the program but they failed. In order to determine the possibility and potential of carsharing in Croatia it is necessary to conduct further market research.

Keywords: carsharing, transport alternative, transport economy, cost savings

1. Introduction

Transportation has always been important for people either for business or private purposes. Today people are facing several problems among which are the number of cars and the increase of traffic and how to reach certain destinations. The number of cars and other transport vehicles is growing every day and traffic congestion is increasingly becoming a major issue, especially for people living in big cities. In order to reach their destinations people have to use different means of transportation and sometimes it is difficult to reach their destination using public transportation or without combining different transportation models in case one does not own a car. Carsharing might be a solution for these problems that is gaining in popularity as a transportation model that can fill the gap between transit and private cars (Sperling and Shaheen, 1999).

Carsharing is a term used to describe the program of open access vehicles that can be shared and intended for occasional trips in case a person needs a car. Ball *et al.* (2005: 2-1) state that carsharing programs share among others the following charac-

teristics: *an organized group of participants, one or more shared vehicles, usage booked in advance, rentals for short time periods (increments of one hour or less) and self-accessing vehicles*. In some countries (mostly Great Britain), the term carsharing is used for carpooling or ride sharing so it is needed to differentiate the terms. In Great Britain the term carsharing is used for privately owned vehicles that can be shared for a particular trip while the term "car clubs" is used for vehicles that are owned by separate organizations and shared between a number of different users who may use them at different times (Danielis, Rotaris and Valeri, 2012). Thus, the term car clubs in Great Britain is used as an alternative term for carsharing that is used in the United States. The term carsharing is mostly used in Europe and will be used in this paper as well. Most of the authors who have published papers about carsharing use a description of what carsharing is instead of a definition. Craig (2004: 10) defined carsharing as an *organized neighborhood-based short-term car rental program in which pre-approved members have access to a variety of vehicles that are strategically placed in a number of locations throughout a community*. Laurino and Grimaldi (2011: 3) stated that the main idea of carsharing is that a *vehicle is used by different people at different moments of the day determining a more efficient use of a resource*. This shows the main characteristics of carsharing – one can use a car whenever they want and for as long as one needs a car. Duncan (2010) stated that another important characteristic of carsharing is that it is a membership-based service. Carsharing is different from traditional rent-a-car services. In regard to its organizational aspects, Danielis *et al.* (2012: 104) found the following differences: "*users are members of a club and have been pre-approved to be admitted to the program; reservation, pickup, and return is self-service; vehicle locations are distributed throughout the service area, and often located for access by public transport; carsharing time window is 24h a day and is not limited to office hours; vehicles can be rented by the minute and by the hour, not only by the day as with a rental service; and insurance and fuel costs are always included in the rates*". Lu, Han and Cherry (2013) found that the most important difference between carsharing and rent-a-car service is that carsharing is mainly used for short distance trips within a city, rather than long distance travel for which rent-a-car services is mostly used.

2. Carsharing history

During the last 70 years since carsharing was first introduced in the 1940s, the car sharing market has steadily grown in volume as people found carsharing an effective method of containing the rising prices of fuel and vehicles. The first attempt to establish a carsharing program in Europe was in 1948 in Zurich, Switzerland when the cooperative Sefage (German *Selbstfahrergemeinschaft*) started to operate (Shaheen and Cohen, 2008). This cooperative was working until 1998. After Sefage, throughout Europe several carsharing experiments started but stopped with operations. Britton (2000) mentioned some of them: Procotip (France), Witkar (Netherlands), Green Cars (Great Britain), Bilpoolen and Bilkoopeartiv (Sweden). Successful carsharing experiences in Europe started in the 1980s especially in Denmark, France, England, Ireland, and Italy where there are now more than 200 carsharing organizations in more than 350 cities. Due to the increased number of these organizations, the European Car Sharing organization was founded in 1991 (Shaheen, Sperling and Wagner, 1998) in order to support further development and growth of carsharing in Europe. In North America, carsharing was far more limited in relation to Europe. It started in the early 1980s with Mobility Enterprise at Purdue University and Short-Term Auto Rental in San Francisco (Shaheen and Cohen, 2012) as the first two carsharing organizations. Mobility Enterprise stopped work after the research at Purdue University was finished and the one in San Francisco failed due to economic reasons. Today nine different carsharing operations exist in Northern America and they share a similar operation model (Briton, 2000).

All early carsharing experiments have one characteristic in common – they failed shortly after they started. According to Ball *et al.* (2005), the main reasons for their failure included inadequate planning, financial management and lack of support from local governments. Although carsharing originated in Europe, it has expanded worldwide and made the shared-vehicle system popular throughout the world. Shaheen and Cohen (2008) concluded that early carsharing companies, while entering new markets, most often consisted of demonstration projects with the single aim of showing how carsharing works. Over time, the market matured and most of these projects were replaced with permanent carsharing companies. It is notable that in

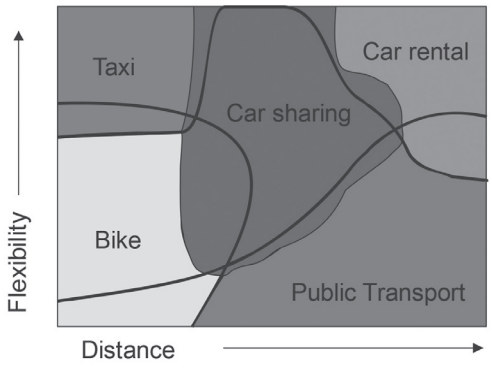
some cases and on some markets there was a significant time gap before carsharing services started again. As carsharing grew, there were less experiments and demonstrations even in the new markets.

3. Carsharing

3.1. As a transport alternative

The carsharing model and the concept of a carsharing market was brought about as a possible solution to the changing world of growing economies and population in which there is an increasing need for travel and movement. However, there is a need to economize expenses. The carsharing transport model can help in reducing car ownership while ensuring a high level of mobility for urban residents (Gossen and Scholl, 2011). Britton (2000) refers to carsharing as the "missing link" in the package of transport alternatives. He pointed out that carsharing has its place somewhere between public transportation, walking, taxis, private vehicles and cycling. Craig (2004) stated that carsharing should be viewed not as a freestanding concept but as part of the greater whole. Other authors (Muheim and Partner, 1998; Harms and Truffer, 1998; Shaheen *et al.*, 1998) place carsharing as part of an overall sustainable transport system. Figure 1 shows that carsharing can be related to other models of transportation; it is connected with other transport models; and it correlates based on distance and flexibility of needed travel.

Figure 1. Carsharing in relation to other modes of transportation



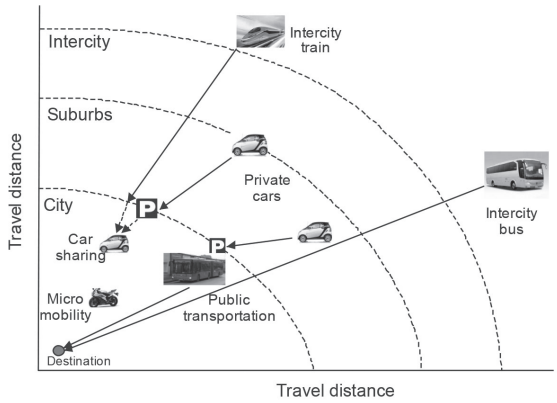
Source: Adapted from Britton, E. (2000)

Britton (2000) stated that by adding a carsharing program to their transport possibilities, cities could provide a functional, integrated and multi-modal transportation system, which can offer an alternative to private cars. In order to be a successful alternative and part of the transport system, carsharing needs to have other transport options (walking, public transit, rent-a-car, taxi) available to potential members of the program. As a transport alternative carsharing provides options for middle distance trips for which there is a need for flexibility or for reaching destinations that are not covered by public transport (Ball et al., 2005).

Frost and Sullivan (2011) showed in their report that carsharing can fulfill needs and allow users to do without a private car or a second car. One of the carsharing benefits is its mobility insurance because it provides more confidence than other transport alternatives to people who need transport for shorter distances (Craig, 2004). Figure 2 shows different transport alternatives based on travel distance. Car sharing is placed for city transport and shorter distances and can be used by people traveling from suburbs and those who are on intercity trips.

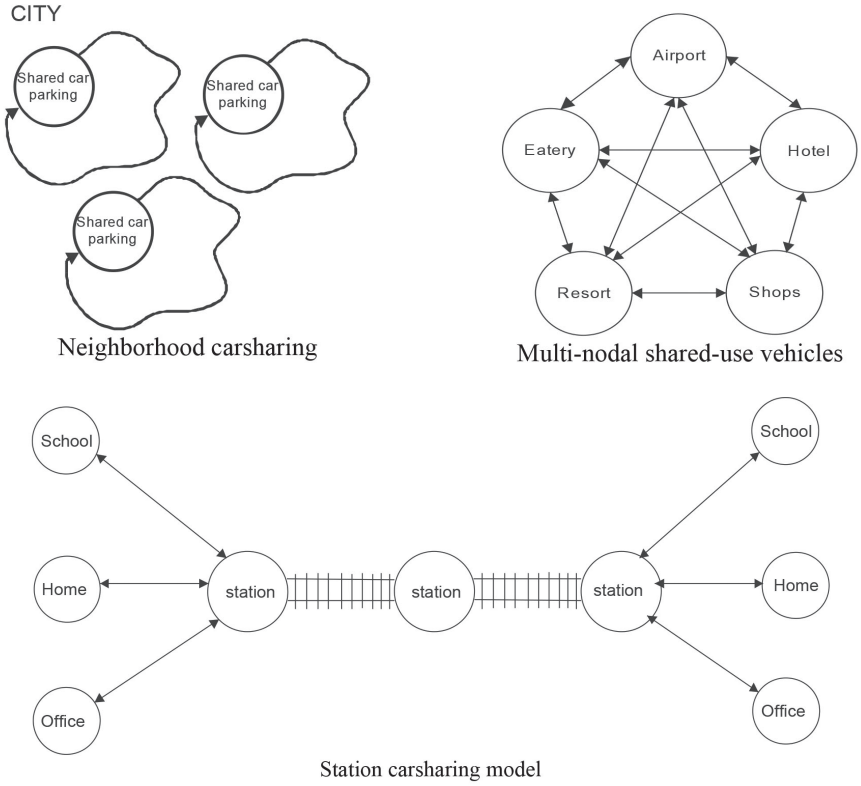
As a transport alternative even in the most transit and pedestrian friendly environment, carsharing can enhance travel options with its speed and flexibility (Duncan, 2010). Slavulj et al. (2013) concluded that carsharing is a relatively new option for urban transportation, which seeks to benefit the environment by reducing emissions from the use of private cars, reducing traffic congestion and cutting down on the demand for parking.

Figure 2. Transport alternatives



Source: Adapted from Frost and Sulivan (2011)

Figure 3. Different carsharing models



Source: Adapted from Barth and Shaheen (2002)

3.2. Carsharing models

At present, there are several different carsharing models being used worldwide. According to Bart and Shaheen (2002), these models include neighborhood carsharing, multi-nodal shared-use vehicles and station cars. These three models are shown in Figure 3 and will be explained in more detail.

The neighborhood carsharing model originated in Europe and it is a basic model of carsharing. In this model, vehicles are often placed in residential neighborhoods and less frequently in business areas and usage and vehicle costs are shared among a group of individuals. The main characteristic for this model is that it results in increased transit ridership because users become more conscious of the individual costs of each travel (Barth and Shaheen, 2002). A more generalized carsharing model is multi-nodal shared-use vehicles in which vehicles are driven between multiple stations and is usually connected with resorts, national parks and university campuses.

This model can be linked to transit and its advantage is that vehicles can be used for one-way trips instead of two-way trips as in the neighborhood carsharing model. It has introduced flexibility for users and complexity for managing carsharing due to the necessary vehicles relocation. The station carsharing model has been implemented internationally but mostly used in the United States (Shaheen, 1999). It focuses on a link between the transit station and the workplace (Ball et al., 2005). At first station car models consisted of a fleet of vehicles stationed at railways stations and were initiated by railway companies. Characteristics of this model are a low user-to-vehicle ratio in contrast to other carsharing models (Barth and Shaneen, 2002). During the 1990s this model grew in Asia due to the integration of electronic technologies. Other researchers divided carsharing based on parking policies (Shaheen

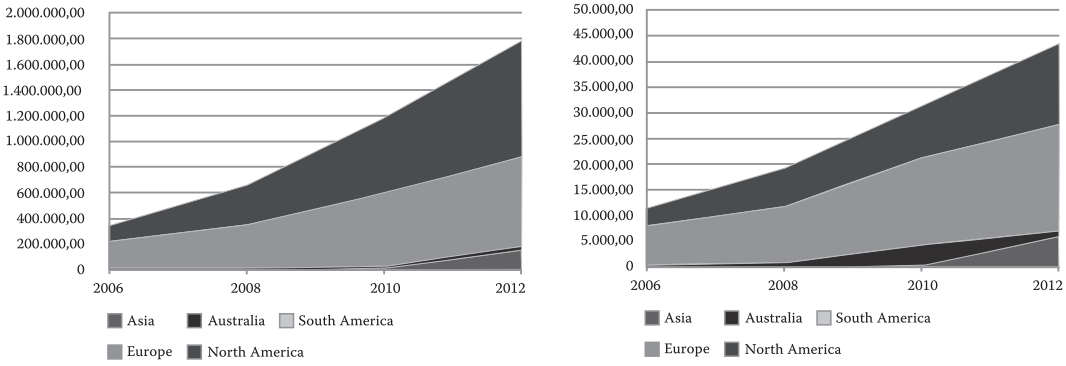
and Cohen, 2012) and on organizational forms (Ball et al., 2005). Recently, franchising, outsourcing and replication programs in carsharing have been introduced across the world in order to further promote the use of carsharing.

4. Carsharing in the world

Carsharing is very popular in big cities in North America and Europe where people do not want to have additional costs of having their own car. Modern carsharing originated in Switzerland, and has since spread across the world. Currently, carsharing is present on five continents - Europe, North America, South America, Asia and Australia. Although Europe is the biggest carsharing y hub, other regions of the world are also showing significant growth. Today successful carsharing is mostly associated with dense populated areas. However, there are some programs in Europe that provide services in rural areas. Slavulj et al. (2012) noted that low-density areas are more difficult to offer carsharing due to the absence of other models of transportation and larger distances users have to travel by car.

Graph 1 shows changes in the number of carsharing members and vehicles in the world during the last decade. In 2006 carsharing was present in 600 cities worldwide with 11,700 vehicles that are shared by almost 350,000 individuals (Shaheen and Cohen, 2008).

Graph 1. Changes in the number of carsharing members and vehicles 2006-2012



Source: Adapted from Shaheen and Cohen (2012)

These numbers increased and in 2010 there were more than 1,000 cities with 32,000 vehicles that were shared by more than 1.2 million individuals (Shaheen and Cohen, 2012).

In addition, in 2012 there were 27 countries on 5 continents with around 1.8 million members using more than 43,550 vehicles with several more countries planning to start carsharing organizations (Shaheen and Cohen, 2013). Currently, the global carsharing market is very competitive and fragmented with several international, regional, and community based carsharing companies operating on the market (Koncept Analytics, 2011). Carsharing companies generally compete in several areas that include primarily price, fleet range, carsharing locations, and marketing expertise.

The two largest continents are North America with 50.8% of total members and 36% of total vehicles and Europe with 38.7% of total members and 47% of total vehicles. In 2012 South America joined carsharing – with 1,500 members and 60 vehicles (Shaheen and Cohen, 2013). In the worldwide market the carsharing leader is Zipcar, Inc., followed by Hertz on Demand and Enterprise WeCar from the USA, Communauto and Modo Coop from Canada, Mobility Car Sharing from Europe, and City Hop from Australia (Shaheen and Cohen, 2012). There are some well-known names from rent-a-car companies present on the world carsharing market. In 2013 Avis Budget Group bought world leader ZipCar and with this became more competitive with Hertz who already had their own carsharing company "Hertz on Demand".

Figure 4. Key carsharing organizations in Europe

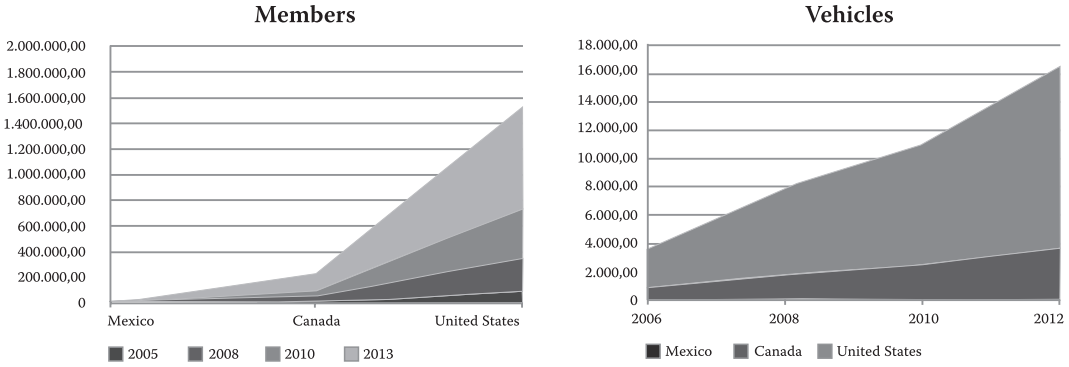
Source: Adapted from Frost and Sulivan (2011)

Besides Avis and Hertz other traditional rent-a-car companies have started to copy the carsharing model so companies like U Haul's U Car Share and Daimler's Car2Go can also be found on the market. Berman et al. (2013) stated that the worldwide carsharing market has grown from an informal network of small companies and organizations to a market driven by major multinational corporations. Today we are witnesses to a strong partnership between carsharing companies, well-known rent-a-car companies, larger automotive manufacturers and a range of public institutions including municipalities, universities, and public transportation agencies.

Most of the carsharing organizations are located and operating in Europe. Figure 4 shows that carsharing in Europe is found in 15 countries and has around 700,000 members with almost 21,000 vehicles. The leading carsharing countries in Europe are Switzerland, Germany, England, Ireland, Italy, Norway and France where most of the carsharing activities are found and where the largest car sharing companies exist. In most of the other European countries carsharing is being evaluated and there have been some experiments in Eastern Europe for starting carsharing programs. According to Mezei (2013) Avalon Car(e) Services launched a carsharing system in Budapest, Hungary targeting businesses with a plan of having 50 cars in their fleet by December 2013.

In North America in 2013 (Shaheen and Cohen, 2013) there were 46 carsharing companies (25 in the USA, 20 in Canada, 1 in Mexico) having more than 1 million members and more than 15,500 vehicles in the USA, Canada and Mexico.

Graph 2. Changes in the number of carsharing members and vehicles 2006-2013



Source: Adapted from Shaheen and Cohen (2013)

The growth of carsharing in North America is seen in Graph 2. In 2013 carsharing membership grew 24% in the USA and almost 54% in Canada and the growth in vehicles is almost 24% in the USA and 36% in Canada. In 2013 a carsharing program started in Mexico with 60 vehicles and 620 members. Additionally, two car producers' carsharing organizations (Daimler Car2Go and BMW DriveNow) have almost a 30% share in the total vehicle number in North America showing the interest of carmakers for this model of car usage.

In other parts of the world carsharing is unknown and is still in its early phase of development. Other parts of the world have around 11% of total world members – South America 1%, Asia 9% and Australia 1%. Although they have a small share in total world members, their growth rates are significantly higher than those in Europe and North America. Carsharing in Australia has increased in the last five years on average 25% and this has been partly due to the continual climb in world crude oil prices and the demand for cost-efficient and convenient inner-city transport. The leaders of carsharing in Asia are Japan and Singapore where the largest business segments are residential neighborhoods linked to rail and business (Barth et al., 2006). There are several carsharing companies in Japan (18 with 176 vehicles and 3,500 members) and Singapore (4 with 432 vehicles and 12,200 members). There have been some initiatives in Malaysia, South Korea and China for starting carsharing companies in recent years.

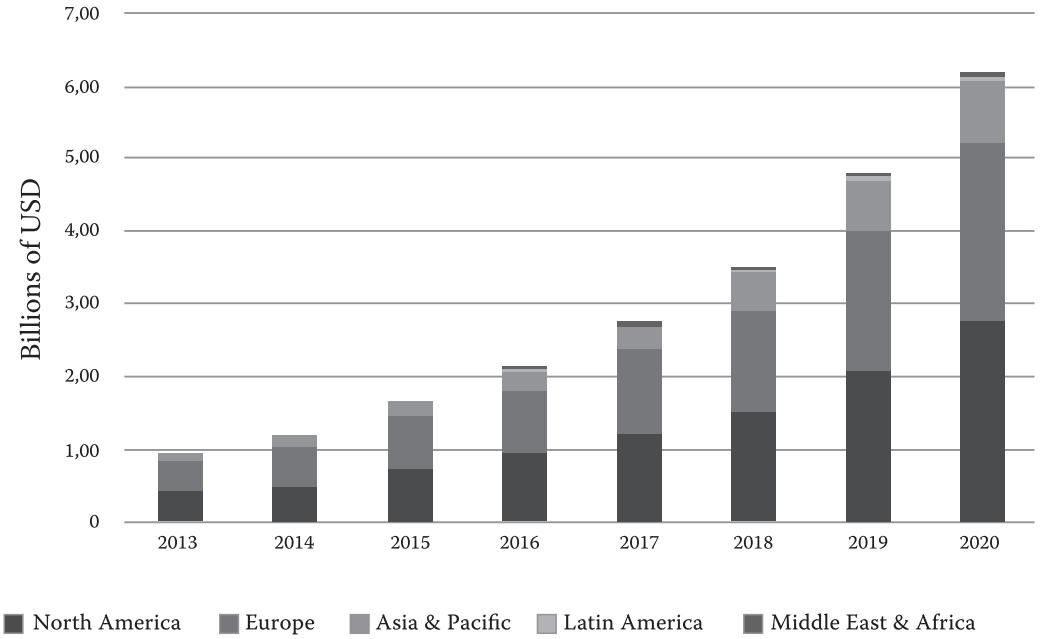
4.1. Carsharing in Croatia

Presently, there is no carsharing organization in Croatia. There have been two initiatives: ODDO Carsharing and Orix Carsharing. Other rent-a-car companies (Hertz, Avis Budget, Sixt, Europcar) that are present in Croatia are evaluating the market situation and they will change their presence in case the market condition changes. The two largest rent-a-car agencies are Hertz and Avis Budget. Although they offer carsharing worldwide, their service is still not in Croatia. In the next part of this paper both initiatives will be presented.

During 2011 in Croatia there had been an initiative to start carsharing as a startup company – Autodivision Croatia but their project "ODDO Carsharing" ended because they could not find investors for this kind of business. In order to proceed with this project the company needed help from the city, which had to provide resources such as public spaces and also the possibility of using public transport for carsharing users in order to have modular transport (Kukec, 2011). They wanted to start with 20 cars in autumn of 2011 in the Croatian capital Zagreb with three categories of cars: budget, business and travel. Based on an interview with Bojan Dragojević (2013) who was ODDO Carsharing project manager a lot of work had been done for this project but the project was never implemented due to many obstacles. The main obstacles for project realization were:

- City government did not understand the concept at the time Autodivision Croatia was starting the project;

Graph 3. Revenue from Carsharing Services



Source: Adapted from Berman, B., et al. (eds) (2013)

- Car sellers in Croatia were not interested in partnership in this project;
- A big investment for starting the business, purchasing cars and equipment;
- There was no interest in advertising space on vehicles for the first six months of business;
- No strategic partner in project implementation.

Currently, the project is on hold and no one is working on its implementation. However, in case there will be interest in the future, it is possible to restart the project.

Another initiative for starting a carsharing program in Croatia came from Orix Rent-a-Car company. They were considering implementing this program based on the globally increased interest of this popular service. A market research done by Orix in 2012 concluded that the Croatian market is not ready for this kind of service (Bičak, 2013). The research also stated that development or purchase of technology and software is extremely expensive, a great number of vehicles are needed in order to payoff the investment and finally there is a need for a huge number of members.

Currently, there are not enough potential members for carsharing in Croatia so Orix did not continue with further development of their carsharing model. Another reason is that Orix is the leader on the Croatian market of rent-a-car services, having almost 50% of the market. They have about 1,900 cars in 30 different categories and a network of 19 offices around Croatia.

5. Is there potential for carsharing growth?

In today's world carsharing is seen as a possible fuel consumption reduction tool. Based on its effective role in pollution control and reducing traffic congestion, it is possible to see a trend of increased usage of carsharing as an alternative transport option (Koncept Analytics, 2012). An additional trend is the growing use and popularity of the peer-to-peer carsharing model in the world. One reason for the growing popularity and usage of carsharing is the rising world urban population. Other reasons are the growing traffic congestion and rising fuel costs worldwide. It is important to state that if carsharing is to be successful, people need to change their lifestyle, which is a major challenge for the further growth of carsharing usage in the world.

According to Berman *et al*. (2013) global carsharing services reached 937 million US dollars in 2013 and should grow to 6.2 billion US dollars by 2020 (Graph 3). Frost and Sullivan (2011) stated that the carsharing market will grow from 2.3 million users in 2010 to 26 million users in 2020. Europe and North America should remain the two largest carsharing markets since they already have conditions for carsharing growth – large urban areas, high transportation costs and public transport in urban areas. It is important to state that the predicted growth of these two regions will be lower than the predicted growth in other world regions.

The potential for expansion in Asia and Pacific region exists with a higher growth rate than in North America and Europe but is limited due to the potentially smaller number of countries with carsharing characteristics. Growth rates in Latin America, Africa and the Middle East will be higher than in Europe but their total revenue potential will be smaller than in other world regions.

Carsharing is emerging as an additional business opportunity for automotive manufacturers such as BMW, Daimler, Volkswagen and PSA Peugeot Citroen. This can be seen as their opportunity to retain customers and achieve long-term sustainability, (Gossen and Scholl, 2011; Frost and Sullivan, 2011) as an alternative or supplement to personal vehicle ownership and can provide potential drivers with a convenient and affordable personal transportation option (Berman et al., 2013). When carsharing companies manage to achieve sufficient revenue per vehicle to have a sustainable and profitable business, the carsharing market will grow rapidly. As the key question for future carsharing development and growth, it is important to see how carsharing will impact car rental and how car rental will impact carsharing due to the fact that many rent-a-car companies have also started or bought carsharing companies – Hertz, Sixt, Avis Budget (Gossen and Scholl, 2001; Shaheen, 2013).

6. Potential in Croatia

Although currently there is not a carsharing organization operating in Croatia, potential exists. The potential can be found with business people and the many tourists that are visiting Croatia. Danielis et al. (2012) noted that tourists represent an interesting target group for carsharing programs since they often visit locations without their private car. If tourists want to visit different locations, then carsharing organizations are the best possible solution for them since public transportation is probably not available with the necessary frequency and flexibility. Carsharing organizations can compete with public transport, rent-a-car and taxis on cost and flexibility characteristics mostly depending on cost structure, service organizations and tourists' needs. Banas (2014) found that the most important carsharing benefit is cost – carsharing can save travelers and tourists up to 40 percent and provide them with benefits of choosing their car. Today there are several carsharing programs intended for tourists worldwide and include: Car Sharing Vancouver for Tourists, Green Car-sharing by the hour at Hawaiian hotels, Travelling & Car Sharing Llanarmon.

Both carsharing initiatives in Croatia were intended for tourists and business people. One was situated on the Adriatic coast and the second one in Zagreb. The initiative based on the Adriatic coast was counting on tourists that are coming to the seaside without their own car and want to see more of Croatia. The second initiative was based in Zagreb and was intended for business people visiting the Croatian capital as well as tourists. There have been significant barriers for successfully starting both initiatives, especially on the Adriatic coast. The biggest impact on future potential of carsharing in Croatia is exerted by the government, banks and other stakeholders (Bičak, 2013; Dragojević, 2013), who do not understand the concept. Furthermore, there may be too few potential users who recognize this way of transport. Therefore, there is need for further market research since the carsharing potential is still unknown and needs to be examined carefully before the carsharing program starts in Croatia. This research should cover tourism companies, rent-a-car agencies and potential entrepreneurs who have some contact with the car sales industry. Market research results will reveal if there is a potential for carsharing in Croatia.

7. Conclusion

Carsharing programs include the following: an organized group of participants, one or more shared vehicles, use of vehicles is booked in advance, vehicles are rented for short periods, and vehicles are self-accessed. Carsharing should be seen as a transport alternative and a possible solution to the changing world with its growing economies and population and thus an increasing need for travel and movement. Furthermore, there is a need to economize expenses. Today, there are several different carsharing models including neighborhood carsharing, multi-nodal shared-use vehicles and station cars. The carsharing model of transport is growing around the world. The major regions that use carsharing are West Europe and North America. Other regions in the world also show growth and interest. Although this growth is significantly higher than in Europe and North America, the overall numbers are still low.

Carsharing is emerging as an additional business opportunity for car manufacturers around the world, which will help them in retaining customers and achieving long-term sustainability. In addition, carsharing potential worldwide should be seen as an alternative or supplement to personal vehicle ownership since it provides potential drivers with a convenient and affordable personal transportation option. Recently, there have been two initiatives to start carsharing programs in Croatia but neither of them has begun operations. The main problems included the following: such a program requires a big investment and banks showed no interest in providing business loans; car sellers were not interested in the program; and government representatives did not understand the concept. The greatest potential for carsharing in Croatia is connected with tourists and business people who come to Croatia without their own cars. Carsharing grants them full mobility and an excellent alternative to public transportation. Further research should be conducted in order to confirm the potential of carsharing in Croatia as an alternative transport option for tourists and also a good business opportunity for car companies.

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Carsharing u hrvatskoj

Sažetak

Model javnog prijevoza *carsharing* postaje sve popularniji u zapadnom svijetu kao učinkovita metoda ograničavanja rastućih troškova goriva i vozila. Osmišljen je kao moguće rješenje za dinamične promjene u rastućim ekonomijama gdje stanovništvo ima sve veće prijevozne potrebe, ali je nužno i ograničiti troškove. Ovaj model može igrati značajnu ulogu u smanjivanju potrošnje goriva, zagađivanja i gužvi u prometu, pa se *carsharing* sve više koristi kao prijevozna alternativa u velikim gradovima. Danas se u svijetu koristi nekoliko različitih *carsharing* metoda.

U ovom se radu daje prikaz trenutne situacije *carsharing* modela u svijetu, te dviju inicijativa za pokretanje takvog programa u Hrvatskoj. Glavni je cilj rada definirati *carsharing*, odrediti koliko je uspješan u svijetu i procijeniti postoji li potencijal za takav program u Hrvatskoj. Kad je riječ o *carsharing* modelu, najrazvijenije regije u svijetu su Zapadna Europa i Sjeverna Amerika. U zadnjih nekoliko godina započeli su *carsharing* projekti u Aziji, Australiji i Južnoj Americi, s najvećim rastom u broju članova i vozila. *Carsharing* još uvijek nije prepoznat u Hrvatskoj. Bilo je nekoliko inicijativa za pokretanje takvoga programa, ali su propale. Kako bi se odredila mogućnost i potencijal razvoja *carsharing* programa u Hrvatskoj potrebno je provesti dodatna istraživanja tržišta.

Ključne riječi: *carsharing*, prijevozna alternativa, ekonomika prometa, ušteda troškova