

COMPANY INCENTIVES FOR ENCOURAGING CARPOOLING

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Abstract

The paper provides insight into the existing body of knowledge concerning carpooling measures and incentives related to company and its employees. The main aim of these initiatives is encouraging employers to consider carpooling as a valid travel option. Main determinants of carpooling and key factors for success in company are also analyzed in the paper.

Keywords: carpooling, company, commuting, employee, incentives, successful implementation

1. INTRODUCTION

Many European and world cities in general are increasingly facing an abrupt increase of transportation demands, which exceed transport infrastructure capacity. In these cities, there is a prominent increase of the car ownership, while the modal split is changing in the favour of passenger car. A numerous adverse effects, such as traffic congestion, longer travel time, increased harmful gasses and noise emission, increased number of traffic accidents, higher travel costs etc., are stemming from this fact. In the sustainable transport policy context, various strategies and measures, aimed to facilitate the mobility within the cities and, at the same time, to contribute to the reduction of adverse ecological, economic and social transport effects, have been developed.

According to this, the modern planning methods aim to encourage trips by which the problem of traffic activity intensification could be mitigated or overcome. For these purposes, the contemporary strategies and programs are used, encouraging the use of more efficient transport modes and transportation demand management. Commuter trip

reduction programs provide conditions and resources for the use of alternative transport modes by all commuters. When such programs are adapted to the employees, they refer to company mobility management strategies (company mobility management, corporate mobility management, mobility management by employers) and involve measures that promote sustainable transport modes, whereby the employees are usually their target group [1]. The most often used measures include the promotion of public transport, cycling, walking and carpooling, parking management and other transport modes' availability improvement.

The subject of the paper is a company-based carpooling. A comprehensive analysis of European experience related to the choice and implementation of mobility management measures points out to the significant prevalence of carpooling, being one of the contemporary solutions to using passenger car for daily mobility. Until now a precise and unique definition of carpooling has not been established, but, according to the most commonly used one, carpooling is an agreement on joint passenger car trip that involves a few people travelling often along the same route in the same time [2]. Hence, the carpooling concept is based on the following idea: a few people (neighbours, relatives, colleagues, etc.) whose origins/destinations are the same or relatively close each other, decide to travel together, whereby the passenger car (owned by one of the passengers) is used to realise this trip, and share the travel costs. This system does not exclude passenger car use, but makes it more efficient, greener and more economical. This makes it equally attractive to both decision makers (local authorities, politicians, traffic engineers etc.) and users themselves. On the other hand, the companies are becoming increasingly interested in this concept. In the sustainable mobility context, companies are expected to be a key holder of this concept for their employees. The aim of the paper is to present measures and initiatives/incentives by which the employers could encourage their employees to use this concept and to highlight key barriers and preconditions for its implementation.

The paper is organised as follows: Section 2 presents the concept of company based carpooling. Section 3 presents measures and actions that are commonly used in companies to encourage carpooling. Section 4 indicates the most significant barriers in implementation and key success factors for carpooling. The paper ends with the concluding remarks and directions for future research.

2. COMPANY-BASED CARPOOLING

Generally, carpooling can happen in a spontaneous way, as is the case with common household members trips or friends travelling together. Other forms of carpooling, such as pre-arranged and real time carpooling, usually involve complex organizations and usage of resources. Company-based carpooling is a type of carpooling where employer is the one who deals with organization of carpooling and underpins its use among employees. Of course, there is a form where employees can carpool without any participation of their employer.

Reasons and motives for carpooling implementation are not same for every company. Very often the implementation process depends on particular circumstances. The most

important ones are related to parking problems and external regulations [1]. Carpooling relieves parking pressure related to provision of parking places for employees. Creation of a better working environment and a good company image are of great importance for the employers. Also, additional benefit of carpooling for company is a contribution to corporate social responsibility and sustainable development. For every single company direct economic and environmental benefits can be calculated relatively accurately. These include parking costs, CO₂ emissions, gallons gas consumption and driving costs [3].

As well as for the employers, the advantages of carpooling for employees are numerous. By sharing traveling costs (for fuel, road fees, parking fees), employees achieve financial savings. In addition, employees often do not have parking and vehicle maintenance costs. Besides the above mentioned, usage of this form of transport can result in less stress for the employees (by avoiding stress of driving) and leads to higher morale and productivity. Carpooling also contributes to a better use of commuting time.

3. CARPOOLING MEASURES IN COMPANY

There are variety of measures and initiatives that employers can conduct to underpin carpooling and motivate employees to change their travel behaviour. The list of measures (Table 1) is based on the literature review [4, 5, 6, 7, 8, 9]. There are other measures encouraging carpooling, which are not in the charge of the company, such as HOV lanes, carpool parking- park and pool areas, ramp metering, etc.

Table 1. Carpooling incentives by employer

1. Parking pricing	7. Alternative work hours
2. Preferential parking for carpoolers	8. Benefits for carpoolers
3. Reduced parking costs for carpoolers	9. Park and pool areas
4. Information and marketing campaigns	10. Employer assisted vanpools
5. Carpool matching service	11. Employer sponsored vanpool
6. Guaranteed ride home	12. Shuttles to/from transit station to pick-up/drop-off location in order to carpool

When it comes to the effectiveness of these measures, there are different points of view across the studies. Hwang and Giuliano [8], for example, recognize two groups of measures: less and more effective. Preferential parking, alternative work hours, marketing, matching service and guaranteed ride home belong to less effective measures, while parking charges, parking restrictions and transportation allowance correspond to more effective measures.

According to the other group of authors, some of these measures are classified on a very different way, for example, Kingham et al. [10] and Menczer [11] saw a guaranteed ride home as an effective measure for underpinning carpooling in the company. Ungemah et al.

[12] pointed out that the effectiveness of these measures depends on three groups of factors: type and degree of incentive, affected area and extent of concurrent supporting strategies.

Below is description of the most commonly used company incentives to introduce carpooling as a mean for employee transportation.

Information and marketing campaigns are based on introduction and promotion of carpooling service in company. Also, one of the goal is to create and build up awareness among employees about carpooling. This can be done through many different distribution channels such as company' newspapers, newsletters, workshops, company' website, etc. Various motivating messages, pamphlets, brochures, slogans and facts highlighted on prominent places in the company, such as: "*Carpooling is solution to your parking problems at work!*"; "*Share rides, make buddies.*"; "*It's cool to carpool!*" could encourage the employees to think every day on carpooling as a transportation option. Relevant information, which should be provided to the employees, are also related to the implementation of the other company incentives (e.g. organization and ridesharing method), but also to highlighting benefits for the employees and company by using this concept. On the other hand, it is important to inform the employees on specific requirements of this concept. Most commonly, this measure is not implemented alone, but as a support to other measures (e.g. demonstrating how employees should use technologies for matching rides).

Technologies for matching rides are developed for facilitating process of pairing rides between employees - potential carpooling partners. These technologies may include on-line information and mobile application for exchanging information on empty seats in vehicle, time and place of departure, waiting time and other useful information. One of the important ride matching prerequisites is the fact that potential carpoolers have to have a similar work schedules. Technologies for matching rides could be operated by the company itself or matching agency. Also, it is preferable that the company has its own personnel (transport consultant or transport coordinator) in charge of the control of this system and collecting feedback on its functioning from the employees. In large companies, the existence of these technologies is necessary, given that the pairing process is much more complex, while in small companies it operates very simple, manually or by using notice boards.

Flexible work schedules (practice of flexitime) means more freedom in choosing work schedule by employee. In order to facilitate process of matching with carpool partner(s) and to have time for pick-up/drop off them, company could allow an employee to choose the beginning and the end of working hours, but with some limitation [13]. Since employees in a company have the same trip destination and know each other (which facilitates their matching process), a very important requisite to carpool together is the identical or similar beginning of work hours. The implementation of this measure is possible in companies where work activities are not mutually dependent, i.e. where delays are permitted and do not affect company business.

Guaranteed ride home (also known as emergency ride home or guaranteed return trip) means that company ensures ride home for carpool passengers in case of unexpected situations. Unpredicted circumstances are related to any unforeseen situation, which could disturb regular employee's return trip (e.g. personal illness, illness of a child, unscheduled overtime, etc.). Guaranteed ride home could be realized by various transportation modes, such as public transport vehicles, bicycles (for shorter trips), company cars, taxis or rent cars or vans (in the case of vanpooling)[4]. In order to avoid fraud by employees, the company must clearly specify which situations this measure applies for and it is often the case that the number of guaranteed ride home an employee may have in some time period (e.g. three times annually) is also determined or maximum number of kilometres driven or cost this measure involves are defined. This measure is not necessarily connected with carpooling and very often is applied independently. An important issue in carpooling context implementation is that solo drivers could overcome their primary fear that they would not have a vehicle available when they need it [14].

Benefits for carpoolers are related to financial and other benefits/reward (free days at work, tickets for cinema, discount vouchers in retails, etc.) or company participation in employees' car commuting costs. Additional financial or another support may be provided by governmental entities [12]. Some authors distinguish direct benefits (such as bonuses and taxis) and indirect benefits (such as reducing parking costs). Some companies, like American Honda Motor, organize carpooling events during the work time to help employees to meet each other's and talk about their trips. Also, Honda rewards every employee who carpool with cash prize as well as designated parking place close to the company building [15].

The next two company incentives are part of parking management strategies [16]. *Parking pricing* is based on introducing parking fees or raising existing parking fees within the company parking spaces or rented parking spots. Related to this, carpoolers could be entirely or partially free of parking fees. Parking pricing very often requires additional financial investments as a consequence of controlled access (for the equipment, salary of parking attendant, etc.). When the company has its own parking lot, monetary funds collected in this way could be invested in the implementation of another carpool incentive (e.g. purchase of ride matching software). When parking places are rented, parking pricing could reduce costs deriving from the provision of parking places for employees.

Preferential parking at destination refers to reserved parking places for employees who carpool (usually best situated places - close to the company building, entrance of company, roofed places, etc.). This implies that employees who aren't interested in carpooling have less parking spots to park. In some companies, in order to avoid some kind of discrimination between carpoolers and non-carpoolers, there is a time limit, so parking places can be engaged by any driver after a certain time (for example after 10:00 a.m.). In order to avoid frauds, the access to the parking places reserved for carpoolers could be checked out by introducing ramps or cameras, as well as by the person in charge of (parking attendant). Also, carpool vehicles, which have reserved parking places, could be marked and thus

easily recognizable. This measure could be implemented independently, although it is more often combined with other measures (for example, with parking pricing or technologies for matching rides). As in parking pricing, there are some differences in this measure implementation when it comes to the parking owned by the company and public parking lots that the company paid some fees for. Of course, it is much more difficult to manage rented or public parking lots.

As regard the implementation of carpooling measures, a kind of strategic approach is required. A general guideline that a company may follow can be as shown in Figure 1.

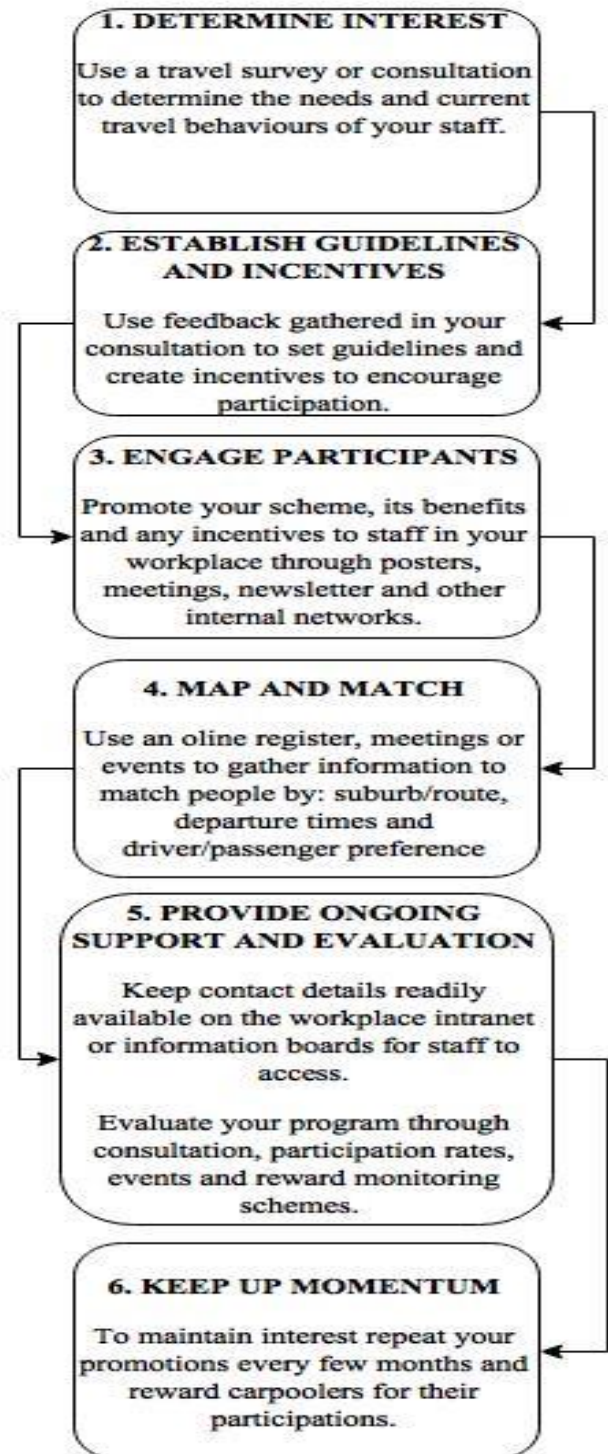


Figure 1. Guide to implementation [17]

4. SOME RECOMMENDATIONS FOR COMPANY-BASED CARPOOLING

Involvement of all stakeholders

Establishing company-based carpooling must be supported by several stakeholders including company management, employees, local and regional authorities, etc. Public authorities must also encourage company to implement carpooling incentives through regulation and support. Gaining the support of all of them is important to ensure its success.

The introduction of carpooling incentives in company most commonly depends on employee's attitudes and reactions, so for this reason the measure implementation process starts by investigations of them (staff travel survey and attitudes to carpooling). According to that, active participation of employees in a process of implementation and adoption of these measures is needed. Studies show that employees initially resist any kind of change in the organization and because of that proper efforts have to be made to involve them in every step to make the incentive implementation successful.

Company characteristics

According to Malderen et al. [6] company's characteristics represent key element for promotion any alternative mode of transport including carpooling. Table 2 summarizes geographic areas and an organization forms for which carpooling is suitable. Spatial distribution of staff (potential carpoolers) and firm size are decisive factors of carpool creation. The larger site, the more potential carpool partners will be.

Table 2. Carpooling application summary [9]

<i>Geographic</i>	<i>Rating*</i>
Large urban region	3
High density (urban)	2
Medium density (urban/suburban)	3
Town	3
Low density (rural)	3
Commercial center	3
Residential neighborhood	2
<i>Organization</i>	<i>Rating*</i>
Federal government	1
Provincial government	2
Regional government	3
Municipal/local government	3
Business associations	3
Individual business	2
Neighborhood associations	1
Campus	3

* 0 – not appropriate, 3 – very appropriate

Funding

The costs of carpooling measures depend on the number of employees and the type of incentive. Different company incentive that supports carpooling implementation requires different costs. Some of these measures (such as technologies for matching rides) require quite a lot initial investment and resources so sufficient funding is necessary.

5. CONCLUSION

Carpooling is an important part of sustainable urban mobility plans and companies are having key roles in promoting this concept among its employees. Apart from environmental benefits, the advantages of carpooling in terms of costs reduction are proven both among employees and employers. There are many measures that companies can deploy to promote carpooling. Some of them need to be supported by local authorities and some can be implemented within the framework of company transport plans.

The choice of an appropriate company incentive primarily depends on characteristics of company itself, but also on employee's requirements and attitudes to carpooling. According to that, our future work will be related to company incentives evaluation which allows inclusion of all relevant factors and stakeholders.

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