

ORGANIZATION OF MOTOR TRANSPORT SERVICES ON THE BASIS OF COMMERCIAL CAR SHARING

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ABSTRACT

A new form of collective use of cars for the domestic motor transport practice, the nature and varieties of car sharing, its technological features and socio-economic meaning are explored. The motives and functions of the user of commercial car sharing and car rental are compared. It is shown that

Keywords: transport service, organization, technology, car-sharing, commercial car sharing, taxi, car, self-service.

Background. Various innovative ways of organizing transport services for the population (largely based on the involvement of the resources of the users of cars themselves) are increasingly popular. A special place among these methods is occupied by car sharing, which, despite the fact that it is rapidly gaining popularity, the researchers lack the unity of opinions about its economic nature and species of existence.

Objective.

The proposed article poses the following tasks:

- to identify varieties of car sharing;
- to identify the advantages and disadvantages of commercial car sharing from the point of view of an individual user of road transport and from the point of view of society;
- to classify innovative forms of organization of road transport services.

Methods. The author uses general scientific methods, comparative analysis, economic assessment, scientific description.

Results. In the domestic literature there is no analysis of the organizational and economic nature of car sharing and technologies of its use (RSCI database search made it possible to find only two works in the name or keywords of which the term «car sharing» is mentioned [1, 4]). The description of the international and domestic experience of car sharing is provided in two publications of «Expert», however they have a general, fact-finding character [2, 3].

The study of foreign works on the problems of car sharing allows to assert that it is a joint use of cars, organized, as a rule, according to the club model [5, 6]. Cars are used to transport individuals or small groups (for example, families). The functioning of car sharing is as follows:

- a single pool of vehicles intended for joint use is formed;
- an aggregate of people who have the right to use cars (a club of users) is formed;
- if a user has a need for a car, he sends a request and, if there are free cars, gets the car for the time he needs.

By ways of formation of pools of cars and clubs of users it is possible to distinguish following basic versions of car sharing (certainly, their further detailed elaboration is possible):

- Private (or collective) car sharing – in this case, the owners' pool and users' club are formed from a limited number of people (for example, residents of a single cottage community). Both the pool of owners and the users' club are of a closed nature (strangers cannot enter it). Often, such pools and clubs are informal and operate on the basis of mutual arrangements (then the situation is possible when the pool consists of one car, and the users' club consists of a small number of

it is right to consider car sharing as a self-service taxi. An analysis of advantages and disadvantages of car sharing, own car and taxi is conducted. An estimation is given to innovative forms of truck maintenance in the context of scientific and technological progress and the development of automated control systems.

acquaintances of the car's owner, to whom he systematically provides his car). There is also such an exotic form as the alternate use of each other's cars (for example, because of the restrictions on the number of cars in the city).

- Network car sharing is a classic two-sided platform in which car owners provide them to third-party users.
- Commercial car sharing – in this model there is a commercial operator that purchases cars and lends them to temporary use to customers (who must undergo a special registration procedure). The fact that such a variety is considered commercial does not mean that all others are non-commercial in nature – on the contrary, car owners in other models of car sharing may well charge users. Commercial car-sharing is also called short-term lease. Indeed, it has many external similarities with car rental (there is a special commercial organization that provides cars for temporary use, the fee is charged for the time of use), but these similarities are purely external.

Table 1 presents a comparative analysis of the car sharing and the classic car rental.

Table 1 demonstrates clearly that, along with external similarities, car sharing and car rental have fundamental differences. In particular, commercial car sharing has much more flexibility in terms of getting and delivering the car – the client does not need to visit the operator's service point, he can find out in the corresponding service where the nearest free car is located and get it there, and after the completion of a trip leave the car at the point of arrival (in the parking lot). You can see that in terms of obtaining a car, this form is something between renting (provider's service point) and taxi (calling the car at the customer's location), and at the place of delivery of the car, commercial car sharing is completely analogous to a taxi. It is easy to see that the client's goals coincide also. In our opinion, this means that it is more correct to consider commercial car sharing not as a short-term car rental, but as a self-service taxi (that is, a taxi service in which the client performs the driver's functions).

This understanding of commercial car sharing has several advantages:

- it better reflects its nature from the point of view of the organization of the provision of the service and the needs of the client (replacing not a personal car intended for permanent use but a taxi replacement);
- it corresponds to the current trend of abandoning the labor of service workers and the active use of self-service.

In addition, car sharing relies on the same factors that, as it was said at the outset, are the basis for innovative ways of organizing motor transport services, namely that the availability of driving skills of a personal car has ceased to be a rare competence (and this



Table 1

Comparative analysis of commercial car sharing and car rental (compiled by the author on the basis of materials [2, 3, 5, 6])

	Car rental	Commercial car sharing
Service provider	Commercial company	Commercial company
Provision of driver's functions	Client	Client
Charging fees	For the period of use	For the time of use (per minute charging)
Place of car's receipt	Provider's service point	Actual location of a car in the region of service provision
Place of car delivery	Provider's service point	User's destination point
User's objectives	Intensive use (replacement of a personal transport in a new region of a user)	One-time use (a short trip to a relatively short distance within the service region)
Service region	Extensive (region, country or several countries)	Limited (metropolitan city, possibly with adjacent territory)

Table 2

Comparative analysis of the advantages and disadvantages of having own car and using the services of commercial car sharing and taxi (compiled by the author)

	Own car	Taxi	Commercial car sharing
Advantages	<ul style="list-style-type: none"> – Unlimited access to the car. – Ability to use the car at own discretion, not in accordance with the rules of an external service provider. 	<ul style="list-style-type: none"> – Receipt and delivery of the car at convenient time and in a convenient place. – Payment for only the actual use of the car. – Lack of own expenses of physical and mental energy for the trip. – Risks associated with the trip fall on the taxi service provider. – There is no need to pay for the maintenance of the car and its maintenance in working order. 	<ul style="list-style-type: none"> – Delivery of the car in a convenient place for the client and at a convenient time. – Payment for only the actual use of the car. – There is no need to pay for the driver's services. – There is no need to pay for the maintenance of the car and its maintenance in working order.
Disadvantages	<ul style="list-style-type: none"> – High acquisition and operation costs. – The difficulty of ensuring the full load of the car (i.e., inefficient use of its resource). – Costs of own forces to carry out the trip. – Risks associated with the trip (accident, fines, etc.) fall on the owner of the car. 	<ul style="list-style-type: none"> – Risk of lack of access to the car (due to lack of free cars at the time of the order). – The need to pay for the driver's work and the services of a taxi service provider. 	<ul style="list-style-type: none"> – Risk of lack of access to the car (due to lack of free cars at the time of the order). – The place of receipt of the car can be inconvenient for the client. – The need to pay for the services of a taxi service provider. – Costs of own forces to carry out the trip. – Risks related to the trip (accident, fines, etc.) fall on the client himself. – Restrictions on the area of use (the client may be prohibited from traveling outside a certain zone).

significantly reduces the need for the existence of professional drivers of cars – such as taxi drivers).

Due to self-service, the services of car sharing are cheaper than trips by taxi, since neither the client nor the operator has to pay for the driver's work.

Table 2 presents the advantages and disadvantages of using own car, taxi and commercial car sharing from the point of view of the consumer.

Table 2 demonstrates that commercial car sharing has its own sphere of application. It is designed for customers who:

- for some reason do not use a private car;
- have driving skills and are ready to use them independently;
- are confident enough in their driving skills to be ready to assume the risks of damage to the vehicle of the car sharing company;
- do not want to overpay for taxi services;
- The inconvenience associated with the car sharing (for example, the inability to obtain the car directly to its address), are not of decisive importance to them.

Perhaps in the future, with the transition to cars with autopilots, commercial car sharing and a taxi with a

driver will disappear as separate types of road transportation and will be replaced by a taxi with an autopilot. The car will be delivered to the customer's location, left it in any convenient place and, probably, thanks to the automatic collection and processing of information about orders, joint trips will be organized (grouping passengers by the time and proximity of the route – of course, with their consent), which will increase the efficiency of use of cars and will reduce transportation costs. At the same time, of course, there will be no need for a driver's license from the consumer. So it is possible that commercial car sharing in its current form is destined for the same fate as the pager that used to be popular some time ago, which, by giving customers the opportunity of mobile communication (which was a noticeable breakthrough in comparison with fixed communication), was quickly replaced by mobile phones.


In other words, a taxi with a driver and a taxi of self-service (commercial car sharing) will, quite possibly, be replaced by an automated taxi.

It is possible to construct a classification of innovative forms of organization of motor transport

Table 3

Comparative analysis of the advantages and disadvantages of using your own car and the services of commercial car sharing and taxi from the point of view of society (compiled by the author)

	Own car	Taxi	Commercial car sharing
Advantages	<ul style="list-style-type: none">– Stimulation of production and sales of cars (job creation).– Mobility, not dependent on cooperation with external transport service providers.	<ul style="list-style-type: none">– Improvement of the quality of life (increase in transport accessibility and the possibility of choosing an individual route in the absence of own car and driving skills).– Less damage to the traffic situation (due to the elimination of excess cars).– Smaller areas for parking.	<ul style="list-style-type: none">– Improving the quality of life (increasing transport accessibility and the possibility of choosing an individual route in the absence of a car).– Less damage to the transport situation (due to the elimination of excess cars).– Smaller areas for parking.
Disadvantages	<ul style="list-style-type: none">– Deterioration of transport situation (due to excessive number of cars).– The need to allocate significant areas for parking (due to the fact that the car is used unevenly).– Deterioration of the ecological situation.	<ul style="list-style-type: none">– Reduction of demand for cars leading to a fall in production.– Lack of independence in mobility.	<ul style="list-style-type: none">– Reduction in demand for cars leading to a fall in production.– Lack of independence in mobility.

		Car	
Own		Of another owner	
Driver	User himself	I. Self-use of own car (classic motorist)	II. – Car rental – Car sharing (in all varieties)
	External driver	III. A temporary driver (for example, for situations where a person cannot himself drive a car because of alcohol intoxication)	IV. – Taxi services – Rental (including long-term) of a car with a driver – Intraurban joint trips (Uber) – Inter-city joint trips (BlaBlaCar)

Pic. 1. Classification of various forms of organization of individual motor transport services of the population (compiled by the author).

services according to the criteria of who provides the car and who acts as a driver (see Pic. 1).

The classification shows an innovative niche in the system of ways of organizing individual motor transport services for the population. It is clear that in the quadrants II and IV both traditional and innovative forms are presented.

Conclusions.

- Car sharing exists in a number of varieties, which, however, have a common organizational and economic nature: their essence lies in the joint use of the car. The difference between the types consists in the mechanism of formation of the pool of cars, the ways of organizing the club of users and the rules for obtaining access to cars.

- Commercial car sharing is a specific kind of car sharing, within which a pool of cars is formed by a commercial operator acting as the owner (or lessee) of these cars.

- From the point of view of the content of the service provided by operators of commercial car sharing, it should be considered as a self-service taxi.

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