momo Car-Sharing
More options for energy efficient mobility through Car-Sharing

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Deliverable 7.1 - Transferability Matrix
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1. Introduction and guidelines

1.1 Introduction

The transferability matrix is designed as a working tool to assist stakeholders in existing and potential new locations for Car-Sharing systems to design, plan and implement new Car-Sharing systems in locations where none already exist and/or new Car-Sharing services in locations where they do already exist and/or where improvements to existing Car-Sharing systems and services are needed.

The matrix is based on the experience of existing Car-Sharing operators within the MOMO-CS consortium and elsewhere, with information also taken from reports on the state of the art of European Car-Sharing and interoperability and co-modality. Interoperability means that customers of one Car-Sharing operator can use the services of one or more other operators without having to become a customer of the other operators. Co-modality means that customers of a Car-Sharing operator can use other transport modes, such as public transport as part of a joint arrangement including use of a single smartcard, common branding or joint promotional activities for example.

1.2 Guidelines for use of the transferability matrix

The transferability matrix of key characteristics for successful Car-Sharing and the potential barriers to implementing successful systems/services and overcoming them is to be used by stakeholders as an assessment tool to identify whether such characteristics and barriers exist in the location(s) where they want to implement new systems and/or services and for comparison with the related conditions in the selected locations to ensure that they are favourable for the implementation of new systems and/or services. The matrix is set out in section 4.

The assessment process should be undertaken in workshops with key stakeholders at each location. The key stakeholders to be involved are identified in section 2.1.1 below and would also be considered as partners for the planning and implementation of the new systems and/or services.

The assessment process should continue with site visits by experienced Car-Sharing operators and other experts to analyse the local market and the capacity of potential operators selected to implement the new systems/services and to propose remedial action to improve the performance of existing less successful operators.

The assessment process should then be followed by the preparation of business plans for the locations selected and for which the assessment process will provide useful information.
2. Key characteristics of successful CarSharing operations

2.1 Success factors

2.1.1 Suitable/appropriate partners

These include:

- government at various levels, local, regional and national providing:
  - financial support for both the initial stages and on an ongoing basis
  - political support to define car-sharing and to include car-sharing in their policies and strategies
  - linking with municipal and state owned public transport companies
  - legal support, for example allowing the use of public and on-street spaces for parking car-sharing vehicles and providing official road signs to support car-sharing in such locations
  - local councils using car-sharing instead of, or as a supplement to, their own fleets
  - scrappage scheme, which provides the options to scrap a car and exchange it for season tickets on public transport, bicycle purchase, registration fees for car-sharing and cycle hire services

- public transport operators:
  - for joint promotional activities and integrated ticketing, thereby fostering car-sharing as a component of the public transport system
  - as shareholders in the car-sharing operating company

- experienced system providers, including:
  - longstanding car-sharing operators
  - suppliers of relevant technologies, e.g. for accessing vehicles and monitoring their use

- well-known and experienced local partner involved in mobility actions contributing:
  - their own financial resources
  - premises (office space, storage space, meeting & training facilities)
  - available and enthusiastic staff to take on management, administration, accounting, planning, promotion, marketing, technical support and operations functions

- other useful partners include:
  - national automobile association(s)
  - car rental company(ies)
  - taxi company(ies)
  - public and private parking provider(s)
2.1.2 Adequate financial resources for both the start up phase and for expansion to new locations and/or for new service features.

2.1.3 Use of modern technology

This would include:

- booking and customer support systems and software
- fleet management and maintenance systems and software
- billing and reporting systems and software
- vehicle access and monitoring of use systems and software
- marketing and promotional methods

2.1.4 Quality of service, which is very important for “word of mouth” promotion and recruitment of new customers and for retention of existing customers.

2.1.5 Integration with other modes

Integration with both local and longer distance public transport services, through joint promotional and marketing activities, joint ticketing and multi-modal smartcards.

2.1.6 Nature of potential users/customers

Experience and information from long-standing operators indicate that the typical customer profile is the intelligent urban consumer with above average income and education. Other related defining factors include:

- people with less access to a privately-owned motor car
- people with a higher use of non-car modes to undertake regular journeys to work, school or college, and shorter journey times to these destinations
- people living in households with a lower proportion of age dependent residents
- people living in multi-occupation buildings, and who are therefore more likely to face on- and off-street parking difficulties

2.1.7 Site/location characteristics

It is important to identify the most appropriate locations, e.g. city, town, neighbourhood, in which to start a system and to place car stations. This process includes searching for areas that have a high combination of factors, such as:

- higher population and jobs density
- higher than average income and social class
- higher employment rates
- higher affluence, lower deprivation scores
- being able to support a sustainable lifestyle and promote multimodal transport use, e.g. key services within walking distance, good public transport links, local employment and residential densities that are sufficient to support a walkable city/town/neighbourhood
- with sufficient pressure on the existing road network and parking provision to make car ownership become less and less attractive to local residents.

The availability of an interested business use partner, e.g. local council, university, development company, will help to quickly establish a mix of business and residential use maximising utilisation of the vehicles and making it more likely that financial viability is achieved quickly.
2.1.8 Marketing and promotion

Experience has shown that the most effective way of marketing and promoting car-sharing is through “word of mouth”, primarily involving existing customers.

A variety of other media are used and these include typically:

- Leaflets with varying amounts of information from brief introductory ones, which draw people to a website, to more detailed ones setting out the concept, the service offered and the tariffs.
- Posters with limited snappy slogans.
- Websites associated with making bookings or reservations, changing them or cancelling them.
- Depending on whether it has been possible to involve key partners, such as public transport operators and/or local councils, joint publicity campaigns or combined smartcards and other forms of integrated ticketing.
- Intensive promotional activities in the target neighbourhoods
- Press releases and generation of media reports
- Attractive, visible locations and cars/vans/MPVs

The existence of any of the above which can be utilised, translated etc., would greatly assist in the transferability process for assessing the viability of new systems and/or services.
3. Potential barriers to implementing successful systems and/or new services

3.1 Political/legal constraints

3.1.1 Lack of specific national legislation on CarSharing as part of local public transport

The lack of a definition of Car-Sharing within national legislation as a recognised form of local public transport is likely to prevent the sort of collaborative arrangements, which benefit both Car-Sharing operators and public transport operators alike.

3.1.2 Inability to use on-street parking spaces

One fundamental component of Car-Sharing infrastructure is the reserved Car-Sharing stations at selected locations where customers pick up and return vehicles. These should be located as near as possible to the homes of individual customers and to the work locations of commercial customers. From customer surveys, it has been established that a walking distance of 500 metres from the customer is ideal. Beyond 700 to 800 metres, customer take-up is markedly reduced. For customers who travel to Car-Sharing vehicles by other forms of transport from farther away, it is useful for the stations to be reachable by public transport.

Depending on the legal situation, the distribution of stations in a city or district can act as either a constraint or as encouragement for customer growth:

1. **Major constraint**: national legislation which does not allow the designation of Car-Sharing stations in public street space, as is the case in Germany, Austria, and Switzerland. Because of this, in some cases Car-Sharing providers cannot build new Car-Sharing stations in densely-built areas near city centres where – from the perspective of attracting new customers – they are most urgently needed. Local councils give up in the face of unavailable legal basis.

2. **Medium constraint**: national legislation does not specifically allow Car-Sharing stations to be designated in public street space, but it also does not expressly prohibit it. Co-operative local authorities interpret this using their own discretion to establish Car-Sharing stations in public street space. This is handled in many ways, for example, in Cork, Helsinki and large Italian cities. Several German cities have creatively interpreted the applicable existing legal situation identified in this situation and in individual cases made exceptions and identified possibilities for authorisation.

3. **Minor constraint**: national lawmakers have turned over to local authorities the right to determine who can make a claim to public street space. This is the case in Belgium and the Netherlands. There, the local administration – generally together with Car-Sharing providers – decides where new Car-Sharing stations should be established. In no case, however, is the local administration obliged to designate public street space (at the requested locations). The responsible authorities decide on a case-by-case basis according to the criteria of the local conditions and political stipulations.

3.1.3 Contradictory policies (...scrappage scheme only allowing purchase of a new car)

In most European countries, Car-Sharing is recognised in transport policy as an environmentally beneficial and climate-friendly mobility service. The better the positive effects are documented and communicated, the sooner Car-Sharing will also gain support from the political side. Even such support does not, however, prevent setbacks. This was demonstrated clearly when several European countries – in the face of the financial crisis and a concurrent drop in new car sales – decided to offer massive support measures costing billions of Euro, which are incompatible with officially-declared medium- and long-term transport and environment policies.

The scrappage bonuses established in several European countries are examples of this. The bonuses, which subsidise new car buyers into the thousands of Euros, were pushed through without any strong environmental conditions being placed on them. Users of environmentally-friendly transport modes have walked away empty-handed, having received no financial support within the framework of this national car manufacturer support campaign. Car-Sharing providers couldn’t benefit from it either. On the contrary, in spring 2009, they were negatively affected by longer than usual delivery times for the small cars typically provided by Car-Sharing services.
3.1.4 Hidden subsidies related to car ownership & driving (externalities, taxes & incentives)

The Car-Sharing fee system is set up such that the costs are laid out very transparently and no incentive exists to use a car more than is necessary. In contrast, the costs of car ownership and driving are obscured by hidden subsidies (which also indirectly affect Car-Sharing).

1. External costs of car ownership and driving

There are, on the one hand, the external costs of car ownership and driving. External costs of transport are costs that are caused by, but not paid for by, drivers. Instead, they are imposed on the public in general. Among these are environmental costs, the consequences of air and noise pollution, and encroachment into natural areas. Because these costs aren't paid for directly by the driver whenever they drive, the result is an underestimation of the costs of car driving as compared to transport modes that generate fewer external costs. The German federal Environment Ministry estimates that, on average, the external environmental costs of car traffic is in the order of 2.9 cents per vehicle kilometre. If this were applied to fuel costs, this would mean an increase in the petrol price of about 37 cents per litre. That's an order of magnitude that would have a noticeable impact on the amount of driving done in private vehicles, as the market-induced petrol price increase of 2008 showed. The cost efficiency of Car-Sharing would therefore become more apparent to drivers.

2. Government fees as financial instruments

Very little financial direction is provided over state fees for new (or nearly-new) cars in European countries. A comparison of 27 European countries showed that the state determined total taxes for a private car – based on a compact car with petrol engine and 15,000 annual kilometres – in the first four years add up annually to between €840 (in Romania) and €4,600 (in Denmark).

In the countries with above-average tax levels, vehicle licensing fees play a specific role. They account for €2,650 annually in Denmark, €1,590 annually in Norway and in Ireland €1,040 annually. Above-average overall taxes on car ownership are also levied in Belgium, Finland, Malta and the Netherlands. Such taxes noticeably influence the decision to buy a new car. Conversely, absent or below average licensing taxes or overall state taxes can act as a fiscally preferential treatment of private car owners.

3. Tax incentives for company vehicles

In businesses, it has become increasingly popular to purchase company cars not only to meet work-related mobility needs, but also to serve as bonuses and incentives for employees above a certain level. The tax system supports the purchase of more or less privately used company cars with generous rules, making it more difficult to introduce rational company car use models in the form of business Car-Sharing.

3.1.5 Faith in the technical “fix” rather than promotion of “soft” measures

In political circles, the hope is widespread that modern vehicle technology will solve our current traffic-induced problems. In the past, this has led to, among other things, the willingness of EU policymakers – and also national legislatures – to accept self-regulation of the automobile industry in the reduction of fuel consumption and related CO\textsubscript{2} emissions. Accompanying measures such as awareness raising among drivers through mobility management and information campaigns, in contrast, were carried out half-heartedly if at all.

3.1.6 Constraints in the design & implementation of “soft” modes & measures

Car-Sharing is designed as an integrated service which seeks collaboration with the so-called “eco-modes” (buses and trains, cycling and walking). The fee structures of Car-Sharing are generally tailored so that Car-Sharing use is less expensive than driving a new private car so long as one doesn't need a car every day. For many private Car-Sharing customers, this supports an attitude to driving in which Car-Sharing use is combined with the “eco-modes” for daily journeys. It follows that any stimulation of the environmentally friendly modes of transport also benefits Car-Sharing. The better the environmentally friendly modes of transport are regarded by the general public and by local or regional politicians, the more Car-Sharing also profits as the general population is made aware of the advantages of combining modes. Conversely, this means that constraints and barriers in the design and further development of the “eco-modes” are also detrimental to Car-Sharing.
3.2 Individual constraints

3.2.1 Limited/inadequate understanding of the concept
One of the biggest constraints to growth in Car-Sharing is the limited or inaccurate knowledge of its functionality and manageability. Some confuse organised Car-Sharing with the informal lending of a private car among friends and family members, while some people don’t know the difference to conventional car rental. Even where, in principle, there is an awareness of the existence of a Car-Sharing service, again and again, findings show that this knowledge doesn’t accurately reflect the facts. Prejudices exist particularly among people who have no personal experience of Car-Sharing use, the availability of cars, the dependability of the booking and access systems, and the customer orientation of the system as a whole. Countless surveys reveal significant differences in the way customer-related aspects of the existing service are rated: Car-Sharing customers generally rate these aspects decidedly more positively than non customers, who lack experience with the actual conditions of use and rely instead upon prejudiced or inaccurate half-knowledge.

3.2.2 Emotional attachment to one’s own car
Even if their personal mobility needs were well-suited to it in every way, only a portion of the population is prepared to choose the combination of the “eco-modes” of transport (bus, train, bicycle, walking) together with Car-Sharing. Individual preferences, mobility orientations and the images associated with various modes of transport deter them from seeing shared cars as a mobility option. In such circles, the private car is seen and used not only as means of transport, but also – or even predominantly - as an image-laden status symbol and an expression of prosperity.

This social image is even more strongly supported by national policy the more significant domestic automobile production is to the national economy. With the diversification of the modern, urban lifestyle, this model of use is gradually breaking down in certain segments of the population. With the gradual integration of post-materialistic values in the lifestyles of the urban population, the principle “use rather than own” is gaining more and more meaning to the point that even the inner circles of car manufacturers, in their discussions of future business models, talk about how to incorporate this philosophy. Nonetheless, the principle expressed in car advertising – of freedom that only the private car offers and the emotions that are expressed through the ownership of a car – still prevails.

3.2.3 Lack of understanding of the true cost of one’s own car
Above, we described how politics and car manufacturers have a hand in concealing the real costs of private car use, but car owners themselves also play a role. For one thing, fuel costs are often the only cost of use that car owners consciously calculate. In countries where motorway use fees also apply to private cars, or where congestion fees are charged for entering a certain area of a city, these costs are also likely to be included in mental cost calculations. In contrast, wear and tear, parking fees, annual vehicle taxes, seasonal tyre changes, and other use-related costs are often overlooked in the overall view of the cost. This leads to an inaccurate estimation by many vehicle owners of the true total cost of car ownership. In commercial fleet management too, only recently has the financial crisis led to a more accurate and complete cost accounting. In articles in industry magazines, only in the past year or two has the expression TCO (Total Cost of Ownership) appeared regularly, reflecting increasing cost awareness in the face of companies’ sinking investment capital.

3.2.4 High fixed costs of car ownership
The high initial costs of a private vehicle seriously – and understandably – reduce the willingness of car drivers to choose the most appropriate mode of transport for each individual journey. The depreciation of a new (or nearly-new) vehicle is seen as unavoidable, leading to the attitude: “since I’ve paid for the car, I should use it as much as possible” Such an attitude blinds car owners to the specific strengths of other modes of transport for certain journeys at certain times and inhibits an optimised and efficient use of all transport modes. The cost structure of Car-Sharing is exactly the opposite, making it a perfect fit with the congestion-reducing eco-modes. The basic problem thus becomes how to lure drivers away from the fixed cost-dominated cost structure of car ownership to clear the way for a greater willingness to use the most appropriate mode for each journey.
3.2.5 Time gap between the decision to sign up for car-sharing and the end of a private lease contract on one’s own vehicle

People might have decided to sign up with their local car-sharing provider, but find themselves stuck with a lease contract on their existing vehicle, which has a few months still to run. This means that they either delay completing the sign up process or have to reconsider signing up at all.

3.3 Financial constraints

3.3.1 Raising cash for new start ups, as CarSharing is not a quick high return model – not usually anyway!

Obtaining investment for new business start ups is really difficult in the current financial and economic climate. As CarSharing does not usually give a quick high return on investment, venture capitalists and other similar investors either will not invest at all or require an immediate and high return on their investment thus causing cash flow problems for any new business.

3.3.2 “Credit crunch”

Bank lending has become very problematic for small businesses in the current financial and economic climate however good the business case. Recent experience has shown banks changing their minds from week to week on what their lending practices are. For example they might require impossible personal guarantees or collateral on loans; or quite simply just decide that financing cars is no longer something they wish to do anymore.

3.3.3 Depreciation of the used car market

Many people signing up with CarSharing operators often do so having sold their first or second family car. However, depreciation of the used or second-hand car market has meant that people can no longer sell their cars for the price previously expected or even find that they are unable to sell their car at all.

3.3.4 Insurance accessibility and price

Despite the existence of the Single European market for many years, insurance companies treat each member state as a separate market. Insurance companies which provide cover to CarSharing operators in one or more EU member state will not necessarily provide cover in your country.

Obtaining insurance cover at the start is also very difficult as there is no track record, the number of vehicles is usually quite small and, if there are not any other operators in a particular country, they have not got other local experience to compare the potential risk with and are unlikely to understand the concept. So, they will either not be prepared to provide cover, but will do so at a very high cost, or will assume that CarSharing is similar to car rental and quote on the basis of that type of operation where risks are much higher.

3.4 Infrastructural constraints

3.4.1 Finding appropriate sites for car stations

Car stations serve as promotional sites as well as providing parking spaces, so it is essential that they have a high visibility and a good image. It is also important that they are safe and secure, especially when it is dark. They should ideally be located near to public transport and other “eco-modes”.

Locating car stations underground or in multi-story car parks can prevent communication between the booking server computer and the onboard computer in the vehicle and this can cause major problems for accessing the vehicles independently.

3.4.2 Bad public transport

Experience has shown that CarSharing customers use public transport more than other drivers and so bad public transport will inhibit their signing up to a CarSharing service. Bad public transport will also make it much harder for CarSharing customers to access car stations, especially when they might not be able to book a vehicle at their nearest or favourite car station.
3.4.3 Easy access to parking

This is a key requirement for CarSharing, so not having access 24/7 to car stations can reduce the performance of a CarSharing service. In addition, the layout of a car station or the parking spaces can create problems, which might results in minor accidents within the car park or at the location of the car station.

3.5 Technical constraints

3.5.1 Ensuring adequate mobile phone coverage (underground car parks, rural areas)

Communication between the booking server computer and the CarSharing vehicles or lockers containing the keys is usually carried out over the mobile phone network using SMS. Coverage in underground car parks and in rural areas might not be very good and so communications become difficult or even impossible.

3.6 Marketing issues

3.6.1 Not being sure as to the most effective ways to promote car-sharing at start up (new country or city) and/or at new developments (e.g. new car station, new neighbourhood).

There are many ways of promoting new and existing products and services. CarSharing is no different, but is in many ways a “lifestyle choice” and so a lot of things come into play, such as cultural differences between countries and regions and even between locations in the same region. Local knowledge is very important and so developing links with strategic partners in a new country, region and even community is essential for the successful promotion of both new and existing CarSharing services; so too are the new online tools, such as Facebook and Twitter.
4. **Assessment of key characteristics and overcoming barriers**

4.1 **Relate them to the actual conditions in chosen locations (...do they exist?)**

The table below can be used as a template for assessing the key characteristics for success against those identified in potential city/town/neighbourhood.

<table>
<thead>
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<th>Possible</th>
<th>Not possible</th>
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**other useful partners include:**

- national automobile association(s)
- car rental company(ies)
- taxi company(ies)
- public and private parking provider(s)

**Adequate financial resources for both the start up phase and for expansion to new locations and/or for new service features.**

**Use of modern technology:**

- booking and customer support systems and software
- fleet management and maintenance systems and software
- billing and reporting systems and software
- vehicle access and monitoring of use systems and software
- marketing and promotional methods

**Quality of service, which is very important for "word of mouth" promotion and recruitment of new customers and for retention of existing customers.**

**Integration with other modes**

Integration with both local and longer distance public transport services, through joint promotional and marketing activities, joint ticketing and multi-modal smartcards.

**Nature of potential users/customers:**

- intelligent urban consumer with above average income and education
- people with less access to a privately-owned motor car
- people with a higher use of non-car modes to undertake regular journeys to work, school or college, and shorter journey times to these destinations
- people living in households with a lower proportion of age dependent residents
- people living in multi-occupation buildings

**Site/location characteristics:**

- higher population and jobs density
- higher than average income and social class
- higher employment rates
| higher affluence, lower deprivation scores |  |
| key services within walking distance |  |
| good public transport links |  |
| local employment and residential densities that are sufficient to support a walkable city/town/neighbourhood |  |
| sufficient pressure on the existing road network and parking provision |  |
| interested business use partner |  |
| **Marketing and promotion:** |  |
| Information leaflets |  |
| Posters |  |
| Web sites |  |
| Joint promotional campaign with PT operator(s) |  |
| Intensive promotional activities in the target neighbourhoods |  |
| Press releases and generation of media reports |  |
| Attractive, visible locations and cars/vans/MPVs |  |
4.2 Work with key stakeholders, real and/or potential partners to overcome barriers/constraints

The table below can be used as a template for assessing whether the barriers identified can be overcome and how easy that would be. The discussions with key stakeholders and other experts, including partners in the Momo consortium, will work out whether and how these barriers can be overcome.

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<td>Time gap between the decision to sign up for car-sharing and the end of a private lease contract on one’s own vehicle</td>
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<td><strong>Financial constraints:</strong></td>
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<tr>
<td>Raising cash for new start ups as CarSharing is not a quick high return model – not usually anyway!</td>
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<tr>
<td>&quot;Credit crunch&quot;</td>
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<td>Depreciation of the used car market</td>
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<td>Insurance accessibility and price</td>
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<td><strong>Infrastructural constraints:</strong></td>
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<tr>
<td>Finding appropriate sites for car stations</td>
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<td>Bad public transport</td>
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<td>Easy access to parking</td>
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<tr>
<th><strong>Technical constraints:</strong></th>
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<tr>
<td>Ensuring adequate mobile phone coverage (underground car parks, rural areas)</td>
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<th><strong>Marketing issues:</strong></th>
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<tr>
<td>Not being sure as to the most effective ways to promote car-sharing at start up (new country or city) and/or at new developments (e.g. new car station, new neighbourhood).</td>
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