Sustainable and Innovative Personal Transport Solutions
- Strategic Analysis of Carsharing Market in Europe

M4FA-18
January 2010

F R O S T & S U L L I V A N
Disclaimer

Frost & Sullivan takes no responsibility for any incorrect information supplied to us by manufacturers or users.

Quantitative market information is based primarily on interviews and therefore is subject to fluctuation.

Frost & Sullivan research services are limited publications containing valuable market information provided to a select group of customers in response to orders. Our customers acknowledge when ordering that Frost & Sullivan research services are for our customers’ internal use and not for general publication or disclosure to third parties.

No part of this research service may be given, lent, resold or disclosed to non-customers without written permission.

Furthermore, no part may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the permission of the publisher.

For information regarding permission, write to:

Frost & Sullivan
4 Grosvenor Gardens
Sullivan House
London SW1W 0DH
United Kingdom

© 2010 Frost & Sullivan. All rights reserved. This document contains highly confidential information and is the sole property of Frost & Sullivan. No part of it may be circulated, quoted, copied or otherwise reproduced without the written approval of Frost & Sullivan.
We hereby certify that the views expressed in this research service accurately reflect our views based on primary and secondary research with industry participants, industry experts, end users, regulatory organisations, financial and investment community and other related sources.

In addition to the above, our robust in-house forecast and benchmarking models along with the Frost & Sullivan Decision Support Databases have been instrumental in the completion and publishing of this research service.

We also certify that no part of our analyst compensation was, is or will be, directly or indirectly, related to the specific recommendations or view expressed in this research service.
Table of Contents
# Table of Contents

**Research Objective and Scope**

- Personal Transport Solutions – An Overview 10
- Research Methodology 11
- Scenario Analysis - Key Assumptions 12
- Executive Summary 14

**Market Overview**

- 2.1 Population Demographics
- 2.2 Benefits and Impacts of Carsharing
- 2.3 Low Emission Zones
- 2.4 Parking Policies for Carsharing in EU
  - 2.4.1 Consumer Preferences on Parking in Major EU Cities
- 2.5 Key Industry Challenges
- 2.6 Partnership Benefits in Carsharing
- 2.7 Consumer Profile
- 2.8 Revenue and Cost Structure of a Carsharing Organisation (CSO)

**Market for Carsharing in Europe**

- 3.1 Total Forecasts for Carsharing Members
- 3.2 Total Forecasts for Carsharing Vehicles
3.3 Scenario Analysis for Carsharing Members and Vehicles
3.4 Country Forecasts for Carsharing Members and Vehicles
3.5 Forecast for Member-vehicle ratio
3.6 Total Revenue Forecasts for Carsharing
3.7 Forecasts for Powertrain Technologies in Carsharing Vehicles
3.8 Market for Electric Vehicles in Carsharing
3.9 Public Charging Infrastructure in Europe
   3.9.1 Consumer Preferences on EV Charging in Major EU Cities
3.10 Carsharing Vehicle Fleet Segmentation
3.11 Business Models in Carsharing
3.12 Roadmaps
   3.12.1 Demographics
   3.12.2 Electric Vehicles and Vehicle Manufacturers

**Case Studies**

4.1 Autolib’ Program by the French Government
4.2 Daimler’s Car2go Program in Ulm
4.3 Peugeot’s Integrated Mobility Program - Mu
Table of Contents (Contd...)

Country Profiles 59

5.1 Benchmarking of Major EU Countries
5.2 The United Kingdom
5.3 Germany
5.4 Switzerland
5.5 France
5.6 The Netherlands
5.7 Austria
5.8 Sweden
5.9 Italy
5.10 Belgium
5.11 Spain

Company Profiles 71

6.1 Market Share of Major CSOs
6.2 Mobility
6.3 Greenwheels
6.4 Streetcar
6.5 Cambio
Table of Contents (Contd...)

6.6 Connect by Hertz
6.7 Zipcar

**Conclusions and Recommendations**

- 7.1 Key Conclusions
- 7.2 Recommendations for CSOs
- 7.3 Recommendations for Vehicle Manufacturers

*Appendix*

**About Frost & Sullivan**
**Objective:**
This study focuses on the evolution of sustainable personal transportation market, especially the carsharing market in Europe. It provides an overview of market trends, types of services, their impacts and carsharing operators’ strategies along with an analysis of vehicle manufacturers entering into the European carsharing space.

**The key focus of this research is to analyse:**
- Market overview and trends
- Business model analysis
- Stakeholder opportunity analysis
- Market size and forecast assessment
- Regional differences
- Customer profile and their preferences
- Participants strategies
- Best practices case studies

<table>
<thead>
<tr>
<th>Geographic Coverage</th>
<th>Europe - EU-15 + 1 (Switzerland)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Year</td>
<td>2009</td>
</tr>
<tr>
<td>Forecast Period</td>
<td>2010 to 2016</td>
</tr>
<tr>
<td>Transport Solution(s) Covered</td>
<td>Carsharing</td>
</tr>
</tbody>
</table>
| Services Considered | • Traditional carsharing services  
                        • New services including cars-on-demand, one-way trips, peer-to-peer carsharing and open-ended reservations  
                        • Carsharing is not carpooling or ridesharing  
                        • Carpooling members are not carsharing members  
                        • Short-term rental from car rental companies are not carsharing services  
                        • Rental companies must have carsharing/short-term rental subsidiaries  
                        • Forecast based on several assumptions summarised in the scenario analysis |

**Limitations**
- Carsharing is not carpooling or ridesharing
- Carpooling members are not carsharing members
- Short-term rental from car rental companies are not carsharing services
- Rental companies must have carsharing/short-term rental subsidiaries
- Forecast based on several assumptions summarised in the scenario analysis
Carpooling is Less-organised and Car Rental Competing with Public Transportation; Carsharing has the Largest Potential

### Sustainable Personal Transport – Shared Vehicles

<table>
<thead>
<tr>
<th></th>
<th>Carpooling or Ridesharing</th>
<th>Car Rental</th>
<th>Carsharing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ownership</strong></td>
<td>Retained</td>
<td>No ownership</td>
<td>No ownership</td>
</tr>
<tr>
<td><strong>Organisation</strong></td>
<td>Non-profit</td>
<td>For-profit</td>
<td>For-profit, Non-profit and Co-operative</td>
</tr>
<tr>
<td><strong>Mobility Service</strong></td>
<td>Shared mobility with different time arrangements</td>
<td>Usually daily and longer</td>
<td>Hourly and daily shared mobility</td>
</tr>
<tr>
<td><strong>Vehicle Type</strong></td>
<td>Any vehicle that can be shared</td>
<td>A large variety of vehicles</td>
<td>Majority are smaller, fuel efficient vehicles</td>
</tr>
</tbody>
</table>

Source: Frost & Sullivan
Research Methodology

Frost & Sullivan’s research study is based on both secondary and primary research data.

**Secondary Research:** This form of research involves extraction of information from existing studies and project materials within Frost & Sullivan databases, to include data and information gathered from technical papers, specialised magazines, seminars and Internet research.

**Primary Research:** Over 25 interviews have been conducted over the phone by senior consultants/industry analysts with carsharing operators, public transportation authorities, federal agencies, vehicle manufacturers and end-users. Primary research has accounted for approximately 80% of the total research.

### Partial List of Industry Participants Interviewed

<table>
<thead>
<tr>
<th>Companies/Organisations Interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ford</strong></td>
</tr>
<tr>
<td><strong>Nissan</strong></td>
</tr>
<tr>
<td><strong>Mobizen</strong></td>
</tr>
<tr>
<td><strong>Cambio</strong></td>
</tr>
<tr>
<td><strong>Sunfleet</strong></td>
</tr>
<tr>
<td><strong>Wheels4all</strong></td>
</tr>
<tr>
<td><strong>PSA</strong></td>
</tr>
<tr>
<td><strong>Zipcar</strong></td>
</tr>
<tr>
<td><strong>Car City Club</strong></td>
</tr>
<tr>
<td><strong>Hertz</strong></td>
</tr>
<tr>
<td><strong>Better Place</strong></td>
</tr>
<tr>
<td><strong>Avancar</strong></td>
</tr>
</tbody>
</table>

**Non-profit organisations promoting carsharing in Germany, UK, Sweden and Belgium**

**Federal Agencies in Germany, Italy, Sweden, Belgium and the United Kingdom**

**Road transportation authorities in the United Kingdom, Sweden and Belgium**
Several Factors Impact the Carsharing Market – Scenarios and Key Assumptions Used in this Research Service (1/2)

Market for Carsharing: Key Assumptions for Scenario Analysis (Europe), 2009-2016

<table>
<thead>
<tr>
<th>Factors</th>
<th>Government support and initiatives</th>
<th>Mobility management</th>
<th>Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frost &amp; Sullivan Scenario</td>
<td>Limited integration of carsharing with housing development in new satellite cities across big-5 Western European countries by 2014. Only national level policies and support for carsharing in big-5 Western European countries by 2014.</td>
<td>National mobility management integration for carsharing, carpooling or ridesharing with public transportation in big-5 Western European countries by 2013. Regional mobility passes/joint ticketing for carsharing with public transportation in big-5 Western European countries by 2014.</td>
<td>Generation Y customers (aged 18-30) likely to be the highest target group due to the use of Web2.0 and mobile2.0 platforms by carsharing operators (CSO) for marketing and technology by 2014. Major expansion to university campuses by CSOs.</td>
</tr>
<tr>
<td>Optimistic Scenario</td>
<td>EU wide definition, support and legal policy on carsharing services and other sustainable modes of transportation by 2014. Large scale carsharing integration with new housing developments and satellite cities across EU-15.</td>
<td>National mobility management integration for all EU-15 members by 2015. EU level policies directing carsharing as a sustainable mode of transportation.</td>
<td>Large scale adoption by business users due to introduction of carbon tax for firms using traditional transportation fleets by 2014. EU wide road user charging schemes by 2014, similar to the Netherlands’ proposal, expected to drive further membership.</td>
</tr>
<tr>
<td>Conservative Scenario</td>
<td>Low support for carsharing integration, with government supporting only electric vehicles (EV) as sustainable mobility. Only regional, local level policy framework and support for carsharing.</td>
<td>National mobility management network integration only in France, UK and the Netherlands by 2014. Active two-wheeler promotion (Cycle and Electric bikes) instead of carsharing.</td>
<td>Less growth for fleet vehicles or business customers. No major expansions to university campuses.</td>
</tr>
</tbody>
</table>

Source: Frost & Sullivan
Several Factors Impact the Carsharing Market – Scenarios and Key Assumptions Used in this Research Service (2/2)

### Market for Carsharing: Key Assumptions for Scenario Analysis (Europe), 2009-2016

<table>
<thead>
<tr>
<th>Factors Scenarios</th>
<th>Vehicle manufacturers</th>
<th>Services offered by CSOs</th>
<th>Rental companies and competition</th>
</tr>
</thead>
</table>
| **Frost & Sullivan Scenario** | • Association with CSOs for marketing and around 4 major VMs offering carsharing services themselves including Daimler’s Car2go in Europe. | • Open-ended reservations and one-way trips common across most major CSOs.  
• Integration with different carpooling customers by most major CSOs.  
• Peer-to-peer carsharing to be limited until 2013 due to security reasons and cars-on-demand schemes by most CSOs. | • Expansion of rental companies through carsharing subsidiaries to all major EU countries and their major cities by 2013.  
• Technology, marketing and branding co-operations with all new carsharing firms enabling quick start of operations. |
| **Optimistic Scenario** | • Most VMs (atleast 2 premium and 4 volume VMs) offering carsharing services as a form of new business model, corporate social responsibility and as a branding exercise. | • Open-ended reservations and one-way trips adopted commonly across all CSOs.  
• Cars-on-demand and peer-to-peer carsharing to be adopted across all CSOs. | • Acquisition of carsharing organisations by rental companies to enter new markets and support larger target bases.  
• Merger of most smaller CSOs and acquisitions by larger national operators to cater to rural areas. |
| **Conservative Scenario** | • Only Daimler offering carsharing services in Europe.  
• Only marketing associations by vehicle manufacturers with CSOs. | • Few operators offering open-ended reservations, cars-on-demand and one-way trips due to logistical problems.  
• No peer-to-peer carsharing in Europe. | • Rental companies expand their carsharing bases and locations slowly only in EU Tier-1 cities.  
• No new CSOs or rental firms entering carsharing in Europe. |

Source: Frost & Sullivan
Executive Summary
**DEFINITION**

A mode of transport where vehicles are owned by a separate firm or an organisation and shared between a number of different people at different times. Carsharing can also be considered as an organised short-term car rental where users access a firm’s vehicles that are maintained in a nearby network of vehicle locations called “Pods”.

**REVENUE POTENTIAL**

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue (£ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>0.22</td>
</tr>
<tr>
<td>2016</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Key:
- Germany
- The United Kingdom
- Switzerland
- France
- Others

**WORKING CONCEPT**

- Membership Approval
- Reservation through Smartphone apps, Internet or Telephone
- Communication via SMS, GPRS on a mobile network
- Card-reader, on-board computer, navigation and GSM network
- RFID cards or mobile phones to open the car

**OPPORTUNITIES**

1. Cost savings for individuals on vehicle’s fixed cost
2. Reduced parking costs and hassles associated with it
3. Reduced congestion and emission due to shared-use of vehicles
4. Efficient transportation through inter-modality and multi-modality
5. Freedom to use a diverse fleet of vehicles

Note: All figures are rounded; the base year is 2009. Source: Frost & Sullivan
Carsharing to Provide Last Mile Connectivity Until Micro-mobility Solutions Gain Acceptance

Market for Carsharing: Development and Integration of Sustainable Mobility (Europe), 2009 and 2016

- Governments are expected to adopt federal level policy and support for smart/sustainable mobility solutions and promote zero-emission vehicles (ZEV). Development of satellite towns around mega-cities offer new opportunity for carsharing in housing development (For example, cities of Vienna and Bremen).

- Micro-mobility solutions such as electric two-wheelers (E2W) are at a nascent stage in Europe. Hence, carsharing is an ideal solution to provide the first and the last mile connectivity (For example: The partnership between Better Place and Danish Railway) for the medium term.

- Vehicle manufacturers (VMs) have started offering sustainable mobility solutions to provide integrated mobility through a single service provider and also as a branding/marketing exercise (For example, Mu by Peugeot and Car2go by Daimler).

Source: Frost & Sullivan
Germany, UK and Switzerland Currently Hold Around 75% of the EU Carsharing Members

Market for Carsharing: Key Carsharing Organisations and Membership by Country (Europe), 2009

- Germany 35%
- The United Kingdom 23%
- Switzerland 19%
- The Netherlands 6%
- France 2%
- Austria 4%
- Sweden 3%
- Others 5%

Others include Spain, Denmark, Finland, Greece, Ireland, Luxembourg, Portugal

Source: Frost & Sullivan
Carsharing is Expected to Garner More than 5 Million Adopters in EU by 2016 in the Frost & Sullivan Scenario

Exemption of CSOs from road pricing taxes based on vehicle miles travelled and EU wide carsharing integration with public transportation to make carsharing an attractive option for the consumers.

Government sponsored initiatives like Autolib’ is expected to spur membership rates as Autolib’ is expected to offer one-way trips and open-ended reservations.

- The depth of support from various stakeholders in the community will impact carsharing adoption and drive forward membership growth.

- EV carsharing programs similar to Paris’ Autolib’ are expected to be introduced in the United Kingdom and Spain around 2014 to reduce transportation emissions and to promote green mobility to the last mile.
**North American Market Snapshot:** More than 150,000 New Members Joined the Carsharing Programs During the Current Economic Recession

**Market for Carsharing: Regional Dashboard (North America), 2009 and 2016**

**Members**
- United States: ~398,500
- Canada: ~55,000

**Vehicles**
- United States: ~8,200
- Canada: ~2,000

**Market for Carsharing: Market Share of CSOs – Members (North America), 2009**

- Zipcar: 74%
- PhillyCarShare: 8%
- Communauto: 4%
- City CarShare: 3%
- I-GO Car Sharing: 2%
- Connect by Hertz: 2%
- Others: 3%

New services launched include **Car2go in Austin and Peer-to-peer carsharing** (For example, Relayrides)

**2016 Potential**
- More than $3.3 billion in revenues
- More than 4.4 million members
- More than 72,000 vehicles in carsharing
- 1 in 10 carsharing vehicles to be a battery powered EV
- For-profit business to hold for 93% CSOs

**Note:** All figures are rounded; the base year is 2009. Source: Frost & Sullivan
Carsharing is the Focal Point of Many Industries with Long-term Synergy having the Potential of Additional Business

Market for Carsharing: Key Stakeholders in Carsharing Business Model (Europe), 2009

- City authorities to promote, subsidise scheme and designate parking and charging zones
- Autolib’ operating companies to acquire, manage and maintain vehicle fleet
- Ability to share parking spaces, combined mobility packages and marketing activities with public transport operators
- Vehicle manufacturers to operate carsharing subsidiaries and also to advance research and development of efficient vehicles
- Competing and complementary transportation solutions

- Public Transport Operators
  - TRANSDEV
  - STIB/MIVB (Société des Transports Intercommunaux de Bruxelles/Maatschappij voor het Intercommunaal Vervoer te Brussel)
  - DSB (Danske Statsbaner)
  - EILEO

- Intelligent Mobility Solutions
  - INVERS
  - CONVADIS
  - GSM cellular communication

- Vehicle Manufacturers
  - DAIMLER
  - RENAULT-NISSAN
  - PSA

- Car Rental Companies
  - Sixt
  - HERTZ
  - AVIS

- Carsharing Organization (CSO)
  - Sixti Car Club
  - Connect
  - Okigo

- Others – Utilities, EV Infrastructure Suppliers
  - EDF (Électricité de France)
  - Veolia
  - Better Place

- Government / City Councils
  - Mayor of Paris and London, Italian Ministry of Environment

Source: Frost & Sullivan
High Purchase Cost and Low Consumer Driving Experience are the Main Hindrance for Hybrids and EVs in Carsharing

- The dominant powertrain in the European carsharing fleets are the traditional powertrains (Diesel followed by gasoline).
- Alternative fuels such as bio-diesel or E-85 are also popular in Europe. Ethanol based flex-fuels are dominant in Sweden whereas bio-diesels are favored in Spain.
- By 2016, 1 in 5 vehicles of the carsharing vehicle fleet is expected to be a battery powered EV.

Market for Carsharing: Market Share and Forecast of Powertrain Technologies in Carsharing (Europe), 2009 – 2016

- The dominant powertrain in the European carsharing fleets are the traditional powertrains (Diesel followed by gasoline).
- Alternative fuels such as bio-diesel or E-85 are also popular in Europe. Ethanol based flex-fuels are dominant in Sweden whereas bio-diesels are favored in Spain.
- By 2016, 1 in 5 vehicles of the carsharing vehicle fleet is expected to be a battery powered EV.

Note: All figures are rounded; the base year is 2009. Source: Frost & Sullivan

Market for Carsharing: Percentage of Battery Powered EV in Fleets (Europe), 2009 and 2016

- By 2016, 1 in 5 vehicles of the carsharing vehicle fleet is expected to be a battery powered EV.

Note: All figures are rounded; the base year is 2009. Source: Frost & Sullivan

Bubble Size: 2016 Carsharing Vehicles Volumes in Europe

- Traditional Powertrain
- Hybrid Powertrain
- Battery Powered EV

Japanese hybrid vehicles are the most popular of the hybrid powertrains

Government initiatives to account for majority of EVs in carsharing.

Extended-range EVs are considered as a part of hybrid powertrain

Government initiatives to account for majority of EVs in carsharing.

Japanese hybrid vehicles are the most popular of the hybrid powertrains

Note: All figures are rounded; the base year is 2009. Source: Frost & Sullivan

Market for Carsharing: Percentage of Battery Powered EV in Fleets (Europe), 2009 and 2016

- By 2016, 1 in 5 vehicles of the carsharing vehicle fleet is expected to be a battery powered EV.

Note: All figures are rounded; the base year is 2009. Source: Frost & Sullivan
For Vehicle Manufacturers, Carsharing Provides a Variety of Interesting Propositions

Market for Carsharing: Major Vehicle Manufacturers Present in the Carsharing Market (World), 2009

- Along with marketing and corporate social responsibility (CSR), Carsharing serves as a very good test-bed for vehicle manufacturers to experiment their strategies/technologies and determine consumer perceptions and attitudes.

Source: Frost & Sullivan
Key Conclusions and Takeaways - Cost Savings and Low Carbon Mobility to Drive Adoption of Carsharing

Urban Mobility: With more than 5 million members by 2016, carsharing is a key sustainable mobility solution for Europe.

Commercial mainstreaming of carsharing: Expected with increased adoption by end-users and consolidation of CSOs.

Target Customers: Neighborhood residents and business users are the target segment currently. Gen Y likely customers in future.

Low Consumer Awareness: Majority of end-consumers are not aware of carsharing and how it is different from carpooling, thus affecting adoption rates.

So what??

Create greater visibility as a sustainable solution due to commercial mainstreaming.

Carsharing is ideal channel for marketing EVs although low volumes is a bottleneck.

Potential for extending partnerships among CSOs and with transport operators etc.

Pricing and technology adopted to be key differentiators.

Use of Web2.0 and mobile platforms for carsharing to be imminent.

Source: Frost & Sullivan