Car Sharing: The Motivations of Industry

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August 2005

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Cover design by Seacourt Ltd and Q3 Digital/Litho
Printed on recycled paper

ISBN 187390651X

Many thanks to Vauxhall and Carplus UK for supplying the front cover photograph.

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Contents

Boxes

Acknowledgements

This report was written as part of the Institute's work programme on *Mobility Services* sponsored by a small grant from the Volvo Research Foundations, with the aim to assess the potential role of mobility services in improving urban transport and to solve related problems.

We would like to thank the respondents in the car sharing and motor industry for their useful responses to our interviews and for all the additional information they provided. Thanks also to Dawn Haines (IEEP) for her comments on earlier drafts.

As always, we acknowledge that the findings do not necessarily reflect the opinions of the funders and that all errors and omissions remain the responsibility of the authors.

1

Introduction

1.1 Background

This report is based on research undertaken in the second year of a two-year project to assess the potential role of mobility services in a future sustainable transport system. The research was funded by a small project grant from the Volvo Research Foundations, although it must be stressed that the research was undertaken independently and the findings and conclusions are those of the authors, alone.

The rationale behind the project was the ongoing policy discussion about the potential role of mobility services in a future sustainable transport system (eg OECD, 1999; AIGT, 2002). While examples of mobility services were readily given – car sharing[1] is arguably the most widely quoted example – there has not been much analysis of what the term 'mobility services' encompasses more generally or what might be the real potential of more mobility services to sustainable transport. The aim of the first year of the project was, therefore, to gain a better understanding of what is meant by the term 'mobility services' and what the experience with such services has been to date (see Skinner *et al*, 2004).

The first year's research identified that the debate about mobility services is arguably linked to a much broader debate about the role of services in a future sustainable society. An increased role for services in such a society is a key element of the debate about the dematerialisation of the economy, whereby resources are used more effectively and more efficiently. In other

[1] Where car sharing refers to a pool of cars shared by a number of members. While this is the way the term is usually used in English, it is inaccurate. Strictly speaking the service that is referred to as car sharing in English is actually car pooling, ie a collection of cars owned centrally that are used by a number of different people. Similarly, the service that is referred to as car pooling, when one person effectively gives another a lift, is really car sharing.

words, the amount of economic and social benefit from the use of resources needs to increase significantly – possibly by a factor of up to 10 (eg Weizsäcker *et al*, 1998; Schmidt-Bleek, 1994). In the context of mobility, a more intensive use of resources can be achieved through, for example, using vehicles more intensively, including transporting as many people as possible given capacity and safety considerations. The first year report argued that pooling or sharing vehicles, eg cars or bicycles, and public transport services fall into these categories. It further argued that the term mobility services should, therefore, be most appropriately applied to these services (see Skinner *et al*, 2004).

The general literature on services identifies a number of potential environmental advantages (and disadvantages) of services (eg Behrendt *et al*, 2003), which could just as easily be applied to transport (see Skinner *et al*, 2004). The service literature also argues that, if a move towards a more service-based economy is to happen, the role of manufacturers needs to develop away from pure manufacturing towards being more of a service-provider (eg Tischner, 2003; Meijkamp; 2001). In the first year report, we identified that vehicle manufacturers have been involved in various car sharing schemes, in particular, as were some car rental companies and even some oil companies (see Skinner *et al*, 2004). However, it was not within the scope for the first year's research to identify the motivations of these companies in becoming involved in such schemes, and therefore we were not able to ascertain whether this was the start of a move towards a more service-focused mobility sector. Hence, in the second year of the research, it was decided to investigate the motivations of vehicle manufacturers and other companies that have become involved in car sharing, in more detail. This report is the result of that research.

1.2 Aim and Scope of the Research

The analysis of the potential advantages and disadvantages of mobility services in the first year report yielded a number of potential motivations that might encourage car manufacturers and other transport-related industries to become involved in mobility services. These could be characterised as follows:

- *Exploring a new market for products:* For example, a manufacturer might see car sharing as a potential market to enable it to increase sales of its vehicles.
- *Seeking to build brand loyalty with new communities/customers:* For example, a manufacturer might see car sharing as a means of promoting the brand to a new customer group in order to increase future sales of vehicles.
- *Promoting 'green' credentials:* For example, enhancing corporate social responsibility and company image.

- *Testing or promoting novel products in a niche market:* For example, testing environmentally friendly cars or novel booking and usage technologies, for instance smart cards.
- *Exploring a new business model:* For example, a manufacturer might see that car sharing has the potential to become a new business area to complement the manufacturing side of the business. Providing services could extend the reach of the brand, thereby improving customer loyalty and gaining control over the whole product life cycle.

Evidently, some of these motivations potentially overlap, eg those that relate to improving the image of a company and building brand loyalty. However, these strands arguably represent potentially distinct motivations, and are useful in order to facilitate the analysis and the presentation of the results.

The aim of the research on which this report is based was to investigate whether it was possible to identify which, if any, of these motivations were behind the decision of manufacturers, and other transport-related industries, to become involved in car sharing. The research also aimed to explore whether manufacturers and related companies saw car sharing as a niche market, or whether the recent interest in car sharing was the start of a transition to a more service-based business model, and thus a step towards the dematerialisation of the transport sector.

The scope of the research was not limited to manufacturers, as some car rental and oil companies have also been showing an interest in car sharing. The specific motivations of such companies potentially differ to those of the car manufacturers themselves. While manufacturers would effectively be complementing their existing products, car rental and oil companies could potentially see car sharing as complementing their existing services, ie car rental and fuel selling. In addition, both car rental companies and oil companies have ready-made infrastructure, ie car rental offices and petrol stations, that could be exploited to offer car sharing services. However, most of the broad categories of motivation mentioned, above, could be equally applied to these other companies.

1.3 Methodology

It was realised that in order to undertake the research, it was important to gain up-to-date insights from the manufacturers themselves, in order to be able to identify the current situation with respect to their motivations. In addition, however, it was decided that the car sharing organisations themselves would be able to provide another perspective on the motivations of manufacturers. Hence, it was decided that the research would consist of interviewing a range of representatives of manufacturers, car rental and oil companies and car sharing organisations in Europe and North America. Consequently, the project had the following stages:

1) *Identification of potential interviewees.* The list of potential interviewees was based on those manufacturers, car rental and oil companies that had been identified in the first year report as being involved in car sharing. The list of potential car sharing organisations to approach was drawn up on the same basis. Contact was made with the majority of schemes sponsored or operated by the motor industry. In order to obtain as diverse views as possible, the organisations to be interviewed were chosen to represent a number of different European countries and the US.

2) *Development of a short interview.* The interviews that were undertaken as part of the research were based on a set of common questions that was drawn up in order to ensure that the interviews covered comparable ground.

3) *Undertaking the interviews.* Around 30 interviews were undertaken with representatives of manufacturers, car rental and oil companies, as well as car share organisations, between 15 November 2004 and 22 February 2005. A full list of those contacted is given in Annex I.

4) Case studies. A small number of pilot projects were identified to be used as case studies to illustrate particular motivations.

5) *Analysis and assessment.* The information obtained from the interviews was analysed in order to assess the motivations of those companies involved and whether it was possible to identify whether a shift towards a more service-based business model had begun.

1.4 Structure of the Report

The report is structured as follows:

- Chapter 2 explores the motivations of car manufacturers, car rental companies and oil companies that have invested in or supported car sharing. In doing so, the potential motivations, hypothesised in Section 1.2, are contrasted to the actual motivations of car manufacturers, car rental companies and oil companies. In addition, some case studies are presented to illustrate important points.
- Chapter 3 takes a more long-term perspective and explores the expectations that car manufacturers, car rental companies and oil companies have of car sharing in order to explore whether a longer-term trend towards a more service-based sector has begun.
- Chapter 4 presents the conclusions.

2

Motivations of the Industry

This chapter explores the motivations of the car manufacturers, car rental and oil companies that have shown an interest in car sharing, as identified in the course of the research. It does this by effectively testing the five possible motivations that were set out in Section 1.2. Sections 2.1 to 2.5 address each of these motivations in turn and are illustrated by case studies, where appropriate.

2.1 Exploring a New Market for Products and/or Services

Literature identified in the course of the first year's work suggested that there was optimism about the prospects of growth in car sharing. A study for Germany estimated that the market potential for car sharing is 3 per cent of the population, while the Swiss federal government has estimated that the market potential is 9 per cent (see Baum and Pesch, 1994; Muheim, 1998; and Meijkamp, 2000). In the course of the interviews, it was confirmed that in the late 1990s, there was much optimism about the potential for growth in the car sharing market (eg Fastlane, 1997; City Car Club, 2004). If this were to happen, operators of car sharing schemes could clearly provide manufacturers with a new market through either lease or sales contracts. Hence, it was important to explore in the course of the research the extent to which manufacturers now perceived that operators of car sharing schemes could become a new market for their products.

Of the managers in the motor industry to whom we spoke, many commonly referred to car sharing as a slowly expanding niche market, where the difficulty of changing customer behaviour and overcoming individuals' strong sense of ownership slow down the pace of growth (NYPA, 2004a; Volkswagen UK , 2004; Volvo, 2005; WZB für Sozialforschung; 2004). Accordingly, the car manufacturers' expectations of the potential of car sharing tend to be less optimistic than a few years ago. Several car sharing companies agree that they are operating in a niche market and expect that in the future it will only

have room for a few large companies (eg City Car Club, 2004; Shell Drive, 2004). The potential market for car sharing in Europe is now estimated at 0.5 per cent of the population (Shell Drive, 2004a). The limited market represents an important obstacle to involving car manufacturers in schemes, eg as marketing or financial partners, since manufacturers would be keen to reach out to as many consumers as possible (eg City Car Club, 2004).

In addition to direct sales opportunities, the first year report discussed the possibility for car manufacturers to operate car sharing in-house as an alternative way of capitalising on their manufactured products (Skinner *et al*, 2004). The interviews showed however that most manufacturers do not in fact see this as an opportunity. For instance, Daimler-Chrysler has explored the potential for car sharing in the past by carrying out several research projects concerning the theoretical aspects of car sharing as well as practical pilot schemes. Their results found that only a small target group was attracted by car sharing and similar mobility services (other than car rental). Accordingly, Daimler-Chrysler has abstained from offering this kind of mobility service (Daimler-Chrysler, 2005).

Sales opportunities from involvement in car sharing for car rental companies and oil companies are naturally slightly different from those of the manufacturers. Many car rental companies have agreements with car sharing companies, which gives car sharing members discounts on car rental services (eg CarPlus UK, 2004). Hertz has taken this approach in Germany and Switzerland, including a contract with the major operator Mobility, but has not experienced any significant increase of sales as a result (Hertz, 2005). Some car rental companies are also involved in the operation of car sharing services. Oil companies also sometimes run their own car sharing services. As in the case of car manufacturers, the sales opportunities for car rental and oil companies are also related to the market size and growth of car sharing. However, these companies seem to be less sensitive to this issue, probably because they already have some of the managerial and operational structures in place that are required for operating car sharing services and therefore have a cost and knowledge advantage in setting up car sharing services.

The following sections discuss in more detail the sales opportunities for the three different groups of companies.

2.1.1 Sales Opportunities for Car Manufacturers

Despite the market for car sharing remaining small, some car manufacturers have identified car share organisations as a potential client and have taken a first step towards a sales strategy by studying their particular needs and interests. For instance, a car sharing project in Romania reports that a representative of Renault was interested in learning how to adapt the vehicles to suit car share schemes (RATB, 2004). The scheme was launched under the

European Moses[2] programme in 2003 and is operated by the Bucharest public transport authority (RATB) (Moses, 2005; RATB, 2004). Ford Sweden studied the car share market segment in terms of potential volumes (Kindwalls, 2004), but in the end, did not formulate any particular strategy for the penetration of this market (Ford Sweden, 2005). Although car sharing has existed in Sweden for many years and is subject to rising interest from consumers (eg Volvo, 2004; SRA, 2003), this suggests that car sharing is still too small in Sweden for the manufacturers to consider it a significant sales opportunity. Similarly, manufacturers in the UK, where the number of car sharing vehicles is no more than 234 cars (in June 2005) (CarPlus UK, 2005), naturally appear pessimistic about the commercial opportunities that car sharing could offer. Honda UK, says it does not consider car sharing to be a market with sales potential and suggests that car sharing is a good but futuristic idea. There are some ideas within the company about the commercial potential of car sharing, but that is far in the future (Honda UK, 2004). In Switzerland and Germany, where car sharing is a considerable market[3] (WZB für Sozialforschung; 2004), car sharing organisations are treated as any other large corporate clients, thereby receiving volume discounts on vehicles.

For a car share scheme, important criteria for choosing a car manufacturer are price and quality, but also environmental performance and adaptability of on-board technologies (Hertz Delebilen, 2004; City Car Club, 2004; RATB, 2004, Mobility, 2005). In particular, the technologies used in car sharing operations are relatively advanced and car manufacturers that understand how to adapt their vehicles to such technologies could gain a competitive advantage over other manufacturers that wish to explore sales to car sharing operators (eg Mobility, 2004). One example is American Honda, which was involved in two pilot research projects in the US named Car Link I and II and subsequently acquired an 18 per cent equity stake in the car sharing operator Flexcar (see Box 2.1). There are indications that Honda originally saw car sharing partly as a way to distribute vehicles (Mobility, 2004). However, American Honda today seems to have little interest in the direct sales potential generated by their share in Flexcar (which uses Honda cars), rather it aims to acquire a thorough insight into the various aspects of the car sharing concept, including technology development (AHM, 2005). This will be further discussed in relation to the potential motivations of testing novel technologies (see Section 2.4.4).

2 The Moses (Mobility Services for Urban Sustainability) project, supported by the European Commission, aimed to 'develop innovative mobility services based on the CityCarClub car sharing experience, demonstrate the integration into urban development and intermodal chains and exploit integrated car sharing to target a sizeable market breakthrough at a European scale'. The final conference was held in January 2005 (Moses, 2005).

3 Mobility in Switzerland, the world's largest operator, had almost 60,000 customers and 1750 vehicles in 2004 (Mobility, 2005b). In 1999, the two largest German schemes StattAuto and StadtAuto had 7600 users and 2000 users respectively (Car Plus UK, 2005).

2.1.2 Sales Opportunities for Car Rental Companies

Potential interest in car sharing on the part of car rental companies may exist through their need to identify new user groups and new market segments as they experience saturation of the car rental market (Denzeldrive, 2005; WZB für Sozialforschung, 2004). Car rental companies could gain some scale advantages in setting up their own car sharing operations, as car sharing could to some extent draw on existing resources, including fleets of vehicles and networks of sales offices (eg SRA, 2004). However, some pilot projects suggest that there is a need for additional retail locations and a separate fleet of vehicles to be used in car sharing (Hertz, 2005; Shell Drive, 2004a).

Box 2.1 Car Link II, US

Car Link II	
Location:	California, US
Operator:	The project was administered by the Institute of Transportation Studies at the University of California, Davis in conjunction with Caltrans, American Honda Motor Company (AHM) and Caltrain.
Sponsor/owner:	American Honda Motor Company
Time period:	July 2001-June 2002
No of vehicles:	19
No of users:	107
Description of the project:	Car Link II was launched in 2001 and offered cars to commuters to drive to the station or to the workplace, as well as made cars available to employees for day use. The scheme was designed in accordance with the conclusions from a car sharing field test in 1999 named Car Link I and focused on commercial potential and technology assessment.
Role of the industry:	Sponsor and technology provider AHM developed an integrated car sharing system, which included smart keys to access the vehicles, an Internet-based reservation system, and a system for recording vehicle use.
Motivations of the industry:	o The initiative to invest in car sharing research came from the former CEO of Honda, who believed that by improving the access to transport, people's lives could also be improved. o Car sharing is in line with Honda's mission to enable mobility. o To develop and test new technology. o Gaining understanding of the needs of car sharing organisations, eg it knows how to adapt the cars to be used with car sharing technology. o For the benefit of the environment.
Outcome:	Some of the key findings were: o Guaranteed parking is a significant incentive to car share use. o The project was unprofitable during its first year of operations due to underutilisation of fleet vehicles and sub-market pricing. o The best long-term economic viability is achieved when risks are shared with a public transportation operator, which would also benefit from increased use of public transport as a result of car sharing. Under this scenario, the scheme would reach profitability in year two and three. o A number of suggested improvements of the technology

	included: better security and a more efficient booking process. In 2002, Honda acquired a stake in the car sharing operator Flexcar, which had been introduced to Honda during the CarLink II project.
Current status:	The operations were taken over by Flexcar after its end in 2002 on Honda's initiative.

Source: Flexcar, 2005; AHM, 2005; Shaheen *et al*, 2004.

A car rental provider that has explored this opportunity is Denzeldrive, which originally was just a car rental company established in Austria in the 1980s. In 2001, Denzeldrive launched a combined car sharing scheme for commercial reasons, since it considered car sharing to be a potential business area[4]. Denzeldrive recognises two major benefits of combining car sharing and car rental. First, Denzeldrive is able to offer lower prices on long-term use of car sharing vehicles. That is, if car sharing use exceeds a certain number of hours, a car rental rate is charged instead of the relatively higher car sharing rate. Second, the fleet of cars can be used for both car sharing and car rental purposes, which maximises the number of hours vehicles are in use. Today, Denzeldrive considers car sharing to be a strategically important market, which gives it a competitive advantage over other car rental firms (Denzeldrive, 2005).

Another car rental company, Hertz in Germany, has also explored the possibility of combining car sharing with car rental, but has focused on the business-to-business market. In 2001, Hertz launched car sharing services as a test, with the motivation of broadening the range of services it offers to corporate clients (ie in addition to fleet management and car rental services). As with the example above, the idea was to increase the time that vehicles were in use, but also to save on administrative costs by using car sharing technologies (Hertz, 2005).

Hertz' car sharing service attracted almost 100 clients, but today only a few operations remain due to some major obstacles. First, the clients were primarily large companies used to operating their own fleets of vehicles and for that purpose, they had already developed their own in-house IT systems such as integrated databases. Second, in the cases when Hertz' car sharing system could save administrative costs, the concept suffered from lack of support from the administrative staff of the client companies as the technology replaced much of their work. Finally, it proved difficult to make these services profitable, because the price that customers were willing to pay would not cover the costs of technologies and administration. One reason for this could be that the diminishing demand for manufactured cars pushes down the price on new cars and thereby forces down the price of car sharing (Hertz, 2005). This may be important, as one of the most common

[4] The timing was due to that an agreement with the car rental firm Europcar (which also provided car sharing services) would expire in 2002 (Denzeldrive, 2005).

motivations for individuals to join a car share scheme is that it is more economic than car ownership (Haines and Skinner, 2005). Consequently, Hertz is unlikely to continue these sorts of investments (Hertz, 2005).

2.1.3 Sales Opportunities for Oil Companies

As with car rental companies, oil companies operate networks, in this case of petrol stations, which could be exploited to offer car sharing services, as some do already. The existence of potential retail locations and the experience of operating services suggest that oil companies could be possible candidates for operating car sharing schemes. However, the problems faced by oil companies could potentially be similar to those experienced by car rental companies, as described above. An oil company that has combined car sharing with fuel supply is Shell in Germany, which launched car sharing services under the name Shell Drive in 2003 (Shell Drive, 2004a). Shell Drive has to some extent been able to draw on its existing capabilities, mainly in terms of senior management expertise and its existing network of petrol stations. Still, it recognised that it lacked the necessary knowledge for setting up car sharing operations and therefore, its strategy has been to acquire already existing operations (see Box 2.2).

Box 2.2 Shell Drive Pilot, Germany

Shell Drive Pilot	
Location:	Düsseldorf, Germany
Operator:	Shell Drive
Sponsor/owner:	Owned by Shell
Time period:	6 months from September 2003
No of vehicles:	30
No of users:	800
Description of the project:	Shell started a pilot scheme in Düsseldorf in September 2003. The pilot was supposed to run for 6 months, but early success led to a permanent operation being launched on 1 January 2004. The pilot scheme had been acquired from Stadtmobil in December 2003 and renamed Shell Drive. At the time of acquisition, the scheme had 30 cars and 800 users; a year later the number of users had significantly increased. Shell chose to acquire another company's operations since it did not have any experience or knowledge of car sharing within the own organisation.
Role of the industry:	Fully owned by Shell, use of Shell petrol stations for parking.
Motivations of the industry:	o Consumer research states that the Shell brand brings credibility to the overall car sharing concept; o Consumer shift towards viewing the car as a tool rather than as a status symbol; o Car sharing offers the potential to enhance the customers' experience; o Existing retail capabilities can be used in car sharing; o Positive brand impact on the Shell brand; o Car sharing is aligned with Shell's commitment to sustainable development.

Outcome:	Early success and continued investments: in March 2004 Shell Drive acquired the remaining 50 per cent stake in Stadtmobil Dortmund; in March-June Shell Drive ran campaigns in the cities of Bochum, Essen and Dortmund. In September 2004, Shell Drive was launched in Hamburg.
Current status:	Today, ShellDrive operates in 18 German cities with 400 cars, 12,000 customers and approximate revenue of €4 million. All the schemes have been acquired from Stadtmobil.

Source: Shell Drive (2004a); Shell Drive (2004b).

Another opportunity for oil companies could be to integrate payments for car sharing with customer credit and debit cards[5]. For instance, in 1998-99 the car rental part of the Statoil set up car sharing operations in a residential area in Stockholm, Sweden (Statoil Car Rental, 2004). The operations were later leased to City Car Club, a Finnish company with operations in Helsinki[6] (City Car Club, 2004), but the scheme still uses Statoil's site and requires that the members hold a Statoil loyalty card for monthly billing (City Car Club, 2005). Consequently, Statoil does not enjoy the direct income from car sharing, but benefits in other ways as it receives an income from the leasing contract and potentially attracts additional customers to its customer loyalty programme. Such ways of engaging in car sharing in order to broaden or consolidate the customer base was identified in the first year report and is further explored in the following section.

2.2 Seeking Brand Loyalty with Potential Customers

The first year report suggested that distributing cars to car sharing operators could benefit manufacturers, as potential customers become used to driving their cars, and might, therefore, be more likely to buy a car from the same manufacturer in the future (Skinner *et al*, 2004). In that sense, car sharing could perhaps be a way for manufacturers to offer 'paid test-drives' of their vehicles (Zipcar, 2005). Traditionally, some manufacturers have been particularly interested in distributing to car rental companies for the same reason. Consequently, selling or leasing cars to car share service suppliers could potentially be an opportunity for manufacturers to build relationships with customers that are not interested in owning a car at the moment, but might be in the future.

According to the US operator Zipcar, which uses Toyota hybrid cars, Toyota has been particularly interested in distributing its hybrid car to Zipcar because it has identified Zipcar's customers as belonging to its target group of customers for hybrid cars. That is, Zipcar's users are generally young, well-educated with good incomes, and many of them are environmentalists interested in fuel-efficient and environmentally-friendly cars. In addition, most

[5] Energy companies often have customer loyalty cards that are also used as debit and credit cards.

[6] More recently, City Car Club, Helsinki, acquired Statoil's car sharing operations and renamed them (City Car Club, 2004).

users only leave Zipcar when they move or when their family situation changes and are then likely to buy their own car. Consequently, distributing the hybrid car to Zipcar is a way for Toyota to offer test-drives and thereby to promote the car to potential buyers (Zipcar, 2005).

A potential obstacle to exploring this opportunity in relation to new types of vehicles, eg alternatively fuelled cars, is that these cars are also more expensive than traditional cars. The possibility of creating brand loyalty with potential future buyers is therefore likely to depend on the type of vehicles the car sharing scheme can afford, which in turn depends on how much its customers are willing to pay for the car sharing services. In addition, for the car manufacturers to become interested in this opportunity, car share users must have incomes that are, or will be, sufficiently high to be potential car buyers. Therefore this opportunity does not necessarily exist for all schemes. Particularly in Europe, many schemes market themselves as a more economic alternative to car ownership (Haines and Skinner, 2005) and therefore are likely to attract individuals that could not afford their own car. This obstacle could, to some extent, be overcome with help from sponsors. For instance, Mobility has been able to offer its members a small number of alternatively-fuelled cars at approximately the same price as traditional cars, thanks to sponsoring from the local government and from Toyota (Mobility, 2005a).

Alternatively, even though the users would not remain loyal to a certain car model, another potential effect of providing cars to car sharing operators could be that the customers stay loyal to the manufacturing brand. However, Honda doubts that this is possible and says that its investment in Flexcar, US, was not motivated by car sharing as a way to build brand loyalty to future customers. Honda compares the situation with driving schools, and argues that it has not been proven that an experience with a car at a driving school would increase the probability of individuals buying the same brand of car (AHM, 2005). Moreover, the significance of distributing to car sharing companies naturally depends on the size of the schemes.

In relation to car rental and oil companies, brand loyalty is used to attract new customers to existing services. This is somewhat different from the manufacturers' opportunities above, since car rental and energy supply complement car sharing rather than replace it. In relation to car rental companies, customers could develop loyalty to existing services as a consequence of the convenience of being able to buy both car sharing and car rental services from the same provider. In relation to oil companies, loyalty could be built by enabling car sharing and refuelling to be undertaken at the same site, or by allowing pay both fuel and car sharing to be paid for with the same credit card (see above in Section 2.1.3). In practice, however, it is not clear whether this is of any significance to most car rental and oil companies, since the market size of car sharing in most countries is very small in comparison to car rental and relatively insignificant in comparison to fuel supply. Rather, opportunities to promote existing products or services exist in

terms of improving the reputation of the brand among a broader audience and will be discussed in the following three sections.

2.3 Promoting 'Green' Credentials

The literature suggests that car sharing is often perceived as being beneficial to society, eg by promoting sustainable development and addressing transport problems in urban areas (eg Muheim, 1998; Meijkamp, 2000; Behrendt *et al*, 2003). With regard to this, the first year report proposed that this might create an opportunity for companies to create positive associations with their brands by investing in car sharing (Skinner *et al*, 2004). That is, car manufacturers, car rental and oil companies could potentially enhance their corporate image in relation to corporate social responsibility and innovation by becoming involved in car sharing. Indeed, interviews with manufacturers indicate that this is one of the most common motivations for investing in car sharing (Flexcar, 2005; Volvo, 2004 and 2005; SunFleet, 2004; Volkswagen UK, 2004; WZB für Sozialforschung, 2004; Vauxhall UK, 2004; Ford Sweden, 2004). However, the interest also seems to depend on the manufacturer's approach to and reputation in related fields, such as alternative fuel technology. For instance, Toyota UK explains its limited involvement in car share activities by the fact that it already has a strong environmental profile[7] (Toyota UK, 2004).

Car sharing often receives media attention due to its relative novelty and potential to contribute to sustainable development and this could also motivate manufacturers to support car sharing (Flexcar, 2005). There are several examples of car sharing operators that benefit from discounts on car leases or sales because the manufacturers are interested in being associated with car sharing. For instance, City Car Club[8] in Helsinki has been given discounts on leases of PSA Peugeot Citroen cars, probably because the cars are shown in spots promoting the City Car Club. Citroen's sales agent in Finland has also sponsored City Car Club's promotional tours with presentations in shopping malls and exposition of vehicles (City Car Club, 2004). Arguably, such activities both promote the cars and the manufacturing brand in general. Another example is Vauxhall, which sponsored CarPlus UK, the national organisation for promoting car sharing in the UK. Vauxhall was mainly motivated by the opportunity to promote corporate social responsibility, but also to gain access to some new customers (Vauxhall UK, 2004; CarPlus UK, 2004; GM Corporate Responsibility Reports, 2003 and 2004). Vauxhall provided CarPlus UK with cars for free or at discounted rates and sponsored CarPlus UK events, including an evening reception with government representatives (CarPlus, 2004; Vauxhall UK, 2004).

[7] Toyota has, for example, developed and marketed a hybrid car (Toyota, 2005).

[8] City Car Club is a commercial company that has been operating since 2000 with approximately 45 Peugeot and Citroen vehicles in Helsinki, Finland. It has also recently acquired a scheme in Sweden, which operates with approximately 20 alternatively-fuelled vehicles (City Car Club, 2004).

Manufacturers that have taken on more permanent investments have also seen car sharing as a way to promote their corporate image. For instance, Fiat has invested in a 30 per cent equity share in Car City Club Turin, which uses solely hybrid cars, to enhance its environmental and sustainability profile and to evaluate the profitability of car sharing. The scheme is run in collaboration with Fiat's leasing company Savarent[9] and serves approximately 200 users. However, Fiat believes that the volumes are too small and car sharing is seen as a test rather than as a commercial opportunity. This may be illustrated by the fact that Car City Club has 50 vehicles as compared to Savarent's 50,000 vehicles (Car City Club, 2004). Similarly, Volvo owns a Swedish car sharing company, SunFleet, through its subsidiary Hertz car rental[10]. SunFleet focuses on corporate clients and is strongly profiled as an environmentally friendly alternative to traditional fleet services or company cars as it operates with only alternatively fuelled cars (SunFleet, 2004). According to Volvo, the environmental profile of SunFleet is useful in the marketing towards some corporate clients that in turn wish to demonstrate their concern for the environment (Volvo, 2004). For instance, Volvo has arranged breakfast meetings with its clients where Sunfleet and Hertz have been presented (Stockholm Environment and Health Administration, 2004). Volvo also highlights its concern for the environment and general interest to explore new transport solutions (Volvo, 2004), which will be further explored in Section 2.5 (see also Box 2.5).

American Honda on the other hand, which has invested in Flexcar in the US, argues that promoting its image was not a motivation behind its investments in car sharing, as it was genuinely concerned with the benefits that car sharing brings to society (AHM, 2005; see also Box 2.3). According to Flexcar, Honda has taken on investments in car sharing in response to the adverse effects that cars may have on the environment and the consequent need to develop new transport solutions (Flexcar, 2005). As a car sharing manager points out, a part of Honda's motivation could have been to gain publicity, but instead of sponsoring in the traditional sense, Honda chose to invest in a share of the operations that would allow them to take part of the profit as well (City Car Club, 2004).

Ultimately however, as the first year report suggested there are arguably commercial motivations behind every image-creating investment. For instance, American Honda's sister company Honda UK offers its 450 employees at its UK headquarters a free car sharing service through a pilot scheme. According to Honda UK, the aim of such activities has been to

[9] The scheme is run in collaboration with the Turin Municipality and is supported by the Italian Government initiative I.C.S. (Iniziativa Car Sharing), which was launched in 2002 to facilitate the set-up of car sharing schemes. The Turin scheme started in late 2002, and today has 200 users, 50 cars (all Fiats) and 30 parking lots (Car City Club 2004; Car City Club, 2005).

[10] Volvo operates Hertz Sweden through a franchise agreement with Hertz (Volvo, 2005).

promote the environmental agenda and be viewed as an ethical company, which in the end is expected to be commercially favourable (Honda UK, 2004). Indeed, it is often difficult to assess what the most crucial motivation behind a manufacturer's investment in car sharing has been.

The case of CashCar (see Box 2.3), which was a German pilot project sponsored by Audi, further illustrates how image creation can motivate a manufacturer to sponsor car sharing.

Box 2.3 CashCar, Germany

CashCar	
Location:	Berlin, Germany
Operator:	StattAuto
Sponsor/owner:	CashCar was sponsored by the Federal Ministry of Research and supported by, Audi (financial support), Deutsche Bahn Gruppe, StattAuto Car Sharing and Choice Mobilitätsproviding.
Time period:	1998-2003
No of vehicles:	
No of users:	100
Description of the project:	CashCar was a research project with the aim to find out whether it was possible to create new forms of car sharing, eg part time leasing. CashCar was a combined leasing and car sharing service were all leasing customers had access to car sharing, without having to pay any membership fee. The cars could be leased for days, weeks or months and a bonus was given (ie the leasing rate was reduced) whenever the car was temporarily returned for use in the car sharing fleet. The cars used were: Opel Astra Combi, Opel Corsa and Audi. StattAuto operated the car sharing service. The scheme primarily targeted corporate and institutional clients, but also individuals living in urban areas that needed a car for commuting, during winter or for leisure purposes.
Role of the industry:	Audi provided financial support
Motivations of the industry:	Audi wanted to do something innovative in Berlin as it was the new capital of Germany. This project received a lot of attention in the media and it was therefore a good way of showing support. In the early 1990's, Audi thought that car sharing could be a new distribution channel to individual customers. Audi was not yet involved in the car sharing scene; all the existing schemes bought cars from Opel, Ford and Volkswagen. In 2001, however, Audi pulled out of the project. The pull-out was not a result of the project outcome so far, but rather a change of strategy. Audi announced that they would only support car racing and that they were no longer interested in supporting the car sharing niche.
Outcome:	CashCar expected that the combined leasing/car sharing concept would be an advantage for car sharing because it would solve two major problems with German car share schemes: 1. Occupancy is very high during peak-times (holidays and weekends), but cars are not used Monday-Friday.

	2. Members of car share schemes normally drive less and less as they become used to organising their life without a car. These expectations turned out to be too optimistic, because: o Transactions cost were too high as individuals had to decide whether to use a leased car or a car sharing car, and because it was an effort to bring the car back to the station. Transaction costs exist in traditional car sharing as well but this system added an extra decision to be made (ie the choice between leasing and car sharing). o The concept is interesting for corporate clients (particularly small businesses) that can plan their use of the car. Yet, since they normally plan to use the car on week-days, the car sharing concept adds no extra value.
Current status:	Project closed

Source: WZB für Sozialforschung (2004)

2.4 Testing or Promoting Novel Products in a Niche Market

One of the potential advantages of services, such as car sharing, is widely perceived to be the opportunity to test out and introduce new technologies in the market place (eg see Behrendt *et al*, 2003). In the context of car sharing, therefore, the first year report suggested that this could be a motivation for manufacturers to become involved in car sharing, eg by testing out hybrid technology and alternatively-fuelled cars. Among other things, it seemed likely that feedback from users could be collected, which could provide important information for manufacturers. At the same time, using new car models for car sharing purposes could also represent an opportunity for the manufacturers to demonstrate these vehicles to potential buyers, including non-car sharing users as well as the users of car sharing schemes as discussed in Section 2.3 above (Skinner *et al*, 2004).

2.4.1 Testing And Promoting New Vehicle Technology

During the course of this research, it was found that car sharing to test out new vehicle technology was used only to a limited extent. In fact, most of the large commercial schemes in Europe primarily use traditional cars rather than new models such as alternatively fuelled cars (Mobility, 2004 and 2005; Shell Drive, 2004a; Hertz Delebilen, 2004). For instance, Mobility believes that car sharing works best with standard vehicles and standard technologies. With approximately 60,000 users in Switzerland, Mobility states that it is crucial that it uses ordinary vehicles to ensure smooth operations and argues that many of the schemes that used electric cars have failed (Mobility, 2004). One explanation could be that environmentally friendly cars require different user behaviour, such as the frequent recharging of electric cars (Volkswagen AG, 2005). These are potential problems for car share schemes, which necessarily will want to make their schemes as user friendly as possible (Mobility, 2004). In the US on the other hand, the two largest commercial US schemes (Zipcar

and Flexcar) include hybrid vehicles in their fleets. Zipcar has over 400 vehicles and around 12 per cent of them are hybrids (Zipcar, 2005), meanwhile Flexcar has a fleet of 350 cars, of which 25 per cent are hybrids (Flexcar, 2005).

There are also schemes that use solely alternatively fuelled cars and hybrids, and which have thereby attracted particular interest from manufacturers. These schemes have generally been set up specifically to promote sustainable transport, and are often backed by a government or municipal initiative. Manufacturers could possibly be interested to test or demonstrate their vehicles through these schemes, however many of these are pilot schemes or small commercial operations. Therefore, in terms of volumes, the number of environmentally friendly vehicles used in car sharing is probably significantly smaller than the number of traditional cars. One example is PSA Peugeot-Citroen, which set up an electric car scheme in the city of La Rochelle, France[11]. Launched in 1999, the scheme Liselec offers a fleet of 50 Peugeot and Citroen electric vehicles available to subscribed users at seven different stations around the city (Liselec, 2004; Urban Community of La Rochelle, 2005; PSA Peugeot-Citroen, 2005). Liselec believes that financial and managerial support from manufacturers is crucial in developing car share services, which use electric vehicles (Liselec, 2004).

Another case where mobility services have been used as an opportunity to test and demonstrate new electric vehicles was American Ford's participation in the THINK Clean Commute project operated by the New York Power Authority (NYPA) in New York suburbs between 2001 and 2005. Through the programme, approximately 100 electric cars were leased (at favourable rates) to individuals who used the cars as part of their daily commute (this was thus not traditional car sharing) (NYPA, 2002; NYPA, 2004a; NYPA, 2004b). Ford's participation aimed to demonstrate its electric car in the US market. Ford had just acquired a Norwegian company that manufactured the electric vehicle and had plans to produce it in the US. However in 2002, Ford cancelled its plans to manufacture a US version of the electric car and sold the Norwegian company (NYPA, 2004a; Francfort and Northrup, 2004).

2.4.2 Promoting New Car Models

Regardless of the opportunities for testing or promoting new vehicle technology, such as alternatively fuelled cars, our research found that manufacturers also use car sharing schemes to test and promote new models of 'traditional' cars. The use of car sharing vehicles means that the cars are frequently visible in the city centre and thereby attract attention from potential buyers (City Car Club, 2004). One example is a marketing partnership that Renault has formed with Mobility, where Renault gains from its latest models being visible on the streets. Meanwhile, Mobility benefits

[11] Liselec was launched in collaboration with the Urban Community of La Rochelle, the public transport operator and an IT company (Liselec, 2004).

from the collaboration as it includes 20 of the latest models of Renault cars in its fleet, which is meant to signal that Mobility is a company in the forefront of development. In addition, Mobility has engaged in joint marketing efforts with Fiat, participating at the motor exhibition in Geneva where a Fiat car was shown displaying the Mobility logo (Mobility, 2005a).

2.4.3 Feed-back Opportunities

Relationships with car sharing organisations are sometimes used for collecting feedback from users, as also suggested in the first year report. This opportunity could interest manufacturers in relation to testing and promoting new car models as well as new vehicle technology. For instance, as mentioned above PSA Peugeot Citroen in Finland has supported the City Car Club Helsinki. Through the contract, Peugeot receives feedback on their cars, usually concerning their endurance. This has proven to be useful since a car sharing vehicle is on average driven three times as much as a privately-owned car. City Car Club also receives informal feedback from customers, some of which it forwards to the manufacturer. Until two years ago, City Car Club had a similar contract with Ford Finland (City Car Club, 2004). Ford Sweden on the other hand, does not yet benefit from this possibility but believes that car sharing organisations could be useful for collecting feedback from users. Today, Ford Sweden sends out evaluation forms to all customers who purchase a Ford Flexifuel hybrid vehicle. Whilst a large part of this form addresses the quality of the services provided by the manufacturer and car dealer, feedback from car sharing users would focus on the product itself and could be very useful considering the large number of users of the same car (Ford Sweden, 2005).

However, most car manufacturers do not seem to be motivated by the opportunities to test new vehicles or to get feedback from customers. For instance, Vauxhall UK leases models that are already a few years old to CarPlus UK (Vauxhall, 2004). Volkswagen UK does not see car clubs as a potential test market either, mainly because car clubs are mostly interested in small, inexpensive cars (Volkswagen UK, 2004). The manufacturers also have other ways of collecting feedback from users, such as the evaluation forms mentioned above (Kindwalls, 2004). Furthermore, the car sharing operators' privacy policy can be an obstacle to collecting feedback. For example, the US based company Zipcar keeps information about customers relatively private and the manufacturers are not able to contact the customers directly. Additionally, Zipcar does not offer its car suppliers an opportunity to test the durability of vehicles because it does not keep the cars long enough (Zipcar, 2005).

2.4.4 Developing and Testing New Non-fuelling Technologies

In addition to the development of new fuelling technologies, many car manufacturers are also involved in the advancement of the non-fuelling technologies that support car sharing and other mobility services. Most car

sharing operations rely on advanced technologies for booking, administration and use of the services. Among other things, it is important to many operators that the vehicles are equipped with smart cards that allow access to cars without a key (Mobility, 2005). Car sharing could thereby represent an opportunity for the manufacturers to explore new technologies and build upon their technology platform.

The first year report identified that some manufacturers have participated in technological development related to car sharing such as ITS and telematic schemes. For instance, Honda has developed the Intelligent Community Vehicle System (ICVS), which has been used in a scheme in Singapore and in the CarLink pilot study (Honda UK, 2004; Honda, 2005a; Honda DIRACC, 2005; see Box 2.1). However, most car sharing organisations have either developed their own technology or purchased it from external IT firms and are concerned about how easily the technology can be fitted in the vehicles and adapted to existing onboard technologies (eg Mobility, 2005; City Car Club, 2004).

Mobility has developed its own technology in the form of an onboard computer; however, it is sometimes difficult to install, as it requires additional security components than the ones originally installed (Mobility, 2005a). Some operators are working together with manufacturers to solve this problem (Mobility, 2005a; Zipcar, 2005), while others have experienced reluctance on the part of the manufacturers to help (Denzeldrive, 2005). According to some car sharing organisations, manufacturers would ideally provide all the necessary technology for car sharing purposes or alternatively, improved adaptation of the technology (Mobility, 2004 and 2005a; Shell Drive, 2004a). Consequently, adapting the vehicles for car sharing use might represent an opportunity for car manufacturers that wish to explore the sales potential of this market segment.

Perhaps more importantly the technology used for car sharing could be used for other purposes as well, and a motivation behind participation in car sharing activities could therefore be to gain access to a technology platform for trying out new solutions. According to the Swedish Road Administration, this was one of Volvo's motivations behind its investment in SunFleet car sharing (SRA, 2004) (see also Box 2.5). Similarly, American Honda uses its stake in Flexcar to test out different technologies (see also Box 2.1). According to Flexcar, this has worked out well although there is a risk of diluting the customer base if the technology is not working properly (Flexcar, 2005). Honda considers investments in car sharing technology to be part of its business to provide mobility, but also says that it is uncertain whether or not it would be worth developing car sharing technologies solely for commercial purposes since the market for car sharing is so small. Today, Flexcar owns the technology that has been developed in Honda's previous pilot projects (AHM, 2005). However, American Honda's sister company Honda UK is only involved in mobility services on a small scale and says that testing technologies would not be a motivation to invest in car sharing, since

Honda has other ways of developing new technologies (Honda UK, 2004). This could possibly be explained by the relatively smaller demand for car sharing in the UK. Within Volkswagen, car sharing has been dealt with by the corporate research department, which has run several pilot schemes in Germany with the aim of testing out new vehicles and new technologies, as well as the car sharing concept as such (particularly in combination with housing). Among other things, existing terminal technology was used in the daily operation of the schemes (see Box 2.4).

On the other hand, some managers of manufacturing and car sharing companies argue that testing out new technologies on permanent car sharing operations is inappropriate, as it may disturb the operations (Volkswagen UK, 2004; Mobility, 2004). That is, the concept of car sharing already appears to the consumers as something new and the addition of new cars and new technologies could perhaps represent too high a barrier for individuals to overcome in using the scheme. Instead, car sharing would arguably be much more attractive if cars and technology are well tested out before they are used by customers (Mobility, 2004).

2.5 Exploring Alternative Business Models

Since car sharing is a relatively new concept of transport, it sometimes attracts attention from car manufacturers as something innovative and forward thinking that could contribute to sustainable mobility. As such, participation in car sharing is an opportunity for manufacturers, car rental and oil companies to keep updated on the latest developments within transport, and to demonstrate and benefit from innovativeness in order to develop their competitive position and promote their corporate profiles. Car sharing may also have the benefit of completing the product range of companies that offer other services or products, and thereby it could serve as a marketing argument (eg Volvo, 2004; Shell Drive, 2004a). In this respect, involvement in car sharing could be seen to be a new business model to complement a manufacturer's existing businesses.

One of the potential benefits of extending the range of services that a company offers is the possibility to use similar brand names. Whenever marketing efforts are carried out to promote one of the brands, individual's perceptions of the other related brands are sometimes influenced as well. Among other things, this could save marketing costs. For instance, consumer research carried out by Shell Drive to evaluate the impact of the Shell brand name has revealed that Shell's brand name has brought credibility and brand awareness to the car sharing scheme (Shell Drive, 2004a). In addition, Shell's car sharing activities have resulted in strong improvement in the perception of the Shell brand from consumers, despite the fact that car sharing has not been directly used in promotions of the Shell brand (Shell Drive, 2004a; see Box 2.2). Probably, this was partly due to the positive associations that car sharing could create, as discussed in Section 2.3.

Manufacturers, as well as car rental and oil companies (which often also operate car rental, eg Statoil Car Rental in Sweden), might also wish to survey the development of car sharing as it represents potential competition (although marginal at this stage). Car sharing potentially competes directly with car rental services (eg SRA, 2004), and more indirectly with car manufacturing since it also offers mobility or transport, but in the form of a service rather than of a product.

For these reasons, car manufacturers, car rental companies and oil companies may be interested in exploring the car sharing business model. For instance, Volkswagen's research department has operated several pilot projects since the mid-1990s with the aim to explore the concept of car sharing (see Box 2.4).

Another car manufacturer that has explored the opportunity of becoming involved in car sharing is Volvo Sweden, which aims to provide a range of products and services to its clients. Volvo's ownership of SunFleet, which offers a car sharing fleet of solely alternatively-fuelled vehicles to corporate clients, is meant to contribute to the completion of the range of products and services that Volvo strives to offer. One of the benefits of the ownership is the support that SunFleet provides in terms of environmental arguments to be used in negotiations with environmentally-conscious corporate clients (Volvo, 2004; Stockholm Environment and Health Admin, 2004). In addition, Volvo suggests that car sharing is a way to access potential customers that are not otherwise able to own a car. In Sweden, Volvo has observed a trend over the past decade that an increasing share of the population does not prioritise car ownership. Clearly, therefore, its ownership of SunFleet, which only involves 60 cars as compared with annual sales in Sweden of 50,000 Volvo cars, could be seen as an attempt to ensure that its customer-base does not diminish as a result. Volvo's car sharing activities started as a pilot initiative, named Mobilty.nu, within its car rental company Hertz as described in the case study below (Box 2.5).

Despite the examples of manufacturers taking on permanent investments in car sharing, the interviews with manufacturers and car share managers also indicated that there are some obstacles to overcome. A potential obstacle for manufacturers that wish to run their own car sharing operations is the risk of encountering organisational and management problems. That is, management and staff may lack the necessary knowledge and experience to succeed in the new market (Mobility, 2004). Moreover, the established internal processes familiar to their normal operating style may prove unsuitable for car sharing. Indeed, traditional manufacturing and mobility services are two diverse business areas. In addition, the findings of this research indicate that the attitude to car sharing and alternatively fuelled vehicles could vary substantially within the same organisation. For instance, whilst SunFleet in Sweden has attracted special interest from its suppliers it has also found that some retailers have been less forthcoming in their support. SunFleet believes that the reason is a generally conservative

approach taken by the manufacturing industry, and subsequently retailers often prefer selling traditional vehicles of which they have experience. Therefore, the alternatively-fuelled vehicles that SunFleet uses have meant that some manufacturers and retailers have not been interested in SunFleet's operations (SunFleet, 2004). Volvo's pilot project Mobility.nu also experienced problems in attracting support from various departments within Volvo (Volvo, 2005).

Box 2.4 Wohnmobil and Mietermobil, Germany

Wohnmobil and Mietermobil	
Location:	Hamburg and Wolfsburg, Germany
Operator:	Volkswagen Research Department in collaboration with the landlord of the residential areas where the schemes were located.
Sponsor/owner:	Volkswagen Research Department and Volkswagen Immobilien Gmbh and Volkswagen Financial Services Gmbh
Time period:	Wohnmobil: 1996-1997/98 (2002) Mietermobil: 1998-2002/03
No of vehicles:	Wohnmobil: 4; Mietermobil: 5
No of users:	Wohnmobil: 90; Mietermobil: 600
Description of the project:	The aim of the projects was to test the idea of combined housing and mobility services, where tenants could gain improved mobility and landlords could benefit from increased value of their property. Wohnmobil, launched in Hamburg in 1996 and ended in 1997/98, was located in a residential area near the city-centre of Hamburg where it was difficult to find parking spaces. Approx. 100 tenants in 45 apartments had access to a fleet of vehicles, including 2 Polo, 1 electric Golf, 1 Sharan The cars were leased by the operator from the VW bank at discounted rates. In addition, the landlord who wished to promote mobility, offered the tenants free use of bicycles and a public transport card at a reduced price, as well as continuing to operate the car sharing scheme on his own after the pilot period expired. Nevertheless, the scheme was closed in 2002 due to increased car ownership among the tenants. Mietermobil, an improved version of Wohnmobil, was launched in the city of Wolfsburg in 1998 and operated until 2002/03. The approx. 1000 tenants were generally young and well educated. The fleet was comprised of 5 cars: 2 Polos, 1 Golf, 1 Passat combi and 1 Caravelle. In addition, Mietermobil also included a scheme in a pensioner residential area. Both Wohnmobil and Mietermobil used a terminal technology for distribution of car keys and payment. Originally, the terminals had been developed for VW dealers: terminals were placed in the dealer's lobby with 24h/24 access, and the customers could hand in their cars for maintenance by leaving the key in a safe in the terminal, giving instructions for maintenance on a touch screen and paying by credit car.
Role of the industry:	Research projects within Volkswagen. Volkswagen contributed with a terminal technology, a so called SAM-terminal, including booking and payment systems, as well as technical equipment of vehicles for transferring the driving records to the terminal. Costs were shared between Volkswagen Research Department and the landlord. The Landlord carried out the daily work, handled reservations and was

	responsible for the maintenance of the cars.
Motivations of the industry:	o To see how car sharing works in general and particularly in urban areas; o To combine housing, living and mobility with access to a large pool of vehicles where the tenant has access to different vehicles to use at different occasions and for different purposes; o To meet the demand for maximum comfort by eg offering a range of cars for different journey purposes; reserved parking space; maintenance service, etc; o To see how people accept new concepts and new vehicle technology, eg electronic cars; o To gain a first experience of mobility services; o VW Immobilien wished to explore a new concept of mobility.
Outcome:	Wohnmobil outcomes: o The user rate was 90 per cent. The use went down from Saturday to Sunday when people normally went together in one car. Users rated the outcome of the project very high (1.4 on a scale 1 to 6, where 1 is the highest grade). o The electric Golf vehicle was only used on relatively short distances, probably because it takes time before users are fully comfortable with new technology. o Customers were charged per hour. One of the results indicated that due to inequalities of usage (eg customers drove different distances during the time they used the car), it made more sense to use a mixed charging in the following project. The Wolfsburg project operated with a mixed fee based on both the time and distance driven to make it more equal. Prices where also differentiated to reflect fluctuations in demand at different times of year, eg prices were lower during holidays. Mietermobil outcomes: o This scheme had a relatively low rate of use: 60 per cent. It was concluded that this was due to the high rate of car possession (85 per cent) in Wolfsburg (the city where Volkswagen is produced). Access to parking is also very good in the city. Therefore, it was concluded that there was little incentive to car share. o The terminal technology has several benefits such as transparency (to see how and when the vehicle has been used and how much it costs), issuing a receipt and reporting potential problems.
Results:	The role of the research department within VW is to formulate and try out new concepts. Concepts that are found to be useful are passed on to other departments within VW. Mobility services are still at the research stage since the pilot projects revealed certain obstacles to market growth, mainly the comfort of having one's own car and the time it takes for new mobility services to be accepted by society. Comfort plays a considerable role in the choice of transport mode, eg access to parking for car sharing vehicles, comfort of using an own vehicle, and the access to public transport. Even if mobility services offer elements to make car transport more comfortable, in many cases, car ownership is still seen as more comfortable. In order to overcome this, the customer must either be very motivated by the lower cost of car sharing relative to car ownership, or he/she finds the lack of parking spaces in large cities very

	stressful. Nonetheless, the research department still works with mobility services, trying to find out new concepts and improving the car sharing system.
Current status:	Operations closed, most recent schemes under analysis.

Source: Volkswagen 2000; Volkswagen AG, 2003; Volkswagen AG, 2005.

Box 2.5 Mobility.nu, Sweden

Mobility.nu	
Location:	Gothenburg, Sweden
Operator:	Volvo Personvagnar, Skanska (a building company), Gothenburg Energi, Hertz and a consultancy. The project was EU funded.
Sponsor/owner:	Volvo Global Marketing
Time period:	1998 – 2001
No of vehicles:	Approximately 10
No of users:	The first client company had 20 users, today approx. 100 users
Description of the project:	The project was launched on the initiative of an independent consultant and an employee with a Swedish energy company, Vattenfall. The telematics were developed by an IT company (Pilotfish). The technology was inspired by a telematic box originally developed for the Volvo Ocean Race. However, originally Volvo would have had the role of developing the technology. Many people within Volvo were interested in the project but most of them were reluctant to carry out work themselves. When the project started it only had one location and managed all bookings manually.
Role of the industry:	Sponsor, communication support, represented in the managing board.
Motivations of the industry:	The aim was to test a new car sharing concept in a city and to test new technology. Technology development was one of the requirements for receiving EU funding. Other motivations were: o Developing a sales channel; o To offer new services; o To extend the service offering.
Outcome:	The project was transformed into commercial operations and renamed SunFleet, owned by Hertz (Hertz Sweden is in turn owned by Volvo). Volvo had no possibility of owning such operations and car sharing is also similar to car rental. The motivations for investing in SunFleet were: o An activity in line with Volvo's environmental interests – the focus on environmentally friendly vehicles was important; o To participate in the development of cities and environments – Volvo wishes to take part in the development and invention of new solutions to transport.
Current status:	Pilot project closed but operational through SunFleet.

Source: SunFleet, 2004; Volvo, 2004; Volvo, 2005; Nyström, 2003.

Another possible opportunity for manufacturers to explore mobility services could be to develop car sharing as an extension to fleet management[12] services. For instance, the Swedish Road Administration suggests that fleet management, which normally addresses corporate clients, could potentially merge with car sharing companies that focus on individual customers (SRA, 2004). One of the main differences would be that car sharing requires more advanced technology (City Car Club, 2004). One example is Fiat in Italy, which operates car sharing through its fleet management company Savarent as mentioned above (Car City Club, 2004; 5T Torino, 2004). On the other hand, American Honda highlights the conflicting interests in such activities since a car's second-hand value decreases more quickly if it has been used in a fleet (the cars are not as well taken care of as if they were privately-owned). The lower second-hand value also leads to lower prices for new cars. In addition, fleet and lease customers are not particularly attractive as they often expect volume-based discounts (AHM, 2005).

Volvo in Sweden on the other hand has chosen to keep its car sharing activities within the fully owned car rental business, which Volvo runs on a licence contract with Hertz. Volvo says that car sharing is kept separate since it is a new concept that is not very closely related to fleet management activities[13] (Volvo, 2004) and since 'it is unsuitable to run car sharing services within Volvo' (Volvo, 2005).

Car rental and oil companies are possibly better candidates than manufacturers to operate car share services. For these actors, operating their own car sharing schemes could potentially release synergy effects in retail and marketing as discussed above (see Section 2.2). For instance, a car sharing customer that does not own a car is likely to rent a car for longer trips, and an oil company could encourage its car sharing customers to fill up at its own petrol stations. Car rental companies also have various system solutions that could be of interest to car sharing operators. This has for example been one of the reasons why Volvo has chosen to keep its car sharing operations within its daughter company Hertz. Volvo believes that Hertz has the necessary knowledge and organisation to administrate car share schemes, such as cleaning and maintenance services (Volvo, 2004). On the other hand, considering the integration of car sharing and car rental services, one may come to the conclusion that they are completely different concepts. For instance, there is a difference in quality standards as car rental offers cleaning after every use.

Car sharing could also be a way for car rental operators to develop and broaden their business in general. Even though some believe that the

[12] Fleet management refers to leasing out vehicles in combination with administrative services.

[13] Volvo operates fleet management within Volvo Finance, which offers funding and administration of fleets to corporate customers. It has a fleet of approximately 30 000-40 000 cars (Volvo, 2004).

potential market for car sharing is still smaller than that for car rental (Denzeldrive, 2005), car rental companies seem to experience competition from car sharing (SRA, 2004; Hertz, 2005) and this could be another motivation for car rental companies to enter the car sharing business. However, despite previous experience of car rental services, car rental and oil companies sometimes risk encountering similar organisational problems as manufacturers and suffer from lack of knowledge and experience. A possible strategy for car rental and oil companies to avoid these potential problems might be to acquire an already existing car share scheme. This was for instance why Shell Drive has chosen to acquire Stadtmobil operations in Germany, instead of setting up its own operations and expanding organically (Mobility, 2004; Shell Drive, 2004a; see also Box 2.2).

For oil companies and schemes that use alternatively fuelled vehicles there is possibly an opportunity to coordinate car sharing with the expansion of alternative fuel supplies (Stockholm Environment and Health Admin, 2004). For instance, one of the motivations of Statoil Sweden to establish a scheme was to gain access to a particular site to set up a petrol station, which would offer biofuels as well as car sharing (Statoil Car Rental, 2004; Stockholm Environment and Health Admin, 2004; see also Svenska Statoil AB, 2004). Statoil later licensed the brand and the scheme to a car sharing operator and this may also be a viable strategy for other oil companies that wish to make use of their locations (petrol stations), or to attract attention and customers with hybrid cars to increase the sales of new alternative fuels.

2.6 Summary

The research has revealed that the motivations that were identified in the first year report that might stimulate manufacturers to become active in car sharing do all play a role to some extent. At one level, for any one manufacturer, it is difficult to identify confidently one motivation that has inspired them to take an interest in car sharing. However, overall, it appears that some motivations have had more influence than others. Arguably, the most widespread motivation for manufacturers becoming involved in car sharing is the desire to develop a 'green' image through being associated with an activity, such as car sharing, that is perceived to be beneficial to the environment. This is helped by the fact that as car sharing is still a novelty in many places, the launch of a car sharing service is accompanied by publicity, which is, of course, good for the manufacturer involved. From our research, manufacturers for which the promotion of a green image has been a motivation for their involvement in car sharing include Volvo, Peugeot-Citroen, Fiat, Audi and Vauxhall. Toyota UK, on the other hand, has chosen not to become involved in car sharing, because it believes it already has a positive environmental image.

The next most popular motivation to become involved in car sharing appears to be a desire not to be left behind, and therefore lose out financially, by a

potential innovation. A number of companies have either undertaken pilot projects, eg Volkswagen and Honda, or have become actively involved in car sharing to explore its potential. Volvo's experience in Sweden, where its move into car sharing at the same time that there is a trend away from car ownership, shows the importance of exploring the potential of such developments. Volvo also claimed that they saw car sharing as an additional part of their business, as it completed their product range and allowed them to access customers, who did not own a car. Honda had a similar perspective as they saw car sharing as part of their business of delivering mobility (see Box 2.1; see also Section 3.2).

The potential to utilise car sharing as a way of promoting new vehicle technologies or models has been a motivation for some manufacturers. There are several examples of manufacturers using car sharing operations to test out and expose users to clean vehicle technologies, eg Toyota US' hybrids and Peugeot-Citroen's electric vehicles in France. However, some car sharing operations, eg Switzerland's Mobility, argue that it is not appropriate to use alternatively-fuelled cars in a car share scheme, as it is keen to make using the scheme as simple as possible for users, rather than introducing unfamiliar technologies. Perhaps the difference between the approaches is based on the profile of the users of the scheme, who, if they are more environmentally-motivated, as with US operator Zipcar (users of Toyota's hybrids), are more likely to be open to cleaner vehicles, compared to those of large operators, such as Mobility, which attract a much broader client base where users have many different motivations for taking part in car sharing.

Some manufacturers do, however, see the large car share operators as a means of promoting new models of traditional cars, as can be seen by Mobility's partnerships with Renault and Fiat, and Peugeot-Citroen's involvement with Helsinki's City Car Club. Clearly, such an association could also contribute to the public's general image of a company, in particular its approach to the environment, as discussed above.

However, manufacturers do not yet see car sharing as a significant new market for their vehicles. Where car share schemes are still small, there is clearly not that much demand for new vehicles, as is still the case in the UK and Sweden. In other countries, where operations are larger, eg in Germany and Switzerland, there are clearly more sales to car sharing organisations. However, in these countries car sharing organisations are seen as in the same light as any other corporate client, and can negotiate similar discounts. So, while another client is clearly to be welcomed, in most instances car sharing organisations do not appear to be seen as a special case.

The motivations of car rental and oil companies in becoming involved in car sharing are different, however, as those that have done so have had the aim of financially benefiting from an emerging market. Car sharing could complement car rental services, as the infrastructure set up for the latter could be used for the former, as appears to be the case with Austria's

Denzeldrive, but this has not always proved to be the case. In the case of Germany's Shell Drive, existing management experience and network of petrol stations have been utilised for car sharing, but specific expertise was still lacking, so the company has been buying up existing operations. In both these cases, Denzeldrive and Shell could also be seen to be expanding the range of services they offer their clients and, in the case of the latter, motivated also by a desire to promote a greener image.

3

Car Sharing: a Strategic Market?

From the perspective of achieving a future sustainable society, Section 1.1 outlined the argument that a more intensive use of resources, coupled with a move away from selling products to providing services, is required to bring about such a future. The first year report argued that, in the case of mobility, this would entail the development of mobility services, such as car sharing and public transport, at the expense of cars being sold (Skinner *et al*, 2004). This section of the report explores the views of those interviewed in relation to the future of car sharing and the motor industry, particularly whether we are seeing the beginning of a long-term transformation of car manufacturing towards a service-based sector, or whether it is expected that car sharing will remain a niche market, with limited involvement by manufacturers and related industries.

3.1 Moving Towards a Service Based Business Model?

As outlined in Section 2, there has been some interest from manufacturers to invest in car share schemes, including Fiat in Italy, Honda in the US and Volvo in Sweden. These three manufacturers have had two motivations in common: first, they have been motivated by the opportunity to acquire information about the car sharing market through its ownership; second, they have emphasised the contribution to sustainable development (5T Torino, 2004; Car City Club, 2004; AHM, 2005; Volvo, 2004). Honda is primarily interested in car sharing companies as clients (AHM, 2005), meanwhile Volvo is the company that came closest to integrating car sharing with its overall product and service offering. However, car sharing is still a marginal business in comparison to traditional manufacturing and is probably not seen as a crucial strategic activity. One interviewee suggested that for car manufacturers to be interested in operating car sharing on a large scale, it would probably require

that car sharing increases to such extent that car manufacturers lose significant sales. Such a growth in car sharing could be encouraged by *inter alia* an increased cost of car use, caused by congestion charges and increasing fuel prices, if this were to have a knock-on effect on car purchases (Volkswagen AG, 2005). Then, providing car share services would be a way to keep up sales volumes and to control the supply to an important client group (ie car share operators). Another interviewee put forward that car manufacturers are moving away from using car dealers and suggested that car sharing could be a new role for car dealers as part of a move towards a more service-based industry. In addition, considering that car manufacturers operate with very small margins, moving into services could represent an opportunity to increase profits (Mobility, 2004).

However, it is far from clear whether such a service-based business model would appeal to manufacturers. Several interviewees argued that car sharing is not directly compatible with car manufacturing (eg AHM, 2005). Additionally, to many people the car is not only a means of transport but also a symbol of status and independence (eg Shell Drive, 2004a), and many car manufacturers have built their brands and marketing campaigns around a life-style concept, which emphasises the status of car ownership. Market research has indicated that this is one of the main barriers to joining car sharing (Shell Drive, 2004a) and the growth of car sharing is therefore to a large extent dependent upon the abandonment of the car as a status symbol.

There have been signs that more people have been joining car sharing operators in recent years as compared to 10 years ago. This could possibly signal a shift towards the car being less viewed as a status symbol, or be explained by the increasing number of car sharing services available in the market (Shell Drive, 2004a). In the view of interviewees, however, this is not the first sign of a potential shift towards the increased selling of mobility services by manufacturers, as opposed to selling cars. One interviewee even says that a shift towards a more service-based industry will not happen until people give up mobility (Volkswagen UK, 2004). In other words, he did not believe that car sharing could offer the same level of mobility as car ownership does. Ford Sweden, on the other hand, thinks that it is possible that the development of the manufacturing industry is moving towards a more service-based business model. However, the development will probably be slow, as it will depend on changing consumer habits and adaptation in the organisation and administration of corporate client organisations. Changing the behaviour of individuals could be particularly difficult; however, the development in certain customer segments could possibly be relatively quicker (Ford Sweden, 2005). Perhaps, car sharing could also be seen as a first step towards the development of other service-based transport solutions (Mobility, 2004).

3.2 Niche Market or Core Business?

Most managers in car sharing and related businesses seem to agree that car sharing is likely to remain a niche market for the next few years (eg SRA, 2004, see also Section 2.1). As such, car sharing will potentially provide a small number of companies with interesting business opportunities as it is foreseen that large international schemes will be formed out of the many small schemes in existence today (eg Shell Drive, 2004a; Volkswagen AG, 2005; SunFleet, 2004). For instance, City Car Club forecasts the number of Swedish car sharing organisations to be reduced from 40 to between four and five in a few years time (City Car Club, 2004). In the German market, this development has already taken off as two or three large car share companies now dominate the market, which previously consisted of numerous small community schemes (Volkswagen AG, 2005). This development might be explained by the importance of volume and scale for providing good services and efficient operations (eg Stockholm Environment and Health Administration, 2004; City Car Club, 2004). According to City Car Club, a car sharing organisation needs at least 100 cars to be profitable (City Car Club, 2004). Even though these outcomes may turn out to be true, it is probable that the total volumes of car sharing will remain small.

If these forecasts are correct, they could have two possible implications for car manufacturers, car rental and oil companies. First, car sharing companies would not necessarily become more attractive as clients to manufacturers as they grow, since large car share operators could negotiate volume-based discounts when leasing or purchasing cars from manufacturers (given that the total volumes stay relatively small). Second, there will not be a large scope or incentive for establishing new car sharing operations, as they would find it hard to compete with the already established operators.

Indeed, with a few exceptions, manufacturers seem to consider car sharing a relatively insignificant market and would not call it strategic (eg SRA, 2004). According to some, car sharing can never reach sufficient volumes to become part of the manufacturers' core business (SRA, 2004; Flexcar, 2005). Nevertheless, the case studies show that some manufacturers have put in a lot of effort into understanding the car sharing market, as well as making permanent investments. One way to interpret this is that there is a long-term strategic view on car sharing within these companies. Alternatively, compared to the size of other activities within manufacturing companies, car sharing appears to be only one out of many business development activities. Indeed, it is often difficult to assess the underlying strategies of car manufacturers, particularly as they might be very cautious about revealing these (eg WZB für Sozialforschung, 2004).

One example is Volvo Sweden, where its strategic direction is not yet clear. Although managers seem to agree that the potential volumes of car sharing

are small in comparison to car ownership[14] (eg Zipcar, 2005), there are slightly different views on whether car sharing has the potential of becoming a core activity. According to one manager, Volvo neither considers car sharing to be a commercial business, nor a crucial part of its strategy, whilst another believes that car sharing will be part of Volvo's core business in the future, however, it might only become a small part of it (Volvo, 2004). Also the question of expanding car sharing to markets outside Sweden has been raised (Volvo, 2004), which might indicate that there is some strategic interest in car sharing within Volvo.

Another interesting example is Volkswagen and the pilot projects carried out by its research department (see Box 2.4). The research department continues to analyse the results of previous projects to improve the concept, and says that it is possible that business opportunities will arise in the future. Furthermore, it is possible that Volkswagen makes the connection between mobility services (including car rental) and car manufacturing, considering that the fully-owned car rental company Europcar[15] is marketed on its website with the following words: 'Europcar has succeeded in gaining this market position as a mobility service provider not least through its synergetic relationship with Volkswagen, its parent company. Europcar is an integral component of the Volkswagen Group and its comprehensive mobility concept'. Europcar even states that its mission is to move from being a car rental company to a mobility services provider and calls itself as 'a global provider of mobility services', since it has 'formed partnerships with a variety of transport and service providers, including automobile clubs' (Europcar, 2005).

This discussion also raises the question of who the initiative to engage in car sharing generally comes from. If car sharing is to become a core business, by definition it must attract attention from the top-management and the origin of the initiative is likely to impact on the degree and focus of the management's interest. In the case of Volkswagen, it was the research department that took the initiative to carry out the first test activities, which also attracted some interest from Volkswagen's housing company Immobilien Gmbh, and some attention from the top management (Volkswagen AG, 2005). In the case studies above, most car sharing initiatives by car manufacturers came from the sales, research, business development or environmental departments within the manufacturing companies. One exception is Honda, which became involved in mobility service on the initiative of its former CEO, who had the vision of improving people's lives by enabling them mobility (AHM, 2005, see also Box 2.1). This was probably a strong driver behind Honda developing an ITS (Intelligent Transportation Technologies) system, and launching several pilot projects in Japan, Singapore and the US (Honda, 2005a, see also Box

[14] For example, Volvo/Hertz' fully owned operator SunFleet operates with only 60 Volvo cars, as compared to the total sales of 50,000 Volvo cars in Sweden, which corresponds to 20 per cent of the Swedish market for manufactured cars.

[15] Europcar is a fully owned subsidiary of Volkswagen AG and operates under the Financial Services Division (Europcar, 2005)

2.1), and acquiring a stake in Flexcar, US. Honda has even stated that its mission is to enable mobility (AHM, 2005; see also Honda, 2005b).

Sometimes, the decision to invest in car sharing has also been influenced by external parties. For example, within Statoil the initiative came from the car rental part of the company in collaboration with the department for new establishments, which had been approached by the Stockholm municipality (Statoil, 2004). Similarly, one of Honda UK's reasons for setting up a scheme on its UK headquarters was a request from the local authorities to reduce congestion (Honda UK, 2004). However, whilst external support could encourage manufacturers to invest in smaller pilot operations, initiatives that have risen within the company should in theory benefit from broader support from managers and employees and therefore be more likely to be sustained in the long run. For instance, SunFleet's founder has been referred to as an example of the sort of enthusiast that is needed for building a new business area (SRA, 2004).

There also appears to exist a potential conflict of interests between car manufacturing and car sharing, since car sales will possibly be reduced if the number of car sharing users increases significantly (eg Volvo, 2004; City Car Club, 2004; Zipcar, 2005). At the moment, when the market for car sharing is still small, this would not necessarily be an argument that makes the car manufacturers refrain from sponsoring one or two car sharing projects, but it could be important if a car manufacturer was to run car sharing on a large scale as one of its core businesses. However because of the currently small market this could only be thought of as a future scenario.

Compared to car manufacturers, car sharing seems to be less conflicting with the activities of car rental and oil companies. However, the degree of its importance as part of these companies' activities is uncertain. For instance, Shell Drive, which has expanded aggressively since it entered the car sharing market in 2003, considers car sharing tactically important rather than seeing it as a strategic market. Car sharing is not seen commercially as a very interesting market in the mid-term because car ownership is still preferred and will be in the near future. However, Shell Drive recognises that the market is full of potential benefits in the short-and mid term (see Box 2.2), as well as seeing a long term potential, since some countries such as China just cannot afford a car for everyone (Shell Drive, 2004a). Denzeldrive also considers car sharing to be a strategically important market that gives it a competitive advantage towards other car rental firms (Denzeldrive, 2005).

3.3 Summary

The research suggests that only a few manufacturers see car sharing as potentially a core part of the business, with most expecting it to remain a niche market for the foreseeable future. Representatives from both Honda and Volvo suggested that they saw car sharing as potentially a key part of

their business. With respect to Honda, their representative claimed that car sharing fits with the company's vision of enabling mobility, while Volvo see car sharing as a means of reaching non-car owning customers whom it could not reach through other means, and as a general business development activity. This suggests that both these manufacturers see a long-term role for car sharing. However, the general view is that such a role will likely to remain a minor one in the short-term. In the longer-term, the views were mixed. Some could not see car sharing ever playing a significant role in a manufacturer's business, while a minority could see an eventual move towards a more service-based model for the industry, although this would take time and require changes in the approach of companies and in the behaviour of individuals.

The findings suggest that manufacturers are, as yet, paying little attention to the possibility of changing their core business from a product- to a service-based one. In the short-term, at least, it appears likely that the potential of and for car sharing will continue to be explored by manufacturers, through pilot projects and sponsorship. If car sharing were to grow in the countries where it is still a relatively small service, it is likely that manufacturers will develop more partnerships with such operators, as can be seen in Switzerland and Germany, to supply them with vehicles.

4

Conclusions

The first year report reviewed the literature on mobility services, as well as the broader debate about the potential role of services in a future sustainable economy. This literature argues that, in order to achieve a more sustainable economy, there is a need to develop a more service-based economy at the expense of the traditional manufacturing sector. In the context of mobility, this would entail existing car manufacturers developing their businesses away from manufacturing to become more service-based, eg through providing car sharing services. We also identified a number of examples where manufacturers had actively engaged in car sharing operations in various ways. However, it was not in the scope of that research to identify the motivations behind such involvement.

This report gives an account of research that set out to identify the motivations behind manufacturers' involvement in car sharing, as well as ascertaining the views of those in the industry of the potential for car sharing. Our research suggests that there is little evidence that manufacturers are becoming involved in car sharing as part of a long-term strategy to develop the service-side of their respective businesses. Only one or two people to whom we spoke believed that such a shift might happen in the longer-term, and even then, only if the conditions faced by the industry changed significantly.

Our research suggests that most manufacturers expect that car sharing, at least in the foreseeable future, is likely to remain a niche market, while retaining a peripheral interest for some manufacturers at least, for a number of reasons. The first reason appears to be the potential advantages in terms of the image of the company of being associated with an activity, such as car sharing, that has perceived environmental benefits. In an era when the transport sector is perceived as a principal cause of environmental problems, it appears that manufacturers are keen to improve their image through association with greener activities. The second most important motivating factor for manufacturers' involvement in car sharing appears to be the desire

not to miss out on an innovative and potentially financially rewarding development in the sector. Many manufacturers have become associated with car sharing operations or have set up pilot schemes to explore its potential – some have continued their involvement while others have not.

A continued involvement with car sharing appears to be linked to the particular perspective of a company. Toyota US' and Peugeot-Citroen in France have used car sharing operations to expose car sharers to new vehicle technology (hybrids and electric vehicles, respectively), while Honda and Volvo both see car sharing as part of an expansion of the services they offer spurred, at least in part, by accessing a previously untapped market, eg those who do not own a car.

However, car sharing is not yet perceived to be a potential area of business expansion by most manufacturers. Some of this reticence is based on the perception that car sharing is a competitor to manufacturers' core business of selling cars. This is reflected in the way in which cars are marketed. Manufacturers often market their cars on the basis of a lifestyle concept, which focuses on ownership not just use. While car sharing has the potential to be marketed as part of a particular lifestyle choice, and is occasionally marketed as such (see Haines and Skinner, 2005), while its potential market remains small, it will clearly be more appealing for manufacturers to market their products to potential buyers rather than potential car sharers. Additionally, car sharing is a service, which differs significantly from manufacturing and, therefore, requires expertise that manufacturers do not necessarily have. The conditions faced by the car manufacturers would clearly have to change significantly from the way things stand for car sharing to be taken as a serious business prospect for most manufacturers, as well as for their distributors and retailers. Additionally, if car sharing is to become a larger part of a manufacturers' business, it will also need support from high up within the company. As yet, the interest has in most cases come from other parts of the company, such as the research department.

The experience of Denzeldrive in Austria and Shell Drive in Germany are interesting developments in this context. In both respects, car sharing could be seen to complement existing activities and benefit from synergies, such as the experience and infrastructure that support car rental services and the selling of petrol, and the existence of a network of outlets. The approach of Shell Drive, in particular, in purchasing existing car sharing operations is one approach to obtaining the necessary expertise to operate car sharing schemes that car manufacturers and other companies in the mobility sector might benefit from in the future. As with manufacturers, oil companies also have the potential to improve their 'green' image from being associated with car sharing, while both car rental and oil companies also have potential financial benefits from their involvement in car sharing. However, these two examples stand out and there is no evidence of a significant shift towards a mobility sector that is focused primarily on the provision of services.

Annex 1: Interviewees

5T Torino (2004) Massimo Cocozza, email 18 November.

AHM (2005) Robert Bienenfield, American Honda Motor Company, telephone 1 February.

Car City Club (2004) Flaminio Orazzini, CEO, telephone 13 December.

City Car Club, Helsinki (2004), Kimmo Laine, telephone 14 December.

CarPlus UK (2004) Philip Igoe, London 26 November.

Daimler-Chrysler (2005) Dr. Thomas Behr, Executive Assistant to Vice President, Research Body and Powetrain RBP, email 10 January.

Denzeldrive (2005), Andreas Oppitz, General Manager, telephone 24 January.

Flexcar (2005) Lance Ayrault, CEO, telephone 21 January.

Ford Sweden (2005) Nils Lekeberg, telephone 27 January.

Hertz (2005) Klaus Baumheinrich, Longterm Manager, Hertz Autovermietung GmbH, telephone 22 February.

Hertz Delebilen (2004) Mr. Henriksen, telephone 17 November.

Honda UK (2004) Lucy Stock, Corporate sales executive, UK, telephone 9 December.

Kindwalls (2004) Mårten Broddheimer, telephone 6 December.

Liselec (2004) Anne Chané, email 7 December.

Mobility (2004) Conrad Wagner, cofounder of Mobility and head of one of the subsidiaries of Mobility, telephone 7 December.

Mobility (2005a) Peter Moheim, Mobility, telephone 18 January.

NYPA (2004a) Charles Herman, New York Power Authority, telephone 17 November. Carry-Jane King, New York Power Authority, telephone 29 November.

RATB (2004) Florin Dragomir, email and telephone 15 November.

Shell Drive (2004a) Nicolas Ximénez Bruidegom, Head of Shell Drive, email 26 November and telephone 9 December.

Statoil Car Rental (2004) Oscar Sohlberg, Head of Statoil Car Rental, Sweden, telephone 7 December.

Stockholm Environment and Health Admin (2004) Sven Alexandersson, The City of Stockholm's Environment and Health Administration, telephone 23 November.

SunFleet (2004) Per Lanevik, CEO, telephone 22 November.

SRA (2004) Per Schillander, Swedish Road Administration, telephone 6 December.

Toyota UK (2004) Mike Hawes, Head of UK External Affairs, telephone 2 December.

Vauxhall UK (2004) Cheryl Cox, telephone 29 November.

Volkswagen AG (2005) Konzernforschung Mobilität, 31 January.

Volkswagen UK (2004) Peter Stokes, former Environment Manger, telephone 10 December.

Volvo (2004) Anders Wahlen, Head of Environmental Affairs (Swedish market), Volvo Personvagnar, telephone 6 December. Christian Ulmefors, Volvo Personvagnar, telephone 16 December.

Volvo (2005) Tommy Arthursson, Volvo Car Customer Service, Business Channel Development, telephone 16 February.

WZB für Sozialforschung (2004) Dr. Weert Canzler, former manager of CashCar Projektgruppe Mobiität, WZB Wissenschaftszentrum Berlin für Sozialforschung 17 December.

Zipcar (2005) Marc Heminway, VP Finance and Development, telephone 27 January.

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ISBN 187390651 X