D 3.1

Car sharing in Europe

Analysis of business models for car sharing

Car sharing has the power to improve mobility in cities, however its potential has yet to be achieved. The Dutch survey agency TNS Nipo found that despite 20% of respondents being open to the idea of car sharing, only 1% actually use it (van den Berg, 2017). McKinsey&Company (2012) found similar rates in Germany, where only 2.5% of the people living in cities of more than 100,000 inhabitants used car sharing, but 24% of them were considering using it.

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Furthermore, of those who did use car sharing, nearly one-third of them said that they expected to increase their use of car sharing over the next decade (McKinsey&Company, 2012). This potential growth holds profound changes for cities, both in air quality and urban design, as well as for vehicle manufacturers hoping to survive a rapidly-evolving era where automobile consumption is increasingly influenced by urbanisation, high technology and the sharing economy. It is within this context that STARS is situated, as it strives to close the gap between current car sharing trends and the potential benefits. Deliverable 3.1, Analysis of Business Models for Car Sharing, helps to achieve this goal by exploring how car sharing organisations and the related automotive industry are currently operating. As such, D3.1 presents a brief analysis of the five archetypical or generic business model frameworks identified in car sharing schemes: 1) freefloating with an operational area; 2) free-floating with pool stations; 3) roundtrip, home-zone based; 4) roundtrip, station-based; and 5) peer-to-peer (P2P). These business model classifications were developed based upon D2.1, combining identified operational characteristics with business model variables.

The deliverable identifies two to four organisations operating under each of the five business models, reflecting on their unique setup and value proposition through the Business Model Canvas. The Business Model Canvas, developed by Alexander Osterwalder and Yves Pigneur (2010), looks at nine building blocks that ultimately influence each business model: key partnerships, key activities, key resources, value proposition, customer relationships, channels, customer segments, cost structure, and revenues. The organisations corresponding to each business model are then evaluated individually and as a group, allowing for wider trends to emerge (a summary picture is provided by Table 1 below).

Building on this, each of the five business model classifications is then examined based upon its specific strengths, weaknesses, opportunities and threats (SWOT). This framework highlights their implementation feasibility, points out the specific markets they currently serve, and sheds light on their potential growth and profitability in the near term. Furthermore, the SWOT analysis allows cities of all sizes to better understand which schemes may be a better fit for their specific situation, as well as in which areas their existing car sharing companies may need greater policy support, should the city want to encourage the uptake of car sharing among citizens.

Each business model also proved to have a very distinct set of strengths, weaknesses, opportunities and threats. While these characteristics are distinct for each organisation, they are also highly influenced by factors such as whether an organisation offers its members free-floating or roundtrip services and are area/zone-based or station-based. Other influential factors include whether or not a business model depends upon an electric fleet (changing the distance and flexibility of the cars, but offering a unique value proposition), and whether or not an organization is P2P (focusing on social aspects and resting the organisation's fleet offer upon the members' individual cars and their availability).

Regardless of the business model, developments in technology are leading to the emergence of new players throughout the automotive value chain (bringing new business models with them), and changes in mobility patterns are also resulting in changes in consumption on the market. These changes present a growing challenge to the business models of OEMs and all entities along the traditional value chain. Forced to adapt and innovate, both OEMs and car rental companies are now increasingly involved as key stakeholders in car sharing programmes. Many are bringing top-of-the-line features

Business Model Characteristics				
	Key Partners	**Value Proposition**	**Revenue Structure**	**Pricing**
	Local governments	Electric cars available	For-profit structure	By time
Free-Floating Operational Area	CAR2GO, zipcar, DriveNow	CAR2GO, zipcar, DriveNow	CAR2GO, zipcar, DriveNow	CAR2GO, zipcar, DriveNow
Free-Floating Pool Station	autolib', bluetorino, bluecity	autolib', bluetorino, bluecity	autolib', bluetorino, bluecity	autolib', bluetorino, bluecity
Roundtrip Home-Zone Based	Juuve,	,	Juuve,	Juuve,
Roundtrip Station-Based	UBEEQO, , greenwheels, iGuido	UBEEQO, , iGuido	UBEEQO, , greenwheels, iGuido	UBEEQO, , greenwheels, iGuido
Peer-to-Peer	Dégage!, CARAMIGO		drivy, CARAMIGO	drivy, CARAMIGO
	Public transport operators	Multi-modal flexibility	Subscription fee required	By distance
Free-Floating Operational Area	CAR2GO, DriveNow	CAR2GO, DriveNow	CAR2GO, DriveNow	CAR2GO, zipcar, DriveNow
Free-Floating Pool Station	autolib'	autolib', bluecity	bluetorino, bluecity	
Roundtrip Home-Zone Based				Juuve,
Roundtrip Station-Based	UBEEQO, , greenwheels	UBEEQO, , greenwheels, iGuido	UBEEQO, , iGuido	UBEEQO, , greenwheels, iGuido
Peer-to-Peer			Dégage!	Dégage!, drivy, CARAMIGO
	OEMs	Parking & driving benefits	Deposit required	Fuel costs extra
Free-Floating Operational Area	CAR2GO, DriveNow	CAR2GO, zipcar, DriveNow	CAR2GO, DriveNow	
Free-Floating Pool Station	autolib', bluetorino, bluecity	autolib', bluetorino, bluecity	bluecity	
Roundtrip Home-Zone Based	Juuve,	Juuve,		
Roundtrip Station-Based	UBEEQO, , greenwheels	UBEEQO, , greenwheels, iGuido	, greenwheels	greenwheels
Peer-to-Peer	CARAMIGO	Dégage!	Dégage!, CARAMIGO	drivy, CARAMIGO

Table 1: Business Model Characteristics of Selected Car Sharing Organisations (based on survey responses and desktop research).

to their car sharing programs.

Finally, the deliverable discusses the implications of car sharing for the overall automotive industry. Changes in mobility patterns are leading to changes in consumption patterns, while changes in technology mean that new players are entering the scene. Traditional vehicle manufacturers are therefore expanding their core business activities to join the car sharing movement, becoming key partners in many car sharing organisations. Their relationship with these organisations and their influence on the business models is thus explored, as are the innovations they are bringing with them.

As the interaction between providers and users will be more frequent than in the past, one key to success will be to help users by serving them as trusted, digital and connected advisers—ranging from where to go, how to get there, and what to do while moving. Car sharing programs can thus be seen as integrated elements of larger strategies: a piece of a puzzle in which connectivity, autonomous, shared programs, and electrification pillars are constantly interconnected and interdependent. Inevitably, these new trends will have an impact on both the automotive market and the automotive industry. How they are affected will be explored in D3.2 and D3.3, respectively.

STARS - Shared mobility opporTunities And challenges foR European citieS – aims to explore and boost the diffusion of car sharing in Europe. It will analyse the car sharing market, measure the benefits of different services and compare their costs, and study user profiles and behaviour.

For the first time, STARS will also look into the implications and impacts of car sharing rather than on the implementation of the service itself. Impacts on other transport modes (private car, bike, walk, taxi, public transport…) and the car industry will be assessed, and impacts in terms of congestion, greenhouse gases, accessibility and social cohesion will be quantified.

Thanks to the knowledge gained in the project, a policy toolkit that includes guidelines and recommendations will be designed. It will help European mobility stakeholders and policymakers make the right decisions and implement the best car sharing services that will maximise environmental and social benefits, making European cities better and more affordable places to live in.

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