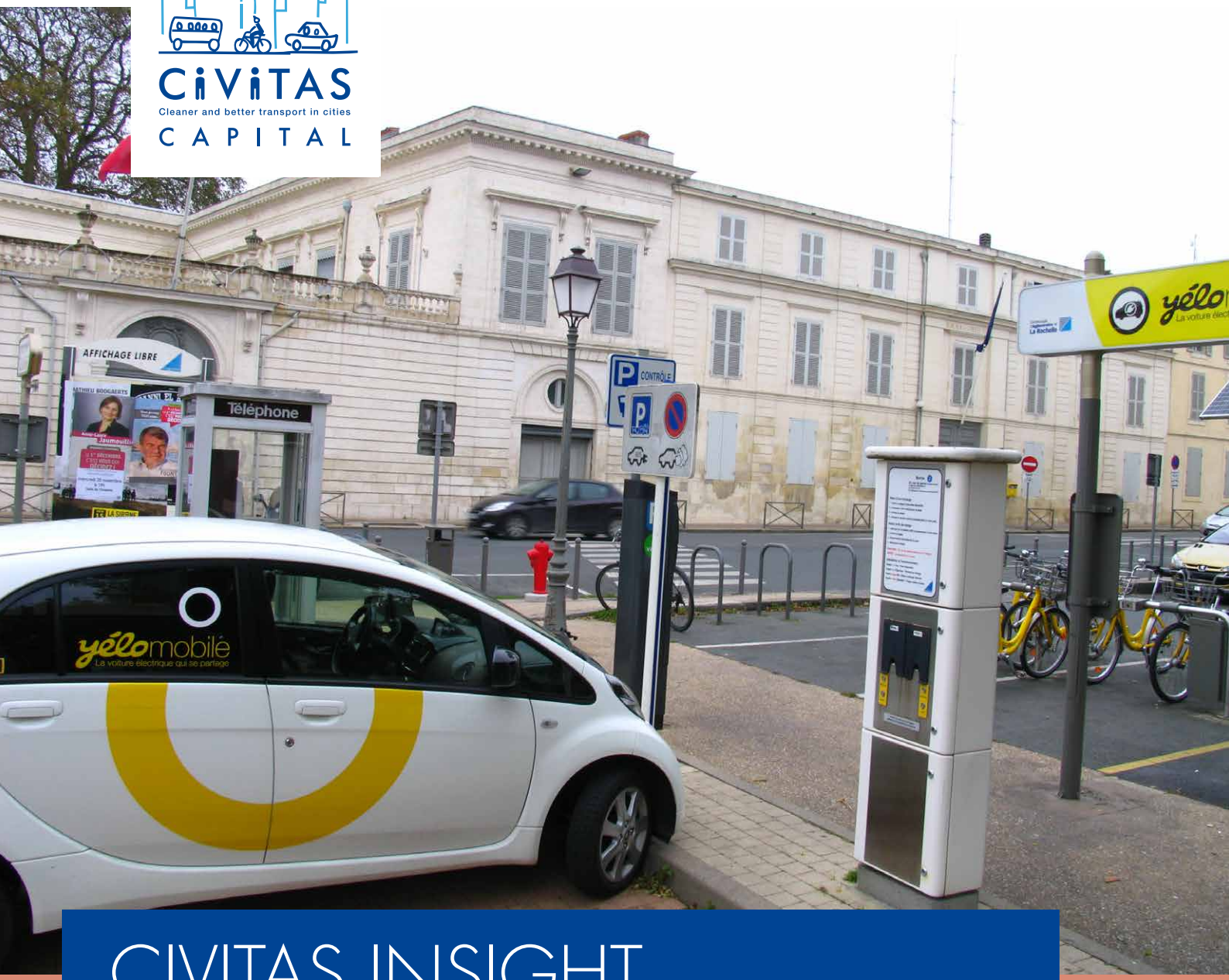
2020

CiViTAS

Cleaner and better transport in cities

CAPITAL



CIVITAS INSIGHT

Car sharing: New forms of vehicle use and ownership

In order to reduce motorised traffic in cities, residents will have to adopt a lifestyle that relies less on cars. Alternative forms of car use such as car sharing have the potential to make a valuable contribution to more sustainable urban mobility. To facilitate this shift in mentality, cities can promote sharing initiatives and new forms of car use and ownership.

THE CIVITAS INITIATIVE IS CO-FINANCED BY THE EUROPEAN UNION

Innovative and sustainable uses of the car

Shared-use mobility comprises transportation services that are shared among users, including traditional public transit, taxis and limousines, bike sharing, car sharing and carpooling, ride sourcing, scooter sharing, shuttle services, and shared neighbourhood taxis. Shared transportation has shown strong growth in recent years as a renewed interest in urbanism and growing environmental, energy and economic concerns have intensified the need for sustainable alternatives.[1]

There are many reasons for the rise of the sharing economy: increased awareness of climate change, scarcity of space and resources, the financial crisis, and increased access to technology and social media[1]. In many European cities only one car out of five is occupied by more than one person during peak hours. Many empty seats in private cars are currently unused, contributing to congestion. Moreover, cars are usually parked for most of their lifetime, resulting in an inefficient use of limited urban space.[3]

This CIVITAS Insight concentrates on car sharing, although readers should be aware that there are many different forms of shared transport in this growing sector. Car sharing can be defined as a group of people sharing a fleet of cars by paying an annual fee, as well as paying for each kilometre travelled and the time per use. The general idea of car sharing is 'pay-as-you-drive' which leads to more optimised car usage. Car sharing fleets are usually organised by a private company or association subsidised by a local or regional government or public transport authority, and is generally offered to the public and sometimes also to business customers. Car sharing services have proven to be successful in different cities all over Europe and they have great potential to support sustainable transport in urban areas in the future.[4]

There are four different types of car sharing:[5]

1 Fleet-owned station-based car sharing: In this scenario, operators offer a fleet to their users. The cars always have a fixed car sharing station. The cars have to be brought back to the same station. Examples: cambio (Germany, Belgium), Co-Wheels (United Kingdom), Greenwheels (The Netherlands).

2 Fleet-owned free-floating car sharing (one-way): In this format, cars can be picked up at point A and dropped at point B in a certain zone. There are no dedicated parking lots. Examples: Car2Go (Germany, Netherlands). A German study on free-floating car sharing[6] has shown that the average distance travelled per use of free-floating car sharing is 5 km. As such, one-way car sharing is also competition for urban public transport, taxis, walking and cycling. Nevertheless, it creates a positive image on shared mobility and offers an alternative to private car ownership.

3 Centralised peer-to-peer car sharing: An operator of peer-to-peer car sharing offers an open platform to bring private car owners in contact with passengers. Such a platform matches supply and demand directly. The operator takes a certain percentage of the transaction cost between the car owner and passenger to provide appropriate insurance and cover their operating costs. Examples: Tamyca (Germany), Mywheels, Snappcar (The Netherlands).

4 Decentralised peer-to-peer car sharing: This is the most spontaneous form of sharing private cars. This type (also known as person-to-person carsharing and peer-to-peer car rental) is the process whereby existing car owners make their vehicles available for others to rent for short periods of time. Examples: Autopia (Belgium), WeGo (The Netherlands).

1 What is Shared-Use Mobility? Shared-Use Mobility Center, accessed August 17, 2015, http://sharedusemobilitycenter.org/what-is-shared-mobility
2 Care-North plus, Shared Mobility: A Part of a Low Carbon Culture
3 Roider, Dotter, CIVITAS II Policy Advice Note: Achieving more efficient car use
4 Ibid.
5 Care-North plus, Shared Mobility: A Part of a Low Carbon Culture
6 Accessed September 28, 2015, http://matters.civity.de/index_en.html

Image: © Emotions

As the key target groups for car sharing are residents in urban neighbourhoods who do not need a car on a daily basis, as well as companies and authorities in urban areas[7], car sharing schemes can be implemented most successfully in inner suburbs, along busy corridors, in city centres, and commercial areas. Understanding that car sharing can contribute to resolving serious transport problems, such as congestion or a lack of parking, will raise awareness and acceptance of these measures among the public. Public transport operators should also be interested in supporting car sharing measures as it can strengthen their own public transport offer. They can offer special tariffs or tickets for car sharing to achieve a seamless transfer between sustainable transport modes (e.g. for someone using public transport for their trips from home to work, a special price for car sharing vehicles when returning from work to home could be offered).

CIVITAS: Sharing experiences on sharing the car

CIVITAS I | Bremen (Germany): Doubling shared-car

The measure was implemented in response to the growth in car ownership, and aimed to tackle traffic congestion, poor air quality and inefficient use of space; Bremen claims that each shared car replaces between eight and 11 private cars. As a result of the car sharing scheme, drivers have access to cars without needing to own them. Bremen and its main car sharing provider cambio[8] aimed to improve the scheme by creating new and enlarged car sharing stations in conjunction with public transport stops, targeting offers to specific clients (companies, families, cyclists), improving technological aspects (access, booking software), supplying user-friendly consumer information, and creating a simple tariff structure. Within the CIVITAS VIVALDI project (2002 – 2006), eight new car sharing stations were opened: three in the city centre at main public transport interchanges, one at the edge of the city centre, two along tram lines, and two in the peri-urban area. In the wider corridor of the CIVITAS VIVALDI project, a cambio car sharing service was also launched in the nearby city of Oldenburg. Two simple tariffs were made available to business clients, comprising bigger companies with more than 60 employees and smaller one-person start-up companies. The interest this generated reinforced the win-win concept of car sharing: it is good for the environment as well as for the economy. Technological improvements made it possible to offer innovative services such as open-ended booking and automatic cancellation. A further advantage is that the cambio smartcard is valid for the entire cambio network in Germany, as well as in Belgium and for the services of partner operators in Germany.

The implemented measures were continued, extended and further optimised after the end of the CIVITAS VIVALDI project in 2006. Bremen's car sharing service was selected as an Urban Best Practice Example for the World Expo in Shanghai (China) in 2010, which had the theme 'Better City - Better Life'. In 2009, Bremen developed a Car Sharing Action Plan, with the aim of having 20,000 registered users of the system by 2020 through measures such as dedicating more public parking spaces to car sharing. Within the first three years of the CIVITAS VIVALDI project the number of car sharing users in Bremen increased by about 43 percent (from 2,455 to 3,512). By January 2010, the number had increased to more than 10,000. Major impacts were identified in terms of air quality. The eco-label Blue Angel car sharing (RAL-UZ 100) is applied to potential car sharing operators, where the main criterion for obtaining this eco-label is the strict compliance with CO_2 averages of the car sharing fleet and with the latest emissions standards. There was also a positive impact on the use of street space, since about 1,000 cars were replaced by car sharing. The number of shared cars in Bremen rose from 80 to about 100 within the CIVITAS project period.[9]

7 Michael Glotz-Richter and Bonnie Fenton, May 2012, Separating the component of car sharing and car pooling in the UNDP strategy for sustainable mobility for the city of Bratislava.
8 'Cambio CarSharing' is a car sharing company which was formed in 2000 as a merger of several car sharing companies in different cities in Germany and Belgium.
9 Michael Glotz-Richter, Doubling car share use, CIVITAS Initiative, accessed August 17, 2015, http://www.civitas.eu/content/doubling-car-share-use



CIVITAS II | Genoa (Italy): Expanding the Genoa car sharing service

Car sharing is a key element of Genoa's Urban Mobility Plan, aimed at reducing the number of cars on the city's roads. This CIVITAS measure was based on the proven car sharing service in order to fully integrate it within the urban transport system by expanding the existing car sharing service in Genoa, and to set up a mixed car sharing service for the combined use of private individuals and public institutions, starting with the municipality. The measure focused on the use of hybrid cars or vehicles powered by biofuel (at least 25 percent of the fleet). A special car sharing service aimed at disabled drivers was developed by providing cars adapted to their needs. All the work in this measure was coordinated by the Municipality of Genoa in cooperation with the Italian Car Sharing Initiative (ICS) and Genoa Car Sharing (the local car sharing operator appointed by the Municipality of Genoa and belonging to the ICS. Car sharing was introduced in the Municipality of Genoa's fleet, where 13 vehicles were deployed during working hours, and released for use by other drivers during non-working hours and at weekends. Special promotional activities were organised to raise awareness of car sharing, including direct marketing and information campaigns to highlight the advantages of the scheme to users (savings on time and resources, access to limited traffic zones and public transport lanes, free parking and discounts on other city amenities such as museums and theatres).

A survey of car sharing users indicated a reduction in the number of kilometres driven per car per user. Results were based on the level of use in July 2008 and represents reductions of around 17.2 percent of kilometres driven before the adoption of car sharing. This represented a cut in fuel consumption of about 477,000 litres per year and an annual reduction of 1,067 tonnes of CO_2 emissions from private vehicles. The good results obtained are mainly attributable to a widespread distribution of the service over the entire city, an effective communication and promotion strategy, and the policies adopted by the municipality to limit the impact of private car circulation (such as parking pricing policies, limited traffic areas, etc). Car sharing in Genoa now has an important role in creating an integrated urban transport system and in encouraging modal shift away from the private car.[10]

CIVITAS PLUS | Bath (United Kingdom): City Car Club

Six new hybrid cars and their associated parking bays were introduced in Bath in association with the partner-organisation City Car Club[11], for use by businesses and residents throughout the UNESCO World Heritage-protected city. City Car Club set up the scheme in Bath following the introduction of a successful scheme in the neighbouring city of Bristol, introduced as part of the CIVITAS VIVALDI project (2002-2006). An alternative-fuelled vehicle, the hybrid Toyota Prius, was identified for the scheme and locations for the six new car club parking bays selected. Traffic Regulation Orders were put into place for these new bays prior to the delivery of the hybrid cars. The demonstration project commenced on 22 April 2010, and six new Toyota Prius hybrid cars were introduced to Bath, together with six new parking bays and associated signage. Although the trial ended on 31 March 2012, the hybrid vehicles continue to operate in Bath and similar hybrid cars have been introduced in other UK cities where City Car Club operates.

The City Car Club fleet in Bath increased from six to 12 cars and the membership of the City Car Club in Bath increased from 97 members in 2007 to 418 in 2012, which is an increase of 331 percent (the target was an increase of 100 percent). The overall fuel economy, emission levels and availability is better than previous cars in the fleet, although the lease costs are higher. Finally, 75 percent of City Car Club members were positive or very positive about the introduction of the new hybrid vehicles.[12]

10 Marco Mastretta, Expanding the Genoa car-sharing service, CIVITAS Initiative, accessed August 17, 2015, http://www.civitas.eu/content/expanding-genoa-car-sharing-service
11 In the United Kingdom, 'car club' is an alternative name for car sharing
12 Richard Drew, City Car Club, CIVITAS Initiative, accessed August 17, 2015, http://www.civitas.eu/content/city-car-club

The mobility transition

On the personal transportation front, the shared economy has already made remarkable advances. Although sharing is often perceived as the figurehead of a completely alternative economic system, shared mobility has little to do with non-profit community market aspirations. This is why mobility transition should also promote cleaner modes of transport such as alternatively fuelled vehicles and active mobility. Essentially, this new mobility market works along the same lines as existing economic mechanisms and by no means overrides the logic of the marketplace. Offerings in this sector will be sustainable only if they yield tangible benefits for providers and users alike.[13]

Apart from the above mentioned CIVITAS examples, there are a plenty of European projects and initiatives in the field of car sharing. In this context, the WeGo platform in Amsterdam (The Netherlands) and the Autolib' electric car sharing service in Paris (France) offer further examples:

■ WeGo is an online peer-to-peer car sharing platform that allows people without cars to rent cars from car owners in their neighbourhood in Amsterdam. As opposed to other peer-to-peer car sharing platforms worldwide, WeGo is the only party that developed an app for owners and drivers to manage their reservations and lock and unlock the car. Recently WeGo also launched a business platform for companies that want to reduce costs and invest in sustainable mobility. WeGo enables this car sharing model by providing the platform, insurance and technology to make every transaction safe, convenient and easy. WeGo works by exploiting extra capacity in the private car market to provide affordable vehicle access to non-vehicle owners, and benefits vehicles owners by lowering the cost of vehicle ownership and helping them to make some extra money. The WeGo app is suitable for owners, users and businesses. Peer-to-peer members can use the app to setting their availability, make and manage reservations, find cars in their neighbourhood and open and close the car. Through the WeGo app, members can rent cars at any time. Businesses receive a customised app with similar functionality. Through the WeGo app employees can see where a company vehicle is located, whether it is available, and make a reservation online. The app provides all the necessary information about a car. Through WeGo's technology, companies can see exactly who is driving where and in what company vehicle, and as is also the case for other car sharing operators, the kilometres driven are automatically recorded.[14]

■ Autolib' is an electric car sharing service which was inaugurated in Paris in December 2011. It is operated by the Bolloré industrial group, and complements the city's successful bike-sharing scheme, Velib', which was set up in 2007. The Autolib' scheme maintains a fleet of all-electric Bolloré Bluecars for public use on a paid subscription basis, based around a citywide network of parking and charging stations. As of July 2014, over 2,500 Bluecars have been registered in the service, and the scheme has more than 155,000 registered subscribers. Furthermore, Autolib' offers over 4,000 charging points for electric cars in Paris. Since beginning its operations,

13 Roland Berger Strategy Consults, July 2014, SHARED MOBILITY, How new businesses are rewriting the rules of the private transportation game
14 WeGo car-sharing, accessed August 17, 2015, http://amsterdamsmartcity.com/projects/detail/id/2/slug/wego-car-sharing?lang=en

Autolib' has expanded its business to the French cities of Lyon and Bordeaux. There are also plans to integrate payment for the bicycle and car-hire schemes with the ticketing systems for traditional modes of public transport. Construction of the Autolib' stations began in mid-2011, and 66 of the scheme's Bolloré Bluecars were deployed for a two-month preliminary trial period between October and December 2011. The system entered service on 5 December 2011, with an initial fleet of 250 Bluecars and 250 Autolib' rental stations serving Paris and its 45 surrounding communities. At the scheme's inception, the availability of cars was a problematic issue, as more Parisians subscribed to the service than had been expected. Moreover, by early January 2012, up to 40 of the 250 cars in the initial fleet had been temporarily withdrawn from service because of vandalism or for repairs.

However, by July 2012, 650 parking and charging stations had been deployed around Paris and 46 communities were participating in the scheme, and by February 2013 the 4,000 charging points had been installed. Most of those charging points will also be opened to private electric vehicles users in order to comply with Directive 2014/94 on alternative fuels infrastructure, leading to sharing schemes for still scarce electric recharging infrastructure. The program's user base grew from 6,000 subscribers at the end of December 2011 to 27,000 in July 2012, and reached 37,000 by early October 2012, of which 13,000 had an annual subscription. By late September 2012, Autolib's fleet reached the milestone of 500,000 rentals since its launch, and the scheme's vehicles had been driven a cumulative total of 15,000,000 km by February 2013. By mid-October 2013, the service had provided over three million rentals, with an average of 10,000 rentals per day. By July 2014, Autolib' had 2,500 operational vehicles and over 150,000 subscribers, and its cars had covered a cumulative mileage of over 30,000,000 km since the scheme's introduction.[15]

Future urban transport is based on sharing

In a report issued by Arthur D. Little[16] under the title 'The Future of Urban Mobility 2.0'[17], the authors provide thoughts about car sharing and its future. They identify a clear trend towards shared mobility: more vehicles are being shared in cities, both via peer-to-peer and business-to-consumer models. Car sharing is among the mobility modes which are set to become much more common in the next few years. The strongest growth is expected to be seen in regions with mature urban mobility systems, such as Western Europe, North America and some cities in the Asia Pacific region, due to their existing infrastructure and an openness on the part of economically and environmentally-conscious consumers to embrace options that are less costly and more sustainable.

Predicting the future of car sharing sometimes seems impossible. However, Scott Le Vine from Imperial College London's Faculty of Engineering is engaged in this task, and in 2014 he published a summary report on car

15 Wikipedia, accessed September 28, 2015, https://en.wikipedia.org/wiki/Autolib'#cite_note-Econom0911-1
16 Arthur D. Little is an international management consulting firm (see also http://www.adlittle.com/)
17 Arthur D. Little, January 2014, The Future of Urban Mobility 2.0 - Imperatives to shape extended mobility ecosystems of tomorrow, accessed August 17, 2015, http://goo.gl/Jb6fX1

sharing with colleagues from the university's Centre for Transport Studies, aiming to develop new techniques to foresee both the size of the future car sharing market and the transportation mode's impacts on factors including CO_2 emissions, congestion, and parking.[18]

Part of the problem, Le Vine explains, is that the classic unit of traffic flow and demand analyses is the individual journey. 'That's completely inappropriate for car sharing,' he says. 'The issue is not, 'Is car sharing a better deal for this journey than having my own private car?' It almost never is. The real issue is, 'Can my lifestyle be sustained by using car sharing, and how does that compare with the tradeoff in terms of not having to deal with the fixed cost, hassle, insurance, and everything that goes with owning a car.' Le Vine's research focuses on developing tools to incorporate such long-term costs and benefits into the equation, and identifies London (United Kingdom) as an example. 'London is an enormous challenge for car sharing because it's so fragmented municipally, and you need a viable service that's big - it will cross boundaries. It's an almost unsolvable problem, dealing with, in London's case, 33 municipalities, each with different leadership.'

One solution is the formation of third-party organisations to mediate between local governments and the industry as a whole. Looking ahead, Le Vine, like other observers, imagines the further growth of one-way car sharing services like Car2Go, as well as an increase in partnerships between car sharing companies and retailers wishing to boost their customer base. In addition, 'there's a question of critical mass,' said Le Vine. 'As these systems grow and become more fluid, they'll be better able to predict demand so that they price much more subtly than they do at the moment. They'll have much more ability to understand how much value they're giving away to the consumer. What's happening is that the sector is professionalising. It's not that the technology has really changed, it's just that more professional management has come on.'

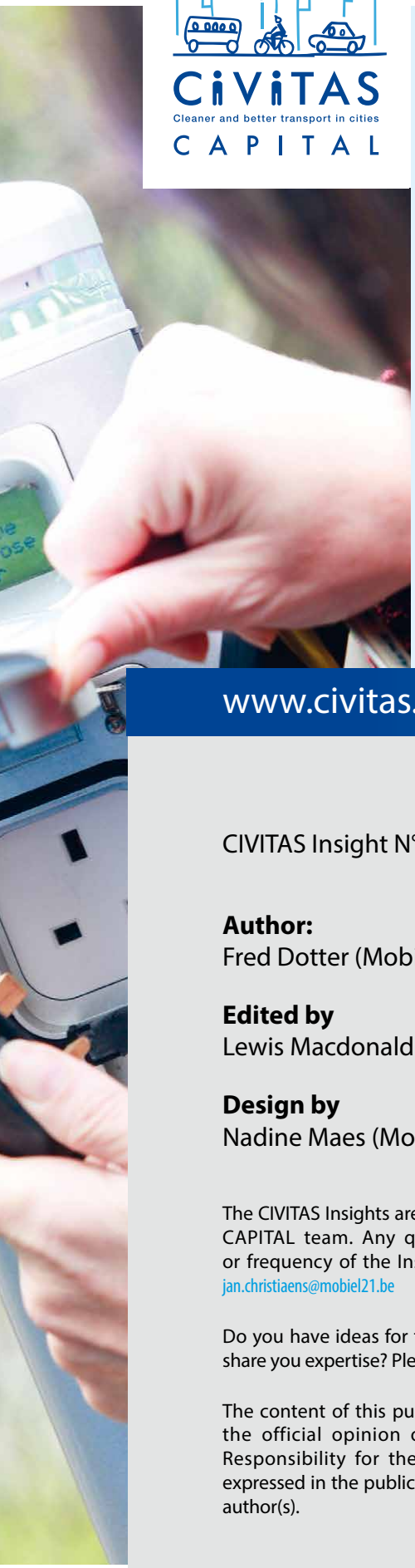
Finally, Dr. Thomas Weninger, Secretary-General of the Austrian Association of Cities and Towns finds the right words to answer the question: 'Where do you see potential synergies in order to push forward a common future urban transport in Europe?'

'Future urban transport is based on sharing and, of course, environmentally-friendly modes of transport. Thus, it is oriented around a completely different form of mobility than the one that most of us grew up with. It requires a lot more efforts until the necessity and advantages of this kind of mobility become clear to everybody. It is noticeable that some segments of society are already rethinking this, with sometimes, actually, being en vogue. However, the huge majority of people will only reconsider their behaviour if a well thought-through system of push and pull strategies is applied. The Austrian Association of Cities and Towns hopes to better understand these new topics through exchanging experiences. A mutual learning process means an invaluable push for innovation, as we can learn from the successes of our peers and avoid the problems they encountered.'[19]

18 Dr Scott Le Vine, Dr Alireza Zolfaghari, Professor John Polak, September 2014, Carsharing: Evolution, Challenges and Opportunities, Centre for Transport Studies, Imperial College London, accessed September 28, 2015, http://www.acea.be/publications/article/sag-report-22-carsharing-evolution-challenges-and-opportunities

19 Dotter, September 2014, Statement and Interview with the Austrian Association of Cities and Towns on the CIVITAS Initiative and CIVINET German language area (CIVINET Deutscher Sprachraum)

CiViTAS
Cleaner and better transport in cities
CAPITAL



www.civitas.eu

CIVITAS Insight N°5, November 2015

Author:
Fred Dotter (Mobiel 21)

Edited by
Lewis Macdonald (ICLEI)

Design by
Nadine Maes (Mobiel 21)

The CIVITAS Insights are produced by the CIVITAS CAPITAL team. Any query about the content or frequency of the Insights can be directed to jan.christiaens@mobiel21.be

Do you have ideas for future Insights or want to share you expertise? Please contact us!

THE CIVITAS INITIATIVE IS CO-FINANCED BY THE EUROPEAN UNION