

ESPRIT – a Public Car System

Robert Stüssi, William Rendall, Valery Cervantes, Richard Mounce

(Robert Stüssi, ESPRIT project – Advisory Board, Lisbon, Portugal, rstussi@gmail.com)

(Valery Cervantes, CEA, Commissariat à l'énergie atomique et aux énergies alternatives, Grenoble, France, valery.cervantes@cea.fr)

(Dr. Richard Mounce, Research Fellow, Centre for Transport Research, University of Aberdeen, UK, r.mounce@abdn.ac.uk)

(William Rendall, ESPRIT project – Advisory Board, Lanzarote, Spain, wrendall@gmail.com)

1 ABSTRACT

The following images and texts taken from the future presentation to be made in April at CORP 2018 conference and used here to constitute a full paper.

Keywords: last-kilometre mobility, car sharing, public car sharing, Horizon 2020, public space

The slide features the title 'ESPRIT - a public car system' in blue at the top left. Below it, the presenter is identified as Robert Stüssi, an ESPRIT Advisory Board member. A list of bullet points states: 'funded by Horizon 2020', '2015-2018', and '18 EU partners'. To the right, there is a 3D rendering of a single white, two-wheeled, enclosed vehicle. Below that, a row of seven similar vehicles is shown. At the bottom left, the ESPRIT logo is displayed with the tagline 'Easily distributed Personal Rapid Transit' and 'Connecting Transport'. At the bottom right, the text reads 'REAL CORP 2018: EXPANDING CITIES - DIMINISHING SPACE Vienna, Austria'.

ESPRIT is a disruptive mobility solution that provides a reliable supply of vehicles when and where they are needed, the hardware for a public car system. The ESPRIT project is funded by the Horizon 2020 programme. The project started in 2015 and finishes in autumn 2018. There are 18 EU partners co-ordinated by the CEA (Commissariat à l'énergie atomique et aux énergies alternatives) Grenoble.

private cars 2



from dream to disaster



Private cars were the dream of the 20th century, but their success has made them the nightmare of the 21st century. However, ...

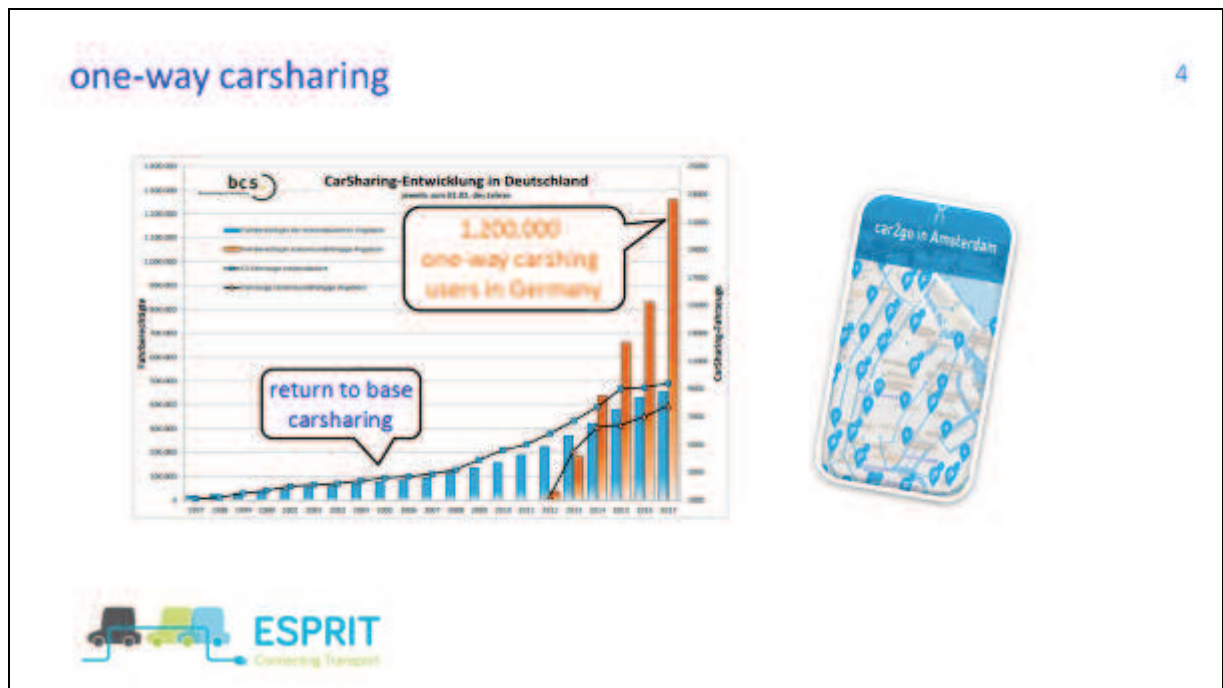
freeing public space 3



Mariahilferstrasse (Vienna) Mariahilferstrasse
2011 today



Though urban space was monopolised by private cars, cities are now learning to keep them under control. Here are some before and after photographs of Vienna's main shopping street, Mariahilferstrasse - freed from car traffic in 2012.



One-way carsharing offers the use of a car when required. There are now over a million one-way carsharing members in Germany alone.

one-way carsharing - problems:

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1. *unreliable vehicle supply*
2. *restricted operating areas*
3. *dependent on sponsorship*

ESPRIT
Connecting Transport

Smartphone access technology one vehicle can replace up to 30 private cars. However, one-way carsharing has problems: 1. unreliable vehicle supply, 2. restricted operating areas, 3. dependent on sponsorship, as will be explained ...

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unreliable vehicle supply



Châtelet station

nearest car


morning rush hour
- Autolib Paris



Amstel station

car cluster at Amstel station

afternoon rush hour
- Car2go Amsterdam



During the morning rush hour in Paris, the nearest available Autolib car to Châtelet station is sometimes up to a kilometre away. In the evening rush hour in Amsterdam clusters of Car2go cars are left around the central stations by people taking their train home, leaving other areas without any vehicles available.

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restricted operating areas



Car2go - Madrid



Multicity - Berlin




About one relocater is employed for every five one-way carsharing vehicles, driving them one-by-one to where they are needed. This logistic difficulty therefore limits one-way carsharing to central city districts only.

dependent on sponsorship 8

operator	sponsor
Car2go	Daimler
DriveNow	BMW
Multicity	Citroen
Autolib	Bolloré

- city transport funding
- electrical companies



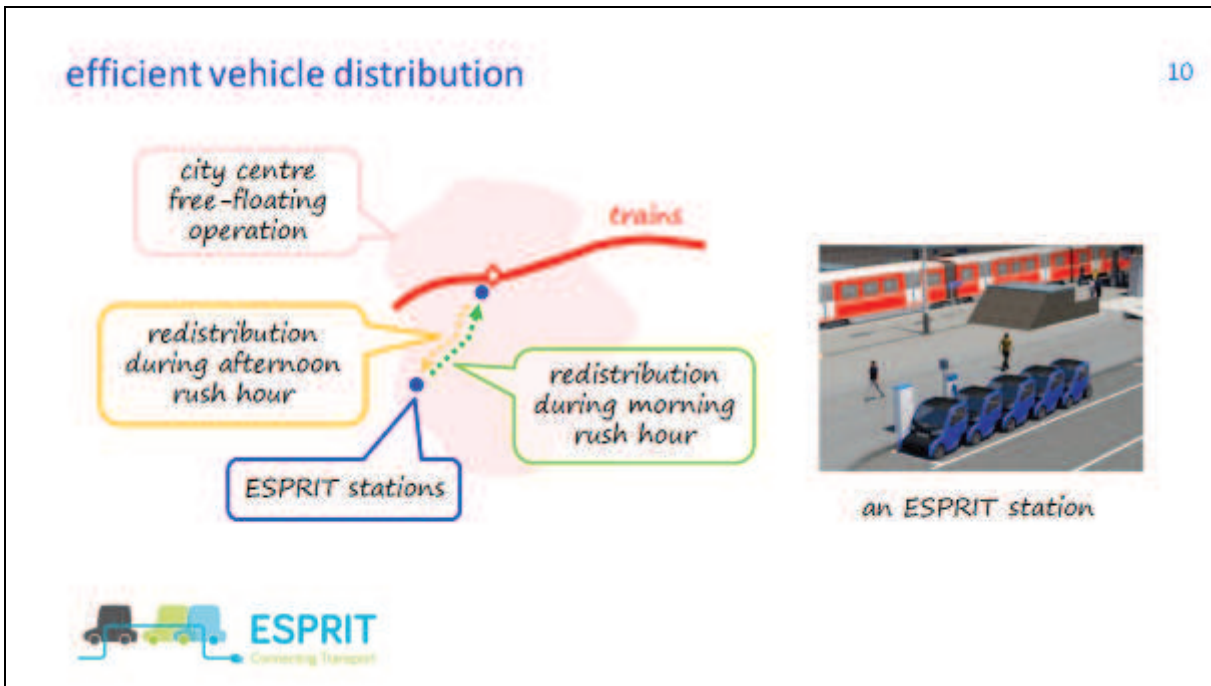
Due to limited supply of cars when they are most needed and the restricted operating areas, one-way carsharing is not commercially viable and only exists with sponsorship by manufacturing OEMs, city transport funding and electrical companies.

ESPRIT offers: 9

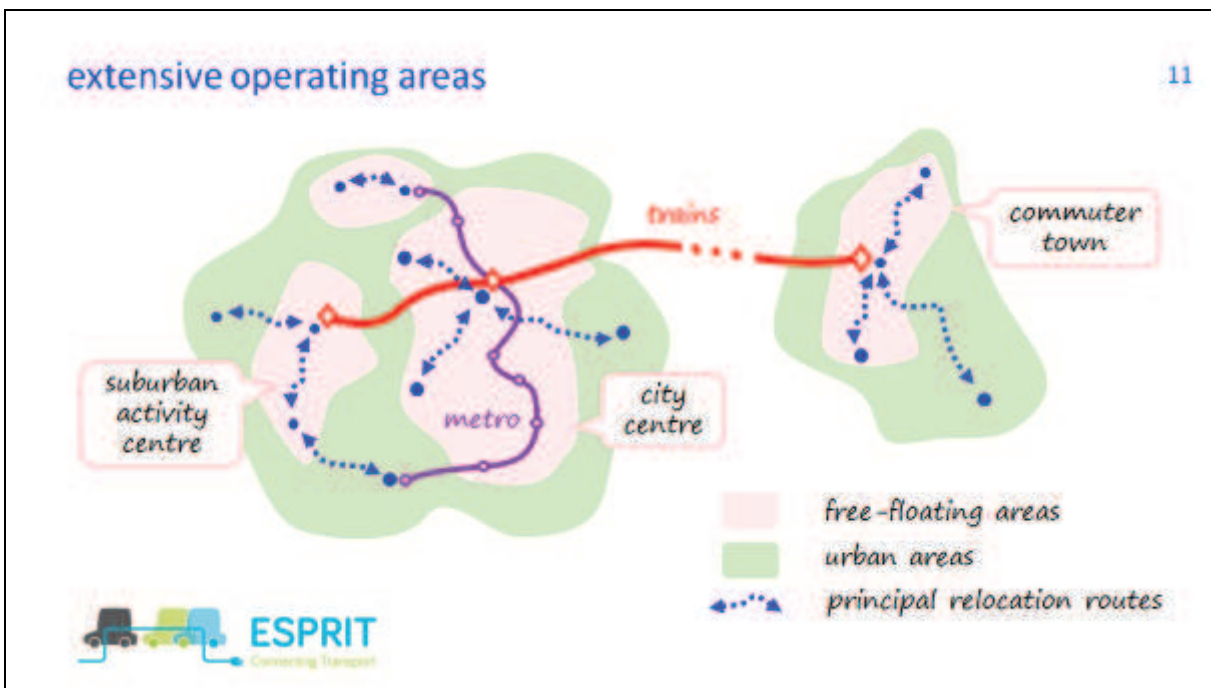
1. *efficient vehicle distribution*
2. *extensive operational areas*
3. *viability for all operators*



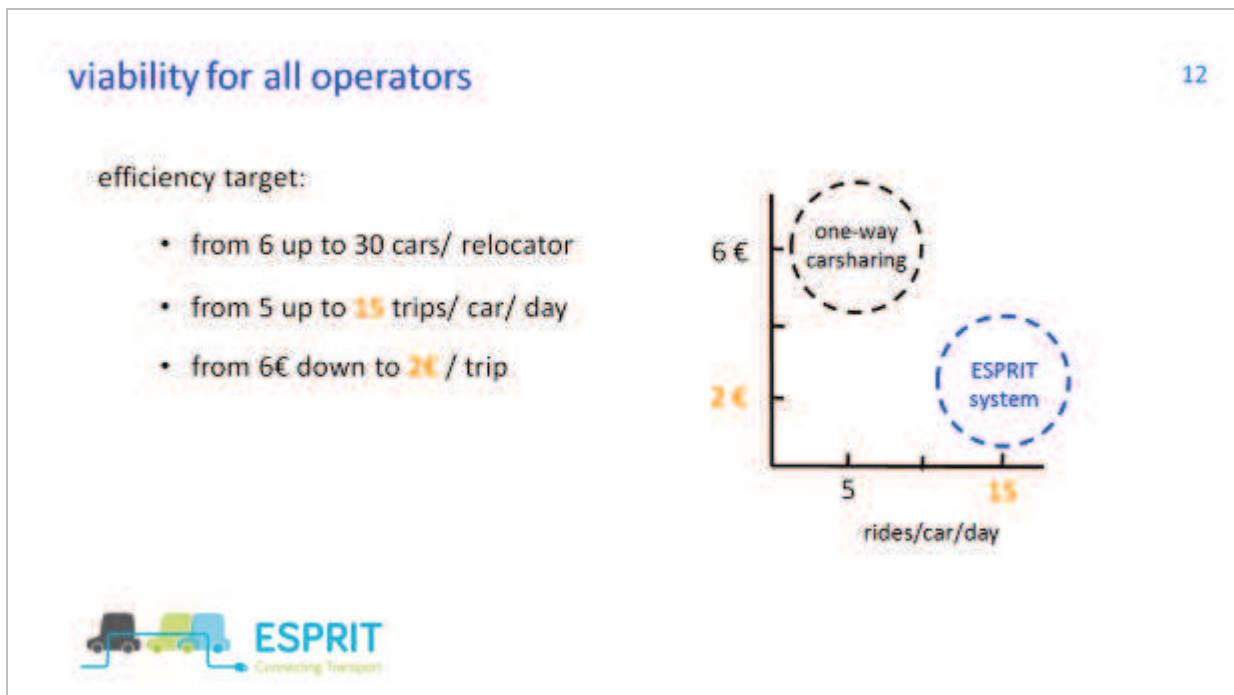
ESPRIT offers: 1. efficient vehicle distribution , 2. extensive operational areas and 3. viability for all operators.



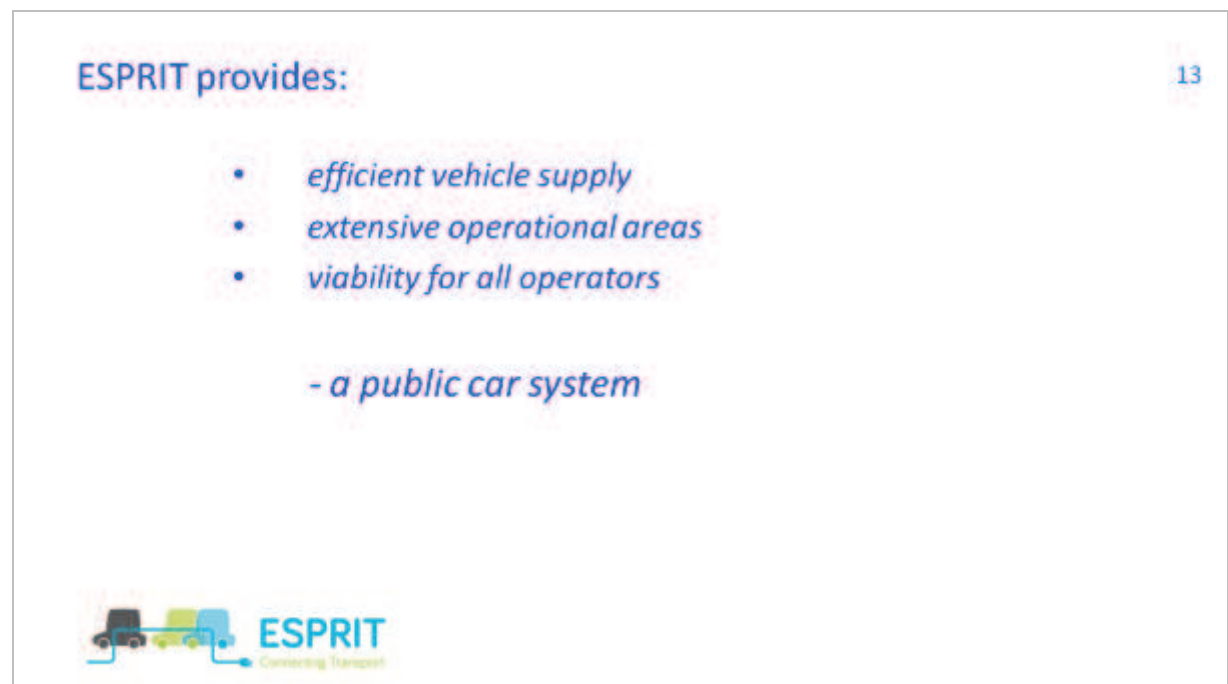
ESPRIT cars can be redistributed in road trains of up to 8 vehicles at a time, enabling a balancing of car supply, in particular during rush hours between train stations and work places.



The ESPRIT redistribution system allows extensive operating areas, with station-based operation through all urban areas and the option of free-floating operation in those of high demand.



The combination of efficient vehicle supply and extensive operating areas should make it possible to increase the ratio of cars per relocator from 6 up to 30 cars, the number of trips made per vehicle increase from 5 up to 15 per day and the fares to therefore be reduced from EUR 6 down to EUR 2, thereby creating service fidelity and commercial viability for all operators, i.e. without the need for sponsorship.



The efficient vehicle supply, extensive operational areas and viability for all operators makes possible:
- a public car system.

demonstration events, tests and exploitation

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ESPRIT road train demos:

Lyon 29/30 August

Glasgow 11/12/13 September

L'Hospitalet (Barcelona) 25/26 September

- operational tests are anticipated for 2020
- commercial exploitation by 2022



video of experimental prototype



Demonstrations of ESPRIT car road trains and test driving will be made in the 3 collaborating towns, Lyon, Glasgow and L'Hospitalet (Barcelona) in the autumn of this year.

ESPRIT vs. automated cars

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- regular maintenance checks by relocators
- creation of local employment
- early market deployment, 3-4 years



- difficult intergration with pedestrians, etc.
- vulnerable to IT failure / hacking
- long term market deployment, 20-30 years



co-authors and project partners

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co-authors:

William Rendall, ESPRIT Advisory Board member,
Valery Cervantes, ESPRIT project co-ordinator,
CEA (Alternative and Atomic Energy Commission) Grenoble
Richard Mounce, ESPRIT partner,
Centre for Transport, University of Aberdeen



project partners:



website: <http://www.esprit-transport-system.eu>