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A digital era for transport

solutions for society, economy and environment

Can *disruptive* innovations help stimulate end-user demand for a low carbon transition?

The SILCI Team

Emma Cassar

University of East Anglia

Visit: www.silci.org

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Social Influence and *disruptive* Low Carbon Innovations

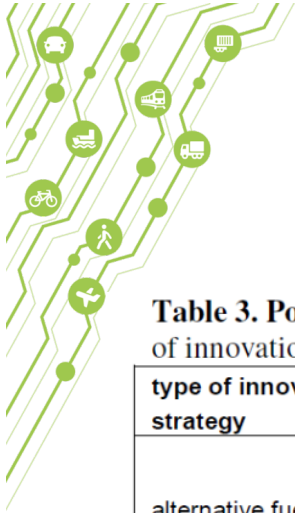


This project has received Funding from the European Union's Horizon 2020 research and innovation programme



disruptive low carbon innovations – fulfil both consumer need and a social need

- *Disruptive*
 - Displaces an existing product and/or service
 - Offers a new set of attributes to the consumer
 - Example – Car Clubs give consumers flexibility no maintenance or care obligations
- *Attributes determine adoption rates* – Rogers (2003)
- Potentially strengthen market demand and reduce greenhouse gas emissions if adopted at scale



disruptive low carbon innovations – Mobility

Table 3. Potentially disruptive low carbon innovations relating to mobility. Note: * dLCIs included in survey of innovation experts, see below; + other dLCIs; ~ denotes additional low-carbon mobility strategies).

type of innovation or strategy	potentially disruptive low C innovations or low C strategy	displaced incumbent
alternative fuel or vehicle technology	* electric vehicles (EVs)	conventional ICE vehicles
	* autonomous (self-driving) vehicles	conventional ICE vehicles
	* fuel efficient ICEs	conventional ICE vehicles
	* hydrogen fuel cell vehicles	conventional ICE vehicles
	* advanced biofuels	conventional ICE vehicles
alternative form of auto-mobility	* car clubs, car sharing	car ownership & use
	* mobility-as-a-service (MaaS) ^a	car ownership & use
	* ride-sharing	car ownership & use
alternative to auto-mobility	* e-bikes	bikes, motorbikes
	+ neighbourhood EVs	walking, public transport
	~ modal shift to public transport	car use
	~ active modes (walking, cycling)	car use, public transport
reduced demand for auto-mobility	* telecommuting, video- or teleconferencing	commuting
	+ interactive virtual reality ^b	commuting, teleconferencing
	~ disappearing traffic ^c	road infrastructure
	~ car-free communities	car-dependent suburbs

‘Most disruptive’ and ‘lowest C’ mobility:

Electric vehicles



Mobility-as-a-Service



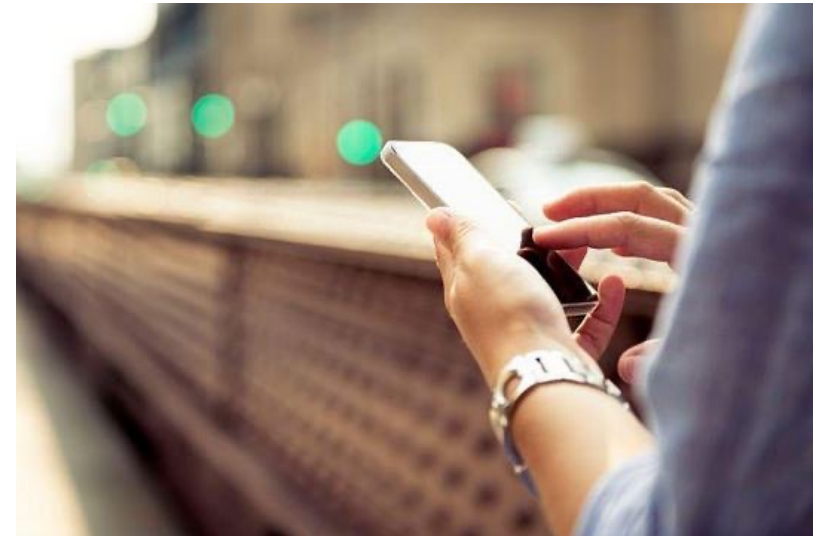
Car Sharing





Mobility as a Service – Transforming how people in cities commute

- Planning, ticketing and payment in one single app
- Regional trials across Europe
- Early Adopters? Novel Attributes to the end user? Lower GHG emissions?





disruptive low carbon innovations – Studies that quantified emission reduction potentials

- International Transport Forum Studies
 - Replacing all motorised road trips with shared services
 - CO₂ emissions fell by 62% in Lisbon
 - CO₂ emissions for Helsinki Metropolitan Area fell by 28%

ITF (2016) Shared Mobility: Innovation for Liveable Cities. Paris, France International Transport Forum (ITF)
ITF (2017) Shared Mobility Simulations for Helsinki. Paris, France International Transport Forum (ITF)

- RethinkX (US) study
 - Mobility as a Service using autonomous electric vehicles
 - Reduce CO₂ emissions by 90%

Arbib & Seba (2017) Rethinking Transportation 2020-2030. RethinkX.

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Principal Investigator: Dr. Charlie Wilson

Senior researcher: Dr. Hazel Pettifor

PhD Researchers: Emma Cassar, Mark Wilson and Laurie Kerr



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