

Recommended Reading and Links on

Public Bicycle Schemes

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Preface

Various cities around the world are trying methods to encourage bicycling as a sustainable transport mode. Among those methods in encouraging cycling implementing public bicycle schemes is one. The public bicycle schemes are also known as bicycle sharing systems, community bicycling schemes etc., The main idea of a public bicycle system is that the user need not own a bicycle but still gain the advantages of bicycling by renting a bicycle provided by the scheme for a nominal fee or for free of charge (as in some cities). Most of these schemes enable people to realize one way trips, because the users needn't to return the bicycles to the origin, which will avoid unnecessary travel. Public bicycle schemes provide not only convenience for trips in the communities, they can also be a good addition to the public transport system.

Encouraging public bike systems have shown that there can be numerous short that could be made by a bicycle instead of using motorised modes. Public bike schemes also encourage creative designs in bikes and also in the operational mechanisms.

The current document is one of the several efforts of GTZ-Sustainable Urban Transport Project to bring to the policymakers an easy to access list of available material on Public Bike Schemes (PBS) which can be used in their everyday work. The document aims to list out some influential and informative resources that highlight the importance of PBS in cities and how the existing situation could be improved. The material stated in this document does not serve as a panacea for the developing cities but certainly gives the policymakers the advantage of being updated with the developments and existing material on the subject.

Any comments on the material cited in this document can be directed to the SUTP team via email. We sincerely hope that you will benefit by reading this document.

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Useful Publications:

Alta, 2009. Bike Sharing/Public Bikes: A Summary of Program, Vendors and Technologies, Prepared by Alta Planning and Design. USA. 2009. http://www.altaplanning.com/App Content/files/pres stud docs/bike sharing whitepaper.pdf

This document provides information on the background and evolution on public bike schemes. The document elaborates on the various components of a bike sharing system.

American Association of State Highway and Transportation Officials, Guide for the Development of Bicycle Facilities, 1999.

http://safety.fhwa.dot.gov/ped_bike/docs/b_aashtobik.pdf

Local, state and federal agencies are responding to the increased use of bicycles by implementing a wide variety of bicycle-related projects and programs. The emphasis now being placed on bicycle transportation requires an understanding of bicycles, bicyclists and bicycle facilities. This manual addresses these issues and clarifies the elements needed to make bicycling a viable transportation alternative.

Anaya E, 2009, Public Bikes, Are they Developing as True Public Transport in Spain?, Bicicleta Club De Catalunya, Velocity 2009

http://www.velo-city2009.com/assets/files/VC09-subplenary-5.2.pdf

This presentation shows public bicycle policy and schemes in Spain. The facts and the development of public bike system in Barcelona are explained.

Anonymous, 2010, Barclays Cycle Hire Key Facts,

http://www3.westminster.gov.uk/docstores/publications store/100723 Barcla vs%20Cycle%20Hire%20Key%20Facts.pdf

This document released in July 2010 lists the facts of the bike sharing system in London.

Beroud, B, 2010, Optimising Bike Sharing Systems, Mobiped, Presented at **OBIS Mid-Term conference, April 2010, Berlin, Germany**

http://www.mobiped.com/cariboost_files/Optimising_bike_sharing-OBIS conference-Mobiped-Benoit Beroud.pdf

This presentation points out that optimising bike sharing is a continuous process of improving the equilibrium between each sustainable mobility component: accessibility to the service, quality of service, costs management, investments, the footprint and the public space use.

Beroud B, 2010, Four Years Down The Path What Is The Mobility Impact Of Vélo'v?, Mobility Magazine, Issue 16, pp. 96-97.

http://www.mobiped.com/cariboost files/Mobiped-4 years down the path-

what_is_the_mobility_impact_of_Velo_v.pdf

Over the past three to five years, cycling has become more accessible thanks to the fleets of public bicycles rolling into city streets across Europe. Vélo'v, the public bike service in the French city of Lyon, was the first to be implemented on a wide scale in 2005. How has this fledgling mobility service and complex transport system impacted mobility in the city?

Buehrmann S, Call A Bike: public bicycles in Germany, OSMOSE,

http://www.osmoseos.org/documents/8/CaseStudyCallABike%28DE%292.pdf

Call a bike is a commercial public bicycle service that is offered by DB Rent, which is a subsidiary company of Deutsche Bahn (DB, German Rail). The service started in October 2001 in Munich. Meanwhile, it has been expanded to other German cities and is now also available in Berlin, Cologne and Frankfurt. This report describes the Call A Bike scheme in detail and the operation aspects in the various cities of implementation.

Buehrmann S, OV Fiets: public bicycles in The Netherlands, OSMOSE,

http://www.osmose-os.org/documents/22/CaseStudyOVFiets%28NL%292.pdf

OV Fiets is a pilot project in the Netherlands that started in 2002, aiming at making the bicycle a part of the public transport system. At 41 rail stations, OV Fiets rental facilities have been set up that provide fast and easy access to rental bikes, which can be used as extension of the rail trip. This report draws more light on the public bicycle scheme in Netherland.

Buehrmann S, 2008, Bicycles as public-individual transport – European

Developments (Meetbike Conference, Dresden 2008), http://www.gtkp.com/uploads/20091127-150125-6592-Meetbike_article_Buehrmann_040408.pdf

This report highlights that public bicycle schemes have the potential to achieve a change towards a more sustainable multimodal travel behavior ("the right mode for the right trip"), if properly implemented. They can be part of the "bigger puzzle" of an integrated urban transport strategy, which enables cities to reduce motorized traffic and its environmental impact.

Büttner J, 2009, Bike sharing in ten European countries report. Module 5: Germany, Optimising Bike Sharing in European Cities (OBIS) Report, 2009.

http://www.obisproject.com/palio/html.wmedia? Instance=obis& Connector= data& ID=65& CheckSum=-1340785941

This report from the OBIS project elaborates on bike sharing systems in Germany. The bike sharing system described in the report are "Call a Bike" scheme in Berlin, Munich, Karlsruhe and Stuttgart; Nextbike scheme in Leipzig and Dusseldorf and the Chemnitzer Stadtfahrrad scheme in Chemnitz.

Buettner J, 2009, Success Factors for Bike Sharing in Europe, choice GmbH.

http://www.impacts.org/intercontconference/berlin2009/day3/08_Buttner_choi ce_Impacts_05062009.pdf

This presentation gives an overview of bike sharing schemes, stakeholders and scheme characteristics especially in Europe. The presentation is also on the outcome of the OBIS project in Europe.

City of Philadelphia, 2010, Philadelphia Bikeshare Concept Study, Conducted by

JzTI and Bonnette Consulting. <u>http://citypaper.net/blogs/clog/wp-</u> content/uploads/2010/08/PhiladelphiaBikeshareConceptStudyfeb2010.pdf

DeMaio P, 2009, Bike-sharing: History, Impacts, Models of Provision, and Future, Journal of Public Transportation, Vol. 12, No. 4, 2009. http://www.nctr.usf.edu/jpt/pdf/JPT12-4DeMaio.pdf

This paper discusses the history of bike-sharing from the early 1st generation program to present day 3rd generation programs. Included are a detailed examination of models of provision, with benefits and detriments of each, and a description of capital and operating costs. The paper concludes with a look into the future through discussion about what a 4th generation bike-sharing program could be.

DIMTS, 2010, Green Bike- Cycle Rental and Feeder Scheme (Integration of BRT with an Emission-free Non-Motorized Public Transport Feeder Network), Prepared by Delhi Integrated Multi Modal Transit System Ltd. (DIMTS). New Delhi 2010.

http://www.slideshare.net/jaaaspal/greenbike-cycle-sharing-concept-in-india#

This report describes the public bike system in Delhi. The public bike scheme in Delhi is currently available along the BRT corridor in Delhi. The scheme runs from membership fees and also from advertising money.

Ege C and Krag T, Cycling Will Improve Environment And Health www.cycle-helmets.com/denmark.pdf

The Danish Ecological Council has carried out a comprehensive literature study on health, physical exercise and cycling. The resulting data has enabled the Council to make a cost-benefit analysis on cycling initiatives taking into account also the positive health aspects from cycling.

Force-7, 2007, A Report into the Feasibility of a Community Bike Scheme and the Benefits to Young People <u>http://www.youthenterprise.co.uk/download-docs/Feasibility-Report-</u>

Community-Bike-Scheme-011207.pdf

This report suggests that there is a demand for the community bike scheme from all age groups, and based on the success of similar schemes in Lyon,

and prior knowledge of problems faced by current working models. The report concludes stating that a community bike scheme would be feasible in Hull.

GTZ, 2010, Public Bicycle Schemes: Applying the Concept in Developing Cities, Sustainable Urban Transport Technical Document # 3 <u>http://www.sutp.org/index.php?option=com_content&task=view&id=2280&Ite</u> mid=1&lang=en

The objective of this technical document is to familiarize city authorities, transport planners, businesses, civil society representatives and policy makers in developing cities, with the concept and various components of a public bicycle program, and to provide initial guidance and advice on designing and implementing such a program in Indian cities. This document presents the experience of bike sharing programs from a few cities in Europe and Asia, and analyses the developing country climate (taking India as an example) for encouraging such programs in developing cities. An analysis of the existing bicycle rental programs in India and their challenges, validates and reinforces the document's objectives. The document also makes practical suggestions and recommendations for developing cities who want to implement them.

I-Ce and GTZ, 2009, Cycling-Inclusive Policy Development: A Handbook,

Interface for Cycling Expertise (I-Ce).

http://www.sutp.org/dn.php?file=TC-Cycling.pdf

GTZ SUTP and the Interface for Cycling Expertise (I-Ce) have joined efforts in the development of a training document entitled "Cycling-inclusive Policy Development: A Handbook". It has been written by 12 authors who are experts in different fields of cycling-inclusive development. This handbook provides detailed information on how to develop cycling-friendly policies and facilities. It can help planners, engineers, community leaders or advocates to enrich their own ideas about the future traffic and transport system where you live and work. The publication is also part of Sustainable Urban Mobility in Asia (SUMA) initiative, of which GTZ and I-Ce are partners.

Jain, H. and Tiwari, G, 2009, Captive riders, informal sector and bicycling: interrelation in Indian cities

http://www.velo-city2009.com/assets/files/paper-Himani-sub6.3.pdf

This paper highlights the role of the bicycle in the context of medium and large Indian cities. Bicycle use varies from 7-21% in medium and large Indian cities. The high ownership of bicycle, its low cost and easy use makes it a desirable mode of transport for students and low income workers. A large amount of utility cycling is present in Indian cities because the bicycles are the most affordable and only form of transport available to low income households (captive riders).

The paper highlights the presence of squatter settlements in Indian cities and their role as major bicycle trip origin. The study focuses on the importance of informal sector and its role in serving bicyclists and its relation with squatter / slum settlements. In medium and large cities, half or more of the city's population and many of its economic activities are located in informal settlements. The study also focuses on other Non-motorized transport modes that are there on Indian urban roads; transport policy and the all inclusive planning which ideally should integrate all forms of NMT, informal sector and the motorized modes in formal planning.

Kaltenbrunner, A, et al., Urban cycles and mobility patterns: Exploring and predicting trends in a bicycle-based public transport system, Pervasive and Mobile Computing (2010), doi:10.1016/j.pmcj.2010.07.002 http://www.dtic.upf.edu/~akalten/kaltenbrunner_etal2010PMC.pdf

This paper provides an analysis of human mobility data in an urban area using the amount of available bikes in the stations of the community bicycle program Bicing in Barcelona. Based on data sampled from the operator's website, it is possible to detect temporal and geographic mobility patterns within the city. These patterns are applied to predict the number of available bikes for any station some minutes/hours ahead. The predictions could be used to improve the bicycle program and the information given to the users via the Bicing website.

Midgley P, 2009, The Role of Smart Bike-sharing Systems in Urban Mobility, Journeys, 2009

http://www.ltaacademy.gov.sg/doc/IS02-p23%20Bike-sharing.pdf

Following the success of the smart bike-sharing system in Paris, these systems are rapidly being introduced in European cities for daily mobility. The basic premise of the smart bike-sharing concept is sustainable transportation. Such systems often operate as part of the city's public transport system. They provide fast and easy access, have diverse business models and make use of applied technology (smart cards and/or mobile phones). Bike-sharing systems are currently operating in 78 cities in 16 countries using around 70,000 bikes. This paper reviews the state of the art of bike-sharing systems, drawing on experiences in selected European cities.

Midgley P, Shared Smart Bicycle Schemes in European Cities, 4th Regional EST Forum

http://www.uncrd.or.jp/env/4th-regional-estforum/Presentations/28_PS4_gTKP.pdf

The presentation advocates the public bicycle schemes and their benefits from Europe. The characteristics of some systems and their operational details are presented.

Mohan, D. and Tiwari, G., 1999, Sustainable Transport Systems: Linkages between Environmental Issues, Public Transport, Non-motorised Transport and Safety, Economic and Political Weekly, 34:25, pp. 589-1596.

http://www.vtpi.org/mohan.pdf

This paper discusses some of the issues concerning public transport, safety and the environment. It illustrate that unless the needs of non-motorised modes of traffic are met it will be almost impossible to design any sustainable transportation system for urban areas. It shows that pedestrians, bicyclists and nonmotorised rickshas are the most critical elements in mixed traffic. If the infrastructure design does not meet the requirements of these elements all modes of transport operate in sub-optimal conditions. However, it is possible to redesign the existing roads to provide a safer and more convenient environment for non-motorised modes. This also results in improved efficiency of public transport vehicles and enhanced capacity of the corridor when measured in number of passengers transported per hour per lane.

Nadal L, 2007, Bike Sharing Sweeps Paris Off Its Feet, Sustainable Transport, No. 19, Institute for Transportation and Development Policy (www.itdp.org), Fall 2007, pp. 8-13; at www.itdp.org/documents/st_magazine/ITDP-ST_Magazine-19.pdf

This article explains about the initial conditions of the bike sharing project in Paris, Velib. Another article has been published by ITDP in 2008 which shows the development of the system after a year.

Nadal L, 2008, Vélib One Year Later, Sustainable Transport, Institute for Transportation and Development Policy, Winter 2008 Edition, pp.8-9 <u>http://www.itdp.org/documents/st_magazine/ITDP-ST_Magazine-</u> <u>%20V%2020.pdf</u>

This article describes the changes or the impacts from the Velib bike sharing system, one year after it started.

NICHES, 2007, Public Bicycles: New Seamless Mobility Services Policy Notes, http://www.rupprecht-consult.de/NICHES_downloads/4_public_bicycles.pdf

This document describes the step by step development of a public bike system with various examples from systems already implemented worldwide.

Noland R, 2006, Smart Bicycles in an Urban Area: Evaluation of a Pilot Scheme in London, Journal of Public Transportation, Vol. 9, No. 5, 2006 http://www.nctr.usf.edu/jpt/pdf/jpt%209-5%20noland.pdf

Automated or smart bicycle systems are seen as a way to enhance mobility and provide a convenient access and egress mode for public transport. This article summarizes an evaluation of a pilot system that was introduced in the London Borough of Hammersmith and Fulham in August 2004.

NYCDCP, Bike Share Opportunities for in the New York City: The Case for Bike-Share, New York City Department of City Planning (NYCDCP) http://www.nyc.gov/html/dcp/pdf/transportation/bike_share_part2.pdf

This report, "Bike-Share Opportunities in New York City," is a feasibility study designed to consider various bike-share models and assess their potential for New York City. Analyses include a summary of existing bicycling conditions in New York, estimates regarding the number of bicyclists and the number of

New Yorkers who might use a bike-share program were it to be available, and a discussion of the funding mechanisms and procurement structures currently available for a bikeshare program. In addition, "back of the envelope" estimates for the costs and revenues, based on a range of uptake assumptions (3%, 6% and 9%), are included. Recommendations for the implementation of a New York City bike-share are also discussed, including suggested program size and phasing, pilot programs, safety, fees and the reduction.

Open Bike Sharing System,

http://www.cphbikeshare.com/pdf/28630.pdf

This booklet shows the guiding principles of designing the OPENbike system in Copenhagen. These principles define a new level in bike sharing and will strengthen Copenhaben's position as a leader in modern urban transport solutions.

Robert S and Oliver R, 2009, Bike sharing in ten European countries report. Module 4: France, Optimising Bike Sharing in European Cities, (OBIS) Report, 2009.

http://www.obisproject.com/palio/html.wmedia? Instance=obis& Connector= data&_ID=63&_CheckSum=-531439315

This report from the OBIS project elaborates the bike sharing systems in France. France currently has the maximum number of bike sharing schemes compared to any country. This report describe the characteristics and the results of implementing a few of these schemes.

Shaheen. S, Guzman. S, and Zhang. H., 2010, Bikesharing in Europe, the Americas, and Asia: past, present, and future, Transportation Research Record.

http://76.12.4.249/artman2/uploads/1/TRB10-Bikesharing.Final.pdf

This paper documents the development of various public bike schemes around the world and explains in detail the various mechanisms used in developing these systems.

Transport Canada, 2009, Bike sharing guide,

http://www.tc.gc.ca/media/documents/programs/bsg.pdf

This guide is intended to help planners and decision makers determine whether public bicycle sharing is viable in their community and, if so, how to design, implement, and operate a successful system. The material presented in this guide is drawn primarily from European experiences and some N. American examples.

Public Bike Sharing Websites:

Barclays Cycle Hire: http://www.tfl.gov.uk/roadusers/cycling/12444.aspx

Barclays Cycle Hire is a public bicycle sharing scheme that was launched on 30 July 2010 in London, UK. At launch there were 315 bicycle docking stations and 5,000 bicycles available in central London.

Bicing: http://www.bicing.info/

Bicing is the name of a 'community bicycle program' in Barcelona inaugurated in March 2007, similar to the Vélô service in Toulouse, Vélo'v in Lyon and Vélib' in Paris, and apparently uses the same system and bicycles as Stockholm City Bikes. Its purpose is to cover the small and medium daily routes within the city in a climate friendly way, almost without pollution (especially the emission of finest particulate matter), roadway noise, traffic congestion and to reclaim the urban streets with nonpolluting vehicles.

Bicycle Victoria: http://www.bv.com.au/

Bicycle Victoria is an independent, not-for-profit organisation, working to promote bicycling in Australia.

BikeMi: http://www.bikemi.com/

Bike sharing website from Milan, Italy

Bixi: www.bixi.com

Bixi (or BIXI in some marketing pieces) is a public bicycle sharing system launched in May 2009 in Montreal, Quebec, Canada.

In Montreal, the system provided 3,000 bicycles and 300 stations located around Montreal's central core by June 2009, expanding to 5,000 bicycles and 400 stations later that summer. Bixi marked its one-millionth ride on October 26, 2009.

Call a Bike: http://www.callabike-interaktiv.de/index.php?id=89&&f=500

This is a bike sharing system developed by the Deutsche Bahn (DB) in Germany. It combines cycling with the German railway system.

Copenhagenize.com: http://www.copenhagenize.com/

Copenhagen City Bikes or Bycykler København is the bicycle sharing system of Copenhagen, Denmark. Launched in 1995 with 1,000 cycles, the project was the world's first large-scale urban bike-sharing scheme. It features specially-designed bikes with parts that cannot be used on other bikes. Riders pay a refundable deposit at one of 110 special bike stands and have unlimited use of a bike within the specified downtown area. The scheme is funded by commercial sponsors. In return, the bikes carry advertisements, which appear on the bike frame and the solid-disk type wheels. Dublinbikes: http://www.dublinbikes.ie/

Dublinbikes is a public bicycle rental scheme which has been operated in the city of Dublin since 2009. The scheme uses 450 French-made unisex bicyles. Dublin was the 17th city to begin using this scheme (predecessors include Copenhagen, Lyon, and Paris), though Dublin City Council suggested the Dublin launch was better. The scheme is sponsored by JCDecaux.

Libélo': http://velo-libelo.fr/

Libélo' is a bike sharing scheme in Valence, France launched in March 2010, covering the Valence metropolitan area, Guilherand-Granges and Bourg-les-Valence. Libélo is run by Citébus, a Transdev company. This community bicycle program comprises 200 long term renting bicycles and 180 short term renting bicycles. The bicycles are secured in 18 bicycle stations by a special fork, in easy to install bicycle stands with mechanical keys distributed by automatic dispensers, with or without Smart Credit Card terminals, phone and international Credit Cards are as well possible to retrieve immediately a client subscription number. The prices are the standard subscription 1€/day, 3€/week, 15€/year plus 1€/half hour, the first half hour being free.

Oslo Bysykkel: http://www.oslobysykkel.no/

Oslo Bysykkel ("Oslo City Bike") is the name of a public-private partnership project of Oslo, Norway and one of the outdoor advertising units of Clear Channel Communications. It is a bicycle sharing system that allows renting a bicycle for a maximum of 3 hours between 06:00 and midnight.

OYBike: http://www.oybike.com/

OYBike is a bicycle sharing scheme in Cardiff, Reading and Farnborough in the United Kingdom. (There was a launch in London but they are no longer operating there.) The program is similar to, but not exactly the same as, other programs in different cities.

Stockholm City Bikes: http://www.stockholmcitybikes.se/

Stockholm City Bikes is the name of a public-private partnership project of the City of Stockholm in Sweden and the outdoor advertising unit of Clear Channel Communications.

It is a community bicycle program that allows renting a bicycle for a maximum period of 3 hours, between 06:00 and 22:00 (last rental at 22:00).

The People's Pedal: <u>http://www.peoplespedal.org/</u>

The People's Pedal is a registered non-profit society in Alberta committed to providing access to bicycles in the City of Edmonton. The organization was founded

in 2005. The People's Pedal ran a bicycle sharing program in Edmonton from 2005 through 2008. The program set up a series of hubs around the city for the use of People's Pedal members. Members would just pick up a bike, ride around, and then lock it back up at the nearest hub.

Vélopop': http://www.velopop.fr/

Vélopop' is a bike sharing scheme in Avignon, France launched in July 2009, engineered by Smoove. This community bicycle program comprises 200 bicycles and 17 stations for short term renting. The bicycles are secured by a special fork in easy to install bicycle stands with mechanical keys distributed by automatic dispensers.

Vélo'v: http://www.velov.grandlyon.com/

Vélo'v rental service run by the city of Lyon, France, in conjunction with the advertising company JCDecaux. The relationship with JCDecaux allows the city to provide the service on a cost neutral basis for the city, and at very low cost to users, in return for providing exclusive advertising access on bus shelters and the like. The primary aim is to reduce vehicle traffic within the city. The scheme also aims to reduce pollution, create a convivial atmosphere within the city, and encourage the health benefits of increased activity. Its name is a portemanteau of French vélo (bike) and English love.

Vélomagg': http://www.velomagg.com/

Vélomagg' is a bike sharing scheme in Montpellier, France launched in June 2007, engineered by Smoove. This community bicycle program comprises 750 bicycles and 59 stations for short and long term renting, optionally coupled with tramway, bus and car sharing services. Individual bicycles can park in secured parking lots linked to the system, equipped with electrical public pumps. The bicycles are secured by mechanical keys distributed by automatic dispensers. The system is reliable and appreciated, the bicycles are relatively cheap, sturdy and light. Contrary to most other such programs, it is not linked to an advertising deal.

Vélib': http://www.velib.paris.fr/

Vélib' is a public bicycle rental programme in Paris, France. The initiative was pushed by Paris mayor Bertrand Delanoë of the French Socialist Party. The system was launched on 15 July 2007, following Lyon's Vélo'v success and the 1974 pioneering scheme in La Rochelle. Ten thousand bicycles were introduced to the city with 750 automated rental stations each with fifteen or more bikes/spaces. This number has since grown to 20,000 bicycles and 1,639 stations, roughly one station every 300 metres throughout the city centre, making Vélib' the largest system of its kind in the world.

Villo!: http://en.villo.be/

Villo! is a public bicycle rental programme in Brussels-Capital Region, Belgium.

It was launched on 19 May 2009 in cooperation between the Brussels-Capital region and the company JCDecaux as a replacement for the former programme Cyclocity, launched in 2006.



GTZ – Sustainable Urban Transport Project (SUTP)

Based on more than 25 years of practical experiences, GTZ hosts the "Sustainable Transport: A Sourcebook for Policy-Makers in Developing Cities" (<u>www.sutp.org</u>) with a wealth of information and knowledge on appropriate solutions, inter alia on tackling climate change in the transport sector. Through training and advisory services, decision makers in the transport sector are better informed about transport options, mode choices, mobility management and transport related emissions and their impact on our climate. This may lead to improved urban transport systems, less traffic and better alternatives to individual motorized transport modes.

This flagship publication compiles most of the international literature on the relevant subject and provides access to numerous other resources. It is complemented by training courses targeted to policymakers, planners or engineers in cities, regional entities and federal governments.

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