

German Environment Agency

Umwelt   
Bundesamt

**THE-PEP Relay-Race in Mannheim, 21/09/2017**

# Reverse Innovation: Rethinking urban transport through global learning

Dr. Harry Lehmann

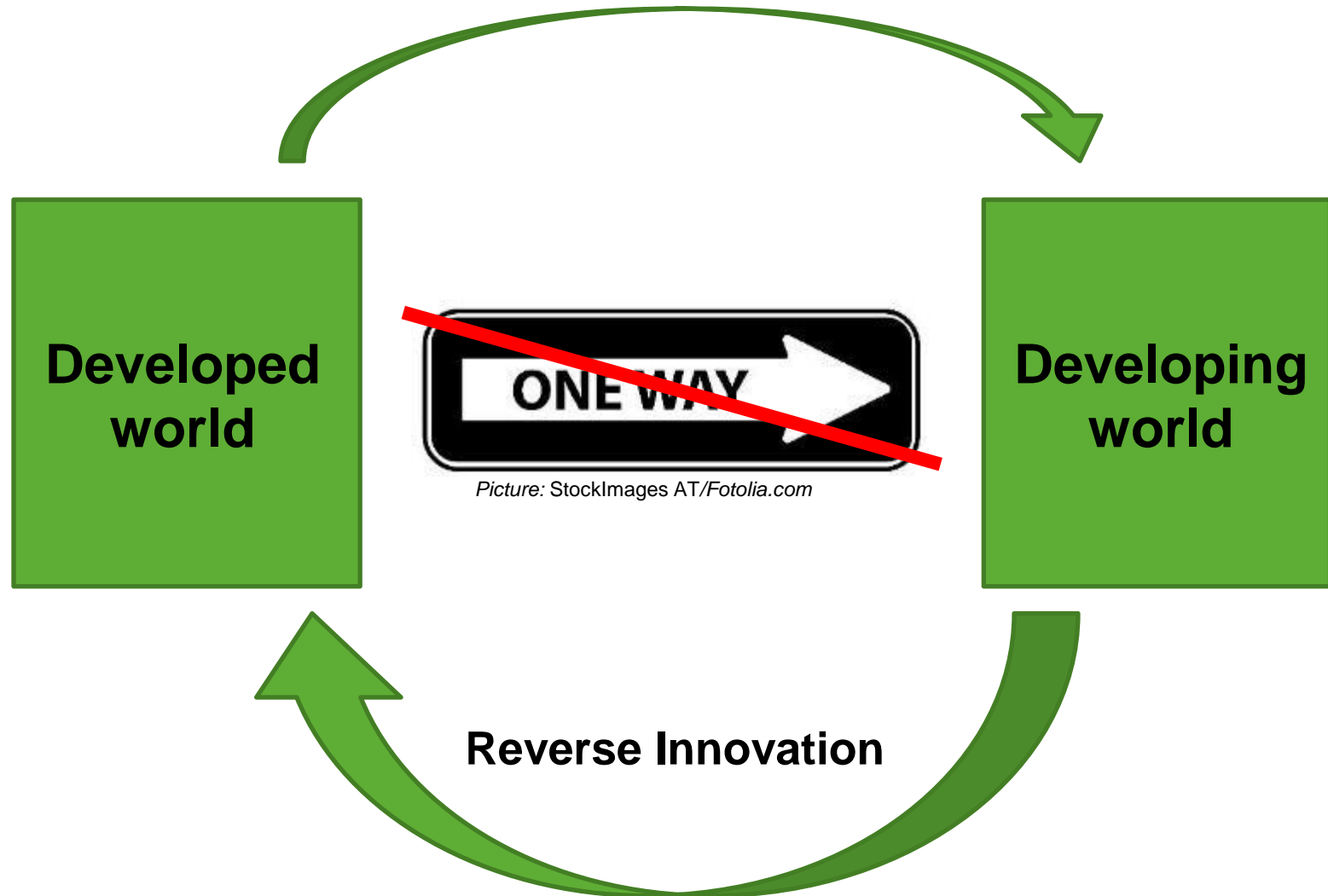
Head of Division I

“Environmental Planning and Sustainability Strategies”

# Agenda

- 1 REVERSE INNOVATION**
- 2 TOMORROW'S CITIES**
- 3 RETHINKING URBAN TRANSPORT  
THROUGH GLOBAL LEARNING**
- 4 TAKE HOME MESSAGES**

## The idea behind reversing innovation processes



## Example for Reverse innovation: Bus Rapid transit (BRT)



Picture: Richie Chan/Fotolia.com

1974: invented in Curitiba/Brazil      2017: over 200 cities operate BRT systems



# UBA's vision of “Tomorrow's Cities” with focus on environmentally friendly mobility



Source: <https://www.umweltbundesamt.de/publikationen/tomorrows-cities>.

# Measures for “Tomorrow’s Cities”: Environmentally friendly mobile, low noise, green, compact and functional-mixed



Implementing compactness and mixed use in cities



Providing urban greenery and open spaces



Reducing noise



Fostering participation and collaboration in planning and implementation



Expanding active network



Improving public transport quality



Exploiting digitisation for the benefit of the environment



Encouraging integrated mobility services and e-mobility



Making commercial traffic within the city environmentally friendly



Managing motorised traffic

**Central long-term target for big cities:  
max. 150 cars/1,000 inhabitants**



# UBA/GIZ-Publication “Reverse Innovation – Rethinking Urban Transport through Global Learning”



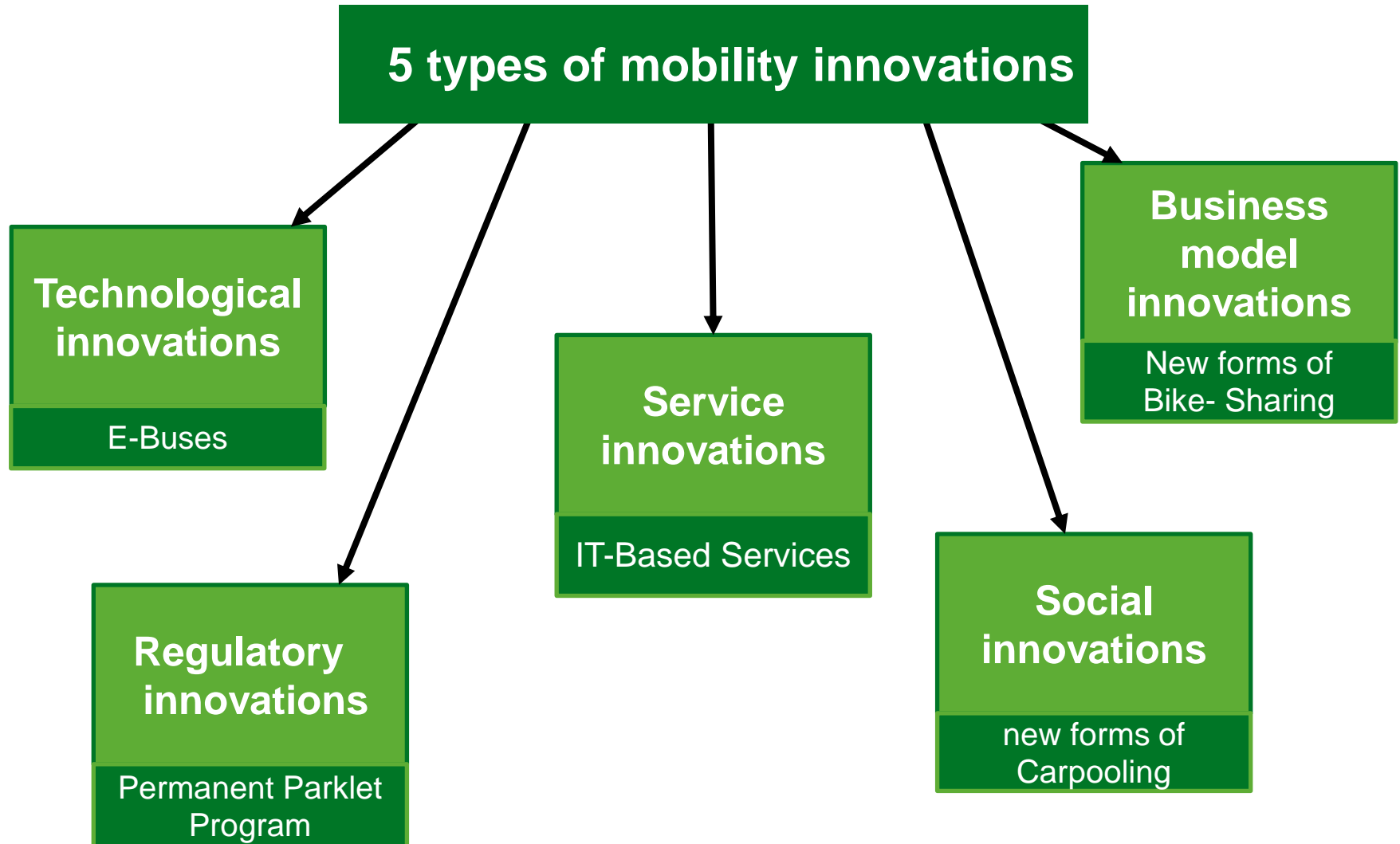
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A map of Southeast Asia is shown at the bottom, with colored location pins corresponding to the countries mentioned in the table of contents: green for Egypt, red for Indonesia, blue for India, purple for China, and orange for Taiwan.

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## Types of reverse mobility innovations





## Example of reverse innovation: Permanent parklets in Brazil



Picture: Lincoln Paiva

## Take home messages

**1 CITIES ARE HUBS FOR INNOVATION**

**2 NEED TO COOPERATE INTERNATIONALLY**

**3 ROLE OF THE PEP**

**4 REVERSE INNOVATION HAS A GREAT POTENTIAL FOR GERMANY/EUROPE**

# Thank you !

**Dr. Harry Lehmann**

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# GLZ analyzed 50 promising innovations in the field of sustainable mobility from around the globe

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## India

**Gurgaon**  
Car-free Event: Raahgiri Day  
Raising awareness of public spaces and social function of streets

**Data Crowdsourcing: SafetyPin App**  
Defining parameters and using crowdsourced data to assess safety and security in urban areas especially for women

**Bangalore**  
Motorcycle Rental App: Wicked Ride  
Linking public transport and motorcycle rental business

**Road Safety: Zedrive**  
Road safety application for smartphones

**Chennai**  
Solar Electric Rickshaw: Selekshaw  
Rickshaws powered by solar energy

**Mumbai**  
Ridesharing App: Jump In Jump Out  
Vehicle sharing app including private, public and para-transit vehicles with mobile peer-to-peer payments

**Udaipur, Jaipur**  
Electric Urban Vehicles: E-Rickshaw, E-Scooter and E-Bicycle  
Retrofit of rickshaws, scooter, bicycles

**Different Cities**  
Smart Roads: Roads Smart City Project  
Upgrading existing roads with smart and sustainable technologies (lighting, guidance, etc.)

**Hailing Apps: mSaadi, Jugnoo, Aulencab, D-Kula, Ola, Aulofaja**  
Mobile apps to organize rickshaw-bookings

## Egypt

**Cairo**  
Ridesharing App: Ray7  
Culturally sensitive ride-sharing service combined with a social networking element

## Kenya

**Nationwide**  
Mobile Payments: M-PESA  
Simplified mobile payment system used for taxis which is working without a bank account

**Nairobi**  
Car-free Events: Nairobi Place-Making Week  
Approach to inform and engage the public into city planning by workshops during the event

**Transport Information Service: MaBroule**  
Data crowdsourcing for real-time traffic information

**'Uber for Buses': Magic Bus**  
On-demand bus system and app

## Namibia

**Windhoek**  
Public Participation: MoveWindhoek  
Comprehensive participation approach using online tools and Facebook for a sustainable urban transport plan

## South Africa

**Cape Town**  
Transport Information Service: WherebyTransport  
Data crowdsourcing for real-time information in public transportation

**Franschoek**  
E-Taxi: Mellowcabs  
On-demand taxi service with electric vehicles

## Bangladesh

**Real-time Traffic Data App: Road**  
App using crowdsourced data for real-time traffic information

## China

**Different Cities**  
Bikesharing: MoBike China  
Large scale free floating bike sharing using user data to create new business models

**Nationwide**  
Operation of Electric Buses: E-Bus in China  
Optimising the operational strategy: Charging infrastructure, maintenance services, etc.

**Smart Payments: Alipay, WeChat Pay**  
Smart payment services via app in cooperation with transport services and businesses that offer discounts and promote customer loyalty

**Electric Urban Vehicles: Low Speed Electric Vehicles (LSEVs) and Micro Cars**  
Cheap and environmentally friendly low-speed vehicles

**Beijing**  
Car Restriction: Beijing's Vehicle Lottery  
Car-restrictive policy approach: Short-term, registered vehicles

**Guangzhou**  
Multi-Modal BRT Transport Network: Guangzhou  
Integration of different means of transport

**Hangzhou**  
E-Carsharing: Kandi EV Vending Machine  
Integration of e-mobility and innovative promotion in 'Kandi Towers' for efficient parking

**Shenzhen**  
Urban Parking: Parking Robot  
Guide and space-saving parking solution

## Taiwan

**Nationwide**  
Smart Scooter: EgoGo E-Scooter  
Electric smart scooter that can be linked to mobile phones with an integrated software

## Hong Kong

**Hong Kong**  
Smart Ticketing: Octopus Cards  
Integrated public transport pre-payment system partnering with shops and businesses

## Philippines

**Different Cities**  
Electric Urban Vehicles: E-Trikes  
Retrofit of polluting trikes

## Indonesia

**Jakarta**  
App-based Integrated Transport Services: GO-JEK  
App-based integration of various transport services such as motorbike hailing, urban freight delivery, services at home etc.

**Car Restriction: Odd-even License Plate Policy**  
Car-restrictive policy approach to ban vehicles from congested roads

## Singapore

**Singapore**  
Active mobility: Personal Mobility Devices (PMDs)  
Approach to promote and regulate new mobility devices as an add-on to walking and cycling

**Autonomous Driving: mTenancy (PMO)**  
Autonomous cars for first and last mile connectivity

**Transport Information Service: How2Go**  
Service, information and payment app linked to using the data for planning

## Columbia

**Bogotá**  
Car-free Events: Ciclovía (Sunday Streets)  
Raising awareness of public spaces through a weekly social event

**Integrated Public Transport System: TransMilenio**  
Bus-Rapid Transit (BRT) system and approach for integrated transport planning

**Medellín**  
Public Transport System: Cable Cars  
Cable cars as a mean of urban transport

## Argentina

**Buenos Aires**  
Electric Urban Vehicles: SUDACA  
Ultra-light electric bike for urban mobility

**Bike Parking: Car shaped bike racks**  
Approach to transform vehicle parking into bike parking

## Brazil

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Car-free Events: Ciclovía (Sunday Streets)  
Raising awareness of public spaces through a weekly social event

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**giz** Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

On behalf of:  
Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

of the Federal Republic of Germany



## 10 examples of the UBA-GIZ brochure “Reverse Innovation – Rethinking Urban Transport through Global Learning”

- Electric buses: Operation and implementation in China
- Integrated Transport Services: Go-Jek Indonesia
- Urban Green: Permanent Parklets Brazil
- Urban Carpooling App: Raye7 Egypt
- Bike-sharing: MoBike in China
- Data Crowdsourcing: SafetiPin App
- Electric urban vehicle: Gogoro Smartscooter
- Car-free campaigns: Raahgiri Day India
- Mobile Payments for Transport Services: MPESA Kenya
- Active Mobility: Promotion of Personal Mobility Devices in Singapore