TRANSFORMING URBAN MOBILITY – A GLOBAL PERSPECTIVE

Holger Dalkmann
July 4, 2017

PHOTO CREDIT: BENOIT COLIN/WRI
THE CHALLENGE & THE OPPORTUNITIES
CONGESTION

Transport accounts for one-quarter of global CO₂ emissions

2-5% cost of GDP through traffic congestion

ROAD SAFETY

Traffic fatalities lead to 1.2 million deaths every year and many more injuries

PUBLIC HEALTH

Outdoor air pollution was estimated to cause 3m premature deaths worldwide in 2012

CLIMATE CHANGE

Traffic fatalities lead to 1.2 million deaths every year and many more injuries
IN THE NEXT 35 YEARS, THERE WILL BE 2.5 BILLION MORE PEOPLE IN OUR CITIES

2.5 billion
more people in
cities in the next 35
years

RISE IN MOTOR VEHICLE USE

- **2000**: 14 Trillion of annual vehicle km
- **2015**: 24 Trillion of annual vehicle km
- **2050**: 48 Trillion of annual vehicle km

*Photo: Dimitris Argyris/Flickr*
GLOBAL CLIMATE CHANGE TARGETS ARE NOT POSSIBLE WITHOUT THE TRANSFORMATION OF CITIES

23% of global GHG emissions are from transport

70% of GHG emissions come from cities
A TURNING POINT ON CLIMATE
PARIS AGREEMENT – COP21

- **187 COUNTRIES** announced climate plans
- **LONG-TERM GOAL** for net zero carbon this century
- **ENHANCED TRANSPARENCY and accountability**
- **STRENGTHEN CLIMATE ACTIONS** every 5 years
- **ADAPTATION** to help most vulnerable
- **FINANCIAL SUPPORT** especially for least developed countries

Source: UNFCCC
MORE AMBITION NEEDED

PROGRESS ON NATIONAL COMMITMENTS?

101 Countries Set GHG Targets

Source: CAIT Paris Contributions Map/WRI
TRANSPORT IN CLIMATE COMMITMENTS

101 out of 160 NDCs include transport action!
Direct Transport Targets of the Sustainable Development Goals

3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents

7.3 By 2030, double the global rate of improvement in energy efficiency

9.1 Develop quality, reliable, sustainable and resilient infrastructure, ....to support economic development and human well-being, with a focus on affordable and equitable access for all

11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, by expanding public transport, with special attention to the most vulnerable

12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances

Transport is included in SDGs in both direct and indirect manner
CONNECTING GLOBAL, REGIONAL, NATIONAL, AND LOCAL LEVEL ACTIONS

- National Policies
- Regional Collaboration
- Global Agreements
- Local Implementation

Support and Technical Capacity from Development Institutions & NGOs
THE OPPORTUNITY TOWARDS REAL TRANSFORMATION
IDEAL CONDITIONS FOR TRANSFORMATION (WHAT I WILL NOT TALK ABOUT TODAY)

1. PEOPLE CENTRIC APPROACH & MORE ATTENTION TO URBAN FREIGHT

2. FULL INTEGRATION OF
   ...MODES,
   ...OPERATION,
   ...FINANCES,
   ...INSTITUTIONAL ARRANGEMENTS
   ...PLANNING (URBAN & MOBILITY)
   ...DATA

3. SHIFT IN FINANCES – FROM BROWN TO GREEN & SETTING THE RIGHT PRICE
5 ACTIONS TOWARDS SCALING TRANSFORMATION

1. MANAGE DEMAND: CONGESTION CHARGE RELOADED
   Beijing as Game Changer
   Singapore Technology Leapfrog
   Sao Paulo’s Uber Charge

2. REVOLUTIONIZE SUPPLY: PUBLIC TRANSPORT 2.0
   On-demand Services: London

3. REVOLUTIONIZE SUPPLY: REINVENT CYCLING
   Bike Share @ Scale: MoBike goes Global

4. NEW SUSTAINABLE MOBILITY

5. TOWARDS COMMON ACTION
   Protocol for Shared Vehicles
   Covenant of Mayors
   C40 Clean Bus Declaration
   Sustainable Mobility for All
MANAGE DEMAND: CONGESTION CHARGE RELOADED
CONGESTION PRICING – PROOF OF CONCEPT BUT NO SCALE

LONDON

STOCKHOLM

Year

Singapore; 1975

MAJOR CHANGE IN CHINA ANNOUNCED – NEW CHANCE FOR A REVOLUTION?

In the session of the BJPPCC on May 26, 2016, BMCT and BEBP announced to the public that the schemes for the LEZ/CC have been developed and are under further evaluation.

20-50 RMB/day
SCENARIO ANALYSIS FOR BEIJING

CONGESTION CHARGE SCENARIO:
CO₂ EMISSION REDUCTION: 14.4%

Congestion Charge within 3rd Ring Road, 20 RMB per entry

Source: WRI China, 2017
SINGAPORE: CONGESTION CHARGING WITHOUT HEAVY INFRASTRUCTURE

Sources: ERP; New Generation ERP

World Resources Institute
UBER CHARGE IN SAO PAULO: FIRST STEP TOWARDS NEW CHARGING SCHEME

- **Pay-as-you-drive**: Charging an upfront fee ("credits") based on mileage estimate for 2-month period, plus a surcharge if credits are exceeded
- **Charge**: 10 centavos (3 cents) per kilometer
- **Creating Competition**: Online public auction to buy credits
- **Data Sharing**: Uber is required to provide the city with its trip data

Photo Credit: Link
REVOLUTIONIZE SUPPLY: PUBLIC TRANSPORT 2.0
ON-DEMAND SERVICES IN LONDON

Smart Buses:
- Integrating with app, routing and the city
- Provide real time information of the route, passenger count, and are multimodal-ready!

Source: City Mapper
REVOLUTIONIZE SUPPLY: REINVENTING CYCLING
MARKET LEADERS OF BIKE SHARING INDUSTRY IN CHINA

BACKED BY: TENCENT

BACKED BY: DIDI, XIAOMI
# Bikesharing Industry in Tier 1 Cities

<table>
<thead>
<tr>
<th></th>
<th>Beijing</th>
<th>Shanghai</th>
<th>Guangzhou</th>
<th>Shenzhen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobike in Circulation</td>
<td>150,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Ofo in Circulation</td>
<td>150,000</td>
<td>100,000</td>
<td>80,000</td>
<td>80,000</td>
</tr>
</tbody>
</table>

MOBIKE GOES GLOBAL

- “Uber-for-bikes” service
- Currently active in 100 cities globally
- More than 5 million bikes around the world
- Over 100 million registered users

- Raised $600 million in its latest round of financing in June 2017, bringing the company total funding to more than $900 million.
- Target: To be in 200 cities by the end of this year

Sources:
http://mobike.com/global/blog/post/mobike-raises-600millionusd
NEW MOBILITY – DISRUPTION & INNOVATION
INTEGRATION & DISRUPTION

New players

New opportunities

New narrative
Disruptive Change - Where do people Stay?

IHG
- 65 years
- 645K rooms
- 100 countries

Hilton
- 93 years
- 610K rooms
- 88 countries

Accor
- 44 years
- 530K rooms
- 92 countries

VS

Airbnb
- 4 years
- 650K rooms
- 192 countries
What is new mobility?

Models using **technology** to deliver **transport** in new ways

- Reinventing ownership and delivery
- Using data and connectivity in new ways
- Developing new technologies
<table>
<thead>
<tr>
<th>Date</th>
<th>Partnership</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2016</td>
<td>GM – Lyft</td>
<td>$500 million invested into Lyft</td>
</tr>
<tr>
<td>Mar 2016</td>
<td>GM – Cruise Automation</td>
<td>GM buys self driving tech for $1 billion</td>
</tr>
<tr>
<td>May 2016</td>
<td>Toyota – Uber</td>
<td>Toyota bought a stake in Uber</td>
</tr>
<tr>
<td>May 2016</td>
<td>Apple – Didi Chuxing</td>
<td>Apple invests $1 billion in Didi</td>
</tr>
<tr>
<td>May 2016</td>
<td>BMW- Scoop</td>
<td>BMW invests undisclosed amount in Scoop</td>
</tr>
<tr>
<td>May 2016</td>
<td>Google – Fiat Chrysler</td>
<td>Google to use Fiat cars to run self driving tech</td>
</tr>
<tr>
<td>May 2016</td>
<td>Volkswagen - Gett</td>
<td>Volkswagen to invest $300 million in Gett</td>
</tr>
<tr>
<td>Jun 2016</td>
<td>BMW – Intel – Mobileye</td>
<td>Launch autonomous rideshare company in 5 years</td>
</tr>
<tr>
<td>Aug 2016</td>
<td>Ford – ZoomCar</td>
<td>Ford Invests $24 million</td>
</tr>
<tr>
<td>Sep 2016</td>
<td>Ola – Mahindra</td>
<td>Mahindra-Ola package for Ola drivers</td>
</tr>
<tr>
<td>Sep 2016</td>
<td>Ford – Chariot</td>
<td>Ford buys Chariot in all cash deal</td>
</tr>
</tbody>
</table>
THE ATTENTION OF REGULATORS

KEY: STATUS OF GLOBAL CARPOOL REGULATIONS

• Carpooling models are legalized

• Carpooling models legality in question

• Carpooling businesses are illegal

Source: WRI Cities research
WHAT DOES IT MEAN FOR CITIES?

- Equity
- Emissions
- Safe access
- Congestion
THE KEY QUESTION

NEW & “SEXY”

SUSTAINABLE
CITIES MUST DEFINE NEEDS AND HAVE TECHNOLOGY DELIVER THE RESULTS

• Welcome implementation of new technology-based mobility services with adequate regulation to ensure they complement public transport.

SHARED MOBILITY PROTOCOL FOR LIVABLE CITIES - DRAFT
RATIONALE

• The rise of shared and autonomous travel powered by new technologies presents an unprecedented opportunity to transform cities to be more sustainable, equitable, and just.

• Cities are the primary guardians of the public good; they need to be clear about their goals and directed in their requirements for creating a livable future.

• The Protocol will help nations meet commitments established in the Paris Agreement, as well as Sustainable Development Goals.

• The Protocol complements, extends and strengthens the sustainable city work being undertaken; will provide firm guidance for the private sector; and can be used by community activists to hold their city to best practice.
POTENTIAL PARTNER ORGANIZATIONS (CURRENTLY NGO ONLY)

Robin Chase,
Founder of
Zip-Car
NINE PRINCIPLES

1. **PRIORITIZE PEOPLE OVER VEHICLES:** Cities should prioritize the movement of people and not vehicles by prioritizing walking, cycling, public transit and shared mobility over single occupancy vehicle use.

2. **FAIR USER FEES:** All vehicles should pay their fair share for road use, congestion, and use of curb space.

3. **PROMOTE EQUITY:** Cities should monitor and strive for equitable physical, digital, and financial access to shared transport services.

4. **TRANSITION TO ZEV:** Public transportation and shared use fleets will transition to zero emission vehicles.

5. **POWER WITH RENEWABLES:** Best efforts will be made to power electric vehicles with clean, renewable energy.
6. **ENSURE PUBLIC BENEFIT VIA OPEN DATA:** The data infrastructure underpinning shared transport services must enable interoperability, competition and innovation, while delivering privacy, security and accountability.

7. **UBIQUITOUS WIRELESS ACCESS:** Every opportunity to enhance connection and access of vehicles and people to a wireless network should be taken.

8. **AVS SHOULD BE SHARED:** AVs operating in densely populated areas should be part of a shared fleet.

9. **COMPLEMENTARY LAND USE:** Development, building and zoning regulations, parking requirements, and other land use policies will support and incentivize these requirements for a livable, equitable, and sustainable city.
COVENANT OF MAYORS

- Pledge to reduce CO\textsubscript{2} emissions by at least 40\% by 2030
- 7,000+ Signatories
- 230,000,000+ Citizens
- 5,100+ Action Plans Developed

As of 2015:
- -23\% GHG emissions
- -14\% energy consumption
- x4 share of renewable energy sources in final energy consumption
- x3 local renewable energy production

THE UNDER2 COALITION

- 176 Jurisdictions in 36 Countries
- Represent 1.2 Billion People and $28.8 Trillion in GDP
- Towards Net Zero GHG emissions by 2050

Source: http://under2mou.org/coalition/
C40 CLEAN BUS DECLARATION

“Cities of the Low Emission Vehicles Network collectively forged an international Declaration on Clean Buses, demonstrating a commitment by signatory C40 cities to reducing emissions and improving air quality by incorporating low- and zero-emission buses in their fleets. The Declaration is a call to global manufacturers, public transport operators, leasing companies, multilateral development banks, and other funding agencies to support city ambitions to decarbonize urban mass transport.”

Source: http://www.c40.org/networks/low_emission_vehicles
26 C40 SIGNATORY CITIES REPRESENT OVER 165 MILLION URBAN CITIZENS ACROSS 20 COUNTRIES
To facilitate **Sustainable Mobility for All** through four objectives:

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIVERSAL ACCESS</td>
<td>Improved lives and livelihoods of billions of people across the world—their health, their environment, their quality of life—and climate change stabilized over the long term.</td>
</tr>
<tr>
<td>EFFICIENCY</td>
<td>Ensure social equity in access to opportunities</td>
</tr>
<tr>
<td>SAFETY</td>
<td>Increase efficiency of transport systems and services</td>
</tr>
<tr>
<td>GREEN</td>
<td>Shift transport infrastructure and services to a “green”, clean and resilient path</td>
</tr>
</tbody>
</table>

Source: World Bank Group
DRIVERS TOWARDS COMMON ACTION

1. GROWING IMPORTANCE OF NON-STATE ACTORS TO TACKLE CLIMATE CHANGE
2. NEW COALITION ALLOWS TO SET STANDARDS & INFLUENCE LEGISLATION & ENABLING CONDITIONS – RECLAIMING NEGOTIATION POWER
3. STRENGTHENING VISIBILITY & INFLUENCE ON NATIONAL AND INTERNATIONAL LEVEL
4. EXCHANGING KNOWLEDGE AND INFORMATION
5. TOWARDS COMMON PROCUREMENT?

CHALLENGE – MANY INTERNATIONAL INITIATIVES – NEED FOR GUIDANCE
THANK YOU

Holger Dalkmann
Director of Transport and Global Policy
WRI Ross Center for Sustainable Cities
hdalkmann@wri.org