

Mobility-as-a Service



Moderator: Susan Zielinski, independent consultant and mobility innovator
At the ICLEI Local Governments for Sustainability
EcoMobility World Festival 2017
Kaohsiung, Taiwan
October 1, 2017

MY (LONG TERM) RELATIONSHIP WITH MAAS

- 30 years (it just wasn't called MaaS yet)
- City of Toronto in the 90's: Linking Sustainable Multi-modal mobility + emerging New Mobility industry ("Moving the Economy"). First conference, first global study on the cluster
- Boosted by Michael Glotz-Richter (he'll be here - seek him out)
- U of M SMART: Industry support to advance MaaS. Developed approach to accelerating implementation of MaaS led in over 25 cities (attend Thursday)
- Most recently a study on the recent MaaS phenomenon (supported by Ford Motor; a consortium of national innovation & research leads from the Nordic countries & beyond + over 60 global expert interviews)
SOON TO BE RELEASED



A FEW HIGHLIGHTS FROM THE STUDY

(soon to be released)

**“Accelerating the
Demonstration-Learning-Deployment Cycle
of Mobility as a Service:
Success Factors”**

MaaS and "MaaS-Like" (or "MaaS-ish")



SEARCH TERMS:

Mobility-as-a-Service * Transportation-as-a-Service * New Mobility-
Hub-Networks * Combined-Mobility * Connected-Transport *
Egg-Laying-Wool-Milk-Sow* MobilPunkt * EcoMobility * Green-
Transport* Integrated-Mobility* Integrated * Urban-Mobility *
Mobility-as-a-Service * Mobility-On-Demand * New-Mobility * New-
Mobility-Services * On-Demand-Transport * Smart-City *
Connected-and-Automated * Smart-Transportation * Smart-Mobility
* Sustainable * Transportation * Etc *



Mobility-As-A-SERVICE (MaaS)



Pulling it all together: Public Private Innovation advancing sustainable future mobility systems and the industries and enterprises to supply them



BUSINESS MODELS

MaaS = Mobility-as-a-Service

(Service & Product **BUNDLING** for the end user)

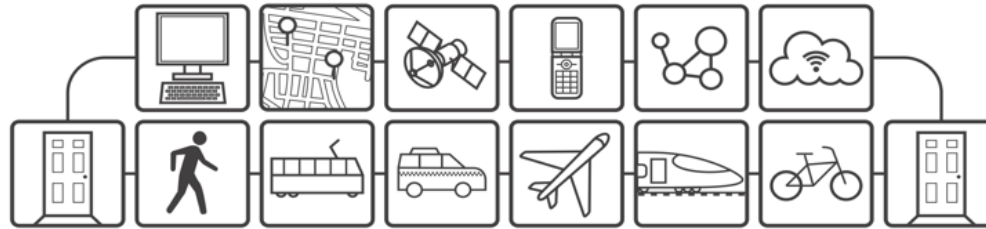
Seamless connected multi-mode multi-service IT-enabled door-to-door on-demand sustainable equitable mobility bundle



**INNOVATION
RESEARCH
TECH TRANSFER
CAPACITY BUILDING**



**ENABLING INFORMATION
TECHNOLOGY**



... car share, bike share , transit, shuttle, taxi, informal, trains, boats, planes, connectivity, automation, parking, wayfinding, apps, traffic management, safety, security, measuring, monitoring, moving goods, tele-work, tele-other, sensing, marketing, tourism, learning, gaming, ...



**POLICY &
LEGISLATION**



**PHYSICAL DESIGN,
PLANNING
INFRASTRUCTURE**



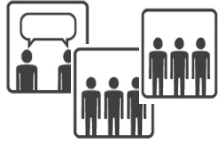
**SYSTEMS & PRODUCT
OPTIMIZATION,
ENGINEERING & DESIGN**



**MARKETING (DECISION
MODELS, ATTITUDES,
BEHAVIOR)**



Mobility-As-A-SERVICE (MaaS)



Pulling it all together: Public Private Innovation advancing sustainable future mobility systems and the industries and enterprises to supply them



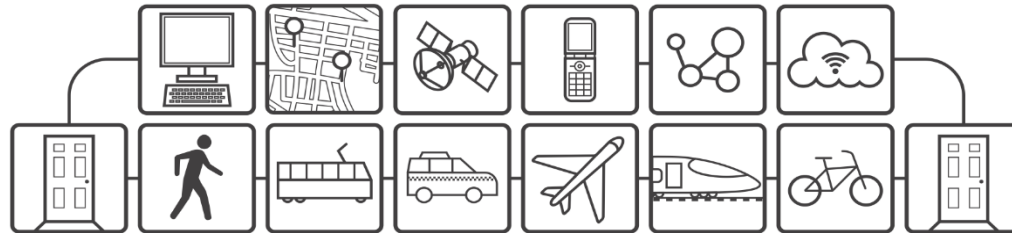
BUSINESS MODELS

MaaS = Mobility-as-a-Service
(Service & Product BUNDLING for the end user)



**INNOVATION
RESEARCH
TECH TRANSFER
CAPACITY BUILDING**

Seamless, connected, multi-modal, multi-service, IT enabled



... car share, bike share, transit, shuttle, taxi, informal, trains, boats, planes, connectivity, automation, parking, wayfinding, apps, traffic management, safety, security, measuring, monitoring, moving goods, tele-work, tele-other, sensing, marketing, tourism, learning, gaming, ...



ENABLING INFORMATION TECHNOLOGY



POLICY & LEGISLATION



**PHYSICAL DESIGN,
PLANNING
INFRASTRUCTURE**



**SYSTEMS & PRODUCT
OPTIMIZATION,
ENGINEERING & DESIGN**



**MARKETING (DECISION
MODELS, ATTITUDES,
BEHAVIOR)**

IN A NUTSHELL, MaaS's IMPACT:

- **Radically moves us to META - from many single solutions to whole SYSTEM door to door (i.e. MaaS is not an App)**
- **Builds on & connects what's there (+ even what is still to be invented) AS A SYSTEM or platform**
- **Radically flips the focus to serving the PERSON or the CUSTOMER or END USER door to door (not the individual mode or technology)**
- **Uses a range of integrated ENABLERS to advance MaaS**
 - **New information technologies + platforms**
 - **New business models**
 - **New policy frameworks & platforms**
 - **New integrative approaches to physical design & infrastructure**
 - **New decision models and end user relationships**
 - **And more**

DRIVERS

WHY IS THIS HAPPENING NOW?



BECAUSE IT NEEDS TO



BECAUSE IT CAN

BECAUSE IT'S COOL, SEXY, ON DEMAND + SHARED

The Washington Post

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More teens are choosing to wait to get driver's licenses

By Donna St. George
Washington Post Staff Writer
Sunday, January 24, 2010; A01

The quest to get a driver's license at 16 – long an American rite of passage– is on the wane among the digital generation, which no longer sees the family car as the end-all of social life.

The holdouts include Kat Velkoff, who turned 17 in Chantilly without a license. Focused on tough classes, the debate team, dance and color guard, she turned 18 without taking the wheel. Then 19.

"It just wasn't a priority," said Velkoff, who got her license last year at 20. "It was just never the next thing that needed to get done in my life."

[Federal data released Friday](#) underscore a striking national shift: 30.7 percent of 16-year-olds got their licenses in 2008, compared with 44.7 percent in 1988. The difference is even sharper in Virginia and Maryland, state figures show. Numbers from the District, which go back to 2003, show a decline in the past two years.

Advertisement



Hipster Clothing

MILLENNIALS: SHARED ECONOMY, SHARED USE & SOCIAL NETWORKS

BECAUSE IT'S

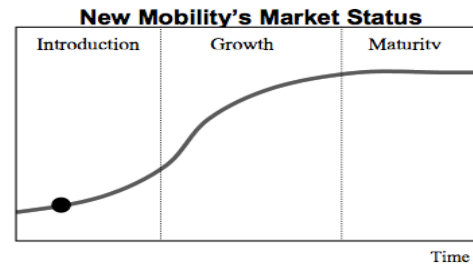
AN INVESTMENT (not a cost)

→ REGIONAL COMPETITIVENESS / PRODUCTIVITY

→ SAVES MONEY (OPTIMIZATION)

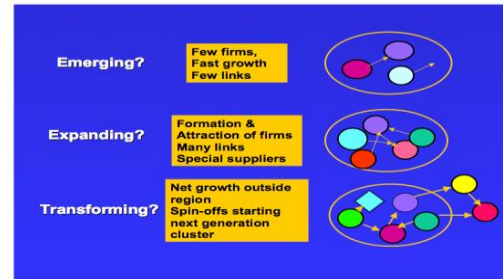
→ CREATES JOBS

→ A WHOLE NEW MOBILITY INDUSTRY
Multi-trillion \$ global market / industry cluster



MULTI-TRILLION \$ INDUSTRY

Industry Cluster:
Automotive; Transit;
Energy; Real Estate; IT;
Logistics; Planning & Architecture;
Telematics; Retail;
Tourism; etc...



ENTERPRISE & TECH TRANSFER



SMART MobiPrize

ENTREPRENEURSHIP & ENTERPRISE
Meeting customized local needs. Replicating and scaling globally. Catalyzing investment, building capacity.

INDUSTRY MOBILIZATION

- Ⓞ Ford Motor
 - Ⓞ Ashok Leyland
 - Ⓞ Cisco Systems
 - Ⓞ Michelin
 - Ⓞ IBM
 - Ⓞ Intel
 - Ⓞ Infosys
 - Ⓞ Mapunity
 - Ⓞ Microsoft
 - Ⓞ Qualcomm
 - Ⓞ Siemens
 - Ⓞ Telankani
 - Ⓞ Teolia
 - Ⓞ Etc
- BIG BUSINESS is transforming supply to meet emerging global market needs & opportunities.

NEW MOBILITY INDUSTRY CLUSTER DEVELOPMENT

- T
- Ⓞ Scotland
- Ⓞ Finland
- Ⓞ Brazil
- Ⓞ Sweden
- Ⓞ Spain
- Ⓞ Austria
- Ⓞ Etc

CURRENT META DRIVERS

- ✓ Change is changing faster
- ✓ Technology is outpacing policy
- ✓ We don't know what we don't know
 - ✓ Wider field of actors / movers
 - ✓ It's an infinite game
 - ✓ It's an eco-system

ON THE GROUND SHINING EXAMPLES

From around the world

Over 50 in our study

(see me after)

CHALLENGES & SUCCESS FACTORS

Flip sides of the same coin

CHALLENGES & SUCCESS FACTORS

Public-private balance (who owns / leads)

(NUMBER ONE CITED)

CHALLENGES & SUCCESS FACTORS Ecosystems:

Much wider set of public, private, NGO players need to be involved and working together

(THIS ALSO CAME UP A LOT)

CHALLENGES & SUCCESS FACTORS

Complexity:

- ✓ MaaS Can be Hard to understand or overwhelming at first
 - ✓ Lack of common language (both cultural and technical) for discussing and implementing
- ✓ Harder to adapt & scale more complex systems

CHALLENGES & SUCCESS FACTORS

Customer:

- ✓ End user variance
- ✓ Culture & demographics
- ✓ Changes by purpose & over time

CHALLENGES & SUCCESS FACTORS

Business models:

- ✓ (across complex systems)
- ✓ jury out on winners & losers in terms of whole system business models (blurry line between MaaS & apps)
- ✓ vary according to existing conditions, legacy business and government
 - ✓ procurement (what and from whom and by whom)
- ✓ replication and scaling is hard given the range of actors and variance in local conditions

CHALLENGES & SUCCESS FACTORS Technology:

- ✓ platform vs. apps vs non-technology components
standards / system architectures
- ✓ digital divide (ensuring it serves the underserved)
 - ✓ cyber security
 - ✓ ends vs means
- ✓ connected & automated infrastructures (V2V, V2I)

CHALLENGES & SUCCESS FACTORS

Data:

- ✓ ownership (user; business; government, all or none or some of the above)
- ✓ monetization
- ✓ availability
- ✓ accuracy

CHALLENGES & SUCCESS

Physical **FACTORS** & DESIGN:

- ✓ essential but now a neglected element
- ✓ needs integrative work according to needs & legacy
 - ✓ varying mental maps of physical planning /infrastructure leads (from knowing little to smart city champions)
- ✓ environmental & resilience elements can be overlooked
 - ✓ rural vs urban comes up

CHALLENGES & SUCCESS FACTORS

Policy, legislation & insurance

- ✓ more diverse policy actors need to be involved
 - ✓ they need to work together
- ✓ the how not just the what of policy needs to change (frameworks not just rules)
- ✓ need to develop & enforce standards / architectures

CHALLENGES & SUCCESS FACTORS

Evidence Base:

- ✓ lack of research / evidence base in an increasingly competitive environment, slowing / weakening the demonstration-learning-deployment cycle

CHALLENGES & SUCCESS

FACTORS Marketing

- ✓ Complexity
- ✓ Overshadowed by self driving cars, drones and other sexy tech / simpler innovations

CHALLENGES & SUCCESS FACTORS

Confusing means & ends

- ✓ enablers & goals. i.e. seeing the technology platform, business result, or policy suite or even mobility itself as the goal (as opposed to meeting user / customer needs / accessibility / sustainability being the goal)

SUCCESS FACTORS (outweigh the challenges)

Robust end-user analysis + design (across the whole system)

Enabling open data / API's / codes to support interoperability

Supportive policy / legislation

Contracts & agreements to support public private innovation

Robust public private eco-system

Smaller countries sometimes have advantage (incl. eco-system)

Culture: non car-dominated cultures

Compelling & exciting narratives

NEXT STEPS:

1. Corner the Panelists
2. You are invited to attend the
MaaS Implementation workshop
Thursday afternoon

WhereIsMyTransport, South Africa



Avego Ride Sharing Technology, Ireland



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 MENU

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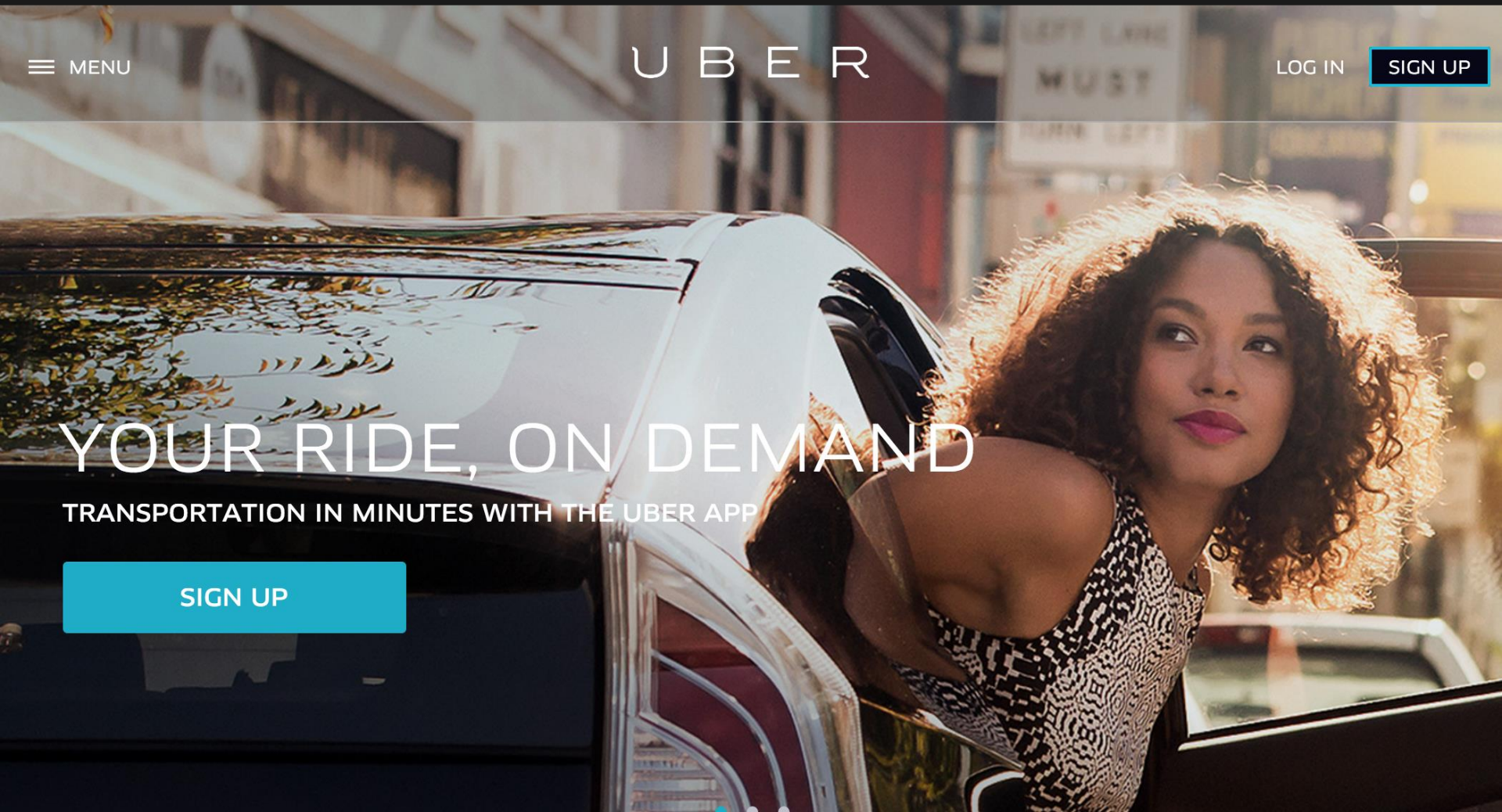
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[SIGN UP](#)

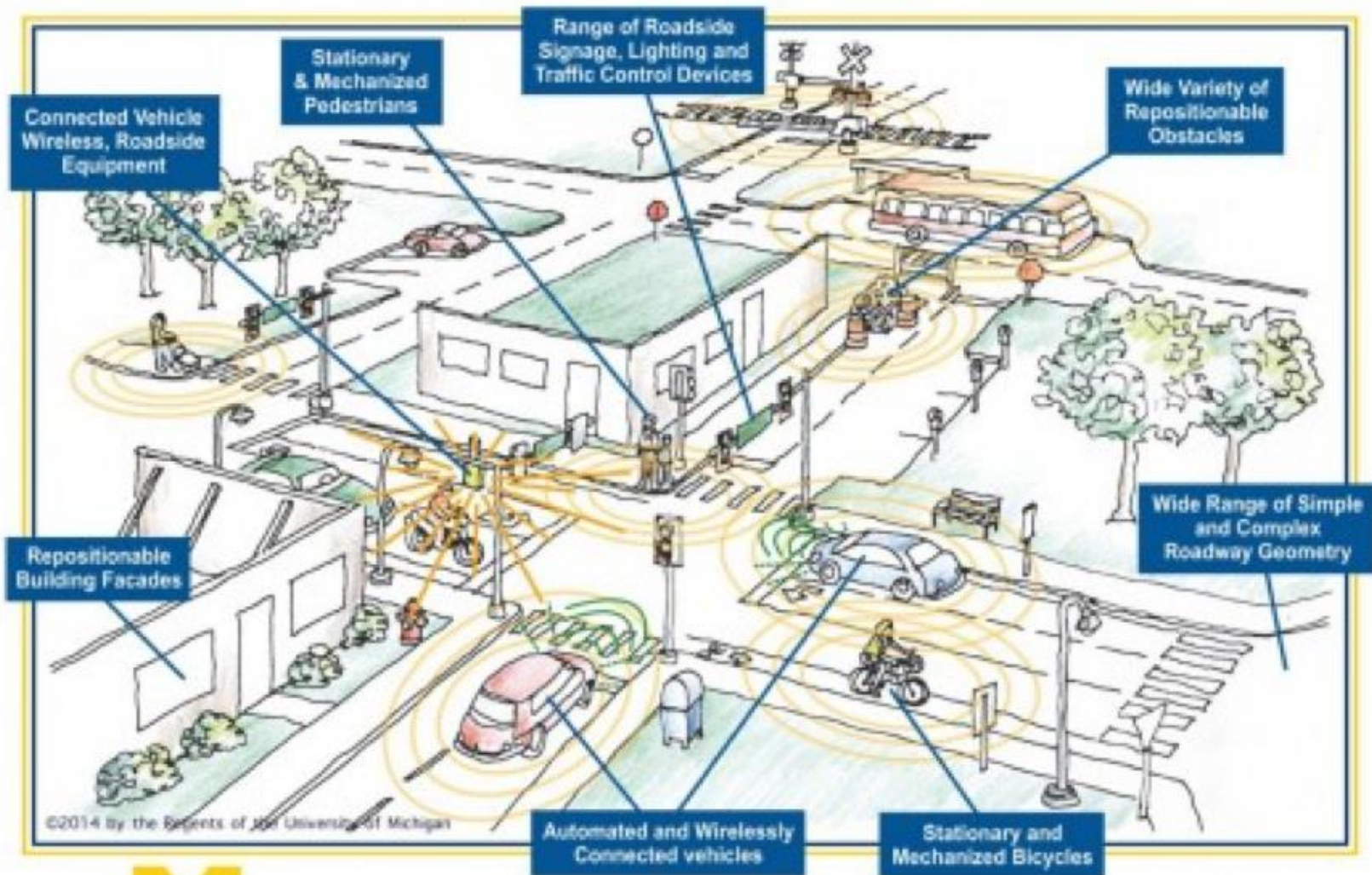
YOUR RIDE, ON DEMAND

TRANSPORTATION IN MINUTES WITH THE UBER APP

[SIGN UP](#)



MCITY Connected & Automated Vehicles Ann Arbor USA





Chair Lift in Rio

MellowCabs, South Africa



Priyadarshini Taxi Service, India





Bikes On Buses in Bage
Rio Grande Do Sul

Eco-Cabs Dial-a-Rickshaw, India



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Roadify, USA

Roadify Text Service



Hangzhou Omnipay, China

Winner

神行宝 智能信息服务管理站
Intelligent Information Services Management Centre

归还 清算 租用 查询

3G/GPRS/CDMA 在线传输

远程更新系统

量身定做 (外形/颜色/功能)

卡系统智能管理 (智能清算)

增值服务 (各类缴费服务/查询服务等)

终端配色:

.....

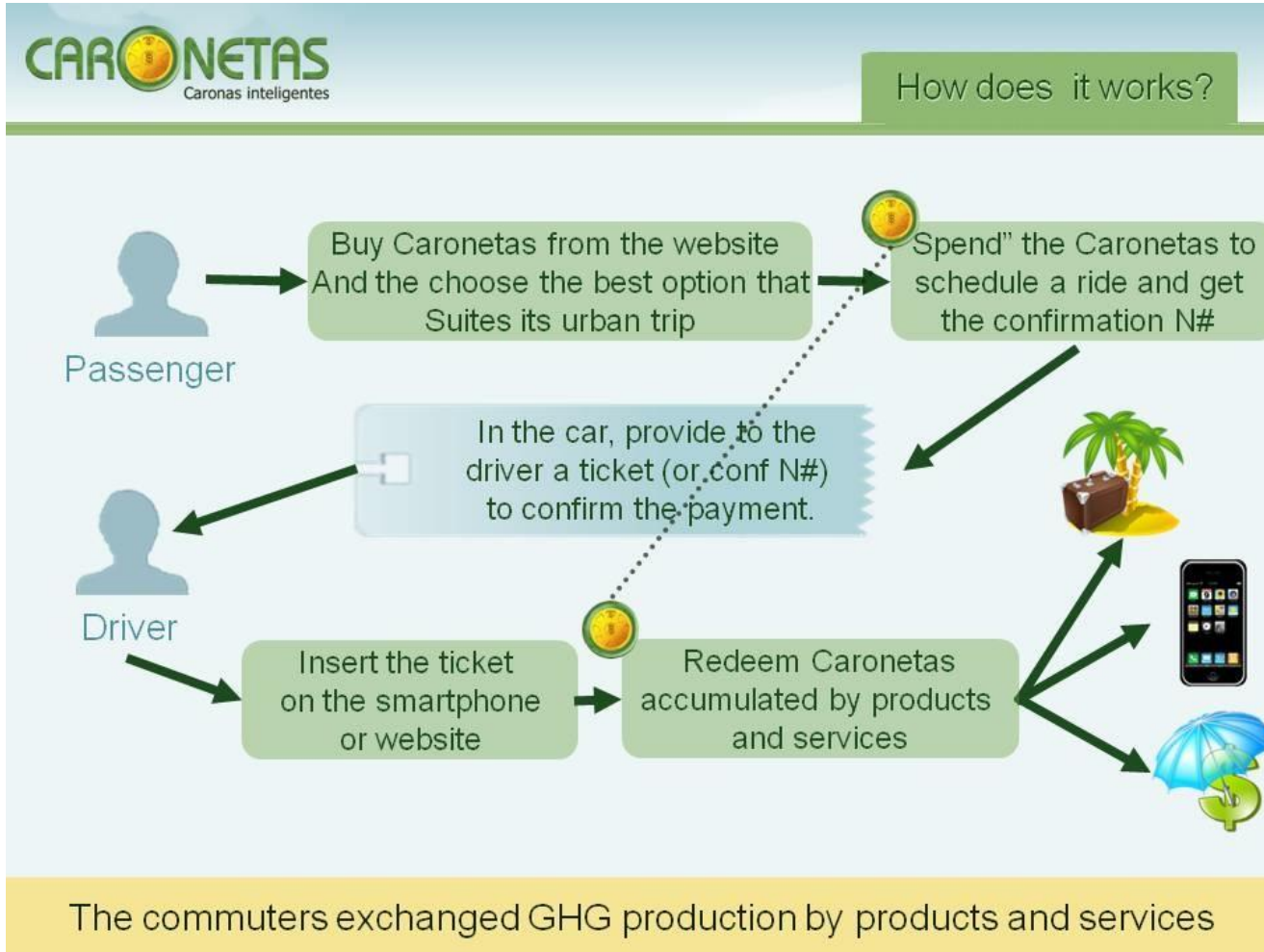
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A transit revolution fighting for a connected Detroit. "Biofuel-powered transit with a healthy shot of uncommonly good customer service."

THE *Detroit*
BUS COMPANY



Caronettas, Brazil



mobiprize.com

MISTER Guideways, New Zealand, Poland



mobiprize.com



Electric Tricycles in Blumenau Shopping Centers

City Ryde Zagster, USA



Bicycles are the newest amenity!

Make your property more attractive.
Provide on-demand bikes.
We do everything. You do nothing.
Our system arrives two weeks from order.

Login

Register

E-mail (we won't spam you) *

Trying to login or register for a Zagster bike program that already exists? *

- Yes
- No

Next



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Ride Amigos Commute Optimization, USA

Dashboard Trip Planner: From 1720 Pacific Ave, Venice, CA, 90291 to Century City, CA

Indicates an employee of TRAC Technology

1720 Pacific Ave, Venice, CA, 90291 → Century City, CA

Contact Your Matches

1. Venice Beach, Los Angeles, CA, U... **MATCH**
10250 Constellation Blvd, Los Ang... arrive by 7:30 PM
2. 100-195 Northstar, Marina del Rey... **MATCH**
10250 Constellation Blvd, Los Ang... arrive by 8:00 PM
3. Santa Monica, CA 90405, USA Thursday, April 21
Century City, Los Angeles, CA, USA arrive by 8:00 PM
4. 4350 Via Dolce, Marina del Rey, C... **MATCH**
1925 Century Park E, Los Angeles... arrive by 8:00 PM

Transport Mode Options:

- Walking: 2.9 hrs, 7.1 mi, 0.0 lbs CO2 free
- Cycling: 43 min, 8.7 mi, 0.0 lbs CO2 free
- Car: 18 min, 6.4 mi, 7.8 lbs CO2, \$5.32
- Bus: 47 min, 8.8 mi, 4.7 lbs CO2, \$1.85
- 4 matching carpools found

Map Contents: Hide Traffic, Park And Ride Lot, Shower Facilities, Bike Paths, Lounges

esri

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Rising Pheasant Farms Urban Farming & Sustainable Delivery, USA



mobiprize.com

Getaround Car Share, USA

Rent a car from someone nearby.

Convenient hourly rentals. Full insurance included.



Join for free

One friend uses Getaround.



yeti
MINI Cooper
San Francisco, CA
\$8.50 / hour



ModelS
Tesla Model S
San Francisco, CA
\$25.00 / hour



pluto
MINI Cooper
San Francisco, CA
\$8.50 / hour



midnightmarina
Porsche Cayenne
San Francisco, CA
\$9.50 / hour

mobiprize.com



Federal District 235 more kilometers of bike lanes

Tuk Tuk Factory Electric Shuttles, Netherlands



mobiprize.com

GoMetro, South Africa



Pocket-sized personal transporters could soon be seen on the streets of Tokyo

by [SMART](#) on August 7, 2015 in [Innovations \(InspireMobility\)](#), [News from the Field](#), [Videos](#)



Jayride Spare Capacity, Australia



mobiprize.com

DATA DRIVEN DETROIT



Provides accessible, high-quality information and analysis to drive informed decision-making in Detroit.



Ford's definition of Mobility:
Accessibility for people, goods and services to go where they need or want safely, efficiently and affordably – providing a simplified and fun customer experience. Our goal is to make mobility affordable in every sense of the word – economically, environmentally and socially.

By 2050 we will have a true network of mobility solutions, and automobiles will likely look very different from how they look today.



Zambikes, Zambia

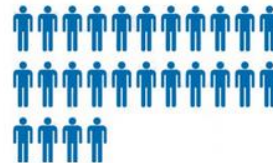
Winner



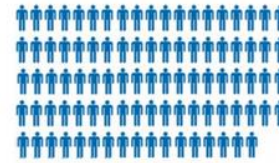
1 Zambulance = \$1,000



1 Zambulance = 1 life saved every 2 weeks



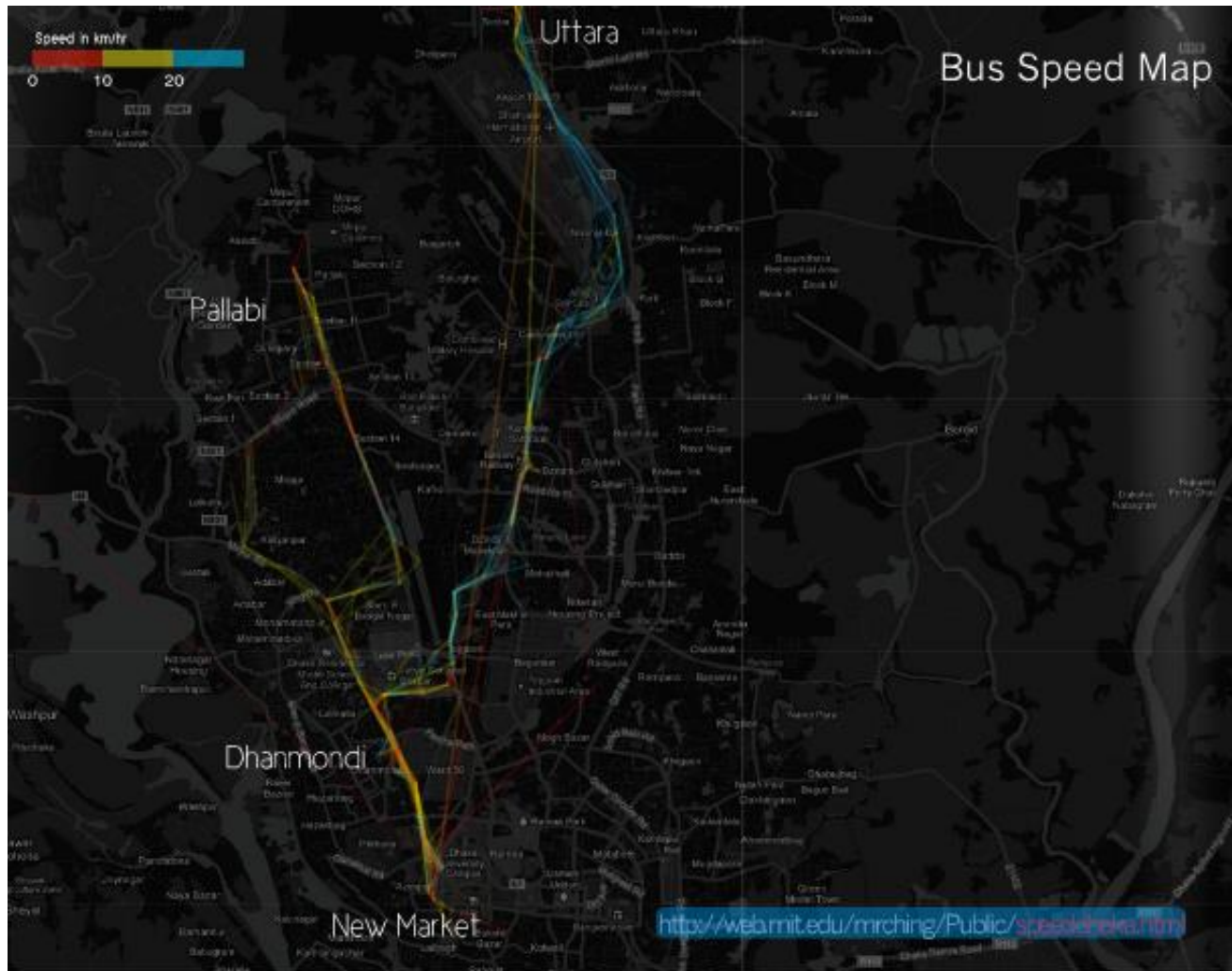
\$1,000 = 26 lives saved per year



5 Years = 130 Lives Saved

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Flocksourcing Buses, Bangladesh



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AUTOLIB PARIS






Banking Boat in Manaus

A Way To Be, South Africa



01:09
01:46



a way to be anywhere
using public transport.
buses, trains and
teksis.



PHD: Party Hard Drivers, India

If You Party, Party Right. Get A PHD Tonight!

Our uniformed drivers are reliable, professional, trained and capable of driving all cars. Our services are reasonably priced so you no longer need to worry about how to get home after a couple of drinks.



1 Call **7738087500**
to book your driver.
(Between 12 p.m. and 12 a.m.)



2 Driver reaches your
destination.
Hand him your keys.



3 Drink responsibly
and party hard.



4 Get driven home
safe and problem
free!



Drinking and Driving is dangerous for health

License To Party    

The Green Cab, South Africa



Buenos Aires Launches Automated Bike Share

March 3, 2015





Tapajos
River

Health
Care
On
Boats

(Floating
Hospital)



Relay Rides Peer to Peer, USA



mobiprize.com

Ideophone Apps, India

just launched



TripThirsty



introducing



the smart wake-up alarm

mobiprize.com

Cabcorner Taxi Platform, USA



mobiprize.com



GREENRIDE®

2000's

E & E recognized that its employees needed a more convenient, easy-to-use tool to find carpool matches and report their commute, which led to the design and implementation of the Web- and map-based system called GreenRide.

Send Match

Melissa T.

Add to Match Email List

Gender: Female

Icons: Car, Bicycle, Bus, Walking

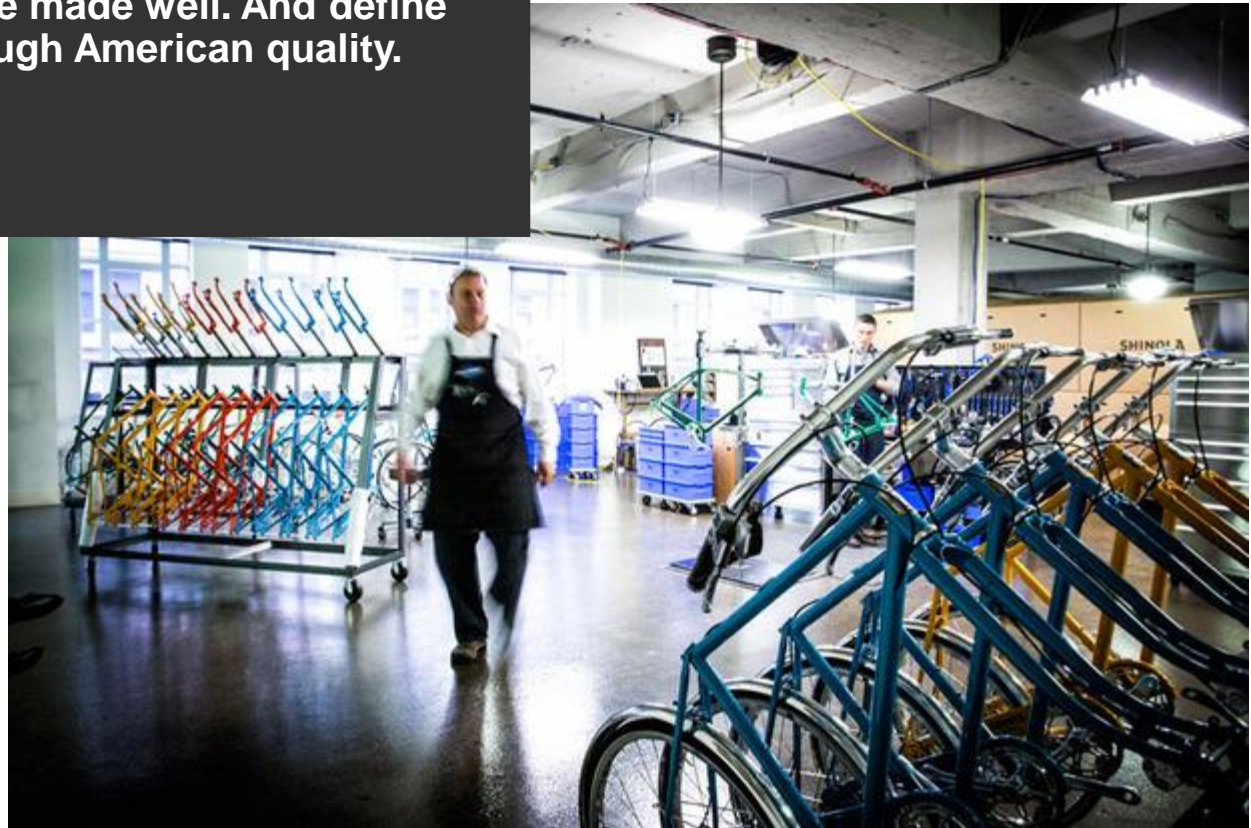
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Detroit Labs is a team of thinkers, doers, and makers.
We dream up and ship beautiful, intuitive apps.



A luxury goods maker located in Detroit creating a community that will thrive through excellence of craft and pride of work. Where we will reclaim the making of things that are made well. And define American luxury through American quality.

SHINOLA
DETROIT



MindHelix, India



Thula Lula, South Africa

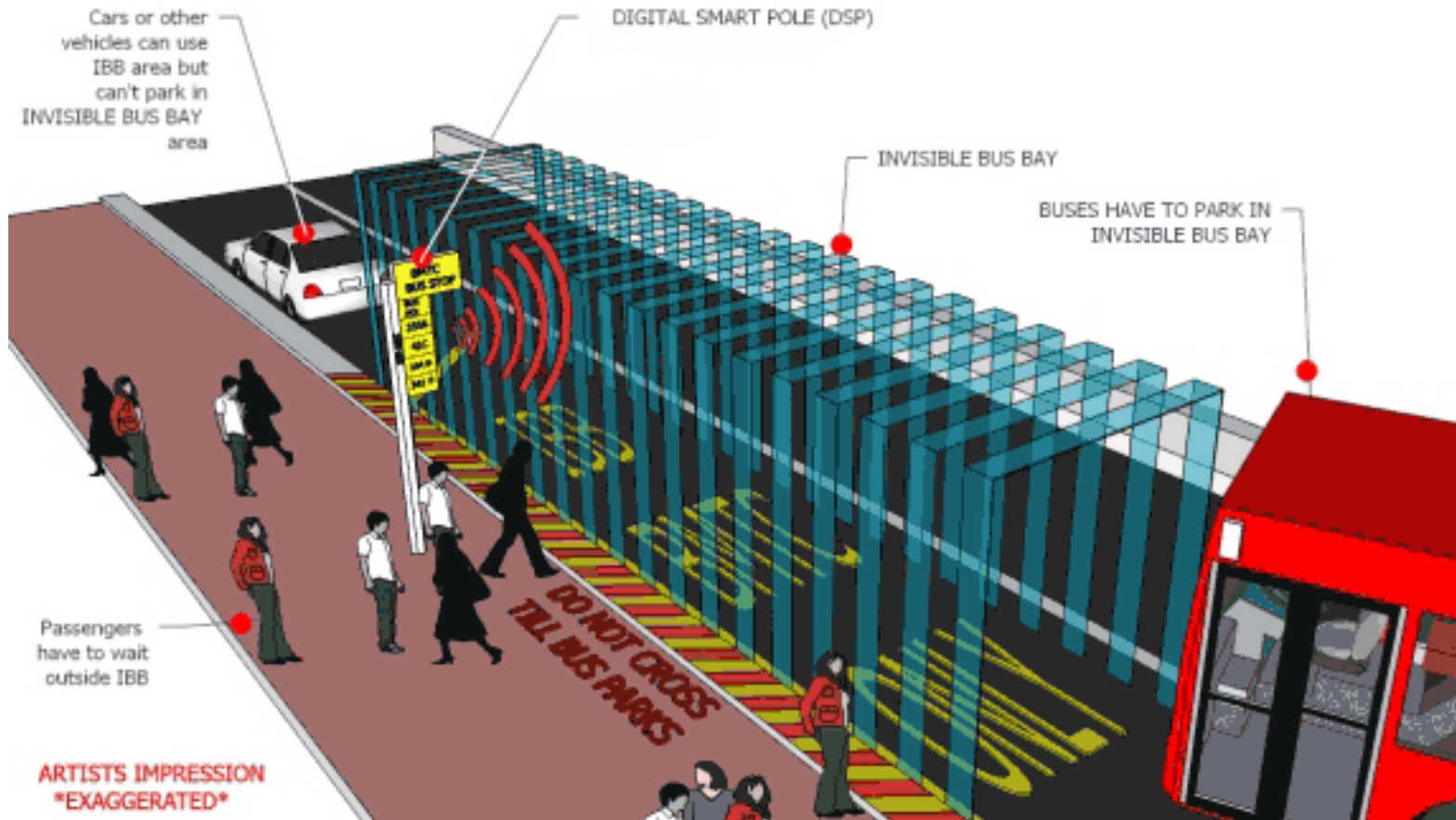


Moovit, Israel

The screenshot displays the Moovit mobile application interface. At the top, the status bar shows the time as 15:00 and various system icons. The main screen is divided into three vertical panels:

- Left Panel:** A map view showing a route starting from a location near the Aquarium of the Bay and heading towards the Beach St & Stockton St station. A text overlay at the bottom left provides walking instructions: "Walk to Beach St & Stockton St station", "15:12", "2 walking minutes", "Walk Distance: 214 m", "4 turns", and "Walk to Beach St & Stockton St 15:14".
- Middle Panel:** A "Search results" section with three options, each with a 5-star rating:
 - Option A:** 19:17, 60 min, 538 m. The route icon shows walking, a train, walking, a bus, walking, and a bus.
 - Option B:** 19:15, 77 min, 723 m. The route icon shows walking, a train, walking, a bus, and walking.
 - Option C:** (Details are partially obscured).An "Add to favorites" button with a star icon is located at the bottom of this panel.
- Right Panel:** A detailed map view of the route for "Line 49 by MUNI to Mission St & 15th St". A red line indicates the bus route, and a yellow line indicates the walking path. Landmarks like "Mission BART" and "Marshall Elementary School" are visible. A "Close" button is in the top right corner.

Neosphere Invisible Bus Bay, India



E2 Community Taxi, USA



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Bill Ford:

A future beyond traffic gridlock

TED2011 · 16:48 · Filmed Mar 2011
Subtitles available in 26 languages

 View interactive transcript



Watch later



Favorite



Download



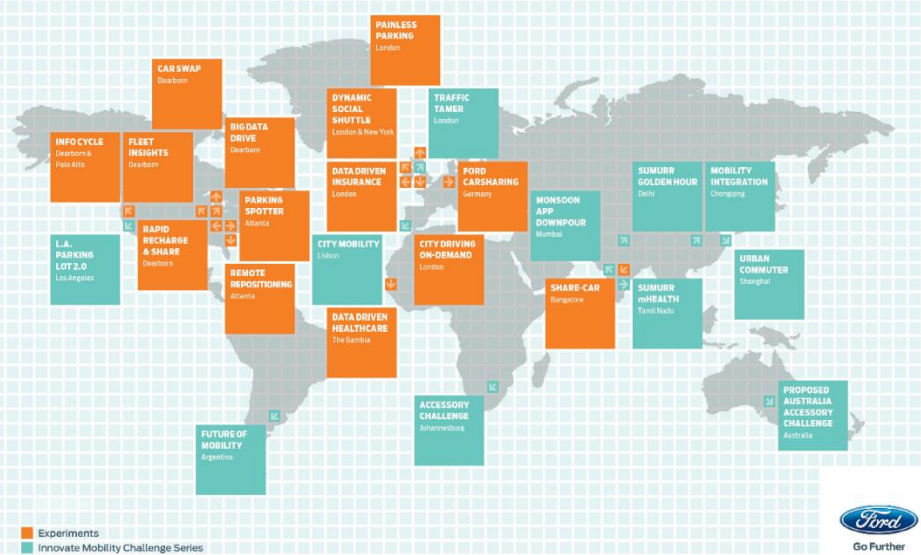
Rate

INDUSTRY LEADERSHIP



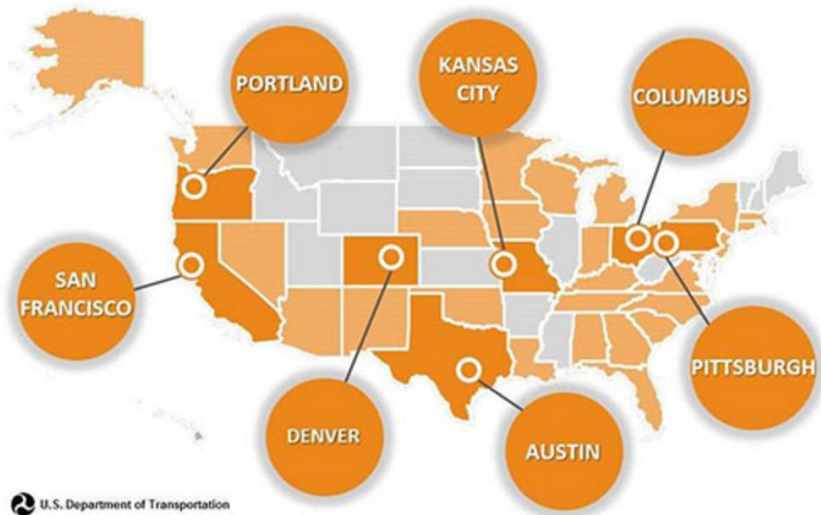
FORD SMART MOBILITY

Ford Smart Mobility is a plan to use innovation to take Ford to the next level in connectivity, mobility and more. It begins with 25 mobility experiments and challenges across the globe to help change the way the world moves.



City Driving On-Demand; Car Swap; Dynamic Social Shuttle; Share Car; Remote Positioning; Ford Carsharing; Painless Parking; Parking Spotter; Data Driven Insurance; Big Data Drive; Info Cycle; Fleet Insights; Rapid Recharge & Share; Data Driven Health Care; LA Parking Lot 2.0; Traffic Tamer; City Mobility; Future of Mobility; Accessory Challenge; Australia Accessory

Smart City Challenge Finalists



U.S. Department of Transportation



The European Mobility as a Service Alliance

Working to create a seamless, demand-based travel experience

Launched at the 2015 ITS World Congress in Bordeaux



NATIONAL LEADERSHIP

All Grappling With THE FOUR SOLITUDES

