

MOBILITY-AS-A-SERVICE

Susan Zielinski, Managing Director, SMART.

MaaS Panel for Quito

Quito Ecuador. October 17, 2016

At Habitat III

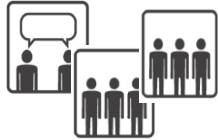


Mobility-as-a-Service (MaaS) refers to a paradigm shift in personal transportation ... fueled by a myriad of innovative new mobility service providers such as ride-sharing and e-hailing services, bike-sharing programs, and car-sharing services as well as on-demand "pop-up" bus services...

[and] further enabled by improvements in the integration of multiple modes of transport into seamless trip chains, with bookings and payments managed collectively for all legs of the trip (From Wikipedia)



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



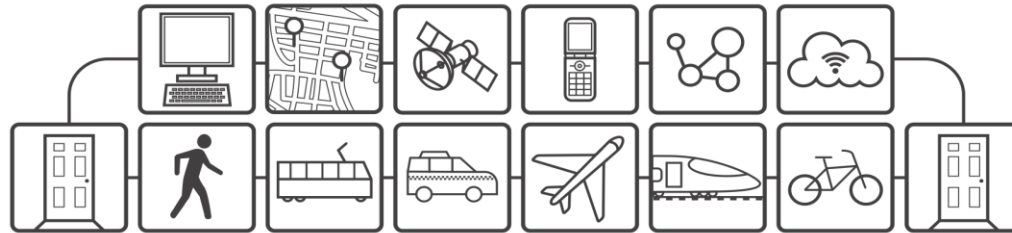
BUSINESS MODELS

MaaS = Mobility-as-a-Service
(Service & Product **BUNDLING** for the citizen)



**INNOVATION
RESEARCH
TECH TRANSFER
CAPACITY BUILDING**

Connected multi-mode multi-service IT-enabled door-to-door



... 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**



**ENABLING INFORMATION
TECHNOLOGY**



**PHYSICAL DESIGN,
PLANNING
INFRASTRUCTURE**



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



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

What Might It Look Like?

**Mobility is transforming
just about
everywhere**

MOBI PLATFORM



WhereIsMyTransport, South Africa



Avego Ride Sharing Technology, Ireland



mobiprize.com

Zagster provides bicycle sharing systems for the world's leading businesses and institutions. We design, build, and operate solutions to fit your organization's unique needs and provide a great rider experience.

 **Zagster**TM
a better way to bike



UBER Global



WANT TO DRIVE WITH UBER?

[BECOME A DRIVER](#)



 MENU

UBER

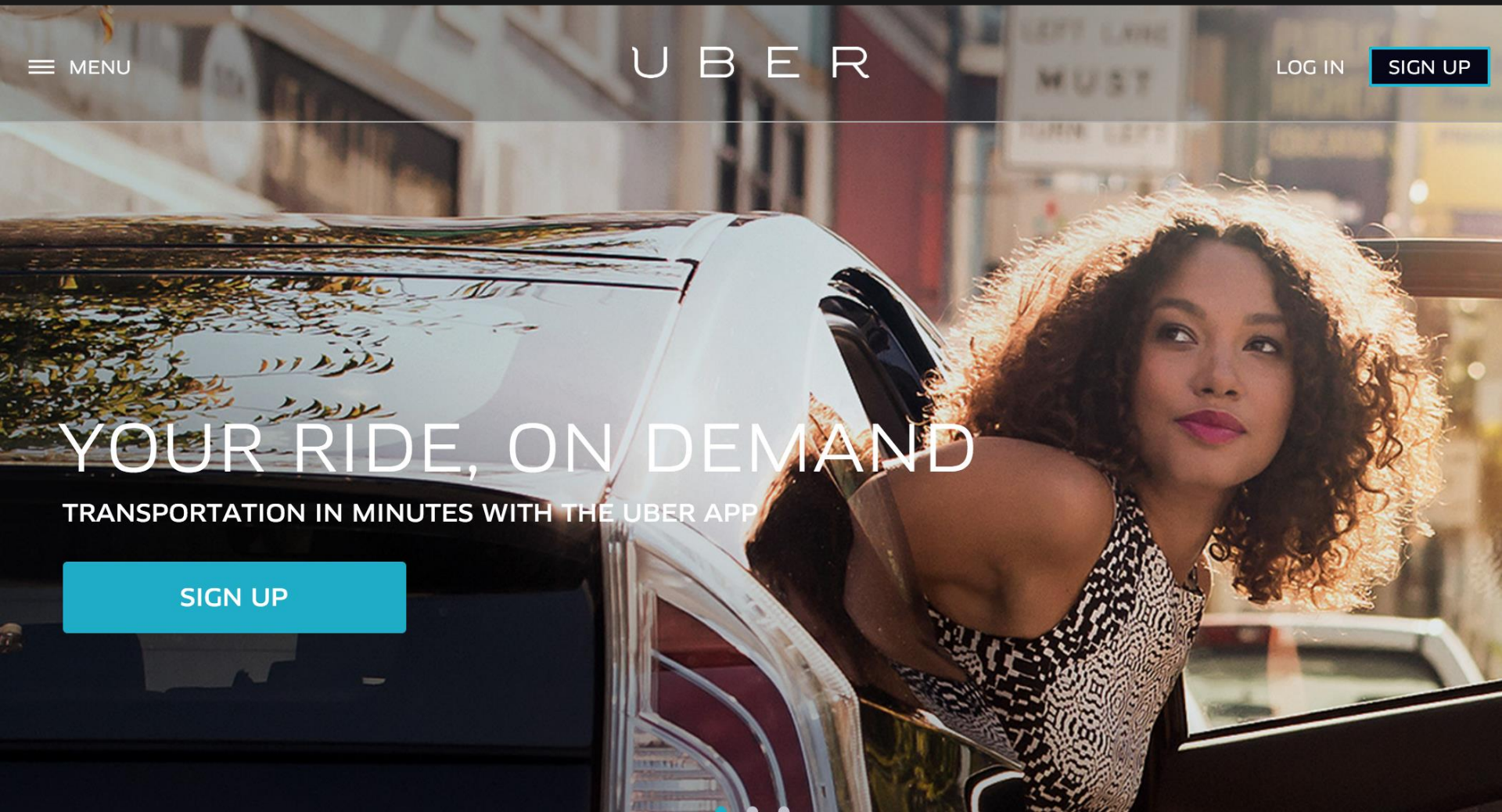
[LOG IN](#)

[SIGN UP](#)

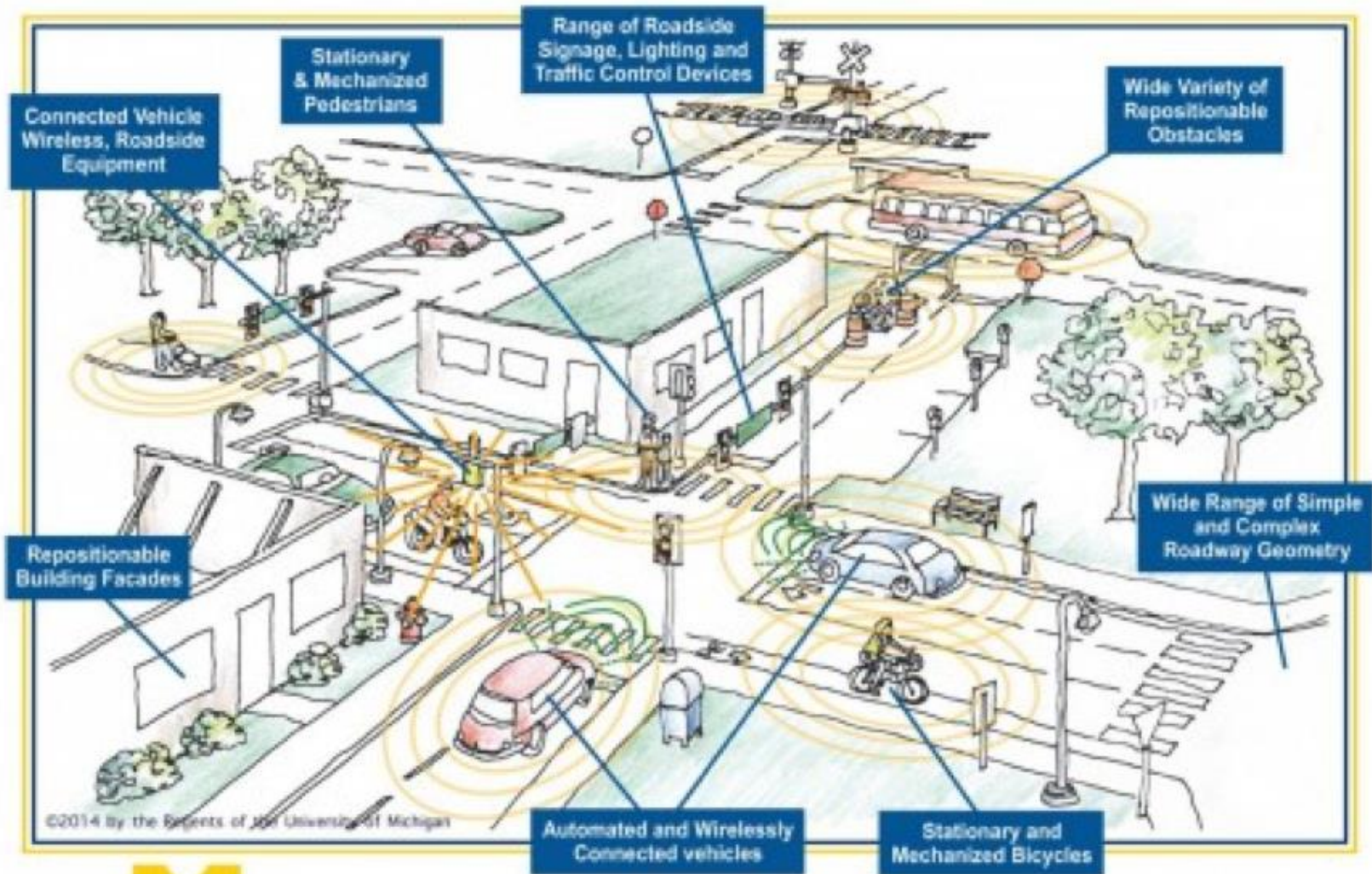
YOUR RIDE, ON DEMAND

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



mobiprize.com

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

租用 归还 清算 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:

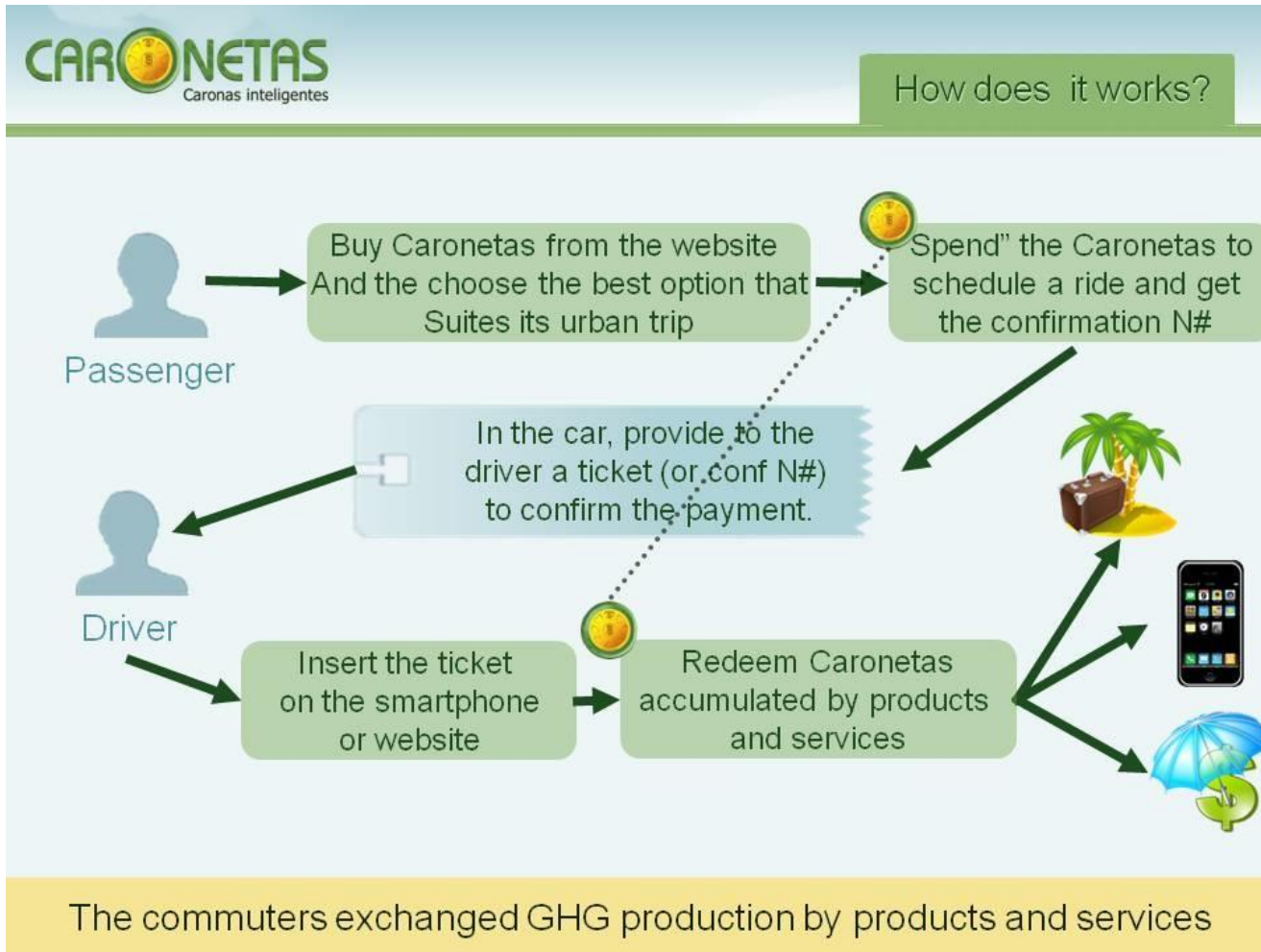
mobiprize.com

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



mobiprize.com

Ride Amigos Commute Optimization, USA

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

Indicates an employee of RAC Ventures

1720 Pacific Ave, Venice, CA, 90291 to 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

Transportation modes and costs:

- Walking: 2.9 hrs, 7.1 mi, 0.8 lbs CO₂, free
- Bicycling: 43 min, 8.7 mi, 0.8 lbs CO₂, free
- Car: 18 min, 8.4 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

mobiprize.com

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

SMART

Sustainable Mobility & Accessibility
Research & Transformation

UNIVERSITY OF
MICHIGAN



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

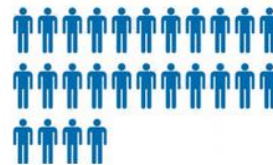
Winner



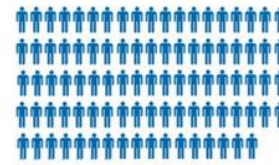
1 Zambulance = \$1,000



1 Zambulance = 1 life saved every 2 weeks



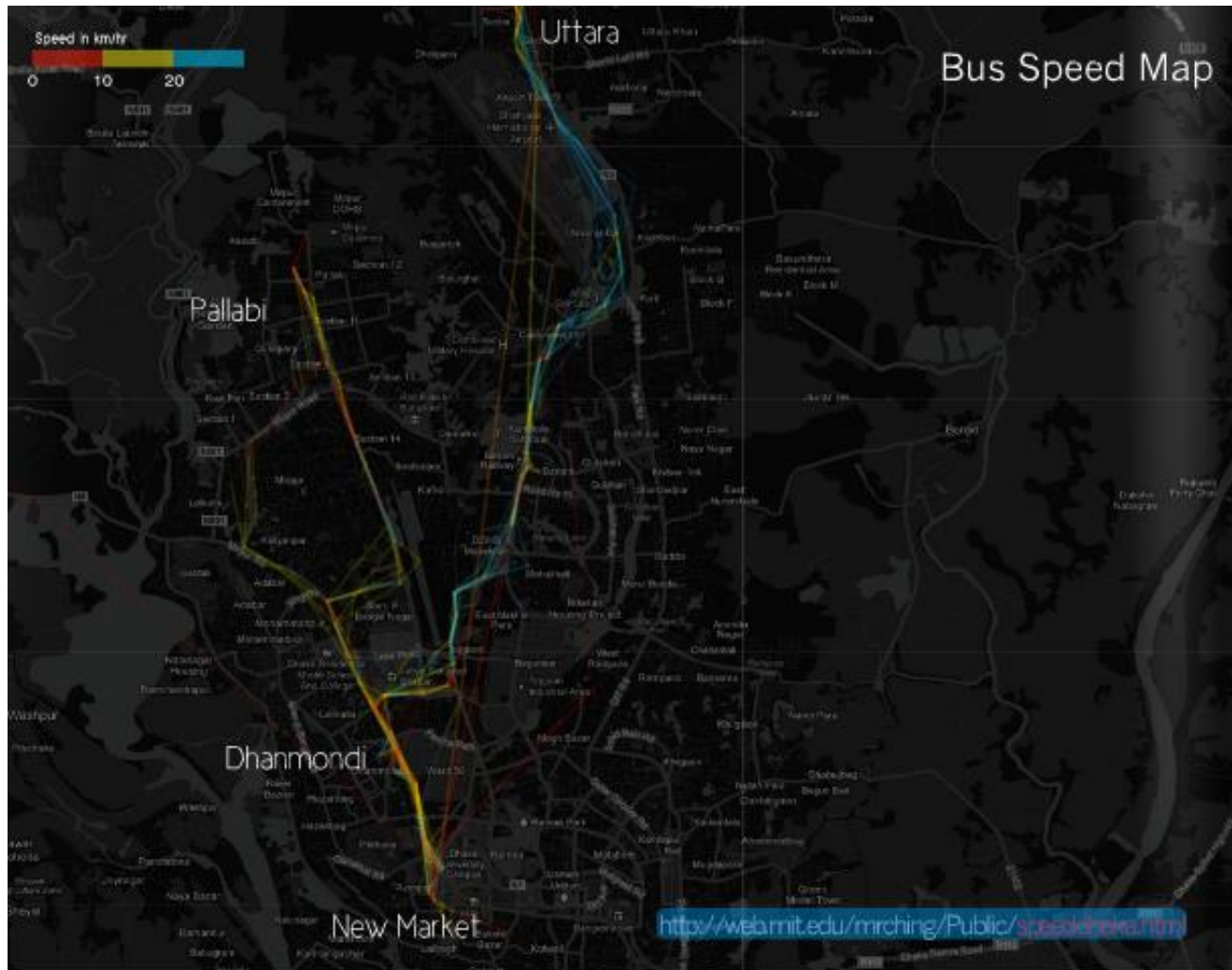
\$1,000 = 26 lives saved per year



5 Years = 130 Lives Saved

mobiprize.com

Flocksourcing Buses, Bangladesh



mobiprize.com


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

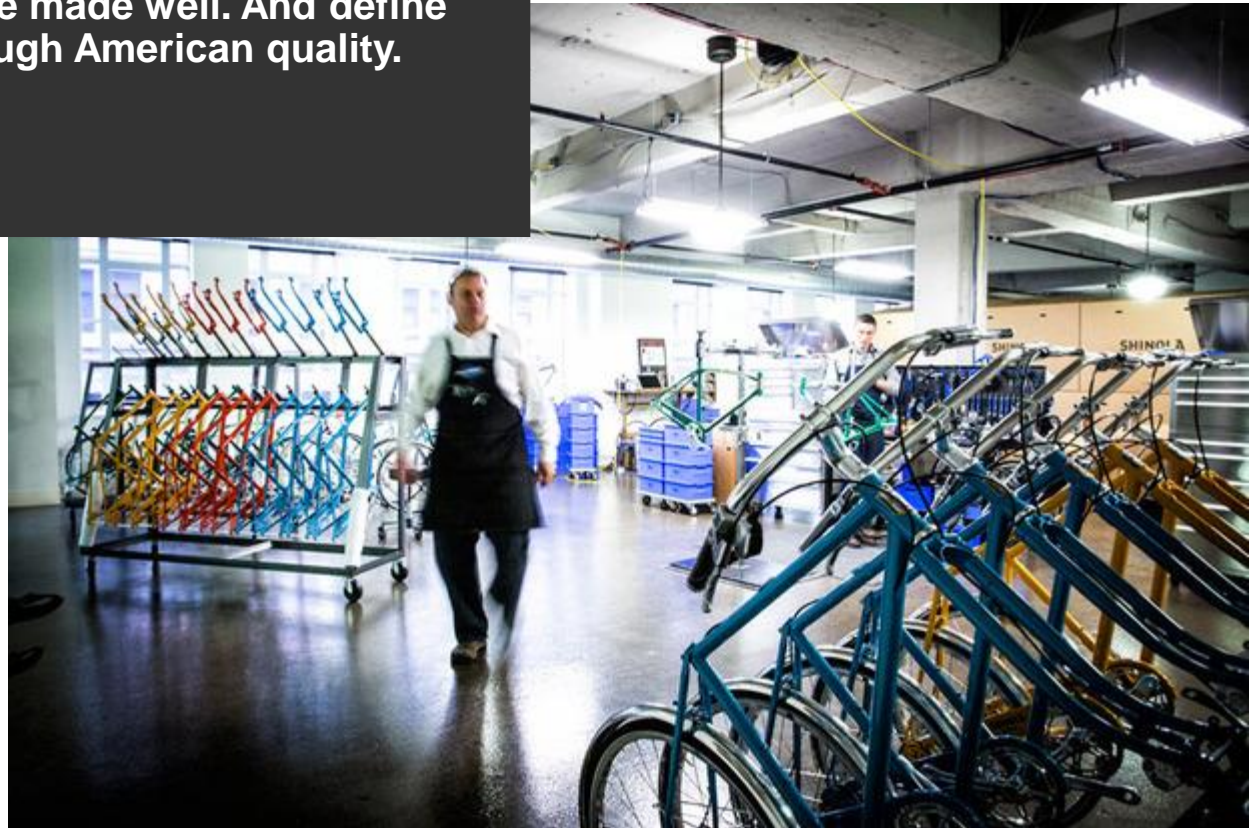
mobiprize.com

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

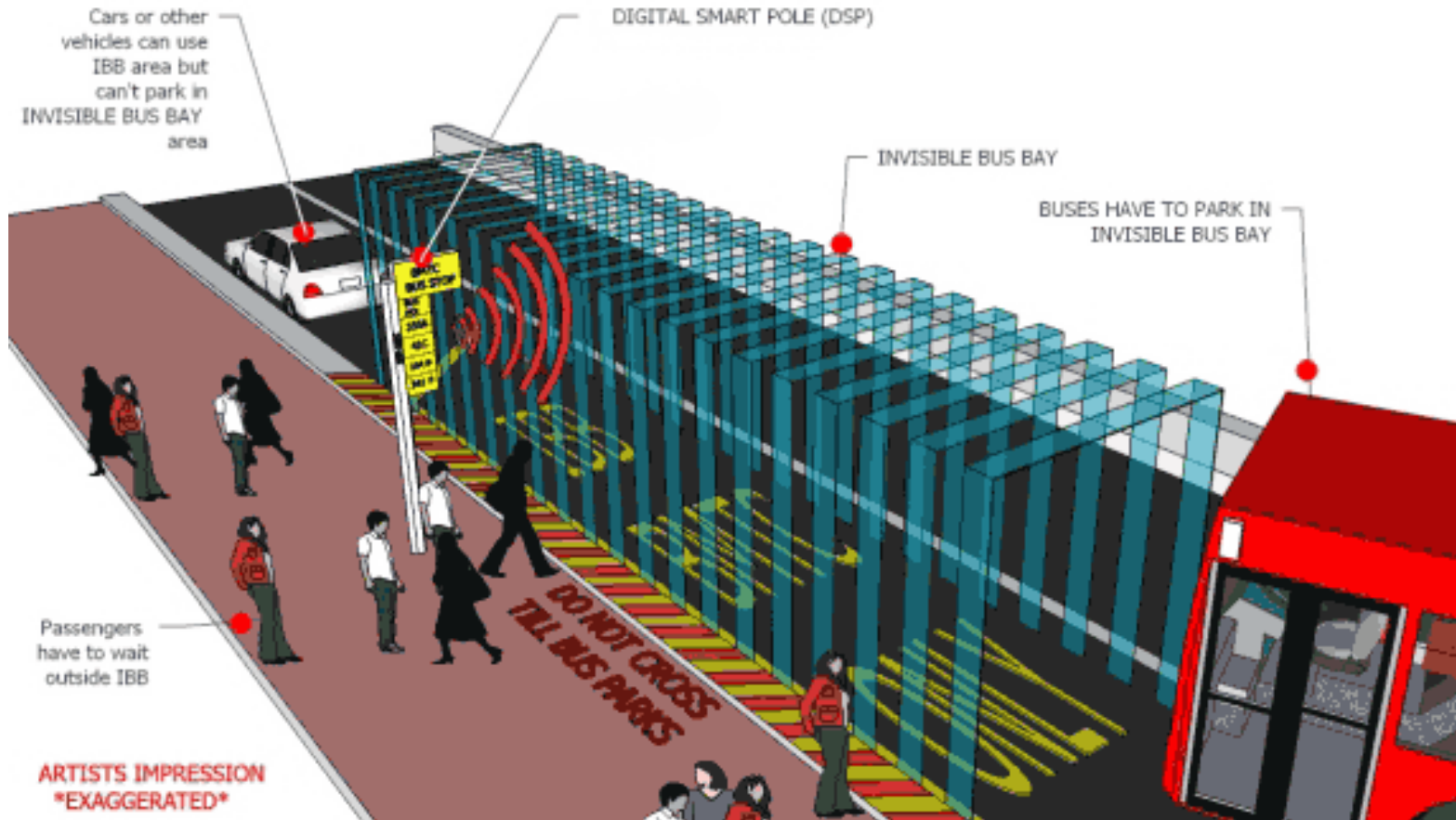


Moovit, Israel

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 marked with a smiley face icon. A text box 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 selected route, labeled "Line 49 by MUNI to Mission St & 15th St". The route is highlighted in red and orange, showing the path through the city streets. A "Close" button is in the top right corner.

Neosphere Invisible Bus Bay, India

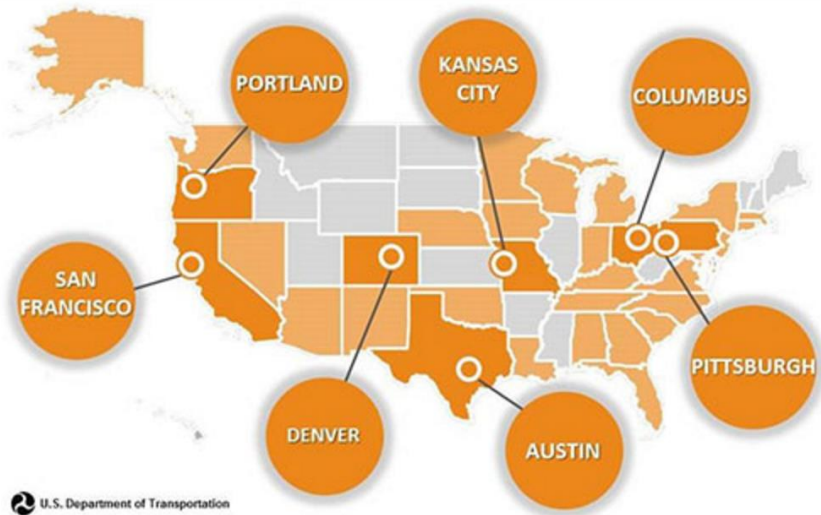


E2 Community Taxi, USA



mobiprize.com

Smart City Challenge Finalists



U.S. Department of Transportation



Honorary
Enterprising
City & State
MobiPrize



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

**IT'S TIME TO SPARK
MEANINGFUL CHANGE**

The India Smart Cities Challenge helps cities get smarter, faster.



Watch

Read

Attend

Participate

About

Search...




Log in

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

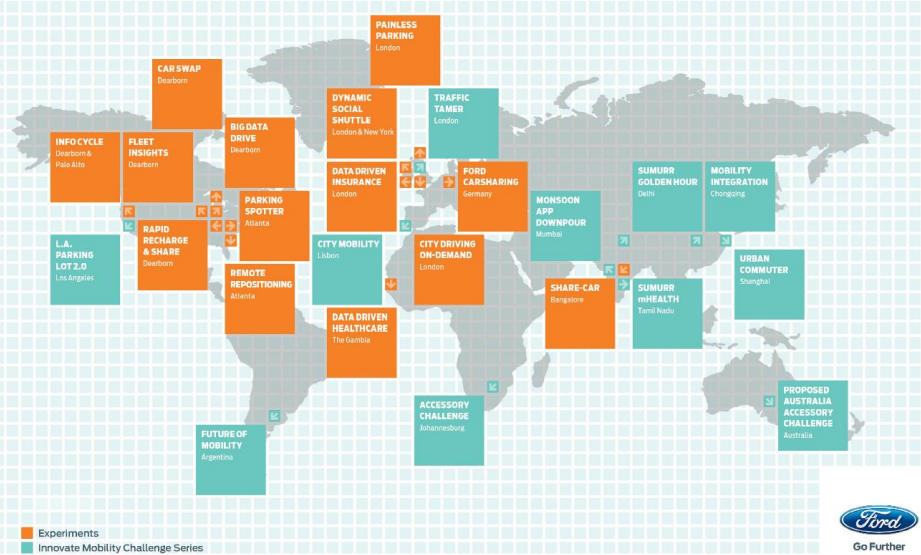


Rate



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



The BUZZ right NOW:

(where attention and funds are going)

Technology / Big Data

Shared Use

Electrification

Automation / Self Driving

Other?

EMERGING META:

MOBILITY-AS-A-SERVICE (THE WHOLE ENCHILADA)

Systems of Systems – focused on the person

New Integration Models

New Technologies

New Service Models

New Business Models

New Spatial Models

New Eco-Systems

Public Private Innovation

New Skills & Jobs

New Policy Models

New Narratives

**Why is this
happening Now?**

Because it's **ESSENTIAL** to

- ❑ Future Community Outcomes
 - ❑ Health
 - ❑ Education
 - ❑ Economy
 - ❑ Equity
 - ❑ Etc.



In other words BECAUSE IT NEEDS TO



BECAUSE IT CAN

The Cloud / Big Data

Way Finding Apps

Fare Payment Apps

Parking Apps

Integrated Traffic Management Systems (cloud, mobile)

Shared Use

Automation / self driving capabilities

Seamlessness

Safety

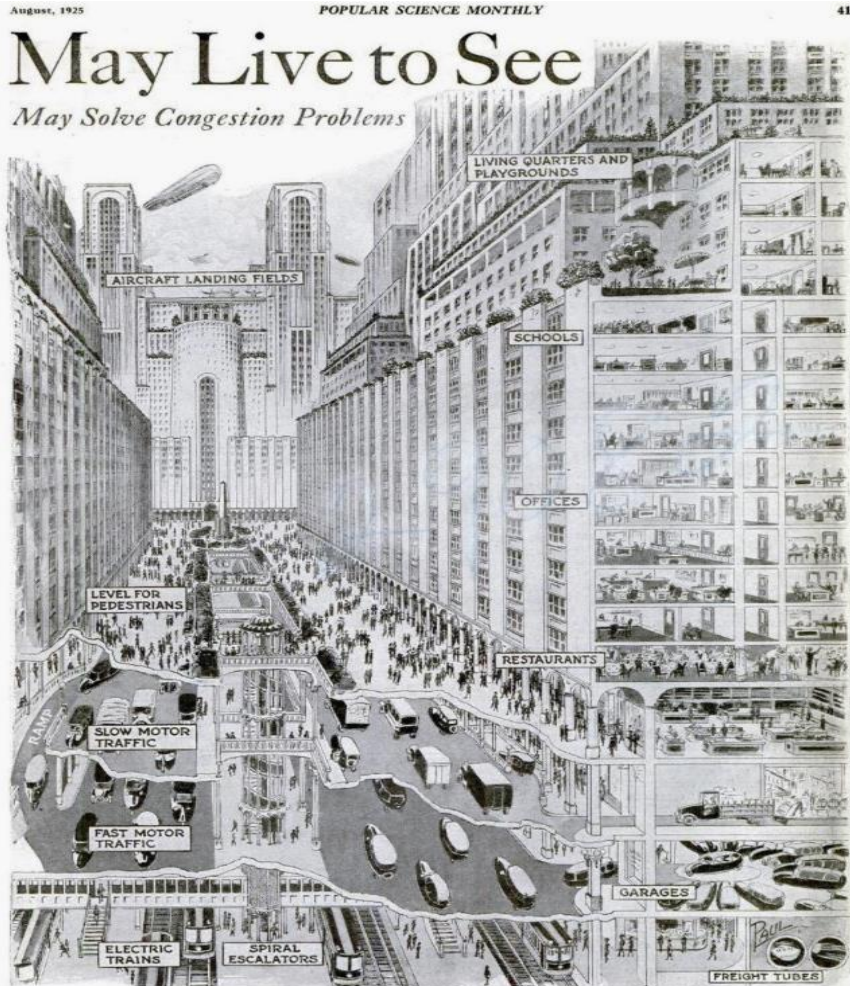
Security + Cyber Security

Energy monitoring & saving

Other

PRE-DIGITAL

So last millennium..



How You May Live and Travel in the City of 1950
 Future city streets, says Mr. Corbett, will be in four levels: The top level for pedestrians; the next lower level for slow motor traffic; the next for fast motor traffic, and the lowest for electric trains. Great blocks of terraced skyscrapers half a mile high will house offices, schools, homes, and playgrounds in successive levels, while the roofs will be aircraft landing-fields, according to the architect's plan



BECAUSE ITS COOL AND SEXY AND C

The Washington Post

[NEWS](#) | [POLITICS](#) | [OPINIONS](#) | [BUSINESS](#) | [LOCAL](#) | [SPORTS](#) | [ARTS & LIVING](#) | [CARS](#) | [REAL ESTATE](#) | [SHOPPING](#)

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, & SOCIALNETWORKS

BECAUSE IT'S

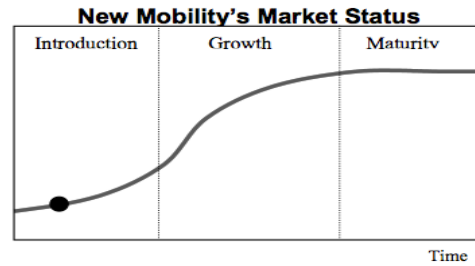
AN INVESTMENT (not a cost)

→ REGIONAL COMPETITIVENESS / PRODUCTIVITY

→ SAVES MONEY (OPTIMIZATION)

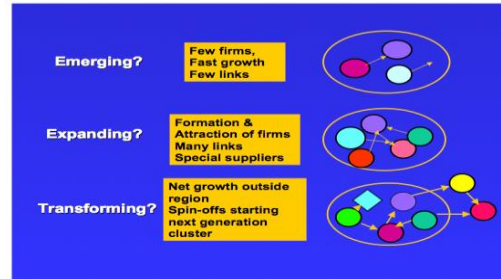
→ CREATES JOBS

→ 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
- Eolia
- etc

BIG BUSINESS is transforming supply to meet emerging global market needs & opportunities.

NEW MOBILITY INDUSTRY CLUSTER DEVELOPMENT

- Scotland
- Finland
- Sao Paulo
- Sweden
- Barcelona
- etc

META: CURRENT PHENOMENA

- ❑ Change is changing faster
- ❑ Technology is outpacing policy
- ❑ We don't know what we don't know
 - ❑ We are all the deciders
 - ❑ It's an infinite game
 - ❑ It's an eco-system



GLOBAL ECO-SYSTEM

SMART APPROACH

Idea to on the ground

THE FOUR SOLITUDES

SERVICE

Car Share / Car Pool/ Peer to Peer
Lyft / Uber
Home Delivery
Senior Chauffeur
Auto Rickshaw
Taxi / Pedicab
Etc

PRODUCT / MODE

Car / Bus / Train
Plane / Boat
Bike / Trike
Shoes / Skates / Skateboards
Etc

PERSON /
USER /
CUSTOMER

TECHNOLOGY

Fare Payment / Parking
Wayfinding
Traffic Management
Congestion Pricing
Mesh Network / Cloud
Border Crossing / Security
Connectivity / Automation
Etc.

DESIGN / INFRASTRUCTURE/ REAL ESTATE

Urban Design
Product Design
Real Estate
Roads
Network Design
Etc.

ADVANCING IMPLEMENTATION OF NEW MOBILITY SYSTEMS GLOBALLY

(and the industry + enterprise that supplies them)

UNITED STATES

Ann Arbor MI
Dearborn MI
Detroit MI
Fort Bragg NC
Greenville NC
Mystic Connecticut
Los Angeles CA
Lansing MI
Pasadena CA
Portland OR
Washington DC

SOUTH AMERICA

Ermelino Matarazzo Brazil
Rio De Janeiro Brazil
Sao Paulo Brazil

ASIA

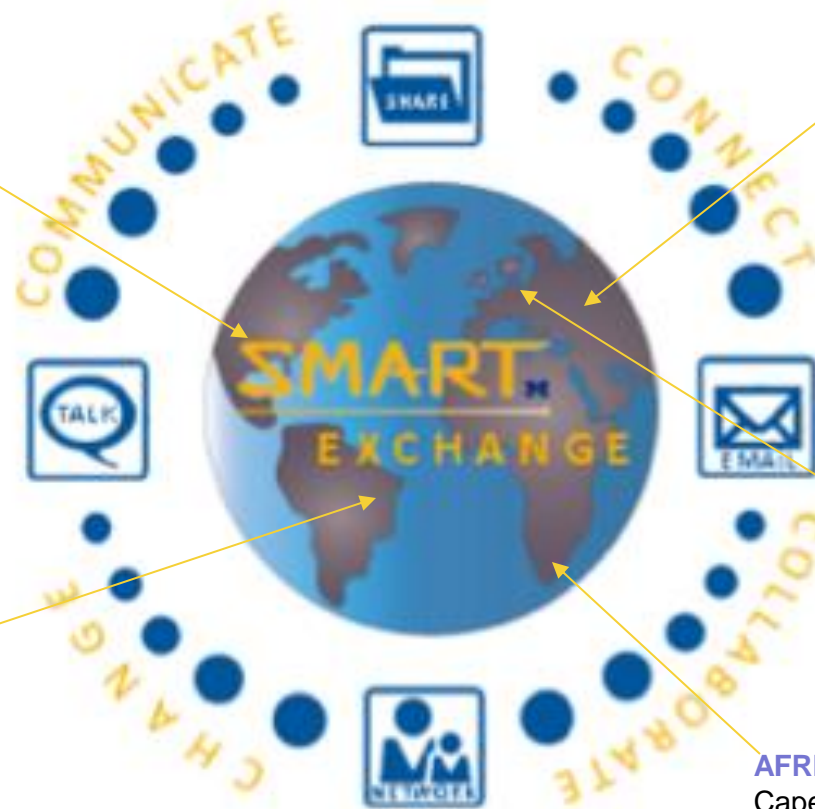
Bangalore India
Beijing China
Changwon Korea
Chennai India
Cochin India
Delhi India
Manila Philippines

EUROPE

Muenster Germany
Warsaw Poland

AFRICA

Cape Town South Africa



PLATFORMS; TECH TRANSFER; RESEARCH; EDUCATION; GLOBAL LEARNING



SMART SYSTEMS SESSIONS

Multi-Modal System: Focus on Person Door-to-Door

1. **CONVENING** – The Crucial & Often Under-Rated First Step

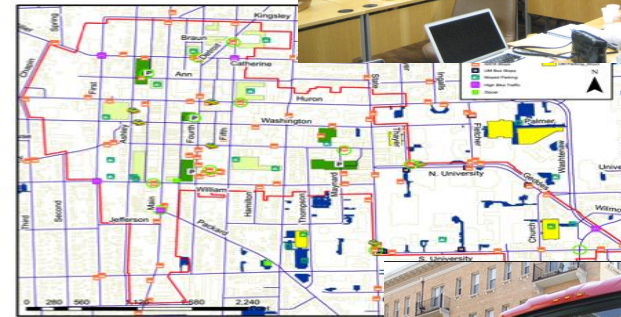
private (not just the usual suspects – public innovation)

2. **MAPPING** – Engaging & Tangible Catalyst for Transformation

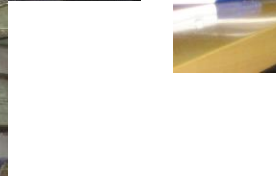
3. **PILOTING & ROLL-OUT** – Adapting, Scaling & Application

4. I

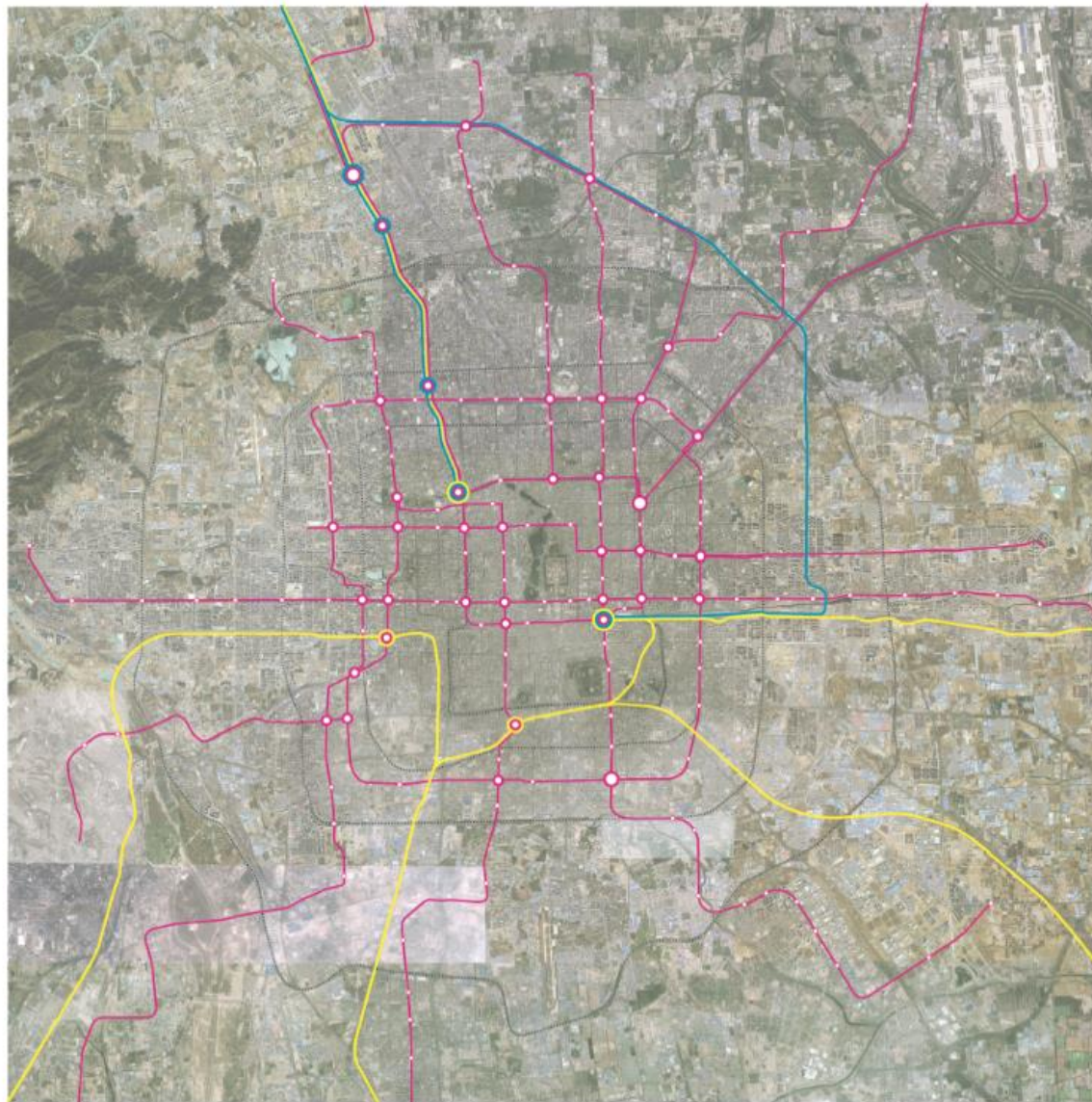
5. (



CONVENING



- Subway Station
 - Subway Transfer Station
 - Commuter Rail Station
 - Regional Rail Station
 - Subway
 - Commuter Rail
 - Regional Rail
 - Ring Road
- BEIJING, CHINA



Beijing
Region



MAPPING & IMPLEMENTING



BEIJING CHINA



LANSING MICHIGAN



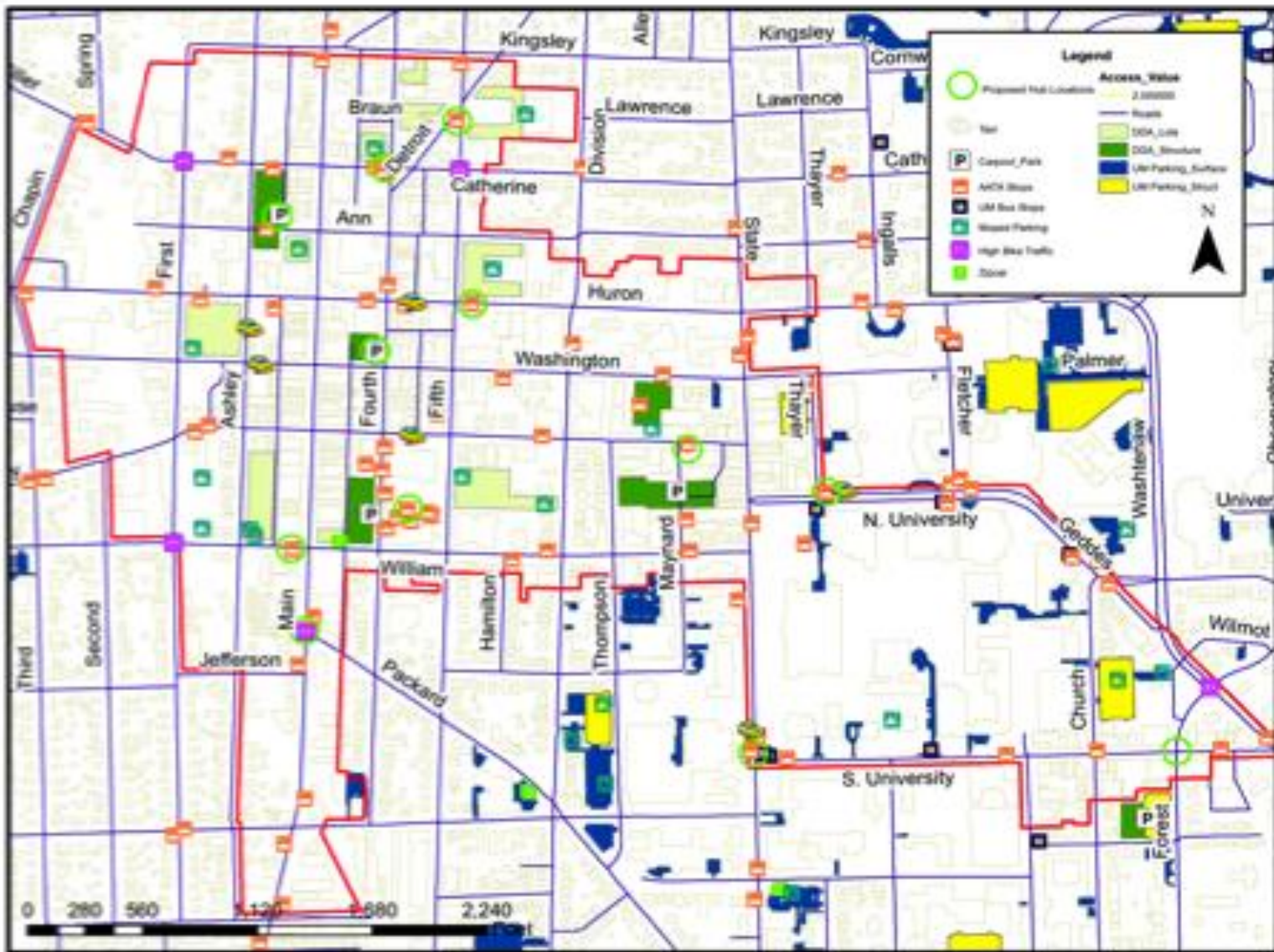
- SMART Bus Stop
- DDOT Bus Stop
- People Mover Station
- M-1 Rail Line Proposed Station
- Car Sharing Location (ZipCar)
- SMART Bus Route
- DDOT Bus Route
- People Mover
- M-1 Rail Line (proposed)
- - - Bicycle Path - Grade-Separated
- Bicycle Path - On-Street

- SMART Bus Hub
- Transit Station

DETROIT, MICHIGAN

DETROIT REGION



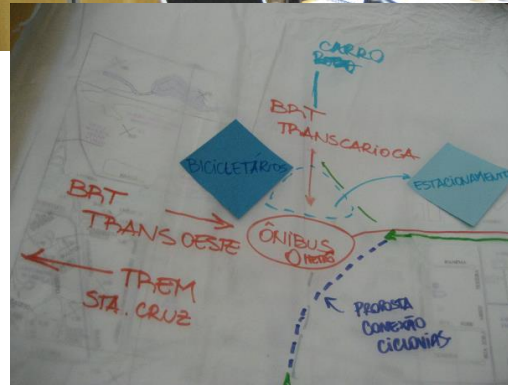
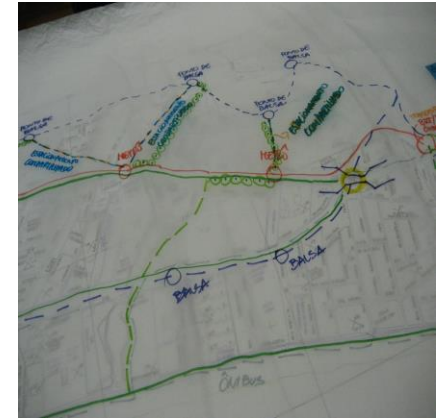
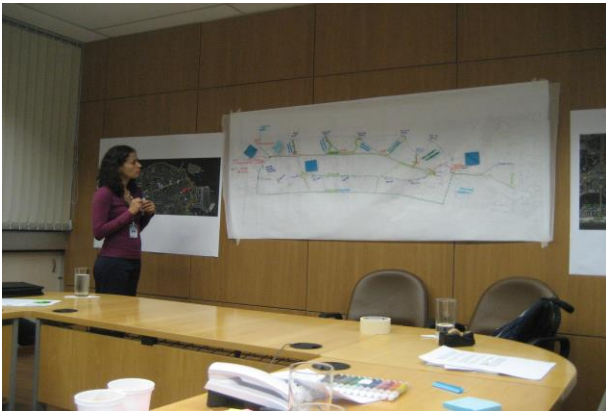


ANN ARBOR MICHIGAN

METRO MANILA



RIO DE JANEIRO





COCHIN INDIA (quiet leapfrog)

Linking train, metro, bus, ferry, auto, parking, 2 wheelers

Linked to commercial, entertainment, tourism, lifestyle

70% of people need not enter city (larger hubs gateways to grid of smaller connect points)

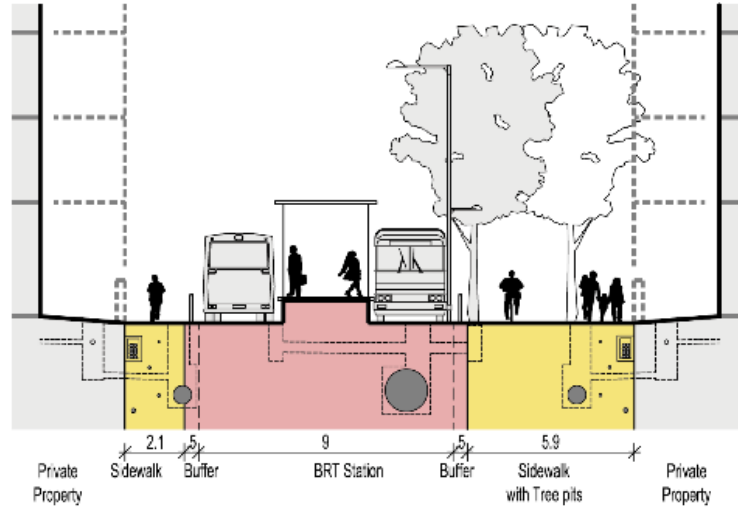
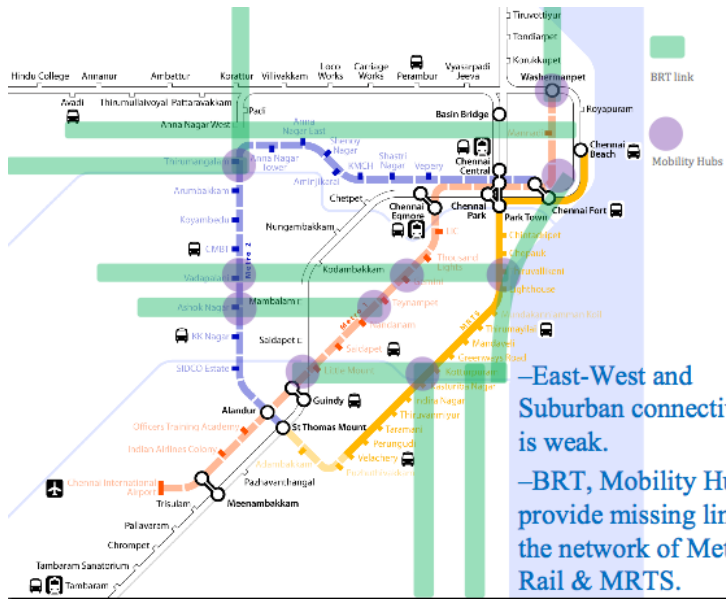
Transform economy & lifestyle

Sustainable – supported by real estate elements





WASHINGTON D.C.

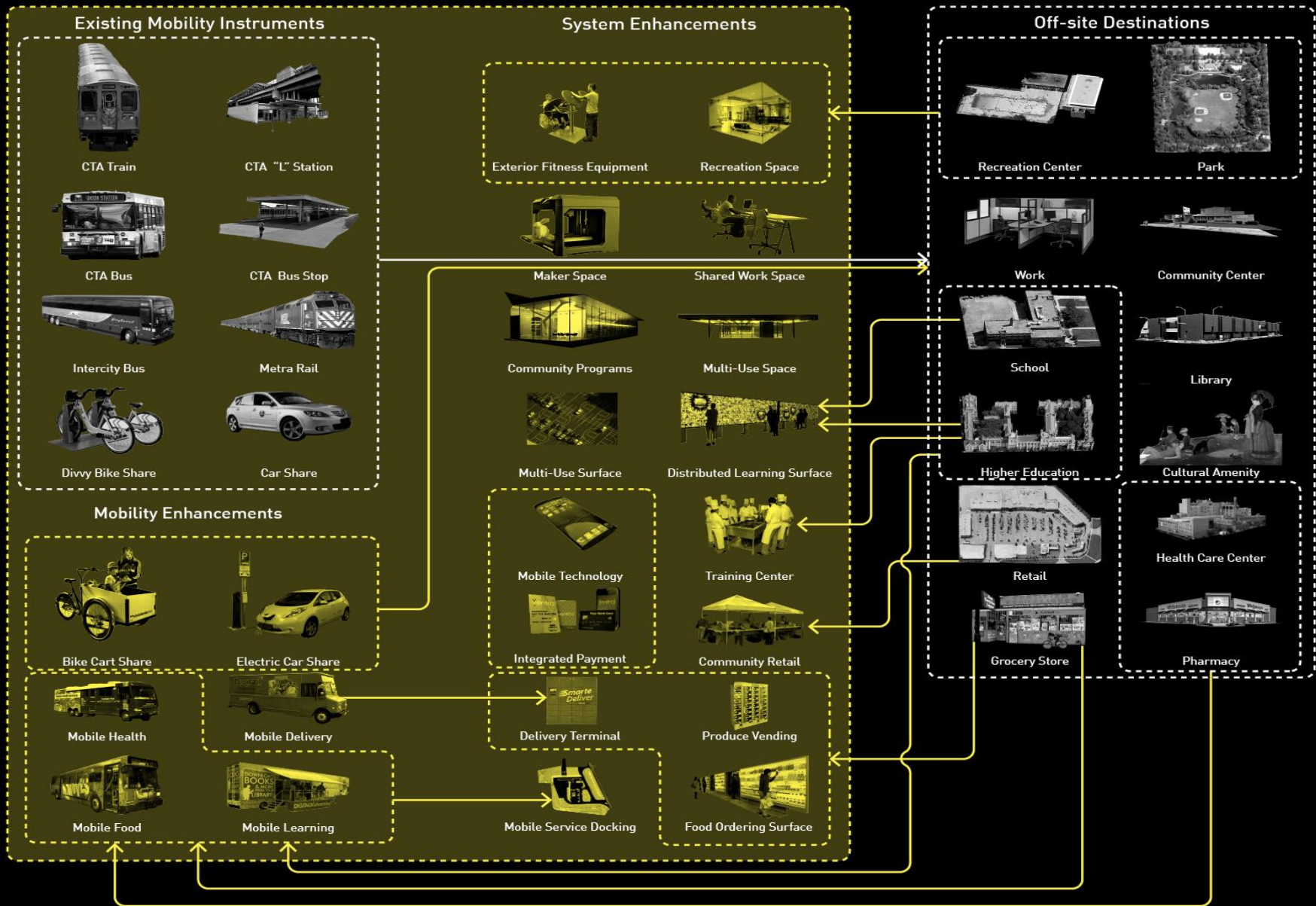


CHENNAI, INDIA

Linking design, value capture, cycles, auto rickshaws, pedestrians, local business & new technologies (e.g. Mapunity, Cisco, Ashok, through CII)



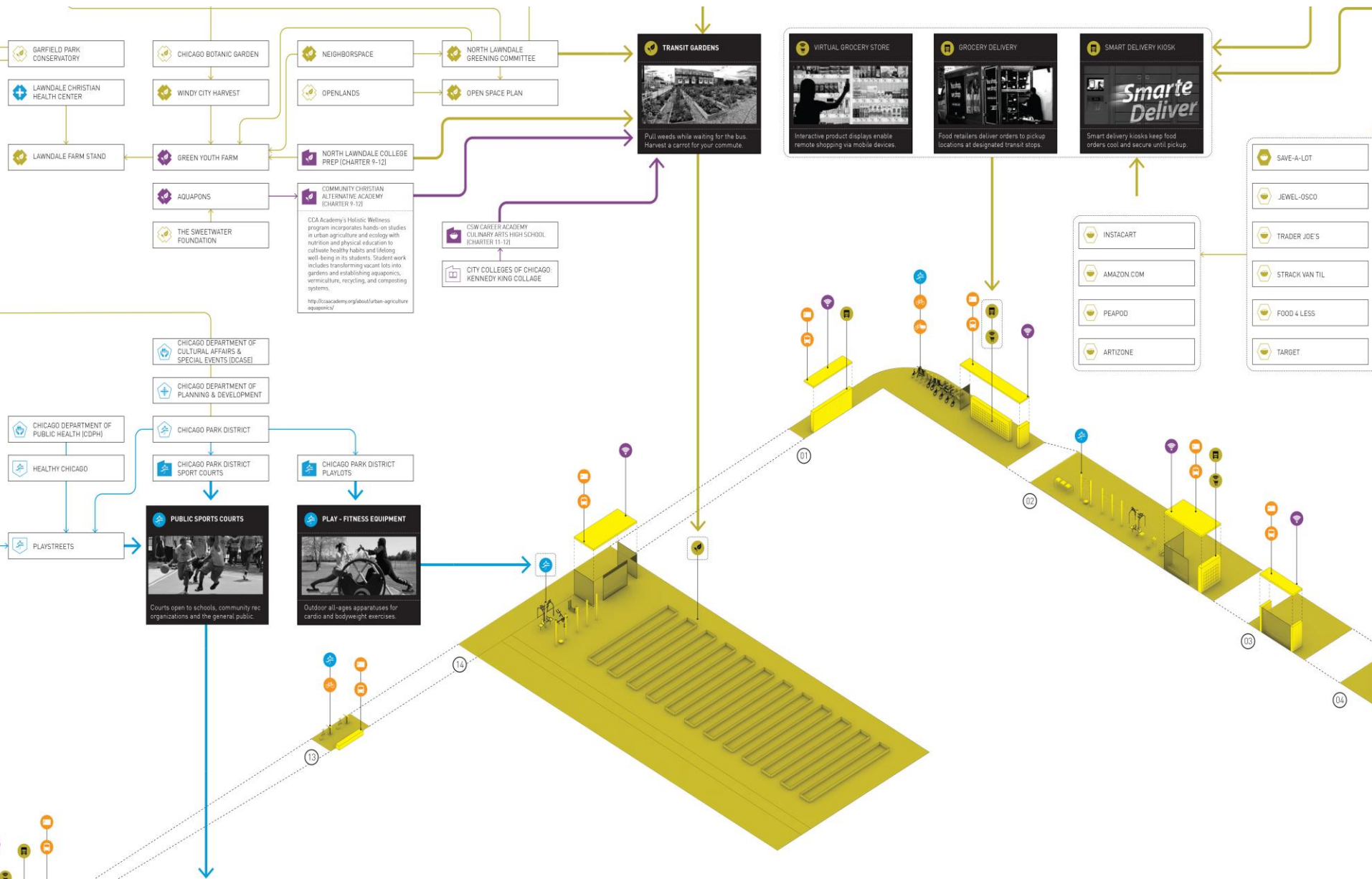
DESIGN PROTOTYPES (Thun, Velikov, Zielinski, McTavish)



DESIGN PROTOTYPES



DESIGN PROTOTYPES



DESIGN PROTOTYPES



ANTICIPATED & UNANTICIPATED BENEFITS

Focus on people door to door
Sparks both immediate & long term solutions
Cost effective (by optimizing)
Supports local employment & economic benefits
Is sustainable
Enhances Resilience
Is not rocket science
Reinforces the Local Mobility Eco-System
(public-private innovation)
etc.

2. MOBI PLATFORM & INDUSTRY DEVELOPMENT



3. MaaS CONSORTIUM



4. RESEARCH TO INFORM & ACCELERATE:

Integration Models

Physical Design Prototypes

MaaS Success Factors

Industry Analysis

Economic Mapping

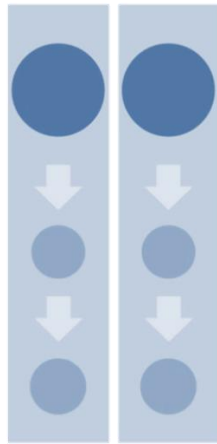
Enabling Policy

Public Private Innovation

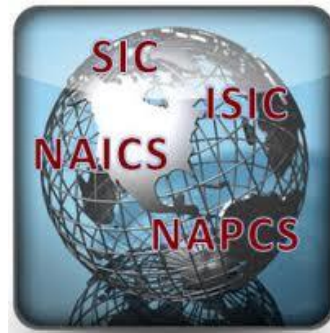
Behavior, Attitudes, Decision Models, Marketing
etc.

INDUSTRY CLUSTER ANALYSIS

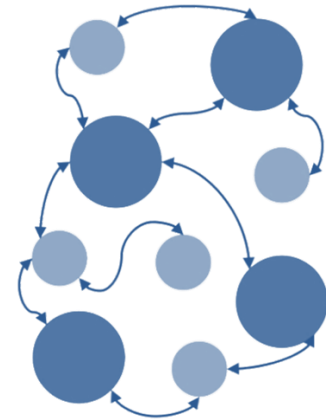
Value system simulations of emerging industry ecosystems to identify new opportunities for legacy industry players.



Value Chain
Analysis



Industry Code
Mapping



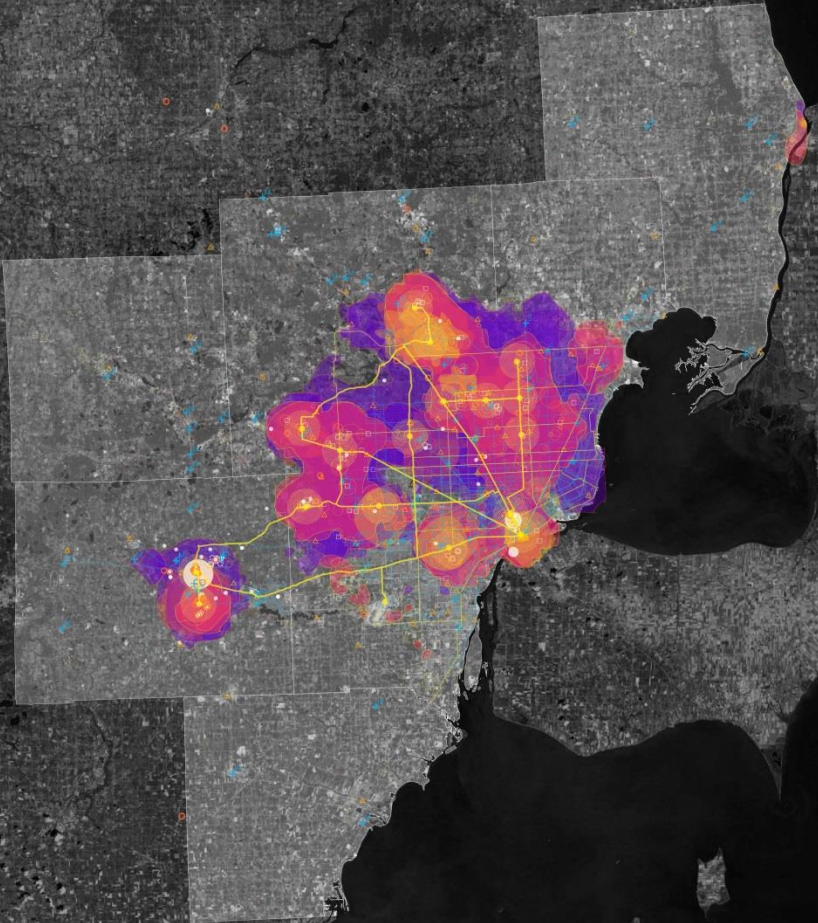
Emerging
Ecosystem

: MAPPING MOBILITY ENTERPRISE

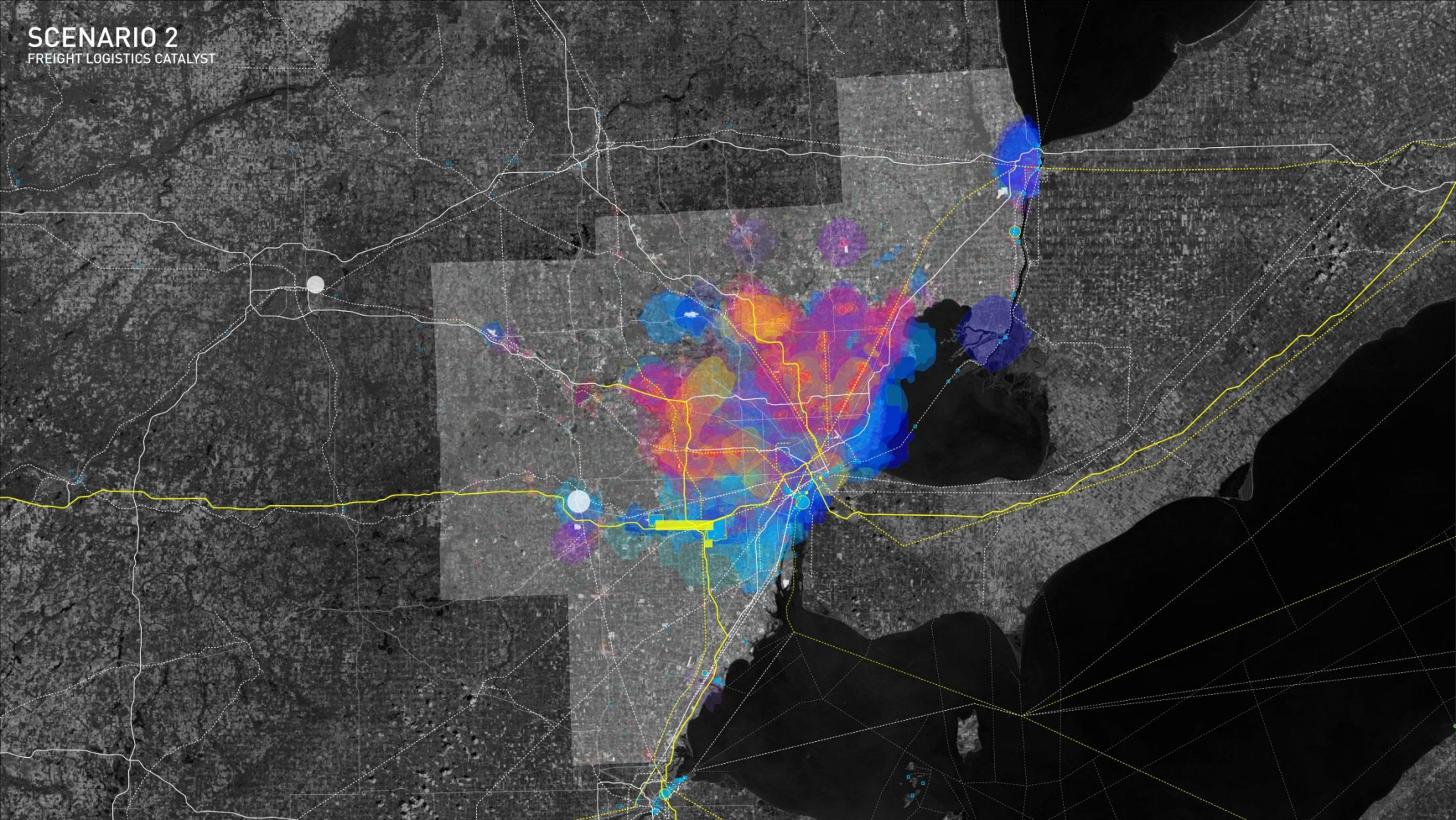
334, 335, 511, 515, 517, 541
COMPUTERS, ELECTRONICS, AND INFORMATION



SCENARIO 1
REGIONAL BUS TRANSIT CATALYST

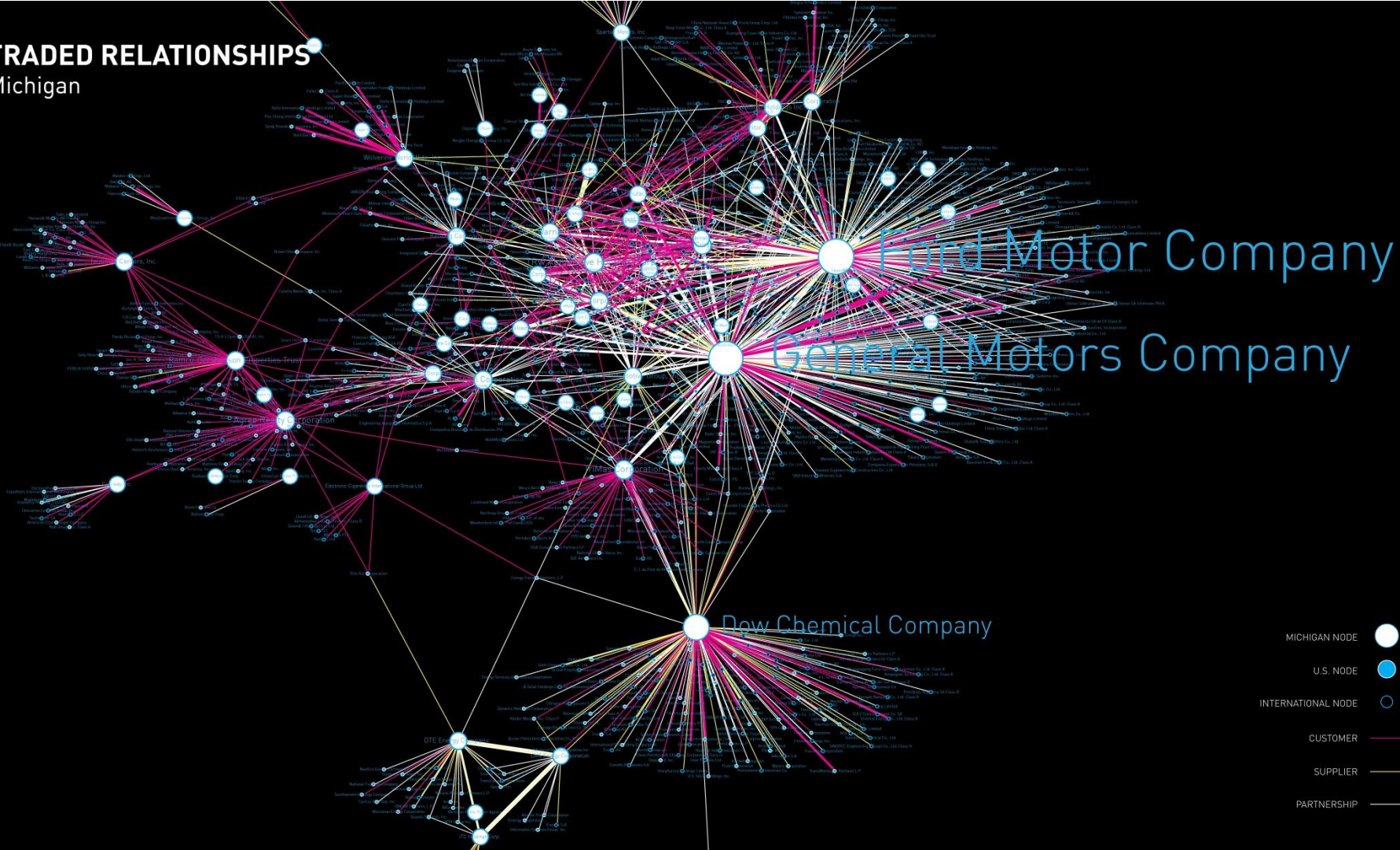


SCENARIO 2
FREIGHT LOGISTICS CATALYST



TRADED RELATIONSHIPS

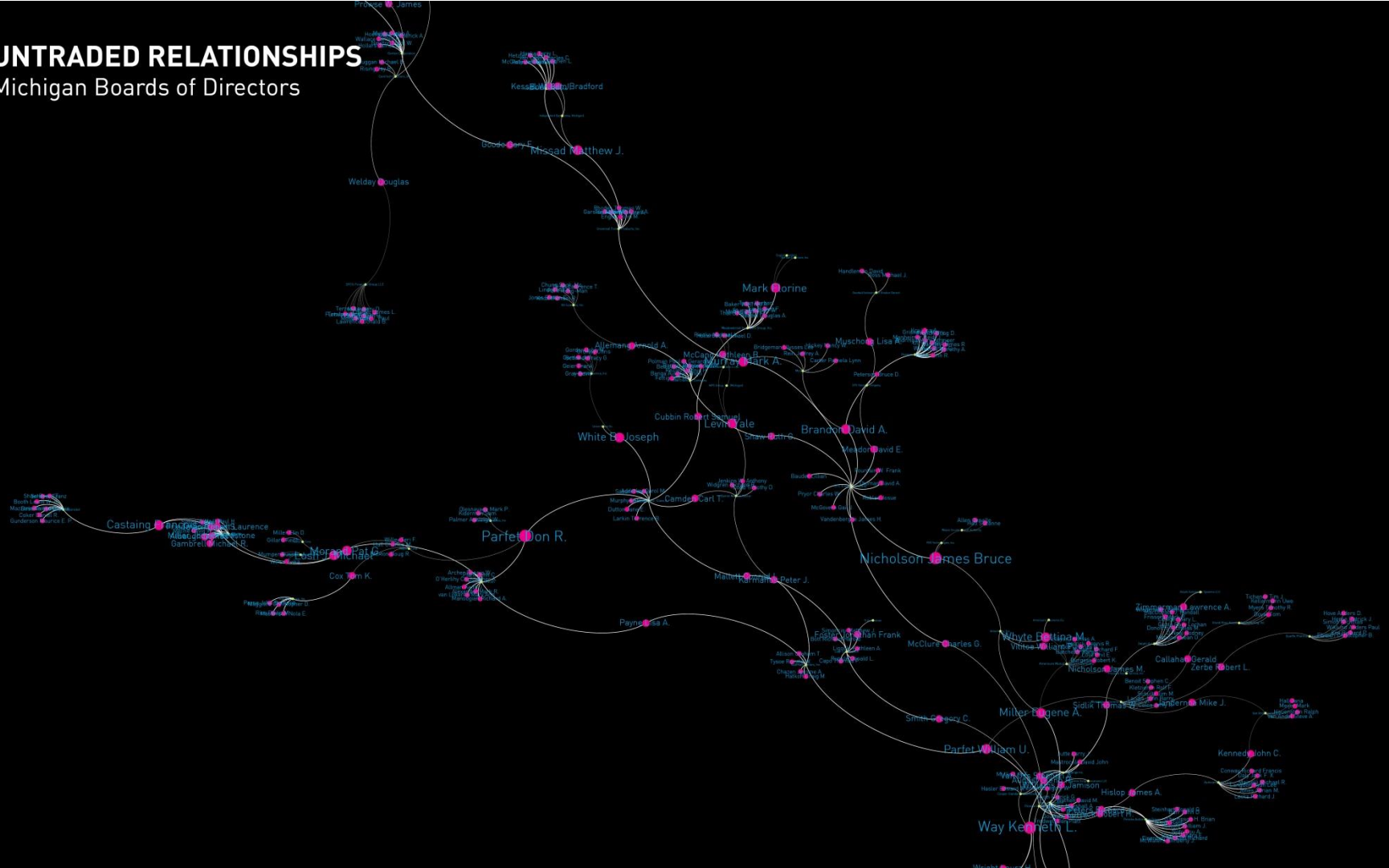
Michigan



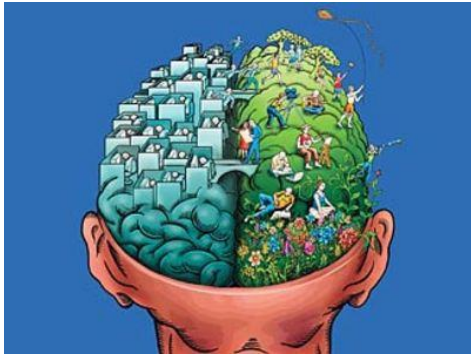
- MICHIGAN NODE ●
- U.S. NODE ●
- INTERNATIONAL NODE ●
- CUSTOMER —
- SUPPLIER —
- PARTNERSHIP —

UNTRADED RELATIONSHIPS

Michigan Boards of Directors



NEW NARRATIVES



MOVING MINDS:
THE FUTURE:
PREDICTION
OR CREATION?

