

An aerial photograph of a bustling street intersection in India, likely in a city like Mumbai. The street is filled with a dense flow of vehicles, including cars, motorcycles, and a large bus. Pedestrians are visible crossing the street. The buildings lining the street are covered in a multitude of colorful billboards and advertisements. Notable billboards include one for 'SCHOOL UNIFORMS', another for 'CROCKERY', and a large one for 'The Hitavada' newspaper celebrating its 100th anniversary (1911-2011). The sky is overcast. The image has a green tint on the right side and a purple tint on the left side.

Mobility Data Strategies for Cities

Clayton Lane
International Mobility Specialist & Business Development
GoMetro

June, 2020



**Award-winning
mobility technology and
planning solutions**

Planners & technology specialists

Experienced innovators in mobility
data generation in emerging markets



**Implements innovative
mobility solutions to
transform public transport**

Experienced operators & implementers

Leading professions with transformative
projects in 120 cities in 63 countries

Our Team

Unique Blend:

Transport Planners
Software Engineers
Strategists







Data Principles

Mobility is a public good. So is mobility data.



Photo credit: Shreya Gadepalli, ITDP India

What do we want from data?

- Empower cities & citizens
- Understand human experience and mobility performance
- Inform better mobility plans & investments
- Help people feel connected, healthy, and dignified while traveling
- Do no harm

Nagpur

The data we often have today



Our Data Principles

Generate Data! ← First Principle!!

Government is responsible to ensure this public good is available for public use. Data requires investment.

Open data

We subscribe to Open Data principles.

Privacy

Collect only data that are needed. Receive specific permission. Secure and depersonalize data wherever possible. Adhere to global data standards (GDPR).

Free Access

We will not charge a government client a fee to access public movement data via an API.

Non-Exclusive Support Services

The client may replace us with other service providers – all while maintaining continued data access.

Standard Formats

We use standard formats (GTFS) to facilitate easy transfer & use by others.



International Case Studies



1. Mitchells Plain Paratransit Reform



2. Guadalajara Mobility Plan



**3. Latin America
Urban Mobility
Observatory**

Mitchells Plain Paratransit Reform

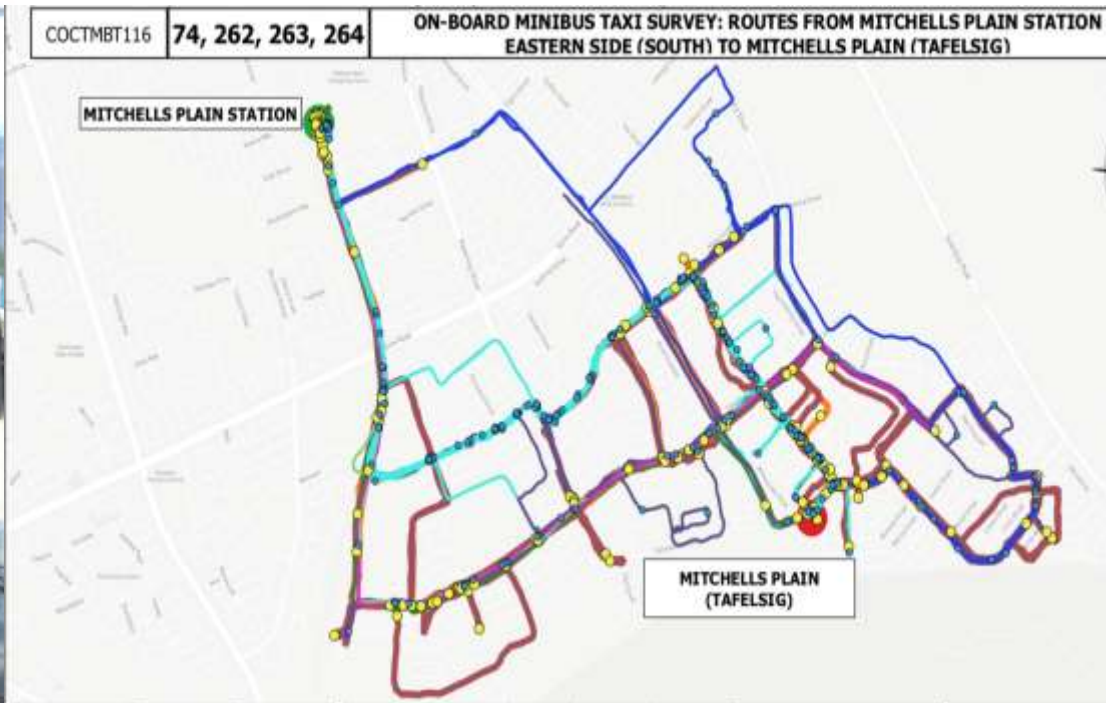
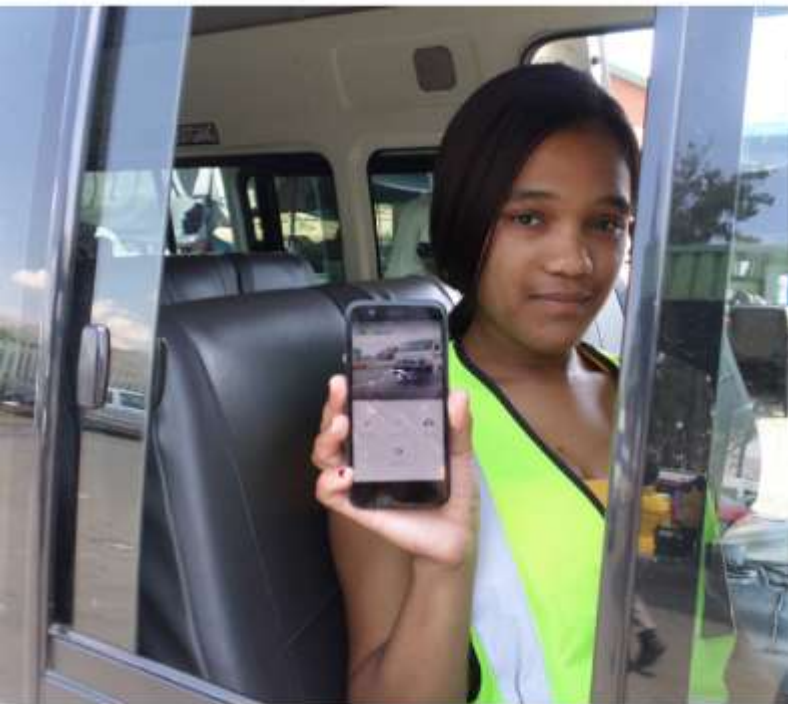


Technology & Institutions

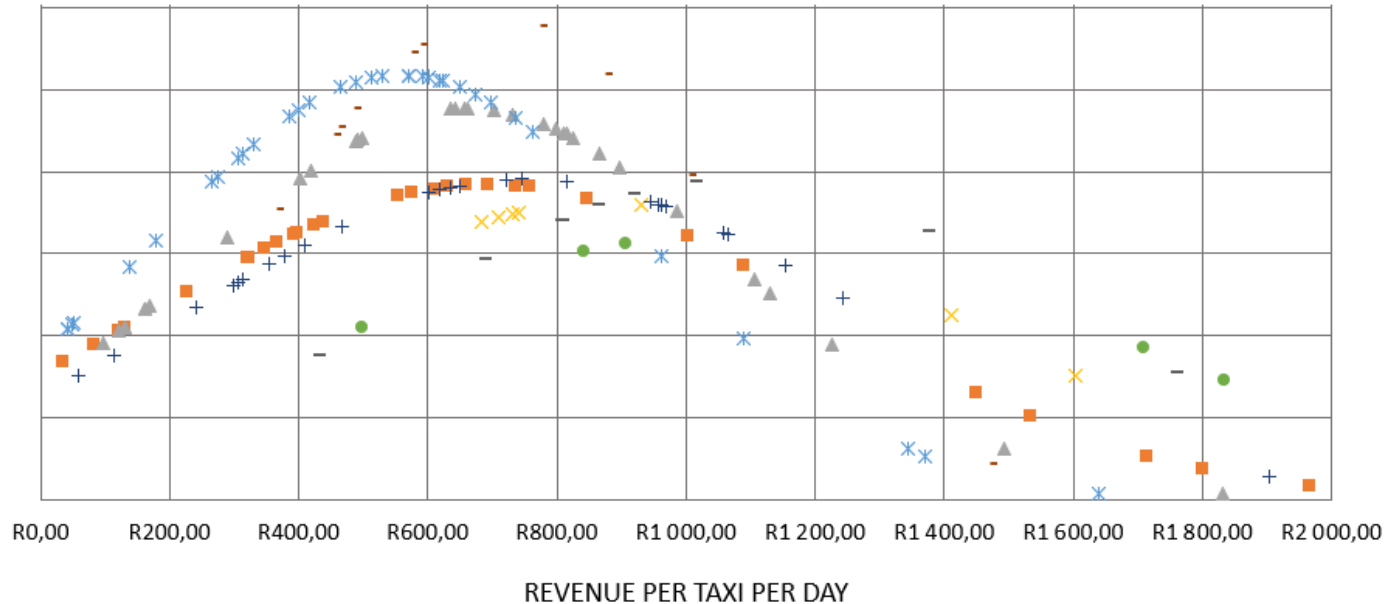
- Consolidate 4 associations
- Improve service quality
- Improve business performance

Key to success: build trust!

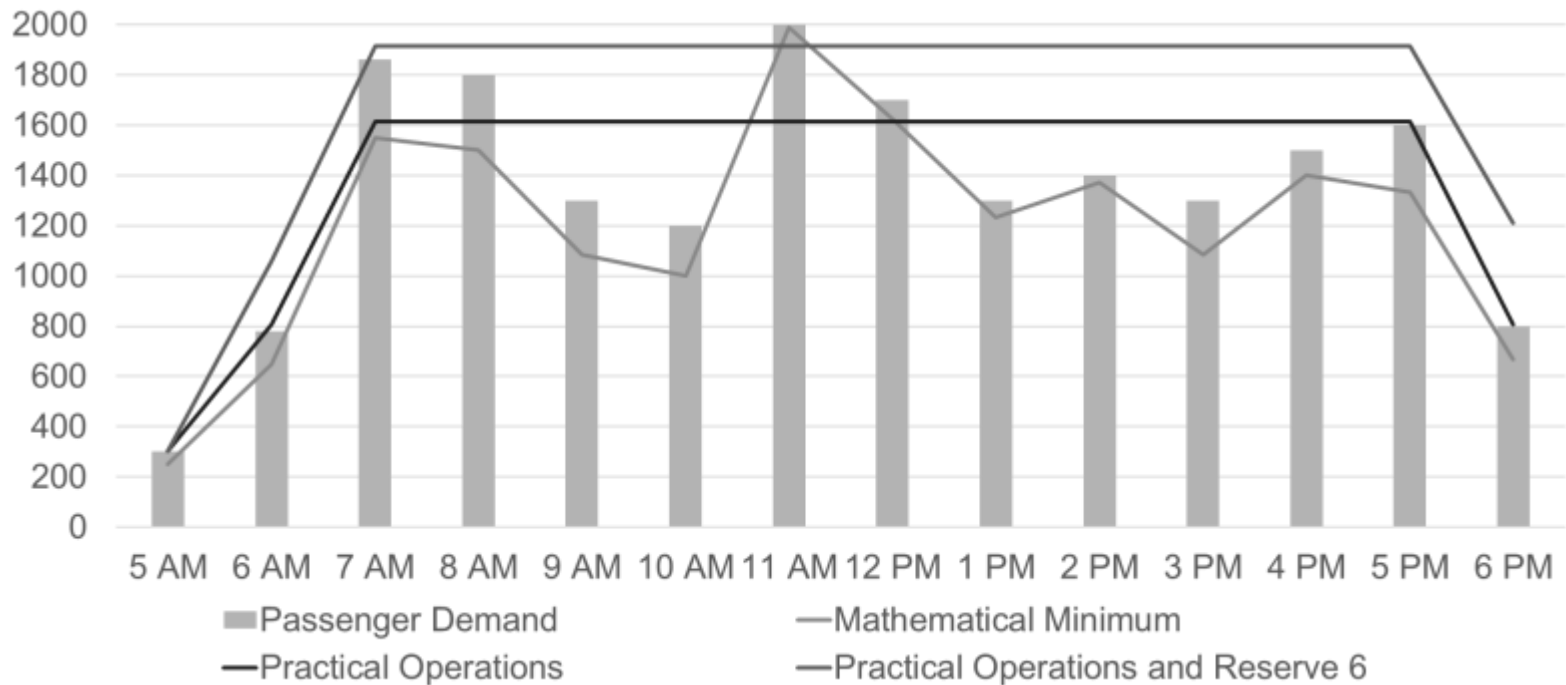
GoMetro Pro Mapping



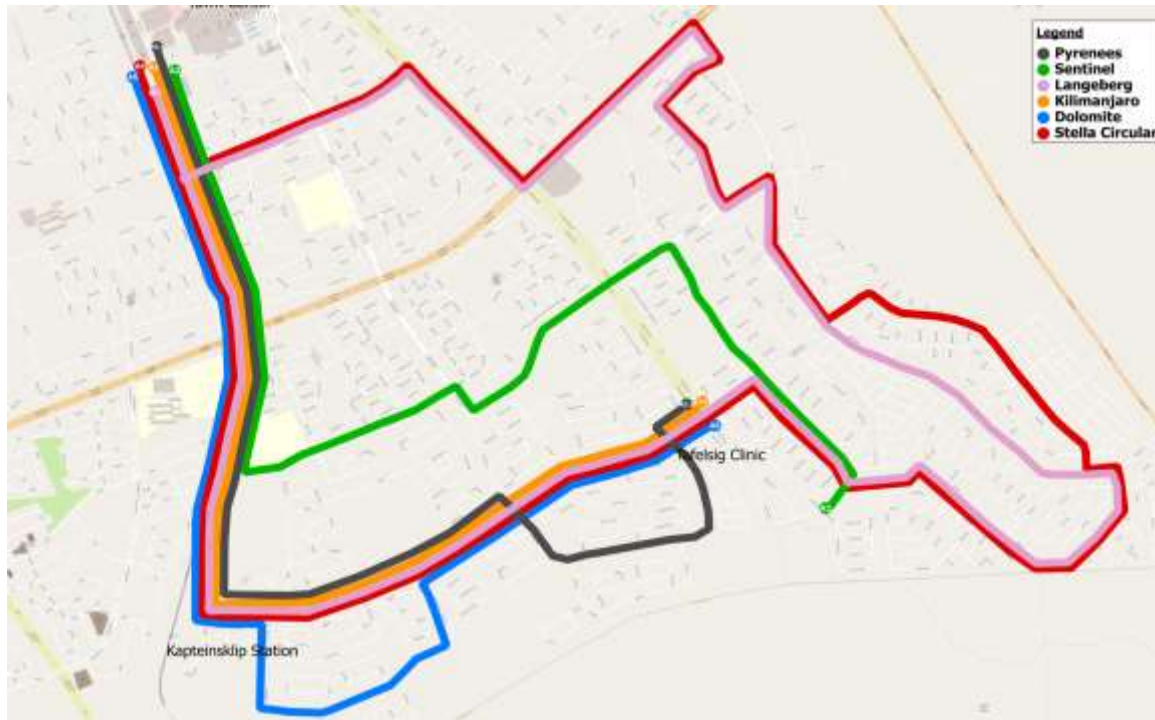
Detailed Revenue Data



Service Optimization



Pilot: Fixed Routes & Schedules



On January 7, 2019, the four associations began operating scheduled fixed-route service!

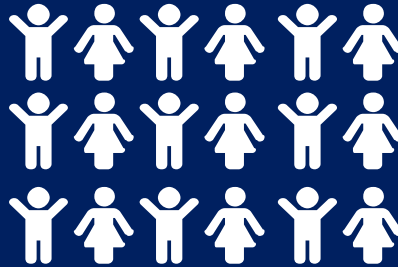
Result: Business Performance Improved

Assets



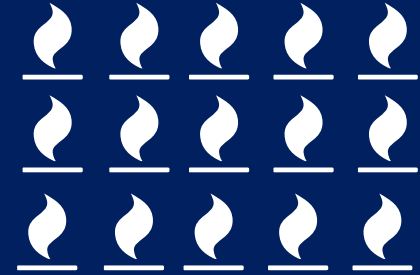
50% fewer
vehicles

Labor



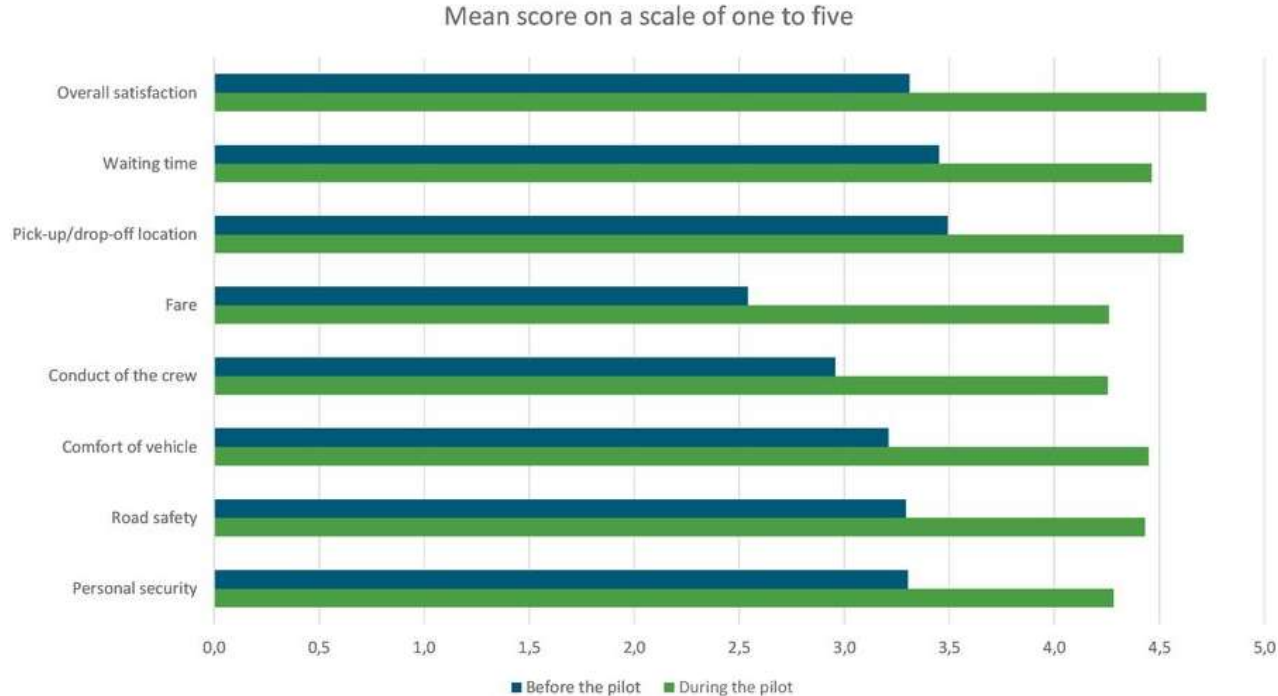
No job losses,
better shifts

Fuel & CO2



50% less
fuel

Results: Passenger Satisfaction Rose



94% of passengers reported that the new service is better.

Mitchells Plain Paratransit Reform



Potential

- Shared depots
- Collective e-vehicle financing
- Compete for City contracts

Key to success: build trust!

- Data + Institutions



1. Cape Town Paratransit Reform



2. Guadalajara Mobility Plan



**3. Latin America
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Guadalajara Sustainable Mobility Plan



- Inform sustainable mobility plan -- cycle, walk, light rail, BRT, bus, and car.
- Use technology to economically generate mobility data (last updated 2007)



How we generate data

Phase 1: Supply



Public Transport
Mapping

Phase 2: Travelers



GoMetro
Mobility App



Web
Survey



APIs
(Tomtom, Google)

GoMetro Mobility App



Experience

- 7 South African cities
- 1 million downloads
- ~250,000 current users
- Since 2015
- Uses any GTFS

Guadalajara Modes

- Will integrate BRT, bus (formal, informal, concession), bike sharing, bicycle

Observe movement of the phone



Measure

- Mode share
- Travel times
- Congestion
- VKT and emissions
- Transfers

Gain Insights

- All modes
- Millions of data points
- Longitudinal data

Web Surveys

Online + Accessible via App
Active Engagement



Demographics

- Normalize to census
- Cross-tabs by gender, income, age
- Reach non-transit users

Perceptions & Experience

- Mode Share
- Affordability
- Reliability
- Comfort
- Transfers
- VKT and emissions
- Safety
- Sexual harassment

Stratified Sampling

Geography & demographics matter

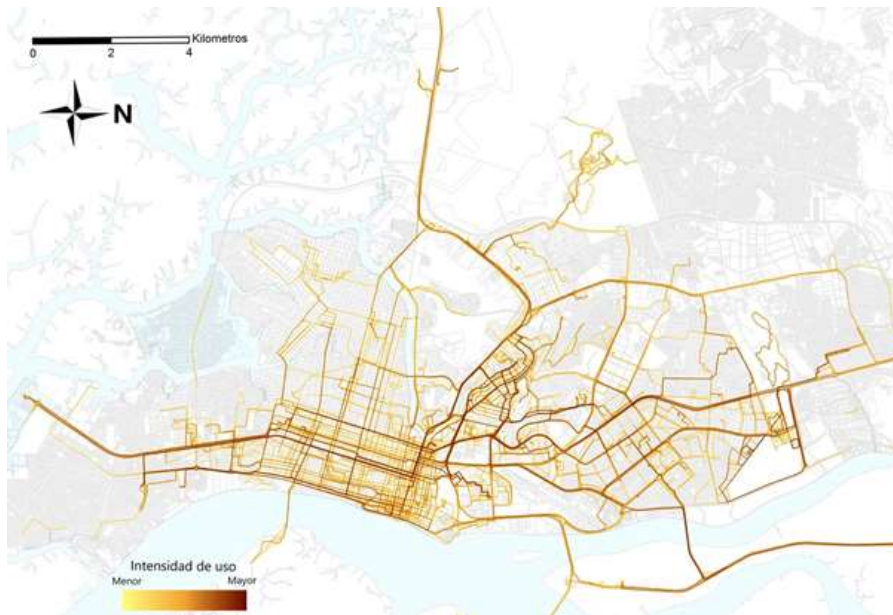
Set Targets

pop	n	80% conf. +/- 20%
female	15,000	11
male	15,000	11
lower \$\$	8,000	11
higher \$\$	22,000	11
older	10,000	11
younger	20,000	11



Insights

Example: Cycling Pathways



Example: Cycling trips in Guayaquil, observed by Despacio using a mobile app

Example: Cycling Origin-Destination Table

OD	1	2	3	4	5	6	7	8
1	6	2343	532	56	25	323	3242	233
2	235	45	34	62	56	24	352	54
3	233	1244	62	12	23	35	353	45
4	246	3467	246	84	235	122	1234	123
5	56	131	45	56	16	15	654	23
6	235	6739	36	15	56	39	245	67
7	876	122	77	67	15	163	71	14
8	258	51	36	14	25	63	1325	99

Guadalajara Sustainable Mobility Plan



- Inform sustainable mobility plan -- cycle, walk, light rail, BRT, bus, and car.
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Latin America Urban Mobility Observatory



Objectives:

- Measure mobility performance in 29 cities.
- Publish a web platform to benchmark mobility performance.
- Innovate & learn



Enable cities & citizens to benchmark and visualize performance.

Universal Access

Mobility
Mode Share
Public Transit Coverage
Affordability Index
Accessibility

Efficiency & Quality

Efficiency
Travel Time
Congestion Index
Vehicle Occupancy
Farebox Recovery

PT Quality
Reliability
Comfort
Transfers

Green Mobility

Emissions & Resilience	
Distance Travelled (VKT)	
CO2 Emissions	Policy of CO2 cap
% Clean vehicles	Clean-energy goal
Fuel quality	Emission & noise regs















Safety

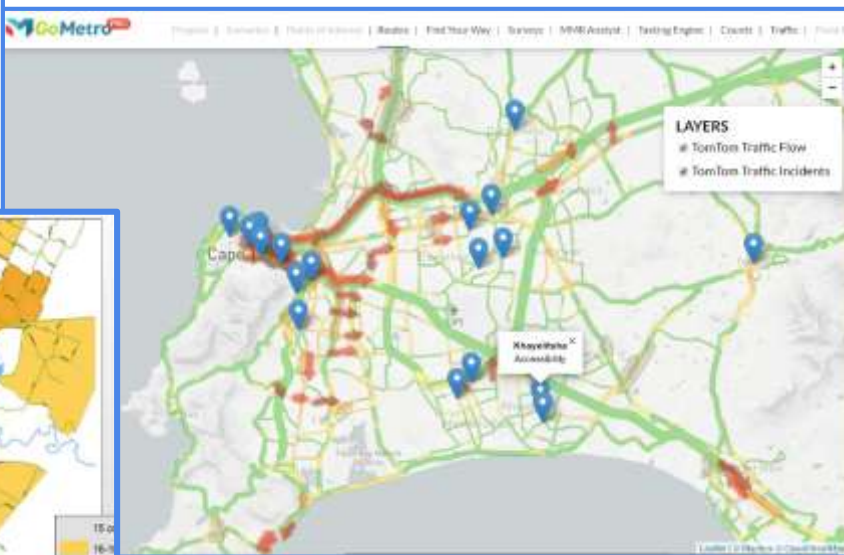
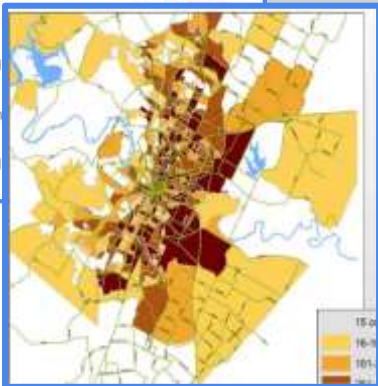
Road Safety
Mortality Rate
Vehicle Age

Security
Crime Rate
Safety Perception in Public Transport

Gender
Sexual Aggression Rate

Enable cities & citizens to benchmark mobility performance.

RANK BY FILTER	WORLD RANK	CITY	COUNTRY	CONGESTION LEVEL
1	5	Bogota	 Colombia	63% 
2	5	Lima	 Peru	58% 
3	10	Recife	 Brazil	49% 
4	20	Sao Paulo	 Brazil	42% 
5	24	Rio de Janeiro	 Brazil	42% 
6	28	Santiago	 Chile	
7	31	Salvador	 Brazil	
8	46	Buenos Aires	 Argen	
9	100	Fortaleza	 Brazil	





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Lessons from International Case Studies



Photo credit: Shreya Gadepalli, ITDP India

When data is a public good, we...

- Generate it!... responsibly
- Build trust through data
- Innovate with it
- Boldly advance sustainable mobility

A high-angle, wide shot of a bustling street in an Indian city, likely Mumbai. The street is packed with people walking, pushing carts, and riding motorcycles. Numerous cars and a large white bus are visible on the road. The buildings lining the street are covered in a dense array of colorful billboards and advertisements. Some of the visible text on the billboards includes 'V&L', '2655', 'SAMSUNG', 'CROCKERY', 'SCHOOL UNIFORMS', '100th', 'TheHitavada', and 'CENTRAL INDIA'S FIRST ENGLISH DAILY'. The sky is overcast with grey clouds. The overall scene conveys a sense of intense urban activity and mobility.

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