

# Collaboration between mass transit, private transport, and the city

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**WRI INDIA**  
— ROSS CENTER

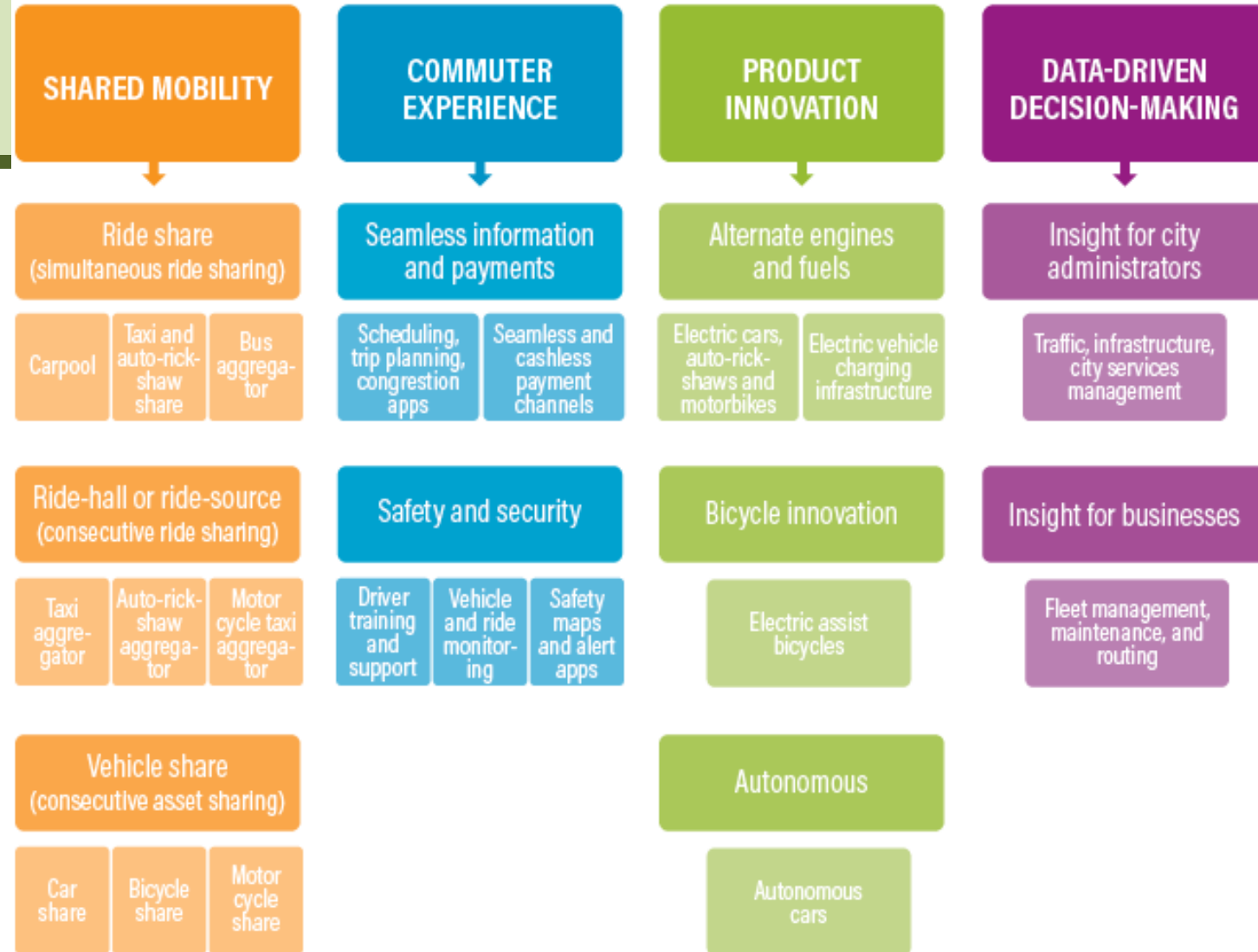
# The term “new mobility” has come to refer to the use of new technologies to deliver transport

Reinventing ownership and delivery

Using data and connectivity in new ways

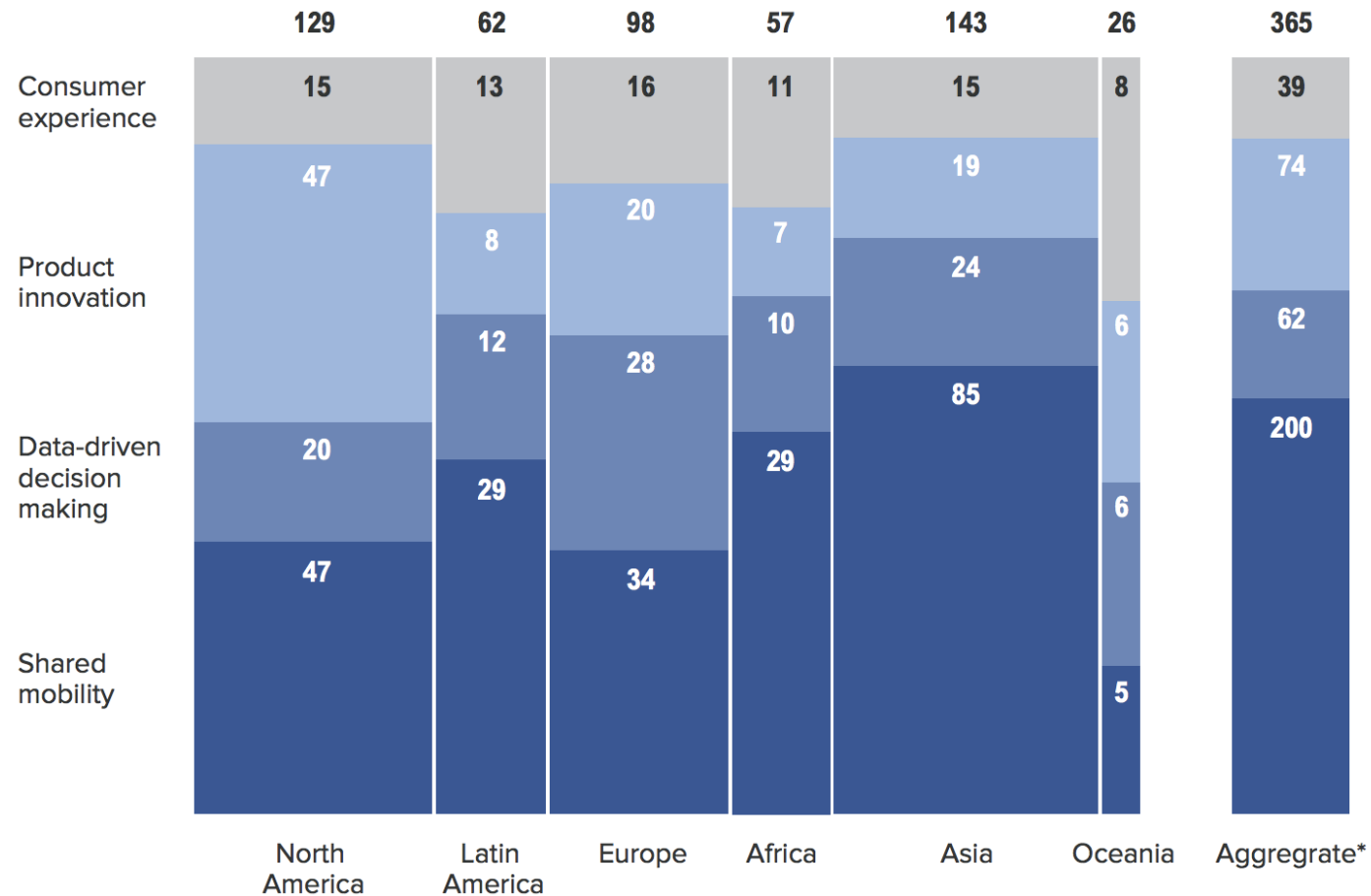
Products to reduce the use of non-renewable assets

# "New Mobility" Models in India, by Category



\*In India, Uber and Ola are referred to as aggregators (and not TNCs) as rides offered on their platform are offered exclusively by registered taxis  
 Source: WRI India research

# Global scan of new mobility startups reveals large focus on shared mobility models



Source: Canales, D., Bouton, S., Trimble, E., Thayne, J., Da Silva, L., Shastry, S., Knupfer, S., Powell, M. Connected Urban Growth: Public-Private Collaborations for Transforming Urban Mobility. Coalition for Urban Transitions. London and Washington, DC. Available at:

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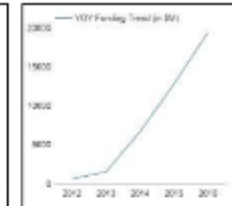
# Like it or not, there is no stopping this wave



## Tracxn BlueBox : Transport Tech

January 2017

2400+ companies in the sector, 594 funded in the last 5 years, \$19B invested in 2016  
**Most Active Investors:** 500 Startups, Fontinalis Partners, Sequoia Capital, Y Combinator



Category	Cumulative Funding
<b>SELF DRIVE CAR</b>	<b>\$2B</b>
Own Fleet <i>Izuche (1992, \$430M)</i>	
Aggregators <i>PPZuche (2013, \$120M)</i>	
<b>BICYCLE RENTAL</b>	<b>\$553M</b>
<i>Ofo (2015, \$135.1M)</i>	
<i>MoBike (2015, \$325M)</i>	
<b>MOTORIZED TWO WHEELER</b>	<b>\$576M</b>
Rentals <i>CityScoot (2013, \$16.5M)</i>	
Ride Sharing <i>Go Jek (2010, \$550M)</i>	
<b>TAXI</b>	<b>\$32B</b>
<i>Uber (2009, \$10.7B)</i>	
<b>AUTO RICKSHAW</b>	<b>\$17M</b>
<i>Jugnoo (2014, \$16M)</i>	
<b>NON TRADITIONAL</b>	<b>\$295M</b>
<i>Hyperloop One (2014, \$160M)</i>	
<b>TRAFFIC MANAGEMENT</b>	<b>\$151M</b>
<i>Inrix (2004, \$133.1M)</i>	
<b>CAR POOLING</b>	<b>\$458M</b>
Inter-City <i>BlaBla Car (2004, \$311.7M)</i>	
Intra-City <i>HopSkipDrive (2014, \$14.1M)</i>	
<b>PARKING</b>	<b>\$452M</b>
Parking - Online Scout <i>ParkWhiz(2006, \$36M)</i>	
Parking – On Demand Valet <i>Luxe (2014, \$75.5M)</i>	
<b>DRIVER</b>	<b>\$130M</b>
<i>Edajija (2011, \$125M)</i>	
<b>MAPS ROUTING</b>	<b>\$280M</b>
<i>mapbar (2004, \$78.3)</i>	
<b>BUS</b>	<b>\$286M</b>
Inter-City <i>BusFor (2010 \$24M)</i>	
Intra-City <i>DaDa Bus (2014, \$58.6M)</i>	
<b>PUBLIC TRANSPORT</b>	<b>\$236M</b>
<i>Moovit (2011, \$81.5M)</i>	
<b>EMPLOYEE TRANSPORT</b>	<b>\$9.1M</b>
<i>Move in Sync (2009, \$5M)</i>	
<b>FLEET MANAGEMENT</b>	<b>\$217M</b>
<i>Zenith (1989, \$99.2M)</i>	

Cumulative funding in the sector

Practice Area - Consumer | Analysts: @uditmo2006

Source: Tracxn Transport Tech report

“New” mobility = Good? For whom?

In this shifting scenario, traditional  
mobility = ?

# Case study: On-demand bus aggregators

# What is an on-demand bus aggregator?

- Aggregate and match demand and supply for seats on buses on a digital platform
- Crowdsource demand
  - Model 1: Flexible routes and on-demand
  - Model 2: Fixed routes and schedules
- First example – Kutsuplus in Helsinki (2013 – 15)
  - Based on model 1
  - Achieved higher levels of customer satisfaction, but shut down due to lack of financial viability
- Model has expanded to other geographies
  - US: Known as micro-transit; Operates on model 1; Includes companies like Chariot, Split
  - Asia: Operates on model 2; Includes operations by startups (Shuttl), government-led (Beeline), on-demand taxi companies (DidiBus, Ola Shuttle)

Source: Rissanen, K. Kutsuplus – Final Report. Helsinki, 2016

Frost & Sullivan. Analysis of the Global On Demand Bus Transit Market. Frost Perspectives. <https://ww2.frost.com/frost-perspectives/analysis-global-demand-bus-transit-market/>. Accessed Aug. 1, 2017.

Shaheen, S., N. Chan, A. Bansal, and A. Cohen. Shared Mobility. Definitions, Industry Developments, and Early Understanding. University of California Berkeley Transportation Sustainability Research Center, 2015, p. 30



# In India

- Growing rapidly, especially in cities:
  - Characterised by urban sprawl
  - With areas of high interest on periphery
  - And inadequate public transport
- Home-work-home commute > 30km
- Commuters mixed (i.e. not of a single employer)
  - Compete with organized conveyance services
- Flexible fleet – 9, 19, and 54 seat vehicles



Analytics results filters

- Popular public transport routes
- Beeline.sg route suggestions

# Crowdsourced routes and demand responsive service

### Morning in Singapore

This heat-map shows the volume of trips made on the public transport network. Red spots represent start-points, while blue spots represent end-points. White lines show the most popular start-end pairs.

Beeline uses this data to generate bus routes that are faster and more direct.

Legend: ● Origin ● Destination



Aggregation  
not  
ownership  
supports  
flexibility

## Regular Bus



Fleet mix  
supports  
access on  
smaller roads

## Smaller Bus



Real time ETA  
and prices,  
electronic  
payments,  
ratings

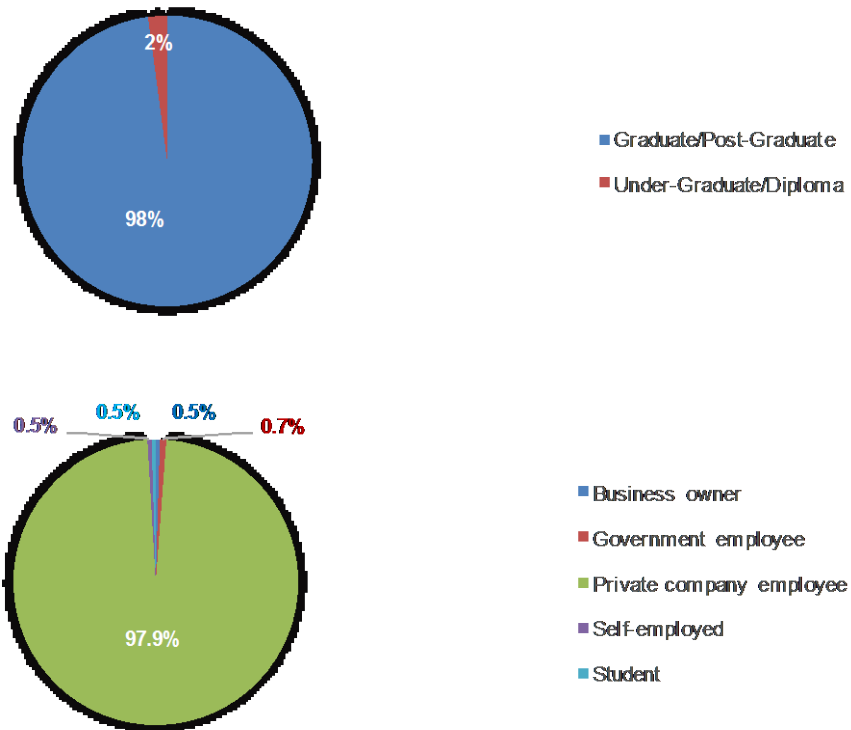


# Landscape in India

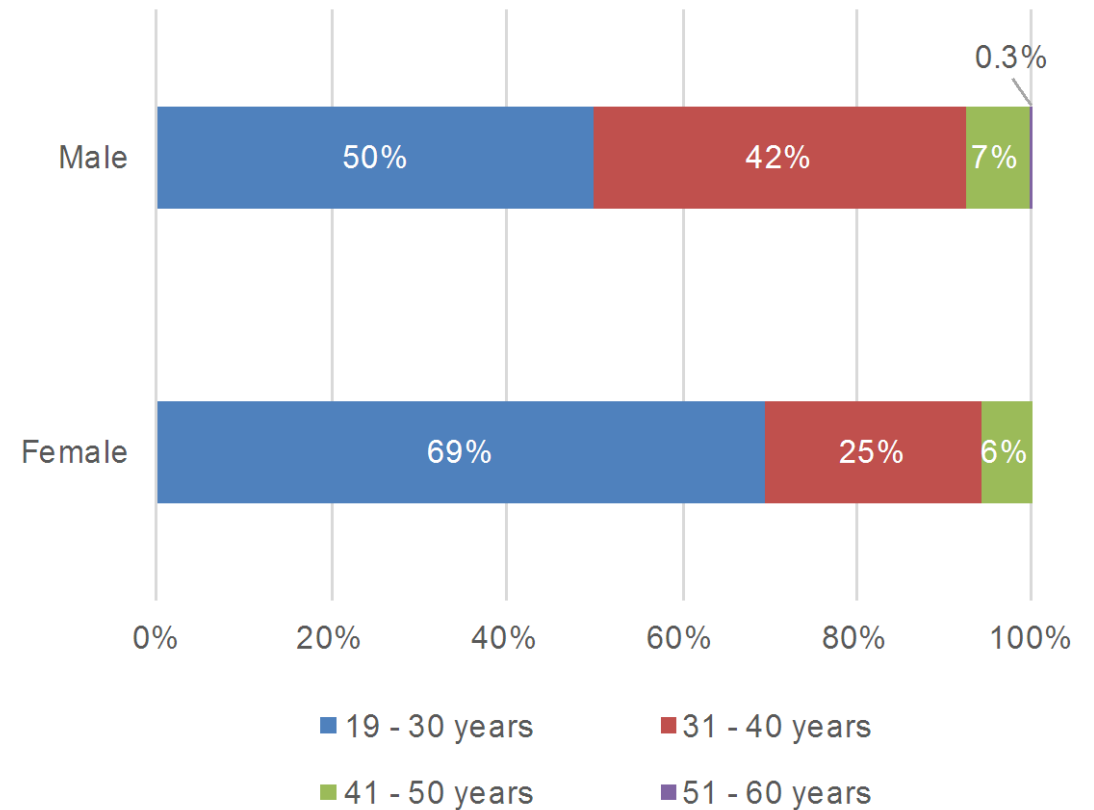
	<b>Cityflo</b>	<b>Commut</b>	<b>ZipGo</b>	<b>Shuttl</b>	<b>Ola Shuttle</b>	<b>Easy Commute</b>
Cities	Mumbai	Hyderabad	Mumbai, Delhi-NCR, Bangalore, Hyderabad, Jaipur	Delhi-NCR	Delhi-NCR, Bangalore, Hyderabad, Mumbai, Chennai, Pune, Jaipur, Kolkota	Hyderabad
Launched	Aug 2015	Dec 2015	Aug 2015	Apr 2015	Sep 2015	Dec 2015
Routes	10	100	NA	~100	120 (Delhi-NCR)	40
Daily bookings	300	1200	NA	20,000	20,000 (Delhi NCR)	500
Fleet Size	18	50	NA	500	500 (Delhi NCR)	95

# An intercept survey was conducted with 423 Shuttli commuters (68% male, 32% female) in Delhi - NCR

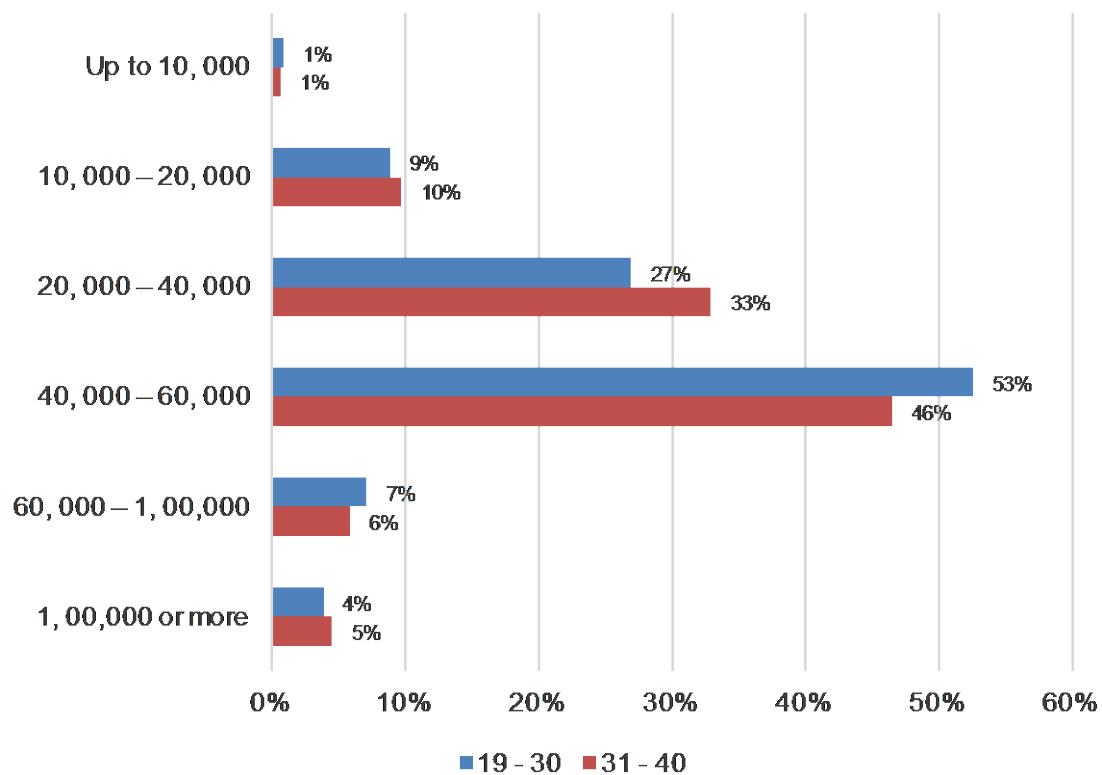
Occupation and education of people surveyed



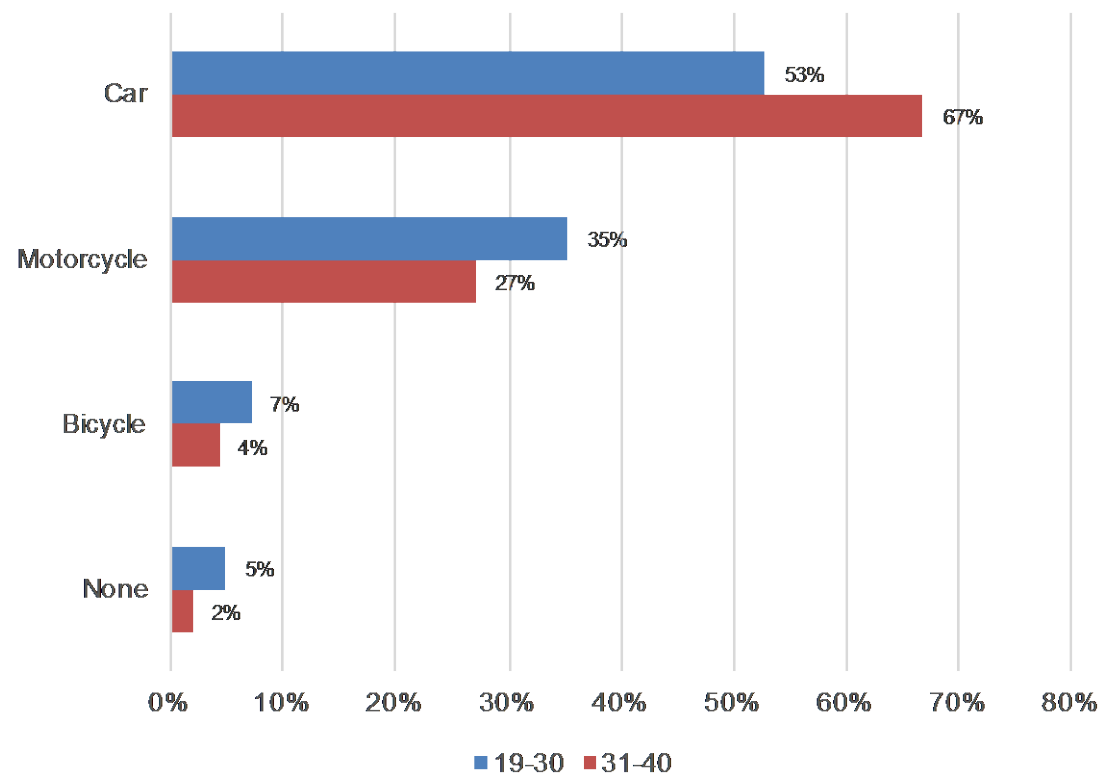
Age of people surveyed segmented by gender



### Household income of people surveyed



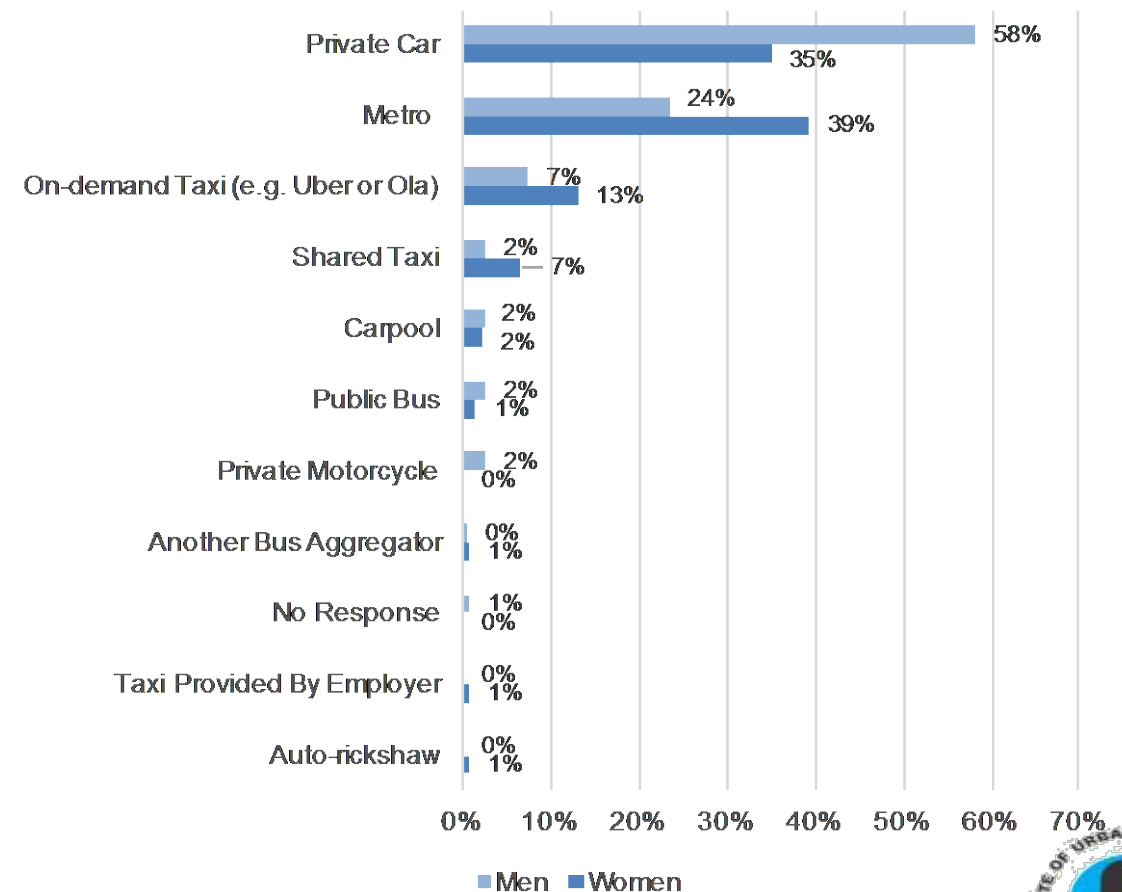
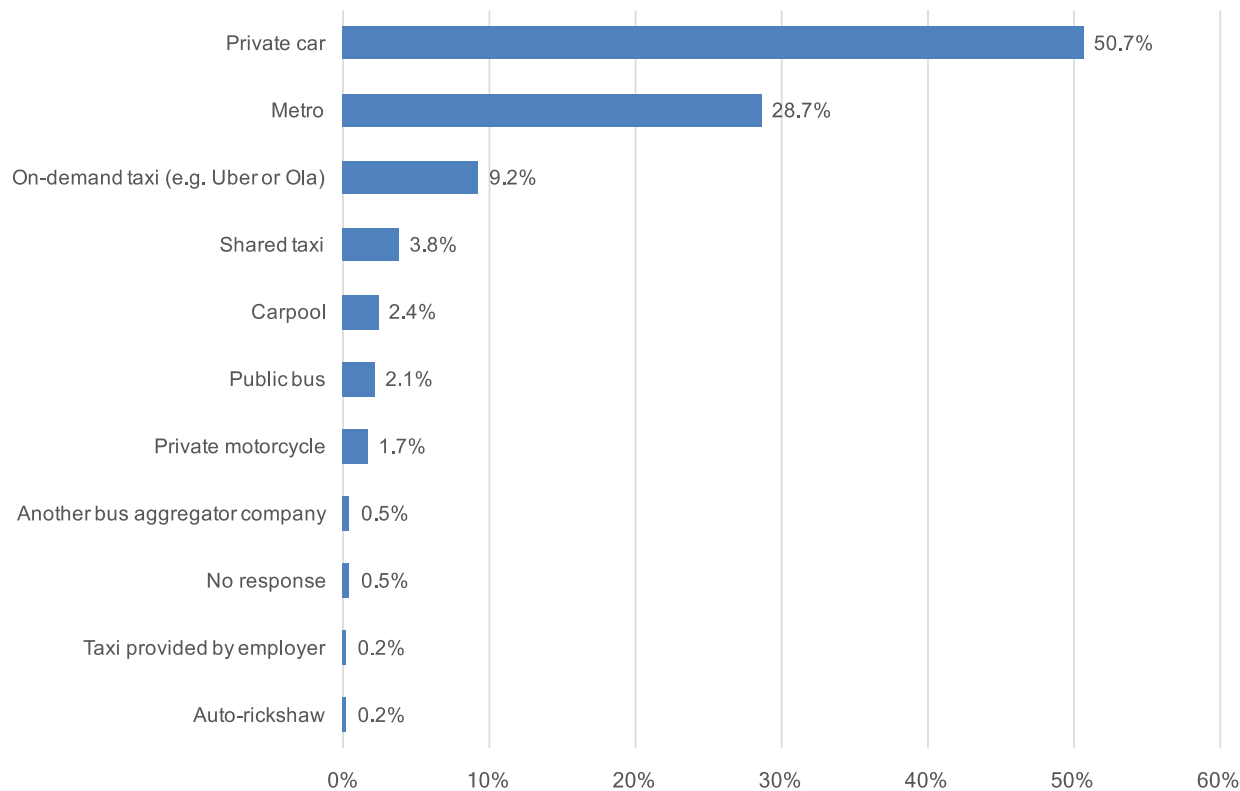
### Household vehicle ownership of people surveyed





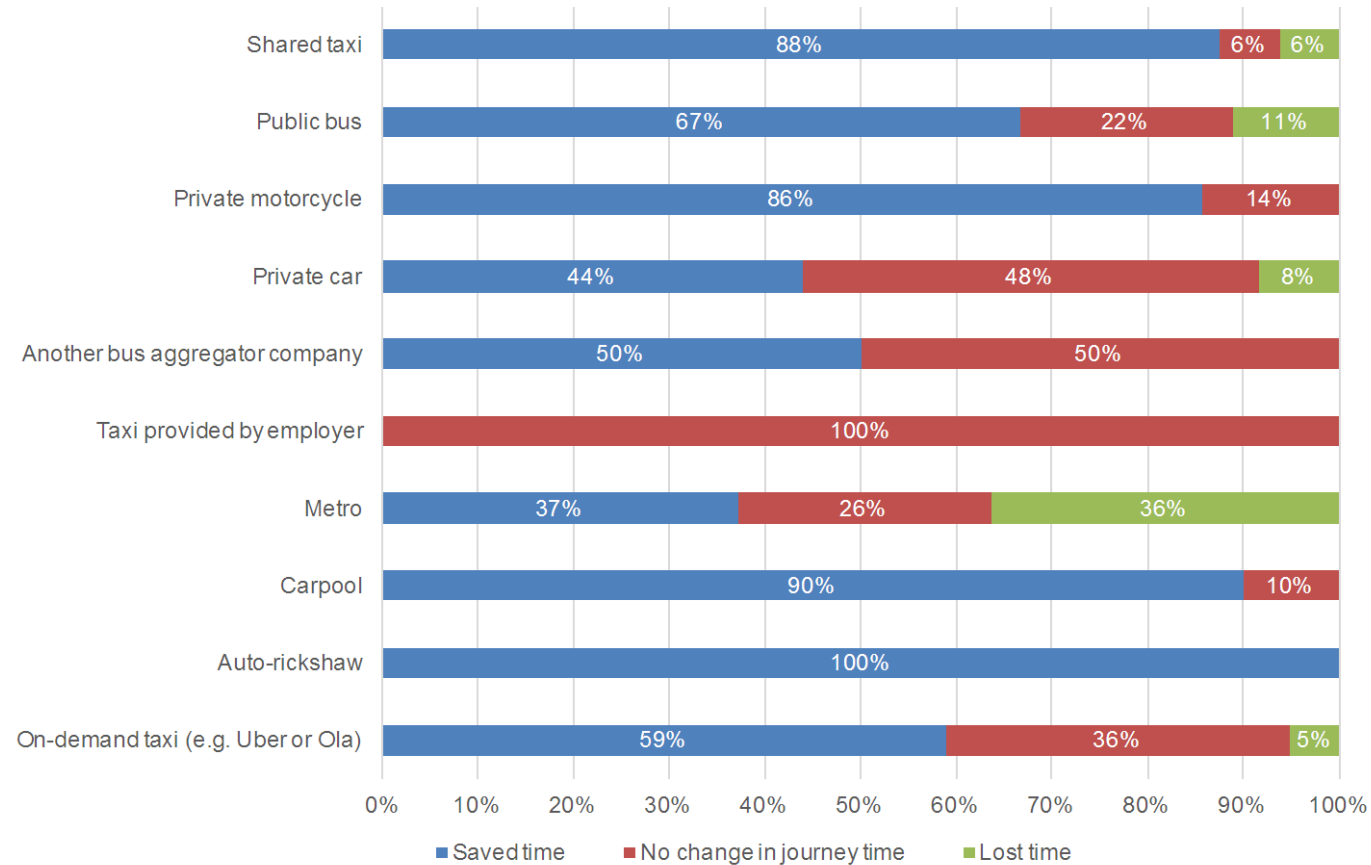
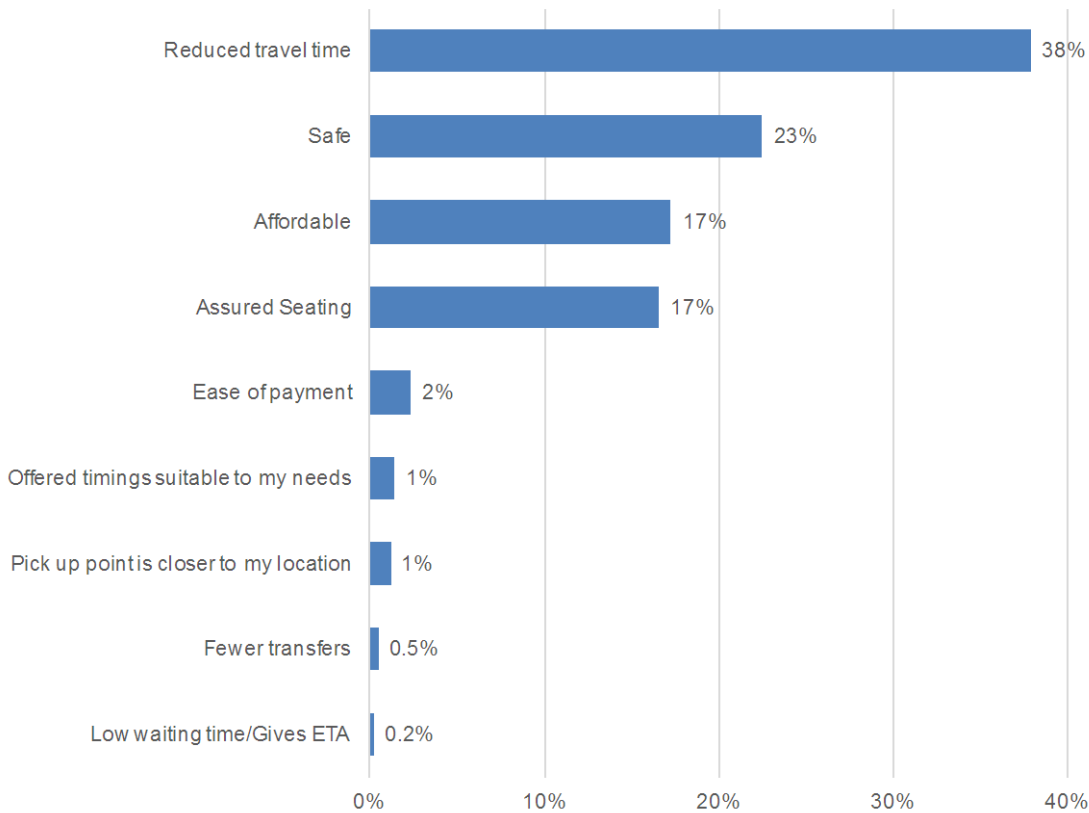
# In Delhi-NCR, 67% of Shuttl's customers appear to have shifted from car-based transport

Prior mode choice of Shuttl's customers in Delhi-NCR – in aggregate and by gender



# With “reduced travel time” being stated as the top reason for their shift

Responses to “What was your primary reason for using Shuttl? In aggregate and by prior mode”



Secure <https://www.google.co.in/maps/dir/Rithala,+Delhi/Sohna+Rd,+Block+S,+Gurugram,+Haryana/@28.5653948,77.1146044,11z/data=!4m18!4m17!1m5!1m1!1s0x3>

Rithala, Rohini, Delhi

Sohna Rd, Block S, Gurugram, Haryana

Send directions to your phone

7:42 AM–9:58 AM 2 h 16 min  
 > M Red Line > M Yellow Line > >  
 Sector-29 Metro Station - Maruti Ku...  
 8:00 AM from Rithala Metro Station  
 > 24 min  
 DETAILS

7:32 AM–9:51 AM 2 h 19 min  
 > M Red Line > M Yellow Line > >  
 Sector-29 Metro Station - Badshah...

7:21 AM–9:55 AM 2 h 34 min  
 > 990 > TMS-LajpatNagar > >  
 Anand Vihar I.S.B.T. Terminal - Gur... > >  
 Akshardham - Sohna Road

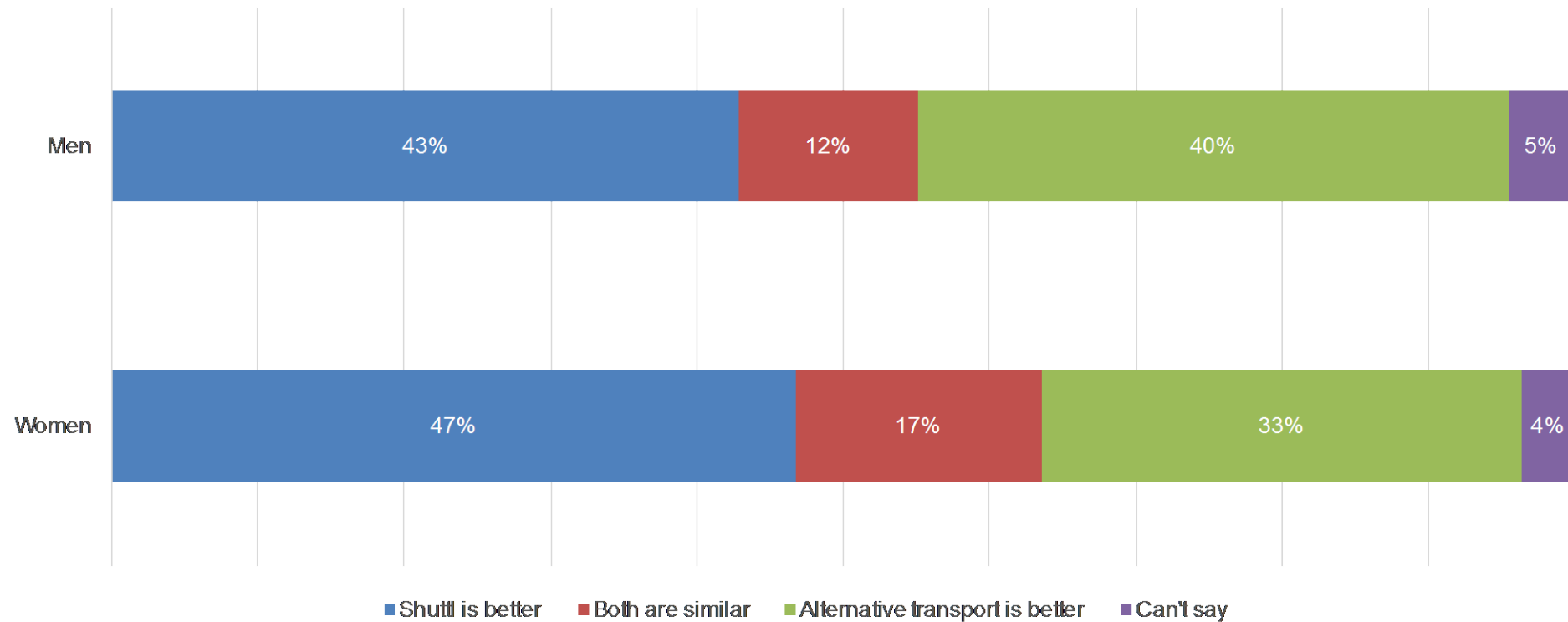
7:09 AM–9:55 AM 2 h 46 min  
 > 984A > > >  
 Akshardham - Sohna Road

SCHEDULE EXPLORER

Minimum of five interchanges including last and first mile travel

# For 47% of women users, travelling by Shuttl felt safer than their alternative mode

Comparison of Shuttl against prior mode on the parameter of Safety

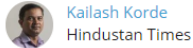


# Our response is unclear

## 5 app-based buses seized in RTO crackdown

The buses were ferrying passengers who had booked a ride on the app of bus aggregator, Cityflo

MUMBAI Updated: Apr 21, 2016 00:43 IST



Kailash Korde  
Hindustan Times

Home > Cities > Delhi > Delhi govt to crack down on Shuttl bus service for 'illegally' plying: Report

## Delhi govt to crack down on Shuttl bus service for 'illegally' plying: Report

The Ministry of Home Affairs had directed the Delhi government to ensure a shut down on 'illegal' private buses in the city. Following the LG's order, the transport department's enforcement team last week impounded 10 buses by Gurgaon-based Shuttl for alleged permit violations.

By: [Express Web Desk](#) | New Delhi | Published: July 3, 2017 3:51 pm

## Delhi government notifies scheme for bus aggregators like Ola shuttle, Shuttl and ZipGo

By [Neha Alawadhi](#), ET Bureau | May 25, 2016, 04.06 AM IST

BENGALURU

## App-based aggregator suspends shuttle bus services for want of permit



K. V. Aditya Bharadwaj



Avinash Bhat

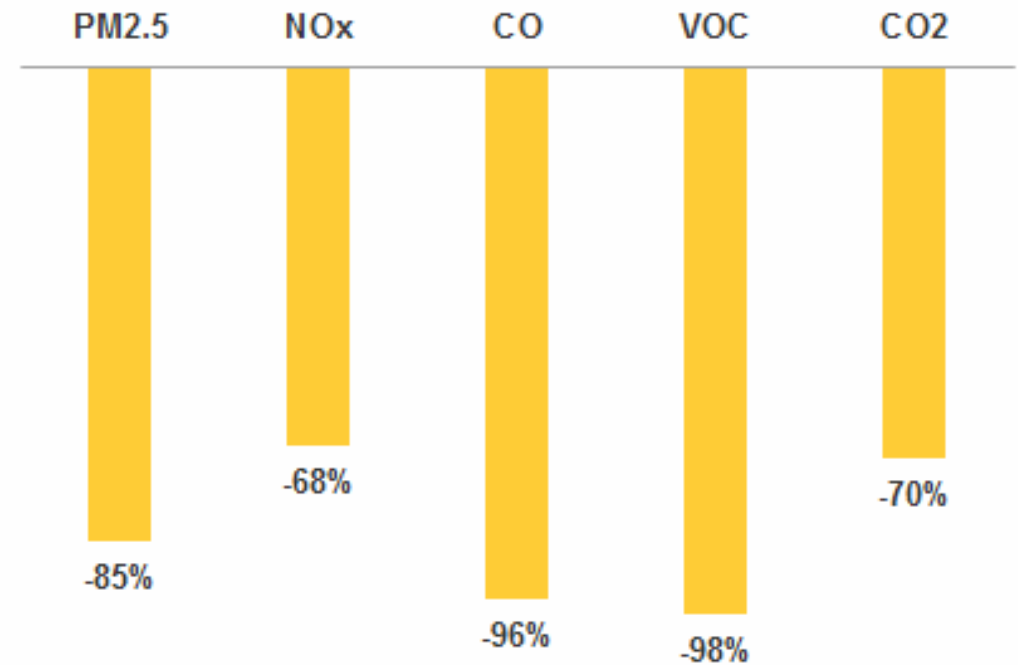
BENGALURU:, SEPTEMBER 20, 2015 08:16 IST  
UPDATED: SEPTEMBER 20, 2015 08:18 IST

SHARE ARTICLE 18 PRINT A | A | A

# What is the opportunity?



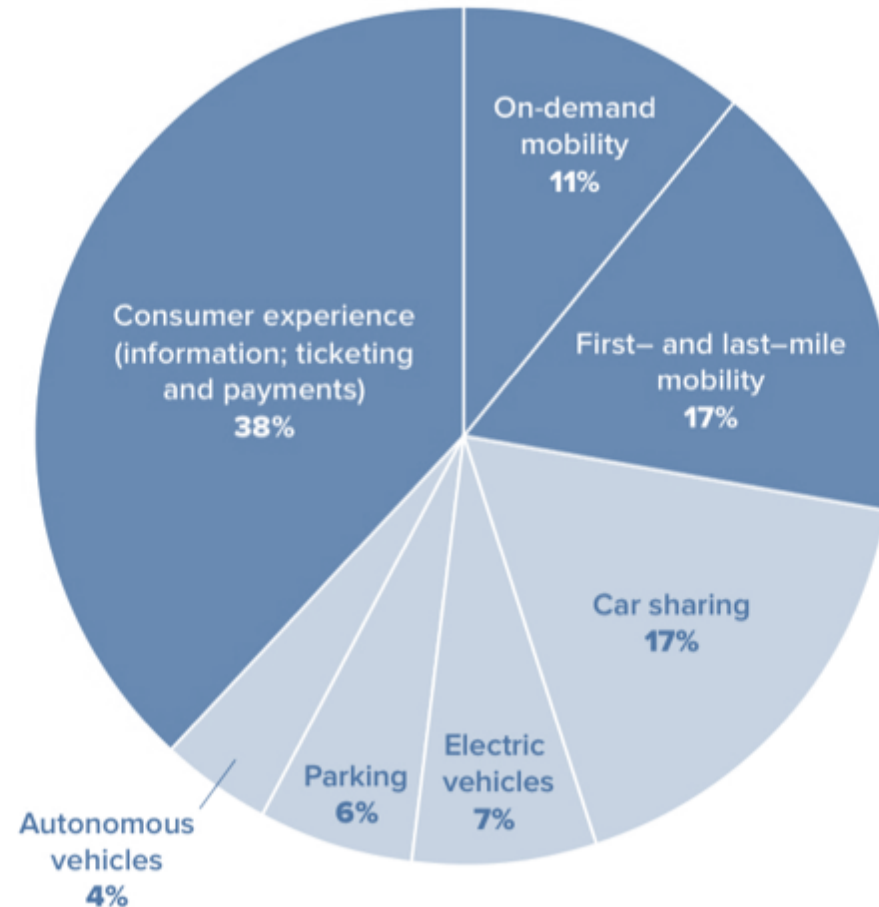
Reduction in emissions of Shuttl users



# What could we explore?

- Government as regulator
  - Without curbing innovation e.g. flexible routes
- Government as safeguard
  - Set standards for quality of service
- Government as contractor
  - Pilot new contracting models
- Government as provider of enabling infrastructure
  - Physical and digital

# Over 70 cities are exploring partnerships between new models, mass transit, and city governments



Source: Canales, D., Bouton, S., Trimble, E., Thayne, J., Da Silva, L., Shastry, S., Knupfer, S., Powell, M. Connected Urban Growth: Public-Private Collaborations for Transforming Urban Mobility. Coalition for Urban Transitions. London and Washington, DC. Available at:

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# Consider Beeline

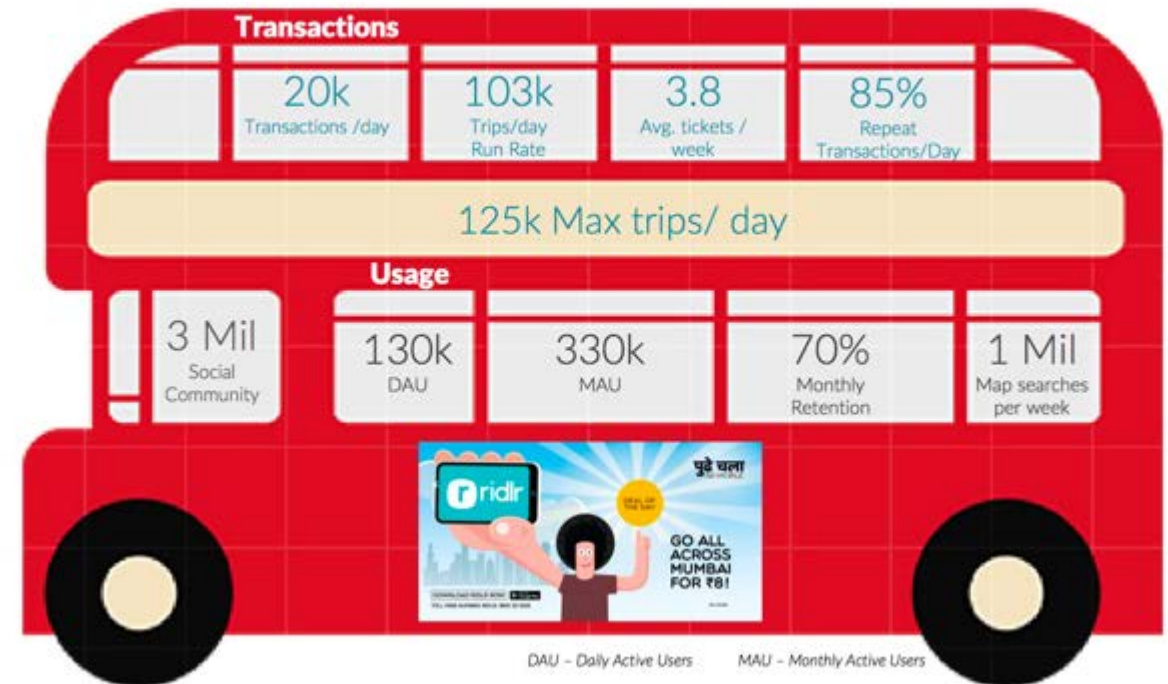
- Launched in August 2015 as a demand-driven, shared-transit experiment
- Route crowdsourcing platform by LTA
- Qualified several private operators to access data subject to:
  - service level benchmarks
  - data sharing agreements
- Service operators determine their own routes, timings, and pricing
- Operators compete for passengers – not on the road, but on the app
- *Access for low income?*



# Consider Ridlr and BEST

- Mobile based ticketing and trip planning information for public transit
- In few months months reached 20k transactions a day on BEST
- Offer 15-day deferred payment services
- Ambition: to support multi-modal mobile ticketing
- Global studies indicate that integrated information and payments increase transit ridership
- *Can access be broadened to all mobile phones (not only smartphones)?*

B.E.S.T in Class Metrics



# Consider dockless bicycle revolution in China



- Growth of these models in last year has been very rapid
- MoBike reports deploying 1.5 million dockless cycles in one year
- Proactive stance towards regulation
- Exercise to garner data from private companies on where people are actually parking cycles
- *Concerns on data privacy?*
- *Broken infrastructure?*



### Application 1: Dynamic trip-planning and ticketing services

**Purpose**—Encourage city dwellers to take multimodal journeys by enhancing access to information and simplifying ticket purchases

**Benefits**—Increased transit ridership; lower environmental impacts

**Mechanism**—Technology platform, accessed with a mobile app, that integrates information and processes payments and tickets

**Partnership model**—City transit agencies use third-party technology or contract with service providers



### Application 2: On-demand minibuses

**Purpose**—Streamline mass transit systems by matching service levels more closely to demand

**Benefits**—Lower operating costs; easier access to transportation; lower environmental impacts

**Mechanism**—Fleet of electric minibuses, hailed using a mobile app, replaces underused fixed-route services

**Partnership model**—City transit agencies use third-party technology or contract with service providers to run fleets



### Application 3: First- and last-mile ride sharing

**Purpose**—Broaden access to transportation for underserved city areas

**Benefits**—Increased transit ridership and utilization; lower system operating costs; expanded transit access

**Mechanism**—Subsidies paid to passengers for on-demand shared rides from areas with poor transit access to transit hubs

**Partnership model**—City transit agencies contract with ride-hailing companies to provide shared rides



Source: Canales, D., Bouton, S., Trimble, E., Thayne, J., Da Silva, L., Shastry, S., Knupfer, S., Powell, M. Connected Urban Growth: Public-Private Collaborations for Transforming Urban Mobility. Coalition for Urban Transitions. London and Washington, DC. Available at:

<http://newclimateeconomy.net/content/cities-working-papers>.

Cities must set a vision for what they want to achieve with technology, rather than letting technology set the agenda

# Shared Mobility Principles for Livable Cities

The future of mobility in cities is multimodal and integrated. When vehicles are used, they will be right-sized, shared\*, and zero emission. These principles guide urban decision-makers and stakeholders toward the best outcomes for all.

- 1 Plan cities and mobility together
- 2 Focus on moving people, not cars
- 3 Encourage efficient use of space and assets
- 4 Engage stakeholders in decision making
- 5 Design for equitable access
- 6 Transition towards zero emissions
- 7 Seek fair user fees
- 8 Deliver public benefits via open data
- 9 Promote integration and seamless connectivity
- 10 Automated vehicles must be shared

\*Shared vehicles include all those used for hire to transport people (mass transit, private shuttles, buses, taxis, auto-rickshaws, car

SharedMobilityPrinciples.org  
#LiveableCities



Source: SharedMobilityPrinciples.org