WHAT IS MULTI-MODAL INTEGRATION ?

BRINGING IT ALL TOGETHER
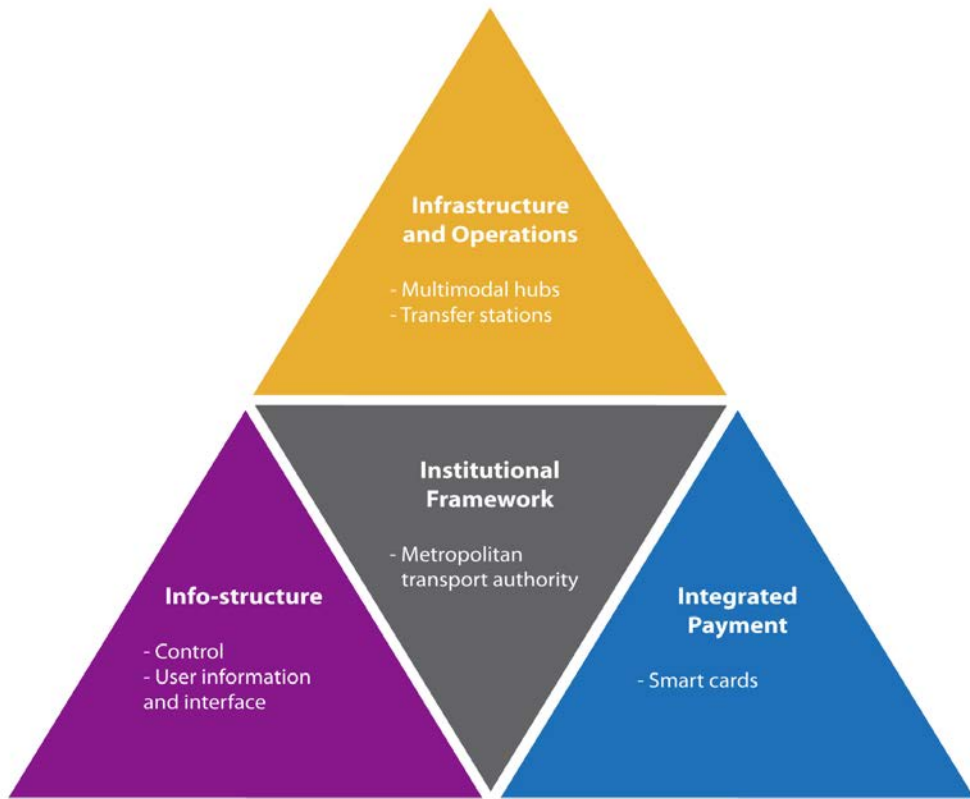
EXAMPLES FROM GLOBAL CITIES

City	Institutional Framework	Multimodal infrastructure elements	Info-structure elements	Integrated payment solutions
London	Transport for London (TFL)	Metro; bus; light rail; trams; taxis	iBus; Web and mobile information systems	Oyster smart card
Paris	STIF	Metro; tram; bus	IMAGE project (real time traffic information)	Navigo pass
Singapore	Land Transport Authority (LTA)	Metro (MRT); bus; light rail; taxis	Web-based and mobile (How2Go) information systems	EZ-Link; NETS FlashPay
Hong Kong	Transport Department, Government of Hong Kong	Metro; bus	Next Train mobile app; passenger information display systems	Octopus smart card
New York City	New York Metropolitan Transportation Authority (MTA)	Metro; BRT; local and express bus	MTA Bus Time	MetroCard

WRI INDIA
—ROSS CENTER

WE SEE FOUR AREAS OF DISRUPTION

Shared mobility
- Transportation options that are shared among users

Commuter experience
- Integrated and seamless experience for consumers
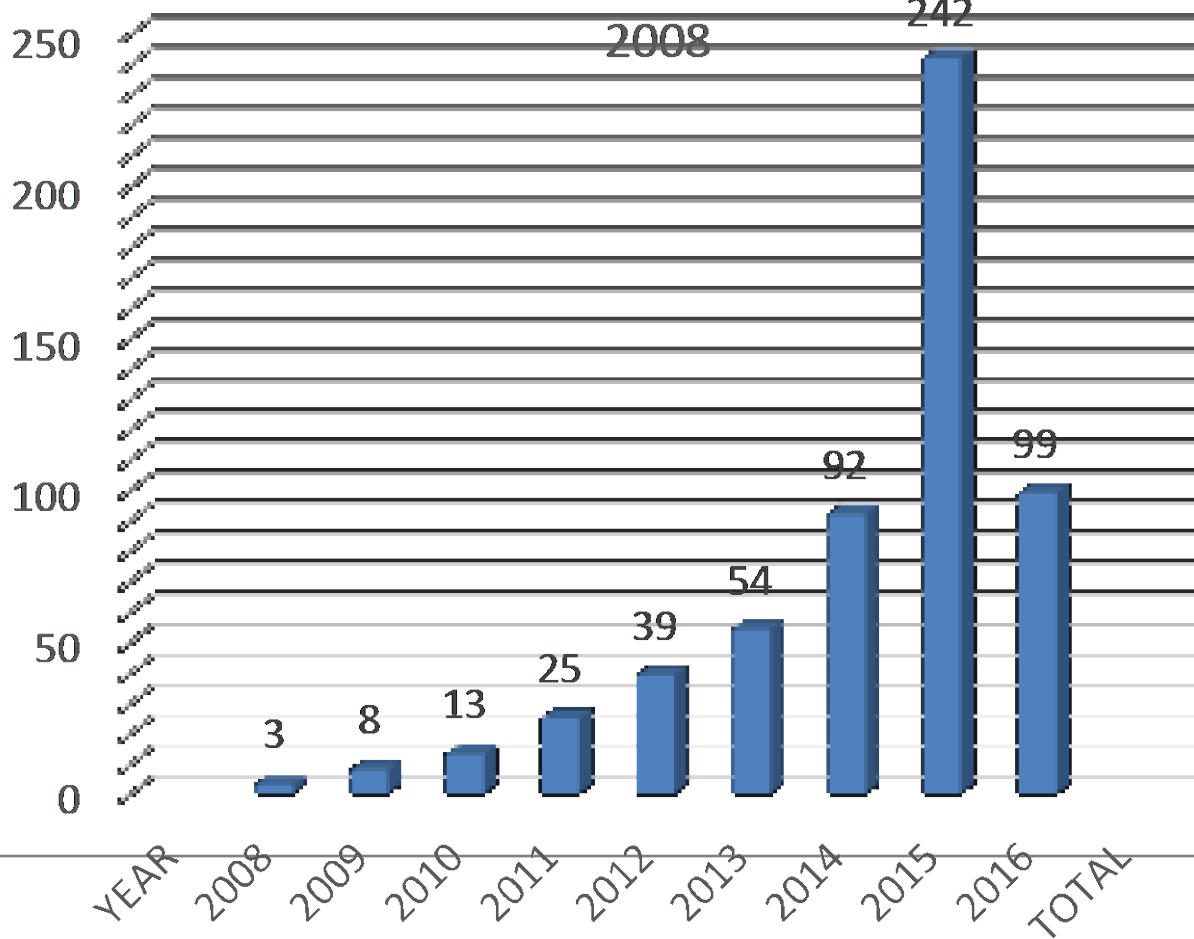
Product innovation
- Modified and improved assets for better results

Data driven decision making
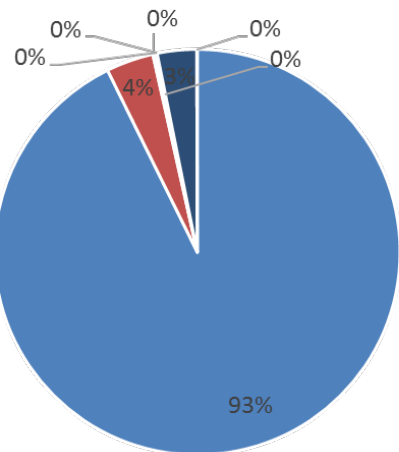- Using data at the consumer level and at a systems level

NUMBER OF MOBILITY STARTUPS SINCE 2008

FUNDING BY SECTOR (UNTIL JAN 2017)
TRENDS IN MOBILITY START-UPS: INDIAN SCENARIO

MODAL DIVISIONS OF INVESTMENTS IN THE
INDIAN TRANSPORT STARTUP SPACE

Total Investment: USD 1.56 Billion

- ■ CARS
- ■ ENABLERS
- ■ PARKING
- ■ MOTORISED 2 WHEELERS
- ■ BICYCLE
- ■ NON-TRADITIONAL
- ■ BUS
- ■ AUTO-RICKSHAWS

CARS
Total investment: $1454 Million

ENABLERS
Total investment: $59 Million

BUS
Total investment: $49.23 Million

MOTORISED 2 WHEELERS
Total investment: $4 Million

PARKING
Total investment: $1.5 Million

AUTO-RICKSHAWS
Total investment: $500,000

WRI INDIA
ROSS CENTER
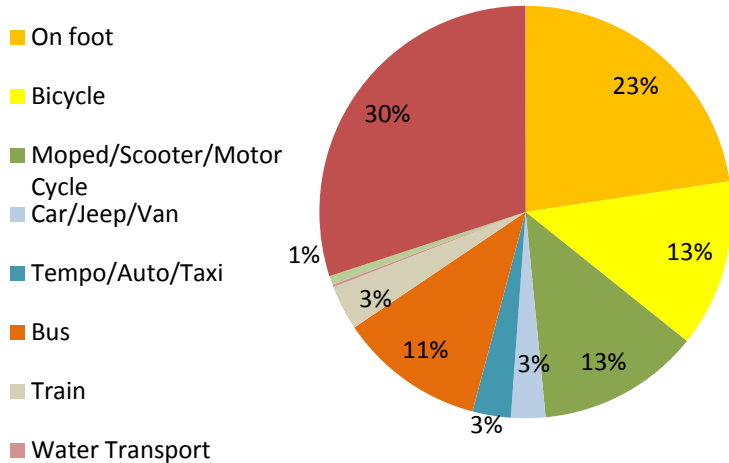
NUMBER OF COMPANIES BY SECTOR
TRENDS IN MOBILITY START-UPS: INDIAN SCENARIO

LARGE UPCOMING SECTORS BEING FUNDED IN INDIA

WRI INDIA
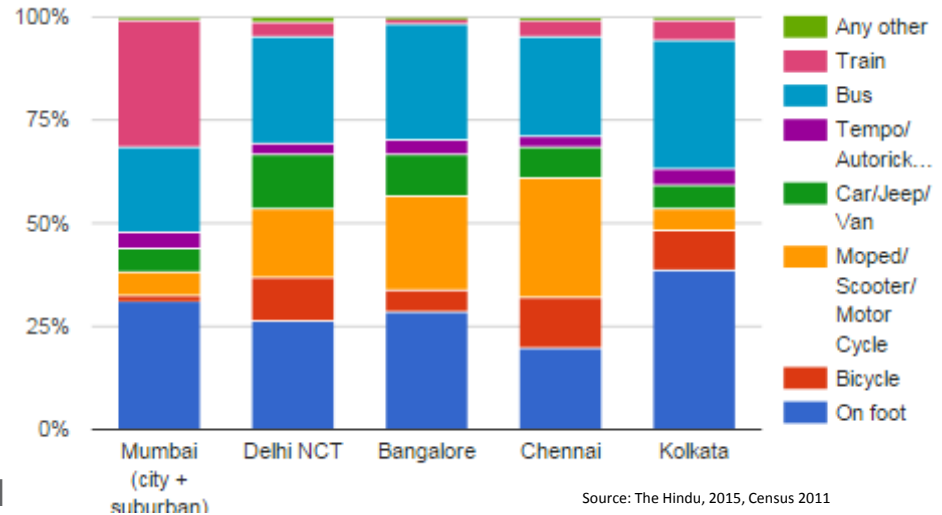—ROSS CENTER
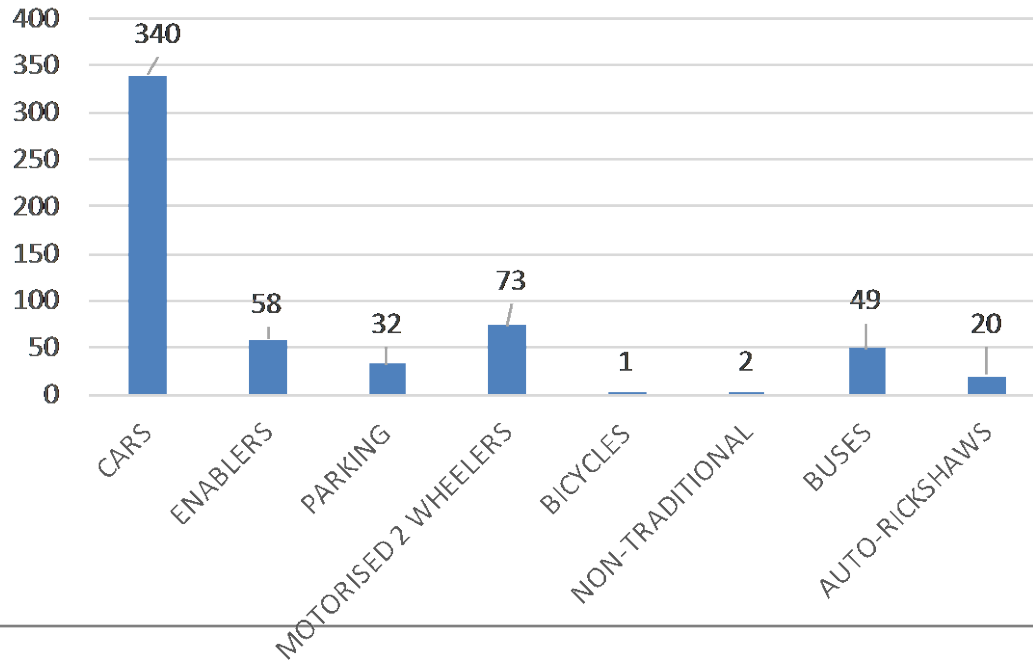
HOW INDIA COMMUTES TO WORK: CENSUS 2011

Commute Pattern

Legend:
- On foot
- Bicycle
- Moped/Scooter/Motor Cycle
- Car/Jeep/Van
- Tempo/Auto/Taxi
- Bus
- Train
- Water Transport

Pie chart values: 23%, 13%, 13%, 3%, 3%, 11%, 3%, 1%, 30%

Commuting in Mega Cities

Legend:
- Any other
- Train
- Bus
- Tempo/Autorick…
- Car/Jeep/Van
- Moped/Scooter/Motor Cycle
- Bicycle
- On foot

Cities: Mumbai (city + suburban), Delhi NCT, Bangalore, Chennai, Kolkata

Source: The Hindu, 2015, Census 2011

- 200 million working Indians are neither employed in agriculture nor in household industries
- **Walking** is the most common mode of commuting in Rural and Urban areas
- 30% of citizens donot travel to work owing to proximity of workplaces

- 26% in Delhi take the bus and walk as mode of commute
- In all other cities, **buses come next to walking as most preferred mode of commute**

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—ROSS CENTER

KEY CHALLENGES

- High innovation & investment, low understanding of impact

- Blurring line between public and private

- Decision makers at local and national level are struggling

WHAT DOES THIS MEAN FOR CITIES ?

- Business models are still evolving, in flux
- Impact is unclear
- Few existing studies funded by enterprises themselves
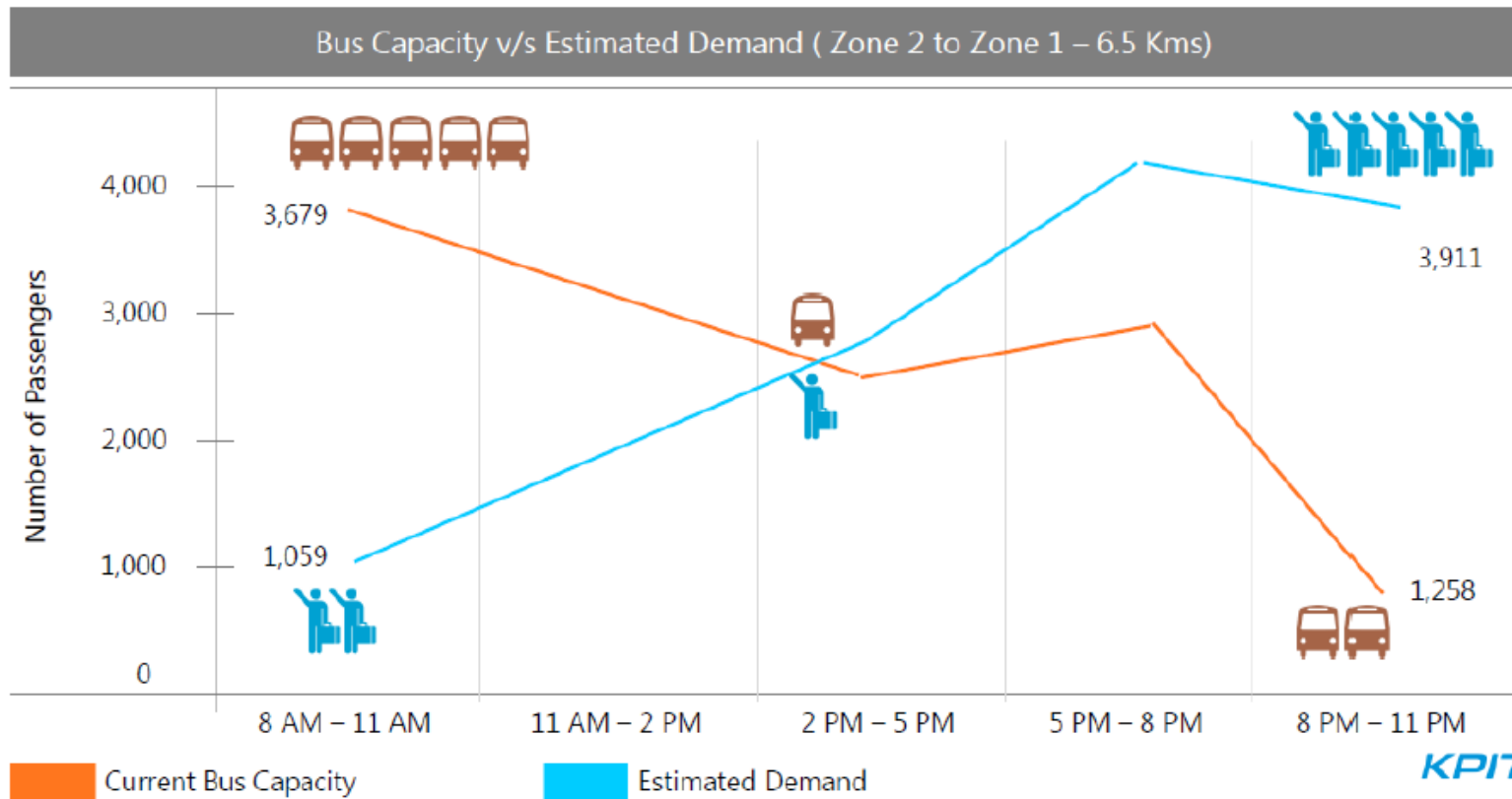- Need for analysis of impact on emerging cities

Equity	Emissions
Safe access	Congestion

Identifying Supply-demand Gap In Public Bus Transport Between Key Zones

Bus Capacity v/s Estimated Demand (Zone 2 to Zone 1 – 6.5 Kms)

Current Bus Capacity — Estimated Demand

WRI is steering the ecosystem towards **Sustainable New Mobility** by working with entrepreneur and government agencies
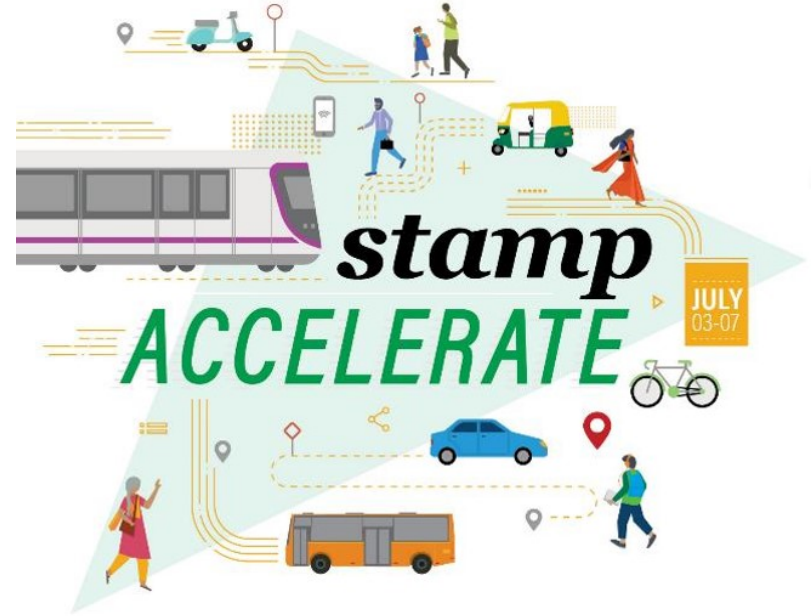
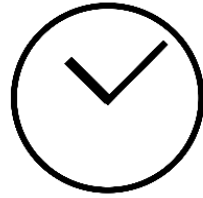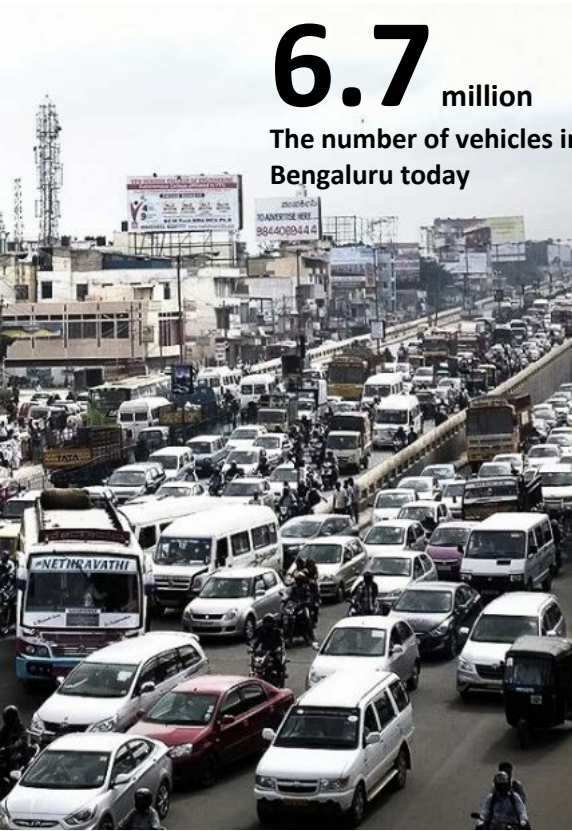# WRI India

\+

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Launch

To implement last mile solutions

Bengaluru Today

6.7 million

The number of vehicles in Bengaluru today

240 hours

Time the average citizen spends stuck in jams every year

5%

Estimated cost of lost GDP due to traffic congestion in Bengaluru

| Inefficiency | Pollution | Safety |

WRI INDIA
—ROSS CENTER

Government Efforts to Tackle through Metro Investments

USD 2 Bn

Investment in Namma Metro

42 km

Phase 1 reach expansion 133 km by 2025
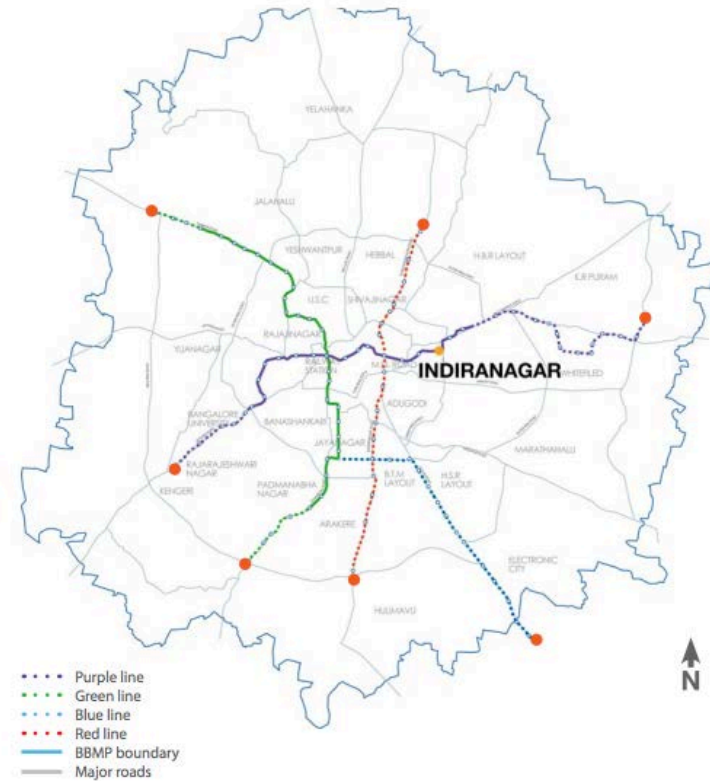
...needs 1st/ last mile mobility solutions to be effective

INDIRANAGAR

· · · · Purple line
· · · · Green line
· · · · Blue line
· · · · Red line
—— BBMP boundary
—— Major roads

N

TMF and WRI attempt to contribute through the STAMP process

| Dec 16'-Feb 17' | Feb'-Mar'17 | Mar-Jul 17' | Sept-Dec 17' |

Research — **Capacity Building** — **Mobility Challenge** — **Pilot implementation /Sharing results**

Entrepreneurs

Govt. Agencies

Citizen Groups

WRI + TMF

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— ROSS CENTER
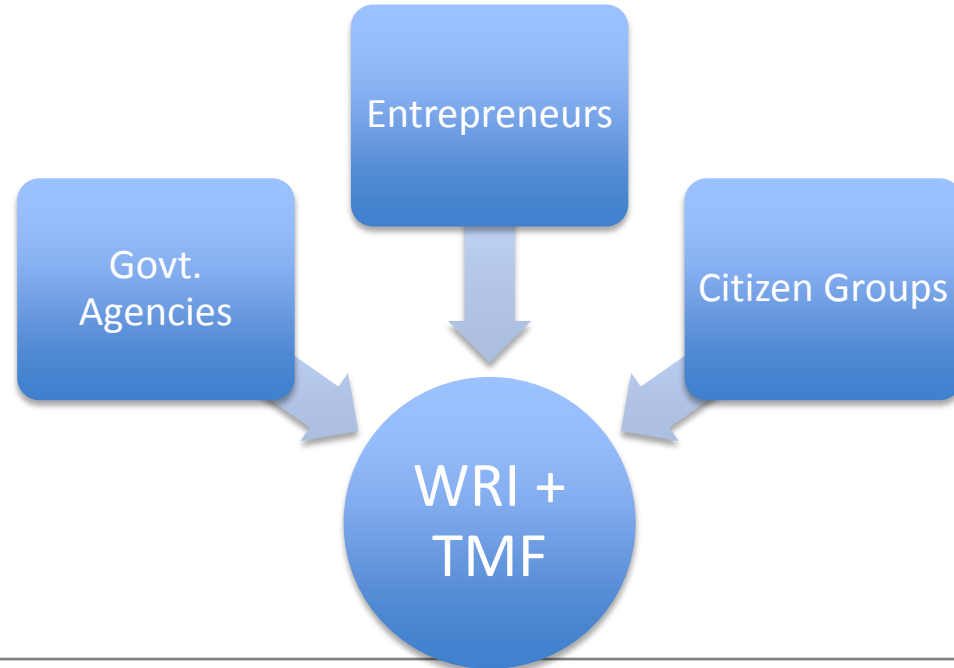
The STation Access and Mobility Program (STAMP)

64%

**Would-be metro riders
who are currently preferring
alternative means of transport due
to limited connectivity to the metro
stations**

WRI INDIA
— ROSS CENTER

MAPPING THE STAKEHOLDERS

- **BMTC**
- **BMRCL**
- **Traffic Police**
- **DULT**
- **BBMP**

- **Citizen Groups**
- **Resident Welfare Associations/Apartment associations**
- **Industrial Associations**
- **NGOs**
- **Business associations**
- **CBOs/Trusts**

Authorities

Citizens

Corporates

Entrepreneurs

- **NASSCOM**
- **Tech Parks**

- **Statrt-ups**
- **Domain Experts**
- **Technology Providers**

WRI INDIA
—— ROSS CENTER
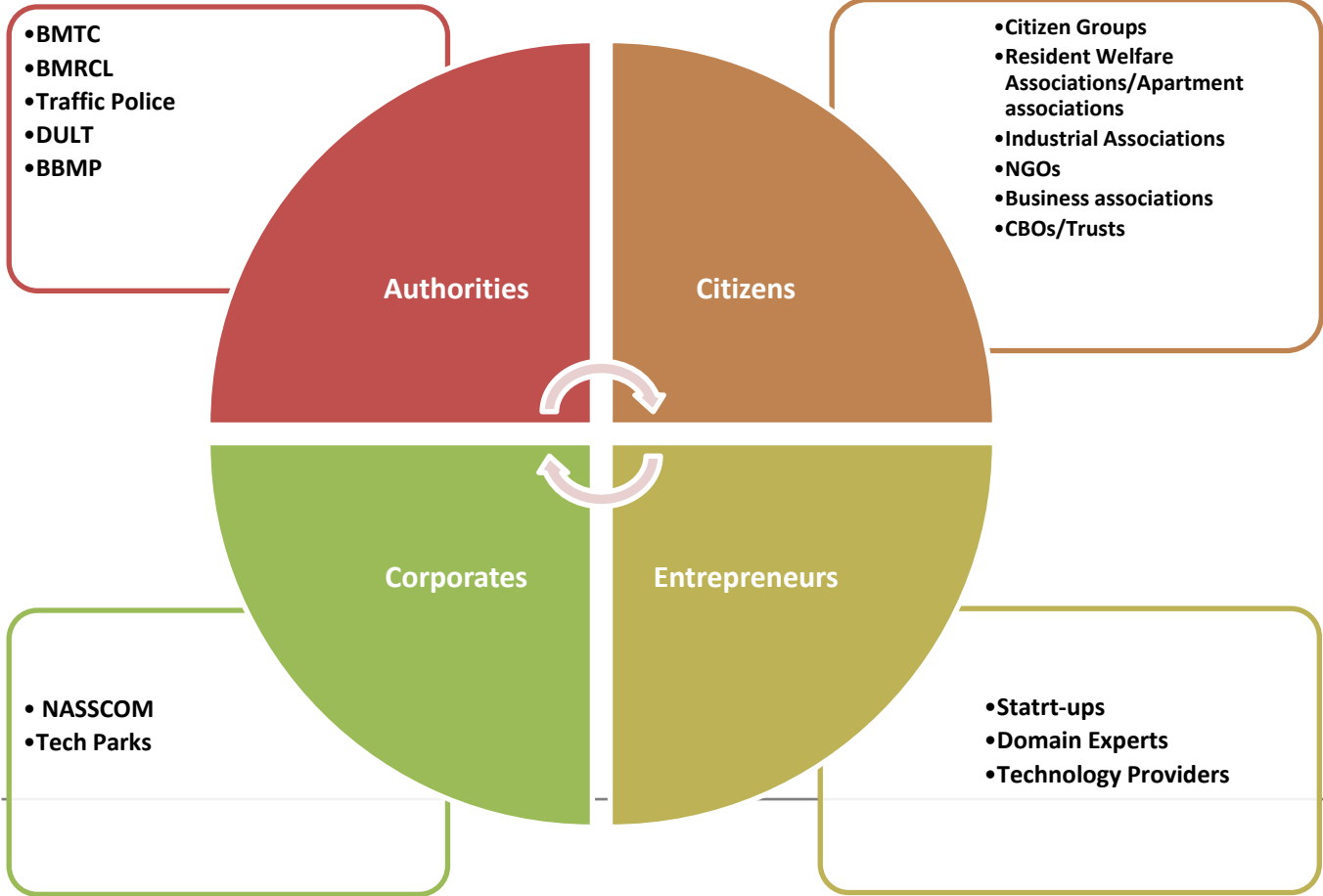
DATA COLLECTION AT METRO STATIONS
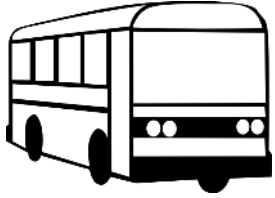
More than 50% of metro users use bus for first- and last- mile connectivity

Metro users spend 25- 50 minutes per day getting to and from the metro station

40% metro users spend more than INR 2500 per month on transportation
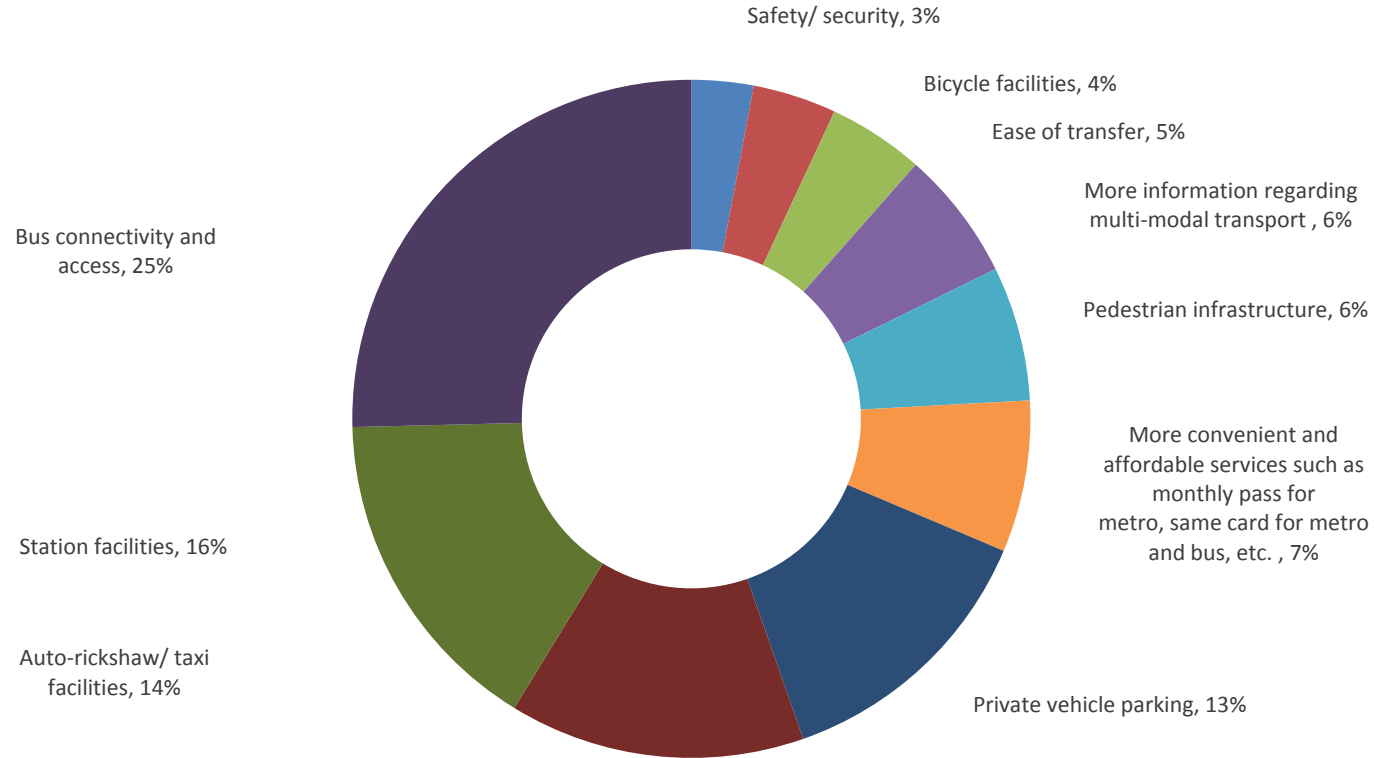
WRI INDIA
—ROSS CENTER

THE IMPROVEMENT NEEDS

Areas of improvement at MG Road metro station

Safety/ security, 3%

Bicycle facilities, 4%

Ease of transfer, 5%

More information regarding multi-modal transport , 6%

Pedestrian infrastructure, 6%

More convenient and affordable services such as monthly pass for metro, same card for metro and bus, etc. , 7%

Private vehicle parking, 13%

Auto-rickshaw/ taxi facilities, 14%

Station facilities, 16%

Bus connectivity and access, 25%

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— ROSS CENTER

DEVELOP SOLUTIONS THROUGH COLLABORATION

5 workshops with over 300 people in different parts of the city

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—ROSS CENTER—

IDEAS FOR LAST-MILE CONNECTIVITY

Over

80

applications received

Information systems

Feeder systems and shared mobility

Parking management

Product innovations
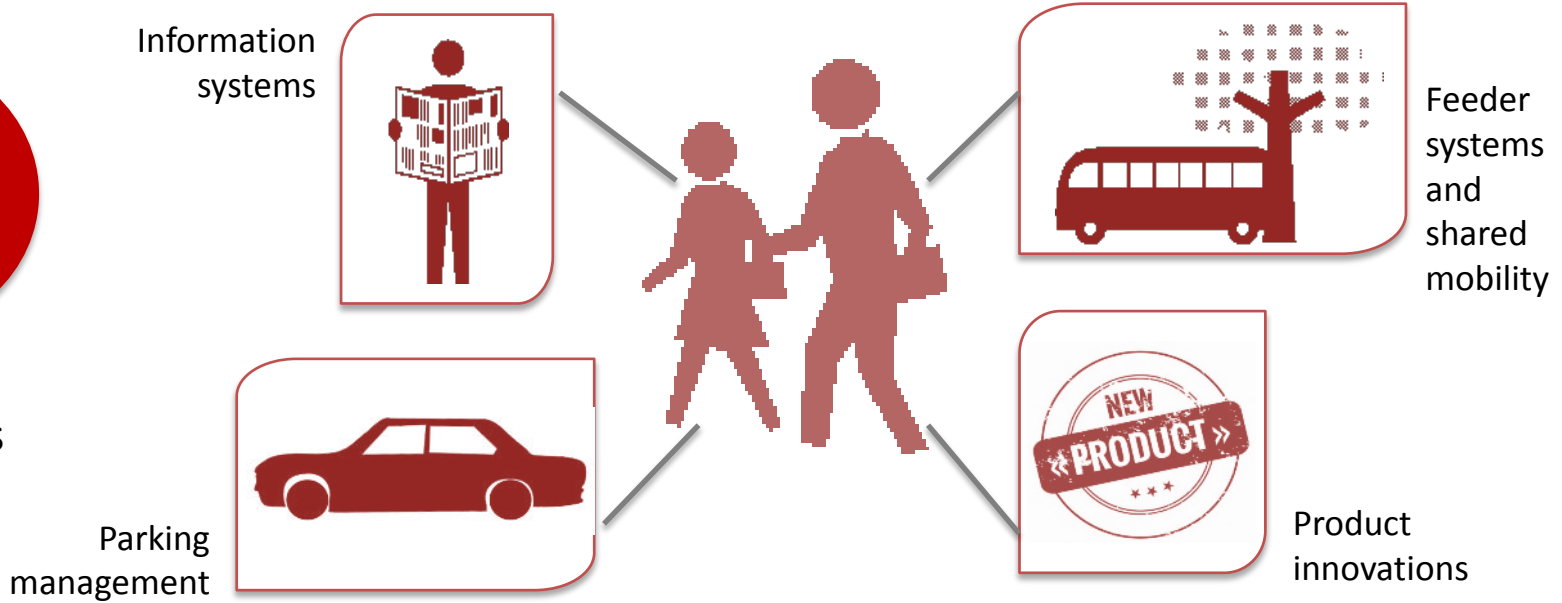
STAMP ACCELERATOR PROGRAM

5 days
13 teams
20+ speakers
4 field visits

SUPPORT ENTREPRENEURS TO DEVELOP BUSINESS MODELS AND PILOT IMPLEMENTATION PLAN

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—ROSS CENTER

STAMP PITCH DAY

July 2017 to select top 5 ideas

THE HINDU

CITIES > BENGALURU

BENGALURU

4 projects get STAMP of approval

STAFF REPORTER

CHEP
· With its 'share & reuse' model, CHEP is driving sustainable and efficient supply chain solutions in the modern Indian market

Research grant awardees of the Station Access and Mobility Program (STAMP) 2017 challenge organised by World Resources Institute and Toyota Mobility Foundation, in Bengaluru on Saturday. | Photo Credit: K_MURALI_KUMAR

Win grants to execute pilot projects at select metro stations

YOURSTORY

STARTUP

Five startups get chance to enhance first and last-mile connectivity for Metro

ANIL BUDUR LULLA   126 shares

The selected companies get to run their ideas on a pilot basis and will be eligible for a grant to build their systems to improve ridership on Bengaluru's Metro.

Bengaluru has become an ideas capital where startups of all hues

e-Paper | Sunday Chronicle   DECCAN Chronicle

NATION, CURRENT AFFAIRS

Quest for last mile metro connectivity continues

DECCAN CHRONICLE.
Published   Oct 15, 2017, 6:41 am IST   Updated   Oct 15, 2017, 6:41 am IST

0   0
SHARES

Last mile connectivity is a necessity and comfortable urban mobility is necessary, Pawan Mulukutla Head-Integrated Mobility, said.

THE NEW
INDIAN EXPRESS
Wednesday, October, 25, 2017

Home > Cities > Bengaluru

You can now use apps and get to know about Metro's last-mile connectivity

By Express News Service | Published: 15th October 2017 02:11 AM |
Last Updated: 15th October 2017 08:05 AM | A+ A A-

BENGALURU: Four apps that help provide last mile connectivity to Metro commuters of Baiyappanahalli and Swami Vivekananada (S V Road) Metro stations were launched by

BELIEVE IN LOVE AGAIN

WRI INDIA
ROSS CENTER

THE CHALLENGE WINNERS – TESTING DIFFERENT SOLUTIONS TO ENABLE CONSUMER CHOICE

Feeder services

2 wheeler rentals

Car sharing

Rickshaw booking

METROBIKES

Quick Ride

tap route
powered by
HYPERLOOP INDIA

Parking

Parking

Constapark

Accessibility Index

Index

CiFoS
Citizens For
Sustainability

WAY FORWARD

- Scale up to other stations

- Impact assessment and documentation

- Taking STAMP to other cities

THANK YOU!

abhatt@wri.org