Analysis of Public Transport Needs in Indian Cities

A Publication on Findings of Transport4All Stage-1 Surveys

CONTENTS

Transport4All Challenge Overview

VISION

The Transport4All Challenge—an initiative of the Ministry of Housing and Urban Affairs of the Government of India—aims to bring together <u>cities</u>, <u>citizens</u>, and <u>startups</u> to develop solutions that improve public transport to better serve the needs of all citizens.

At the core of the Challenge are citizens who will not only define the problems for which solutions shall be created but also help startups and cities to refine the solutions to meet their needs.

The first edition of the Challenge focuses on digital innovation. Cities and startups will receive guidance to develop and test various solutions, learn from them, and scale them to build people's trust in public transport and enhance their mobility.

The solutions will make public transport—formal as well as informal— safe, convenient, and affordable for all.

CHALLENGE TEAM

HOST & CONVENOR

Ministry of Housing and Urban Affairs
Government of India

Smart City
MISSION TRANSFORM-NATION

Urban Transport

- Host the Challenge
- Encourage cities to participate
- Give awards to startups

## CO-HOST & CHALLENGE COORDINATOR

ITDP INDIA

- Facilitate engagement between cities and startups
- Guide cities and NGOs on outreach and citizen engagement
- Support cities in reforming procurement framework
- Organise capacity building workshops
- Conduct Challenge outreach

TECHNOLOGY PLATFORM PARTNERS

#startupindia **Ci^x**

- Engage with Startups
- Assist in evaluating prototypes and solution scale-up
- Provide a platform for startups to engage with a panel of experts

KNOWLEDGE PARTNER

THE WORLD BANK

- Bring global technical expertise in digital innovation to provide guidance to startups and cities
- Assist in evaluating prototypes and solution scale-up
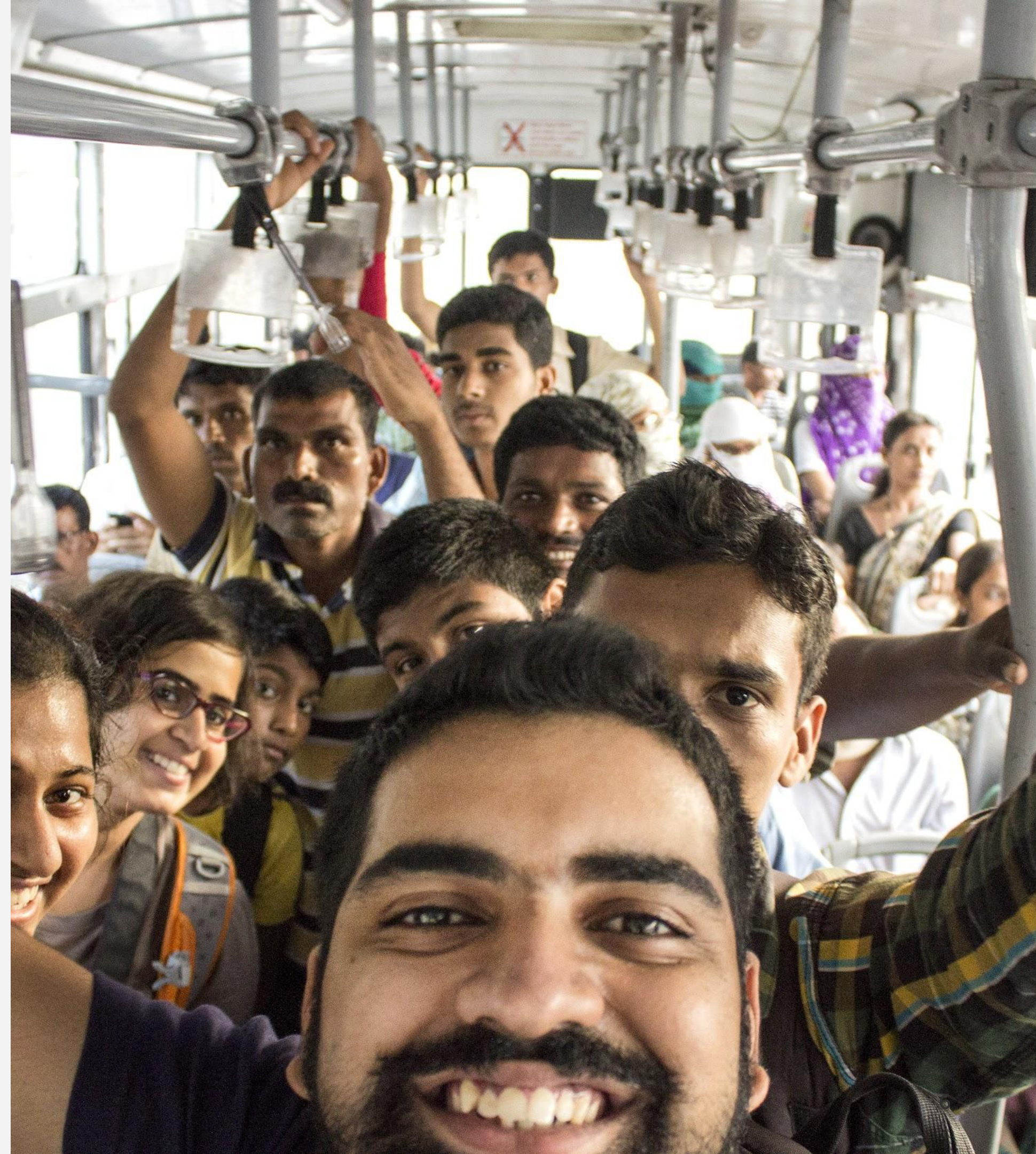
CHALLENGE STAGES

01

PROBLEM IDENTIFICATION

Cities, with the support of NGOs, identify key recurring problems that citizens and public transport operators face

02

SOLUTION GENERATION

Startups develop prototypes of solutions to improve public transport with inputs from cities and NGOs
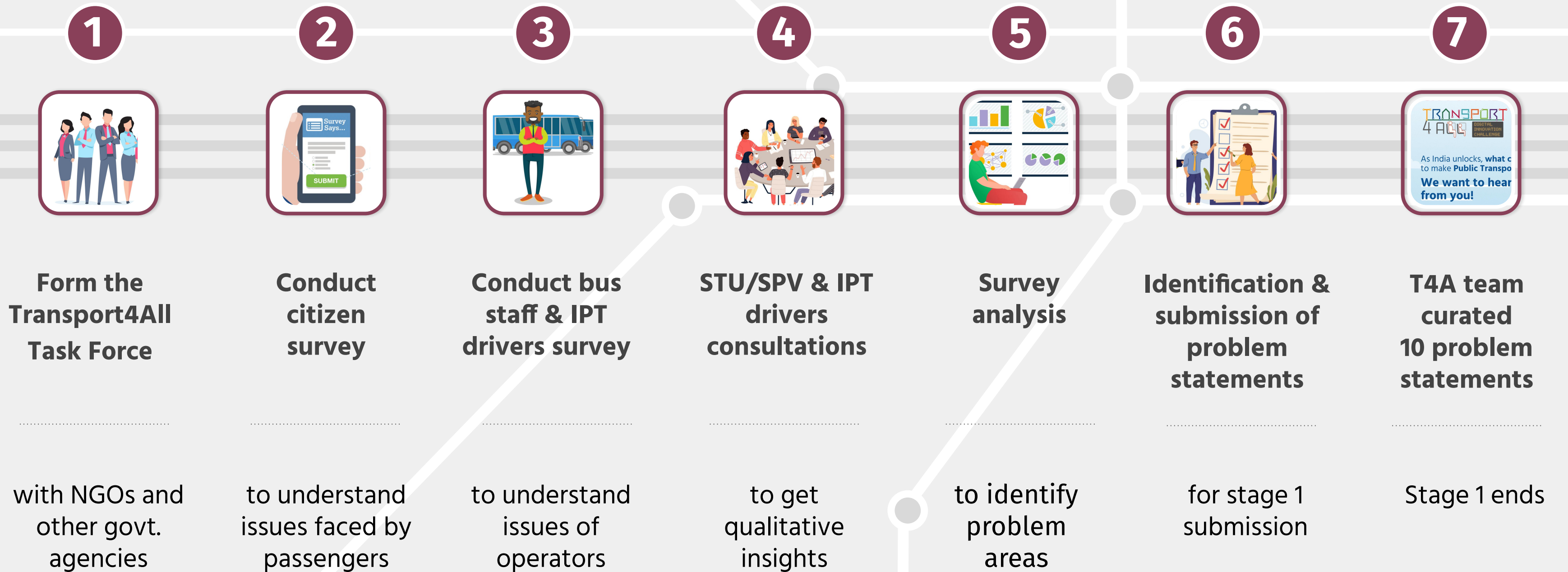

03

PILOT TESTING

Cities engage startups for large-scale pilots and refine the solutions based on citizen feedback

02

Key Achievements of Stage 1

STAGE 1 ROADMAP

1 Form the Transport4All Task Force

with NGOs and other govt. agencies

2 Conduct citizen survey

to understand issues faced by passengers

3 Conduct bus staff & IPT drivers survey

to understand issues of operators

4 STU/SPV & IPT drivers consultations

to get qualitative insights

5 Survey analysis

to identify problem areas

6 Identification & submission of problem statements

for stage 1 submission

7 T4A team curated 10 problem statements

Stage 1 ends

STAGE 1

130 CITIES

LIST OF CITIES PART OF THE TRANSPORT4ALL CHALLENGE JOURNEY

Andaman & Nicobar
Port Blair

Andhra Pradesh
Amravati
Guntur
Kakinada
Tirupati
Visakhapatnam

Arunachal Pradesh
Itanagar
Pasighat

Assam
Guwahati

Bihar
Bhagalpur
Bihar Sharif
Muzaffarpur
Patna

Chandigarh

Chattisgarh
Bilaspur
Nava Raipur, Atal Nagar
Raipur

Dadra & Nagar Haveli
Silvassa

Daman & Diu
Diu

Goa
Panaji

Gujarat
Ahmedabad
Dahod
Gandhinagar
Rajkot
Surat
Vadodara

Haryana
Faridabad
Gurgaon
Karnal

Himachal Pradesh
Dharamsala
Shimla

Jammu and Kashmir
Jammu
Srinagar

Jharkhand
Bokaro Steel City
Dhanbad
Jamshedpur
Ranchi

Karnataka
Belagavi
Bengaluru
Davanagere
Gulbarga
Hubbali-Dharwad
Mangaluru
Mysore
Shivamogga
Tumakuru

Kerala
Kannur
Kochi
Kollam
Kozhikode
Tiruvananthapuram
Thrissur

Ladakh
Leh

Lakshadweep
Kavaratti

Madhya Pradesh
Bhopal
Gwalior
Indore
Jabalpur
Sagar
Satna
Ujjain

Maharashtra
Akola
Amravati
Aurangabad
Bhiwandi
Greater Mumbai
Kalyan-Dombivali
Kolhapur
Malegaon
Meera Bhayandar
Nagpur
Nanded Waghala
Nashik
Navi Mumbai
Panvel
Pimpri Chinchwad
Pune
Sangli
Solapur
Thane
Ulhasnagar
Vasai Virar City

Manipur
Imphal

Meghalaya
Shillong

Mizoram
Aizawl

Nagaland
Kohima

New Delhi

Odisha
Bhubaneshwar
Cuttack
Raurkela

Puducherry

Punjab
Amritsar
Jalandhar
Ludhiana

Rajasthan
Ajmer
Jaipur
Kota
Udaipur

Sikkim
Gangtok
Namchi

Tamil Nadu
Chennai
Coimbatore
Erode
Madurai
Salem
Thanjavur
Thoothukudi
Tiruchirapalli
Tirunelveli
Tiruppur
Vellore

Telangana
Hyderabad
Karimnagar
Warangal

Tripura
Agartala

Uttar Pradesh
Agra
Aligarh
Bareilly
Ghaziabad
Gorakhpur
Jhansi
Kanpur
Lucknow
Meerut
Moradabad
Prayagraj
Sahranpur
Varanasi

Uttarakhand
Dehradun

West Bengal
New Town Kolkata

200+ NGO Partners

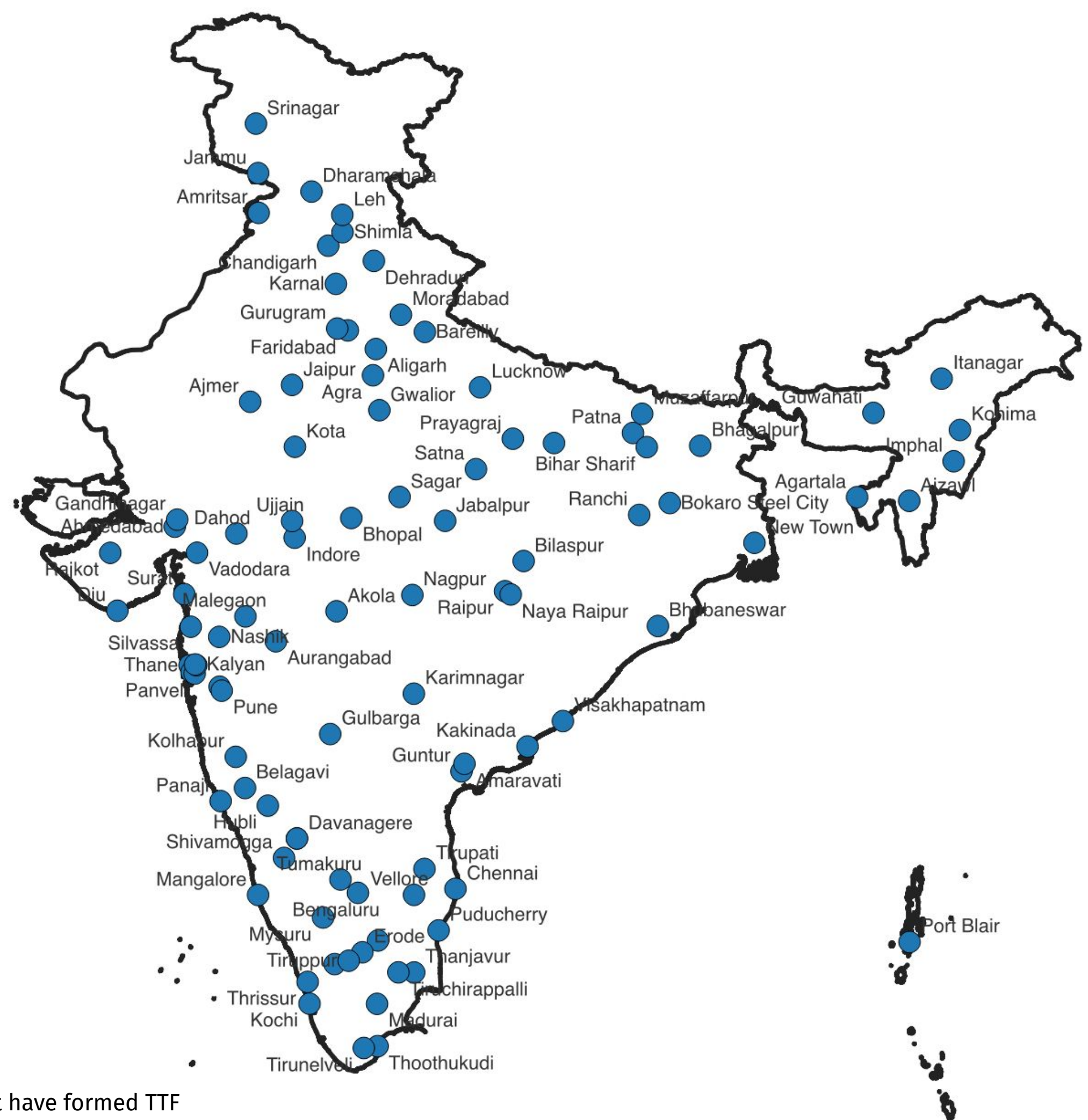**REGISTERED TO SUPPORT 130 CITIES**

All civil society organisations

Research Organizations

Educational Institutes

100
Cities

have formed the
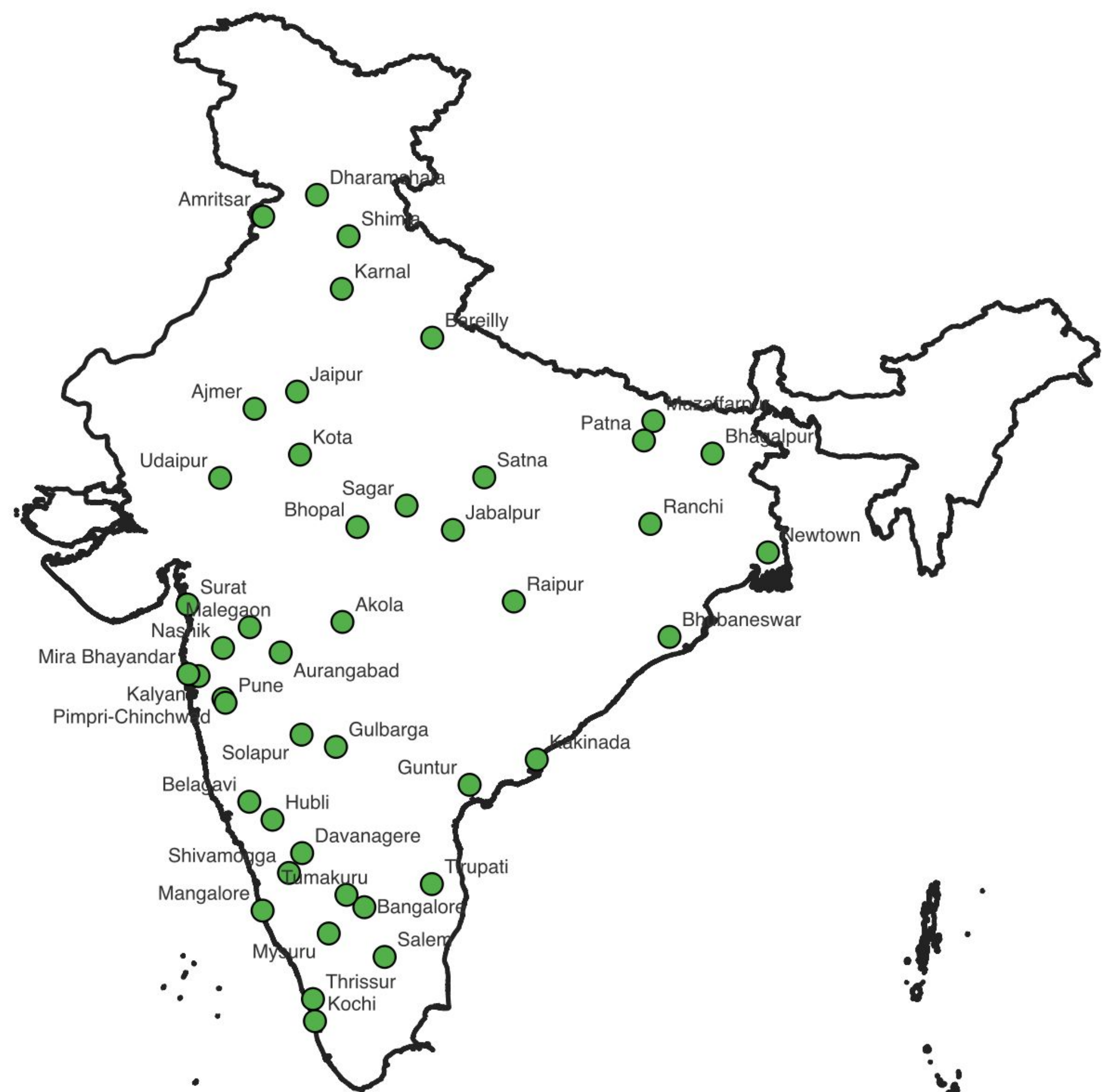Transport4All Task Force (TTF)
in the T4A Challenge.

Cities that have formed TTF

46 Cities

have **completed** the Citizen, IPT drivers and Bus drivers and conductor surveys.

Cities that have completed all the 3 surveys

THREE T4A SURVEYS

01

Citizen Survey

More than **2 Lakh** citizen voices captured
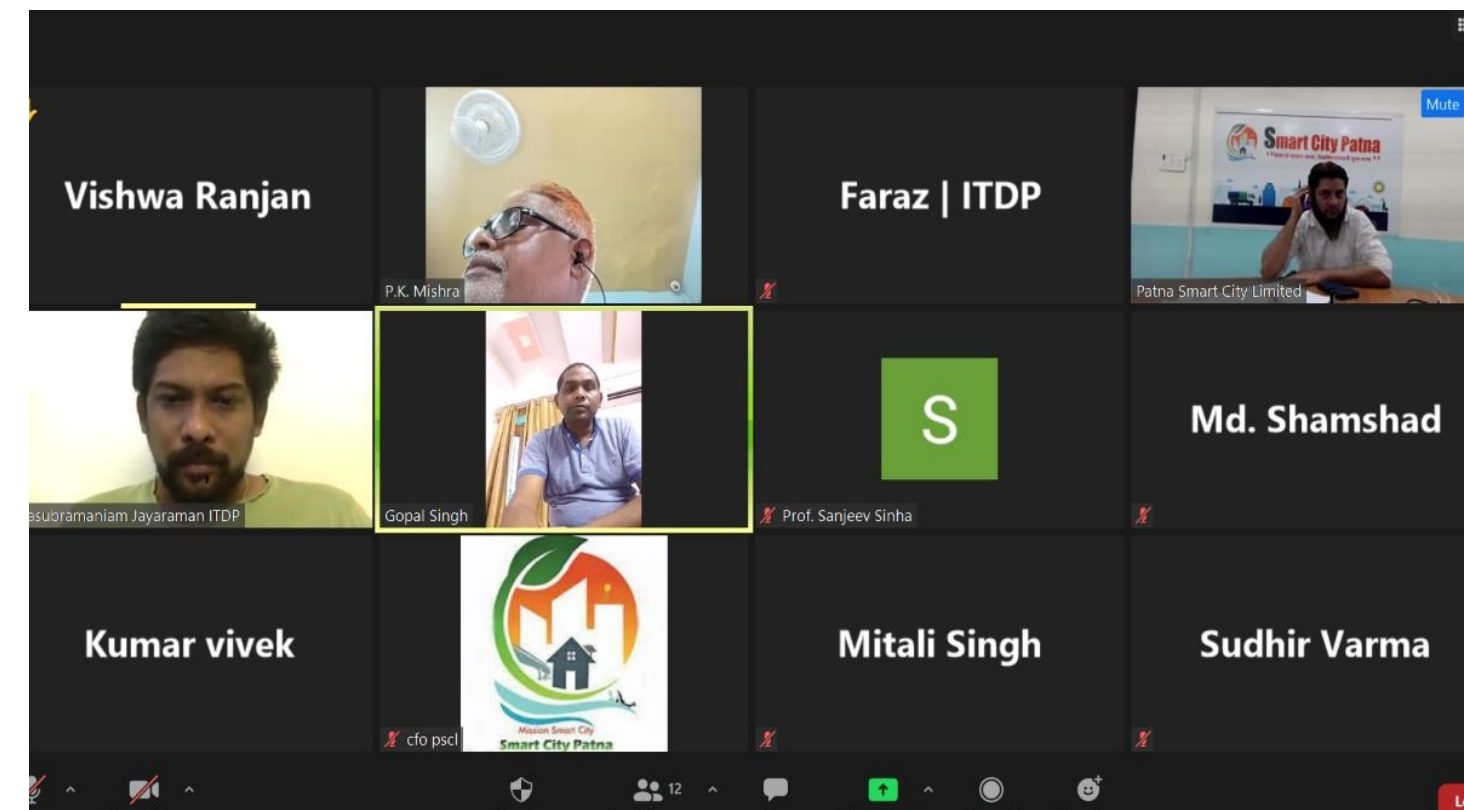

02

Bus Staff Survey

More than **15,000** drivers and conductors interviewed

03

IPT Survey

More than **22,000** IPT drivers interviewed

Cities discussed the survey data with the Transport4All Task Force to draft the problem statements

06
Workshops & T4A Clinics

10+
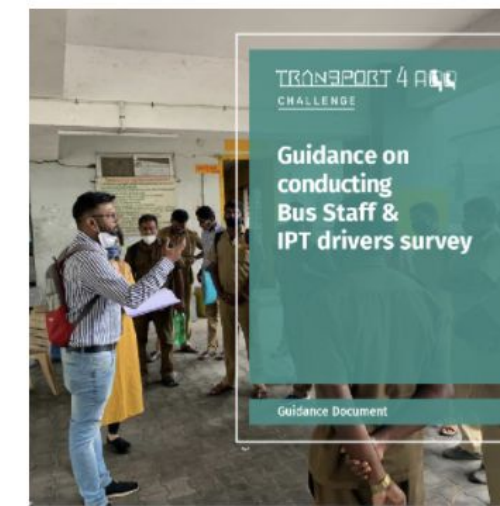## Toolkits prepared

500+
One-on-One Calls with Cities

Guidance on conducting IPT/PT consultations, Survey data analysis and Identification of problem statements
10/12/2021 // Presentation, Templates & Guides

Generating Problem Statements through Data Analysis
10/12/2021 // Videos

Guidance on conducting Bus Staff and Informal Public Transport Drivers Survey
25/08/2021 // Templates & Guides

Kickstarting the Transport4All Challenge-Workshop 1
02/07/2021 // Videos

Guide to check citizen survey data quality – Workshop 2
28/07/2021 // Templates & Guides

Guidance on conducting and verifying in-person surveys – Workshop 2
27/07/2021 // Presentation

Capturing citizen's voices through surveys – Workshop 2
27/07/2021 // Videos
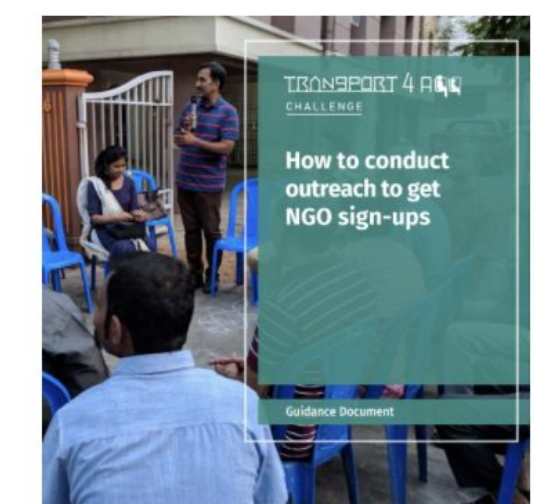
Guidance document to conduct outreach to get the support of NGOs
02/06/2021 // Templates & Guides

Citizen survey form and guidance on conducting citizen surveys
07/07/2021 // Templates & Guides

Citizen Engagement and Outreach – Workshop 1
02/07/2021 // Presentation

Introduction to Transport4All Challenge-Workshop 1
02/07/2021 // Presentation

Formation of the Transport4All Task Force
25/05/2021 // Templates & Guides

Transport4all STAGE 1 "Champions"

Andhra Pradesh
Guntur
Kakinada
Tirupati

Bihar
Bhagalpur
Muzaffarpur
Patna

Chattisgarh
Raipur

Gujarat
Surat
Rajkot

Haryana
Karnal

Himachal Pradesh
Shimla
Dharamshala

Jharkhand
Ranchi

Karnataka
Belagavi
Bengaluru
Davanagere
Gulbarga
Hubballi-Dharwad
Mangaluru
Mysore
Shivamogga
Tumakuru

Kerala
Kochi
Thrissur

Madhya Pradesh
Bhopal
Jabalpur
Sagar
Satna

Maharashtra
Akola
Aurangabad
Kalyan-Dombivali
Malegaon
Meera Bhayandar
Nashik
Pimpri Chinchwad
Pune
Solapur

Odisha
Bhubaneshwar

Punjab
Amritsar

Rajasthan
Ajmer
Jaipur
Kota
Udaipur

Tamil Nadu
Salem

Uttar Pradesh
Bareilly

West Bengal
New Town Kolkata

CHALLENGE TIMELINE

STAGE 1 (May '22)

Identify problems citizens face

Launch of Challenge and registration opens for cities and NGOs:
15th April '21

Cities register by: **15th May '21**

Cities submit problem statements by: **March '22**

Problem statements curated by T4A team: **May '22**

STAGE 2 (Nov '22)

Develop solutions & prototypes

Startup registrations open: **June '22**

Startups register with a concept note by: **June '22**

Announcement of screened startups: **July '22**

Startups and cities submit prototype testing results and plan of action by: **Oct '22**

Announcement of winners: **Nov '22**

STAGE 3 (Mar '23)

Large-scale pilots to validate and refine solutions

Cities procure the solutions from winning startups: **Nov '22**

Submission of pilot project result by cities: **February '23**

Closing workshop of the Challenge: **March '23**

BUS ARRIVALS
Bus/Destination ETA
B12 Airport -Parry 2 Minutes
F05 4 Minutes

BUS STOP

BUS ARRIVALS
Bus/Destination ETA
B12 Airport 4 Minutes
F05 6

BUS STOP

Any changes in the timeline will be updated on the Challenge website.

03

STAGE 1
Survey Analysis
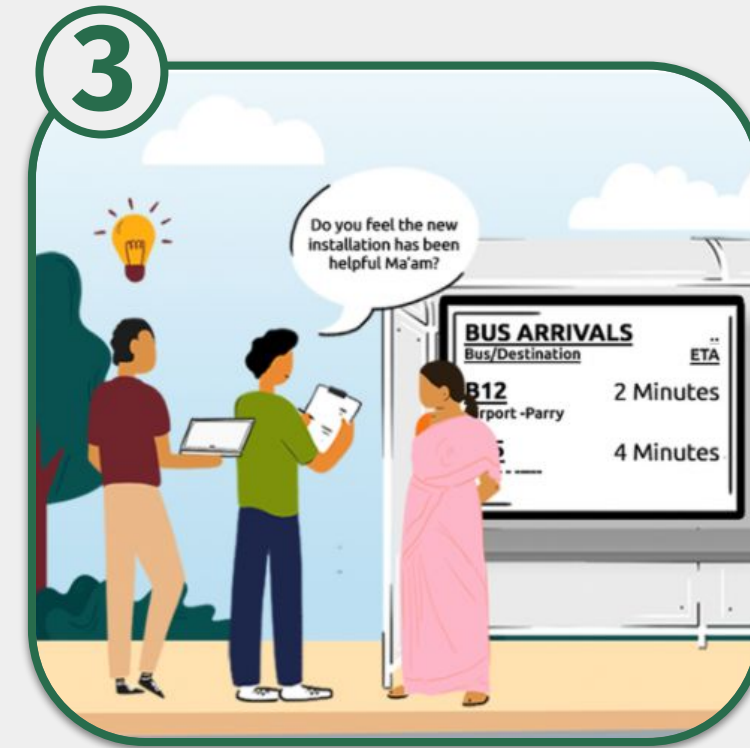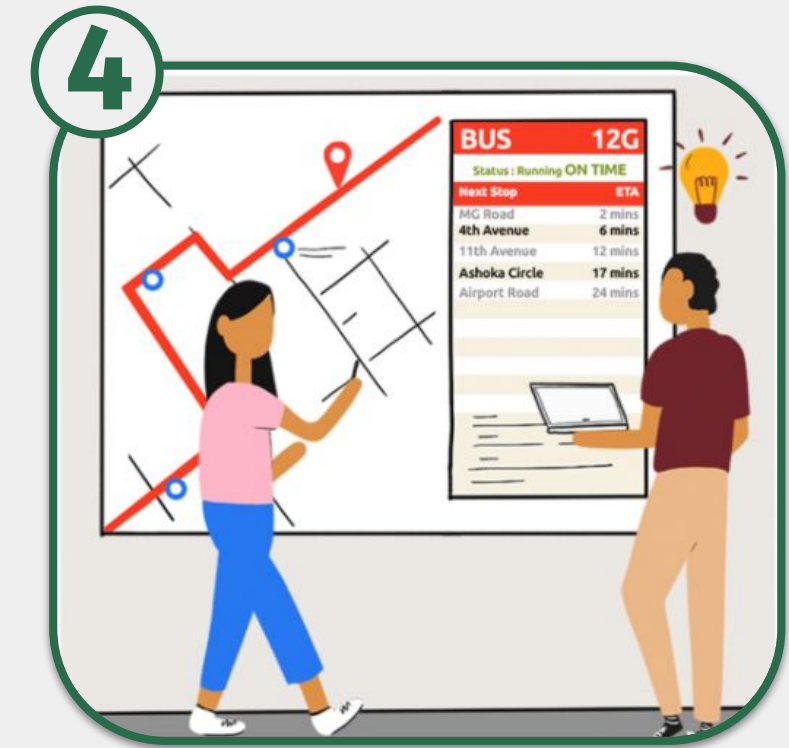
How will the survey analysis help the city?

Understand the mobility problems citizens and operators face

Use the findings to improve public transport and for future mobility planning decisions

Develop problem statements and get solutions developed for the problems from startups

Evaluate the success of the initiatives by comparing the results of the surveys in the future

Citizen Survey
Overview

2+
Lakhs

Citizens surveyed across 46 cities*

*Each city were given a sample size of 2000 offline surveys and 1000 online surveys to capture voices of people who do not have access to technology.

% of Responses Received by Gender

- 1%
- 39%
- 60%

■ Male   ■ Female   ■ Prefer not to say

% of Responses Received by Age

Age	Value
Above 60	5
46 - 60	18
19 - 45	63
14 - 18	12
Below 14	2
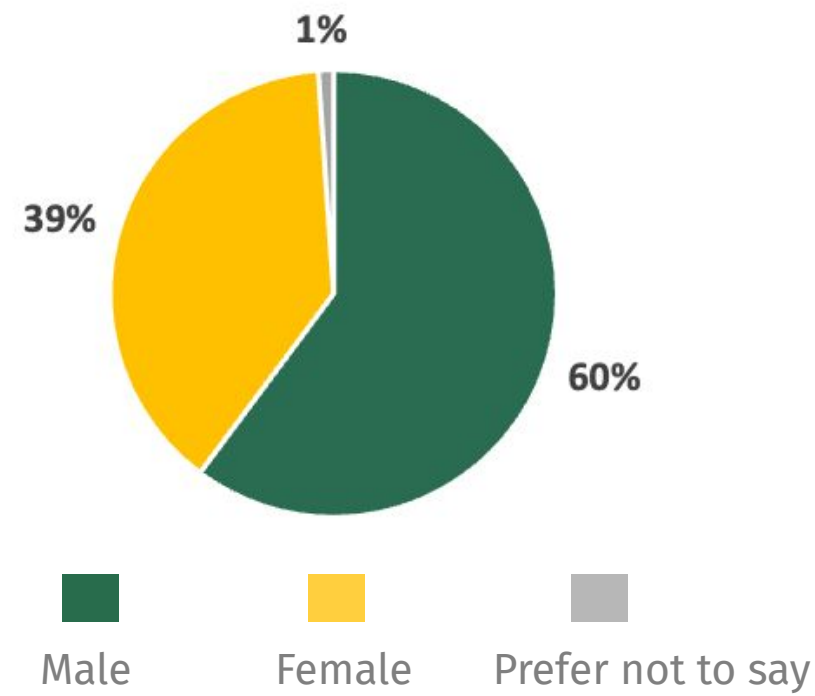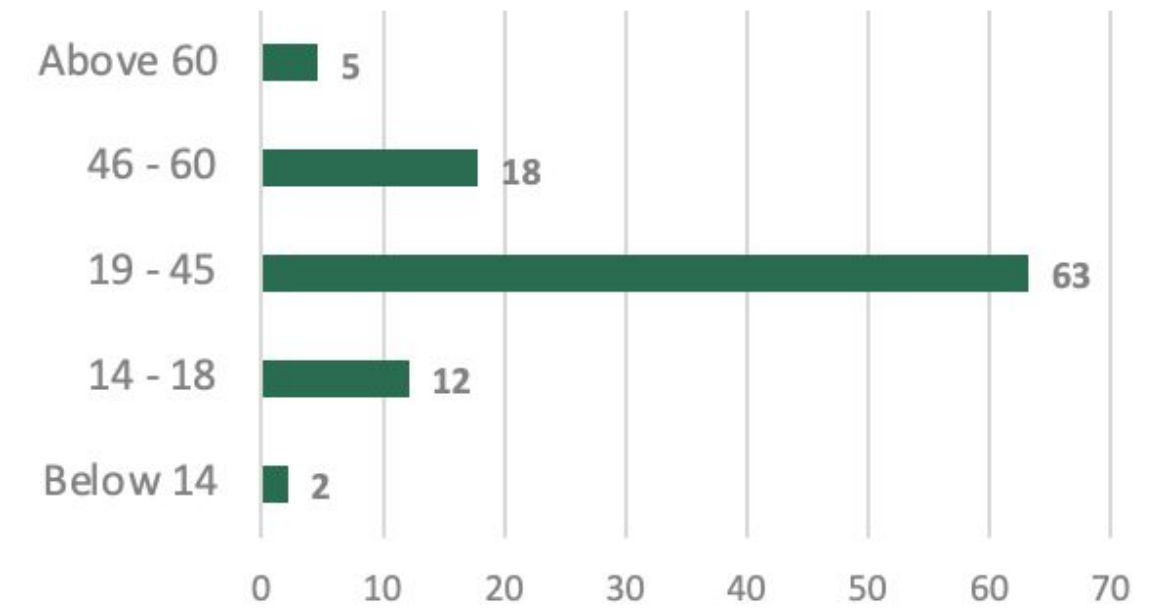
% of Responses Received by Ability

- 11%
- 89%

■ No Disability   ■ Yes (Wheelchair/crutches, Hearing/speech impaired, Visually impaired etc.)
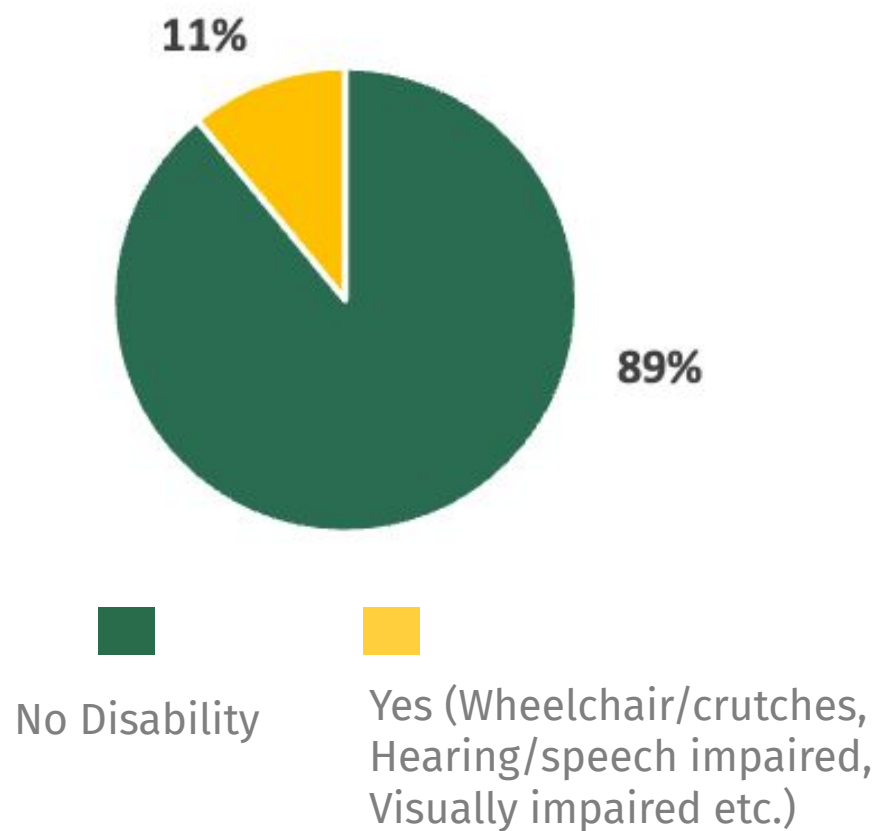
% of Responses Received by Housing Typology

Housing Typology	Value
Shared accommodation	4
1Room	11
1BHK	24
2BHK	40
3BHK or larger	21
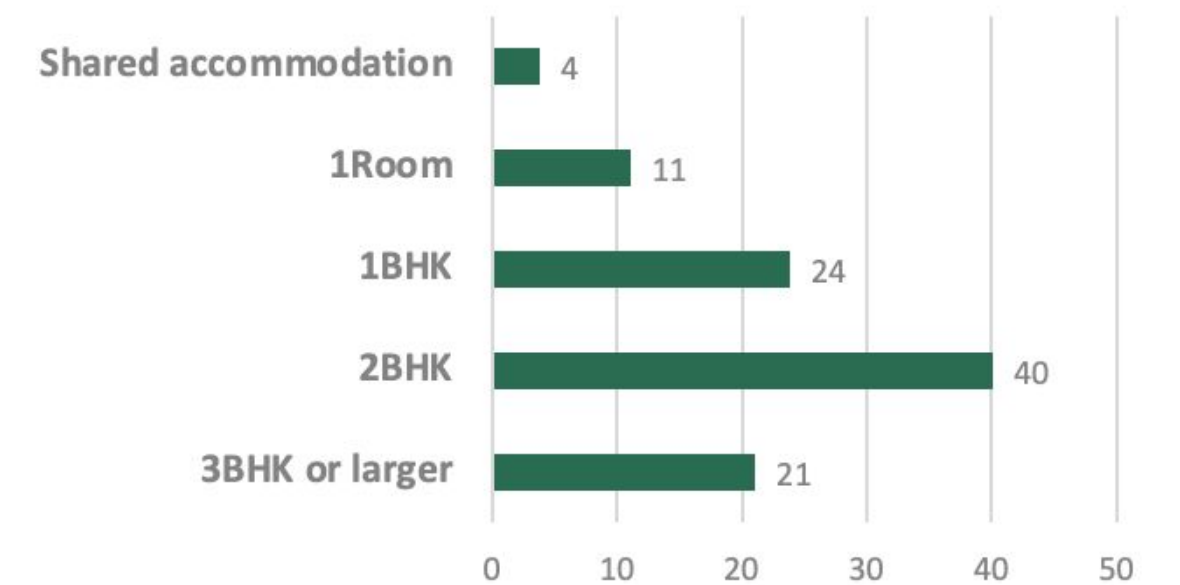
% of Responses by Average Working Hours

- Upto 8 hours — 21%
- 8-10 — 44%
- 10-12 — 28%
- More than 12 hours — 7%

% of IPT drivers interviewed by Age

Age	Count
Above 60	3
45 - 60	24
30 - 45	50
Below 30	23
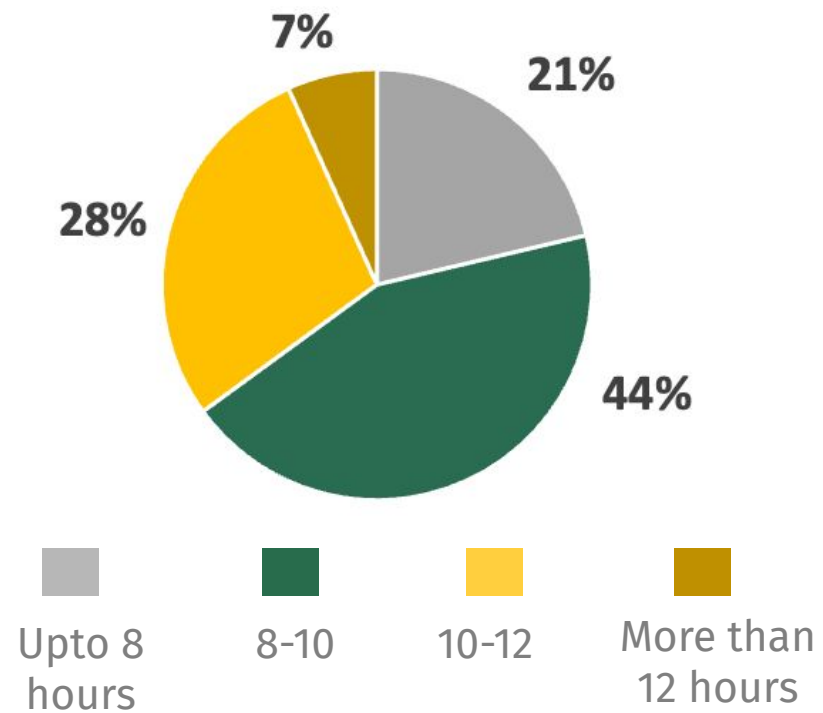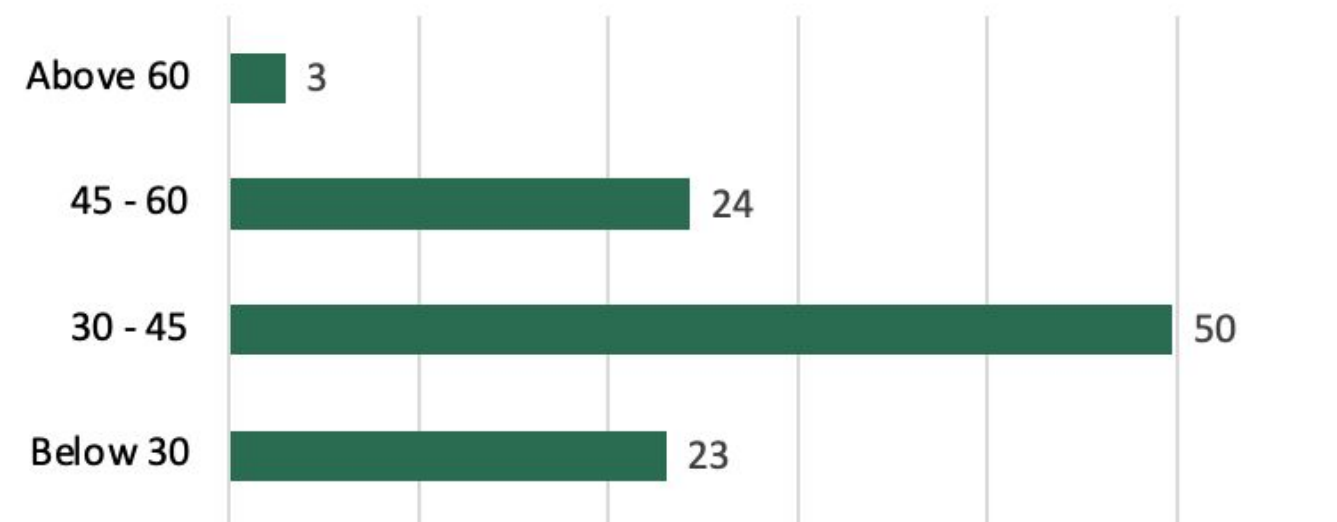
% of Responses Received by Ownership of IPT Vehicles

- Yes — 60%
- No — 40%
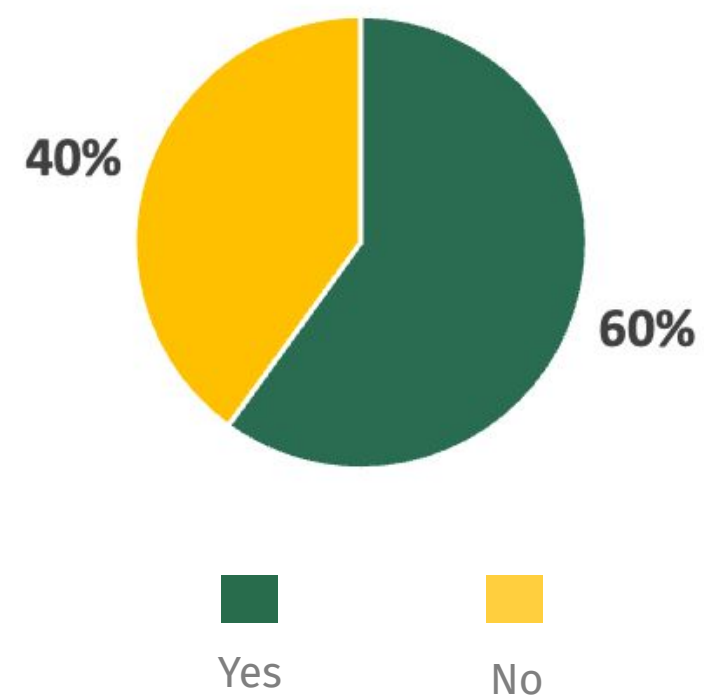
% of IPT drivers Interviewed by Vehicle Type

Vehicle Type	Count
Large bus	5
None of the above	6
Van like Tata Magic	6
Mini-bus	6
Taxi	7
E Rickshaws	9
6-7 seater auto	15
3-seater auto	48
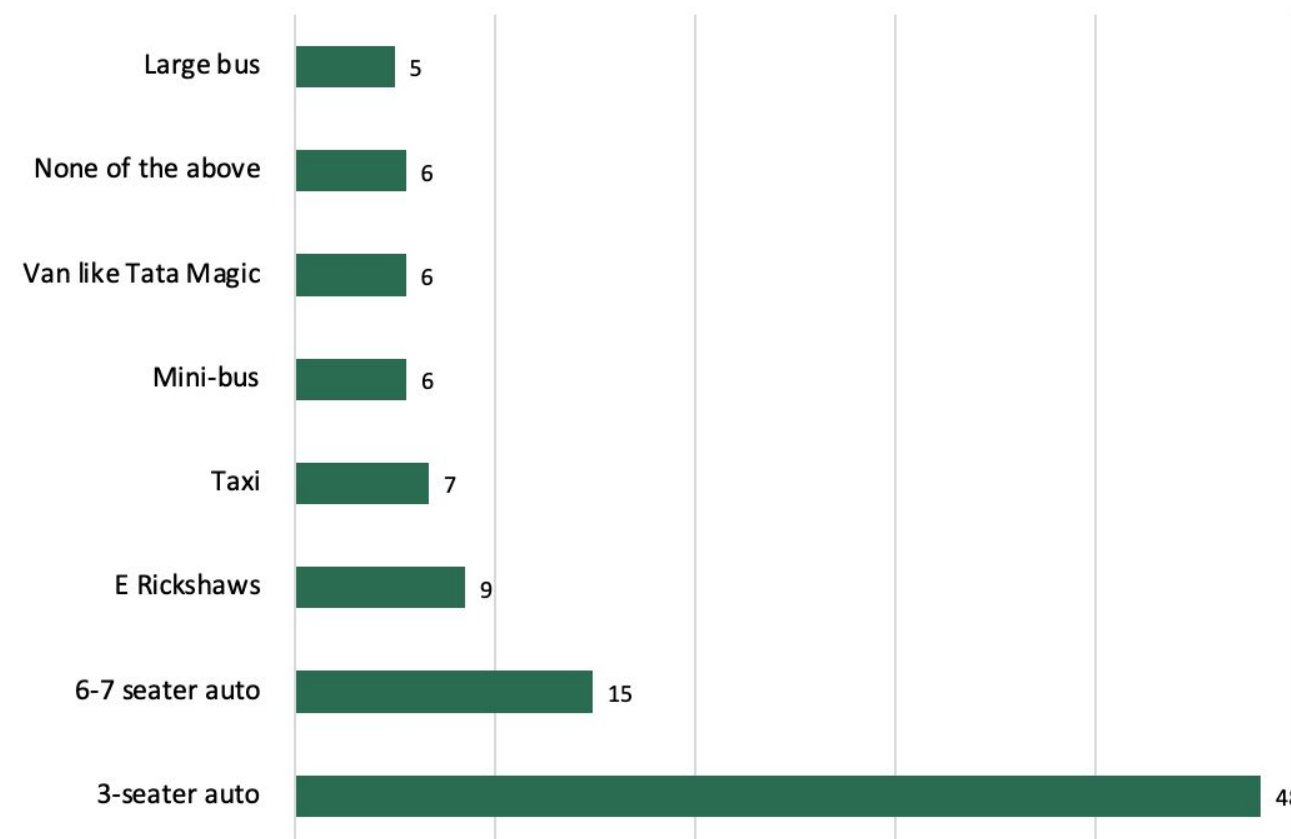
IPT Survey
Overview

22K

IPT drivers surveyed across 46 cities*

*Each city were given a sample size of 500 surveys equally distributed between all the shared IPT modes.

PT Survey
Overview

15K

Bus drivers & conductors surveyed across 46 cities*

*Each city were given a sample size of 500 surveys distributed equally between bus drivers and conductors.

% of Responses from Bus Drivers & Conductors

- 50% Conductor
- 47% Driver
- 3% Driver-cum-Conductor

■ Conductor ■ Driver ■ Driver-cum-Conductor

% of Bus Drivers & Conductors by Age

Age	Value
Above 60	1
45 - 60	31
30 - 45	53
Below 30	15
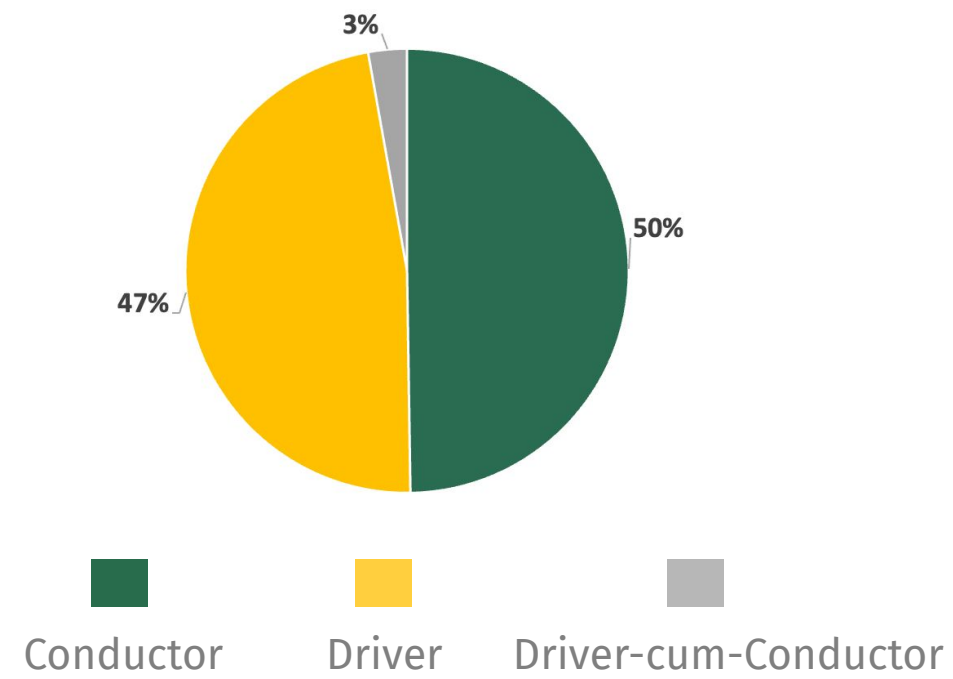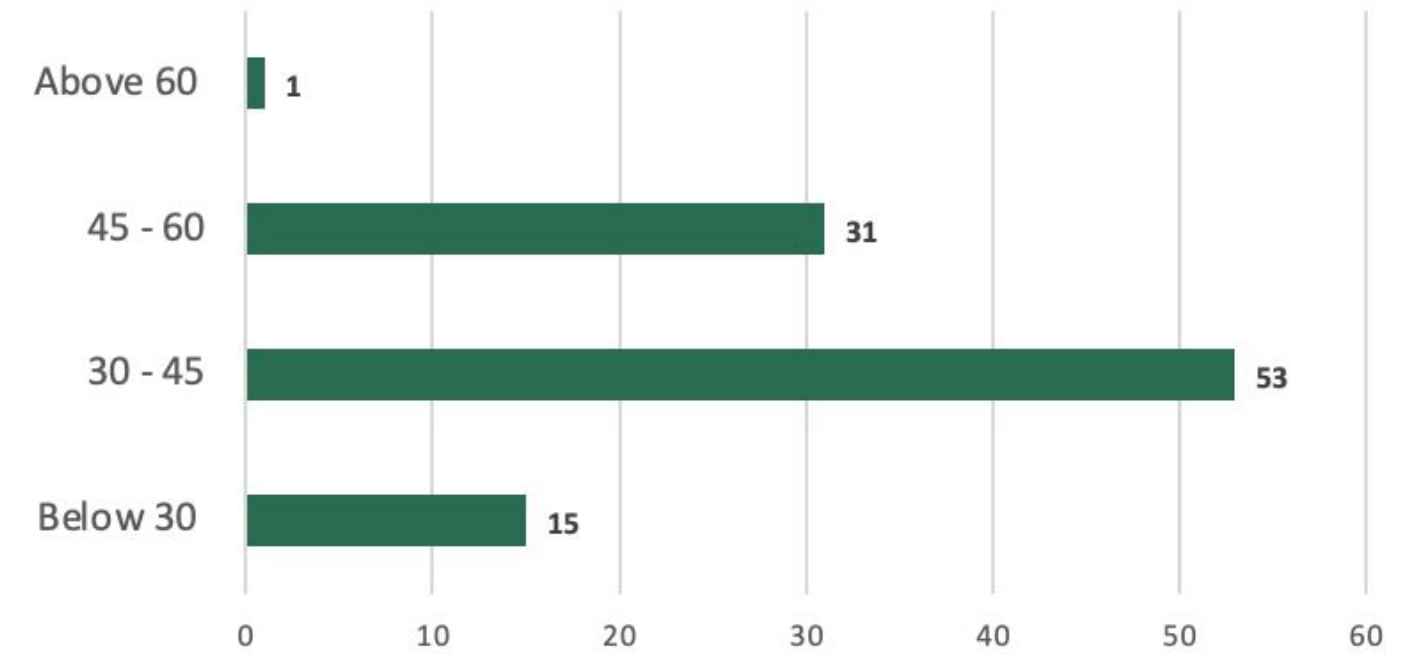
% of Responses by gender from Bus Drivers & Conductors

- 93.3% Male
- 6.5% Female
- 0.3% Others

■ Male ■ Female ■ Others
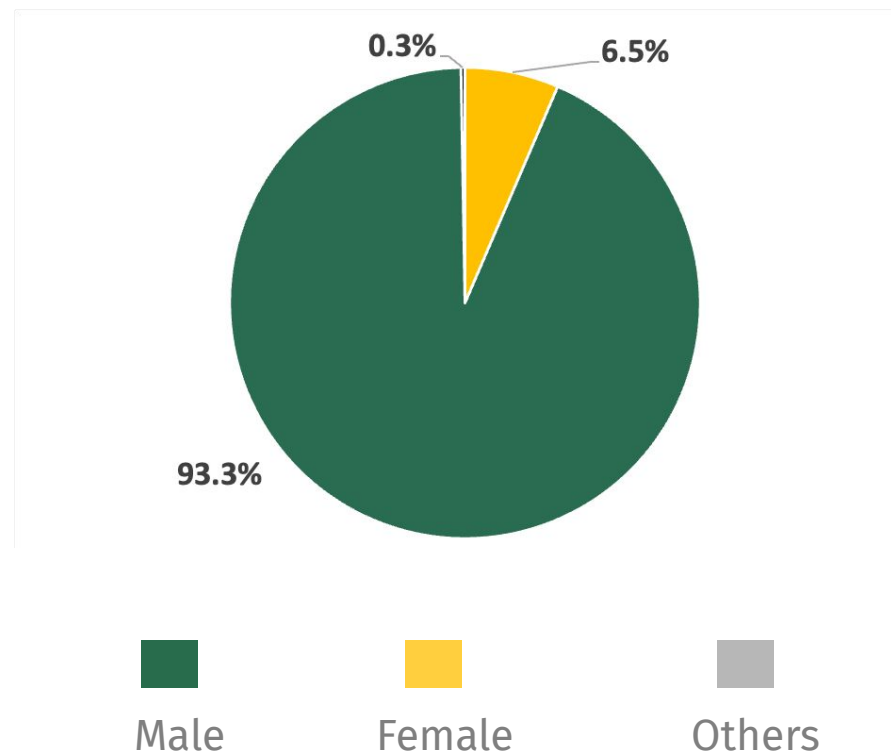
Average Working Hours of Bus Drivers & Conductors (%)
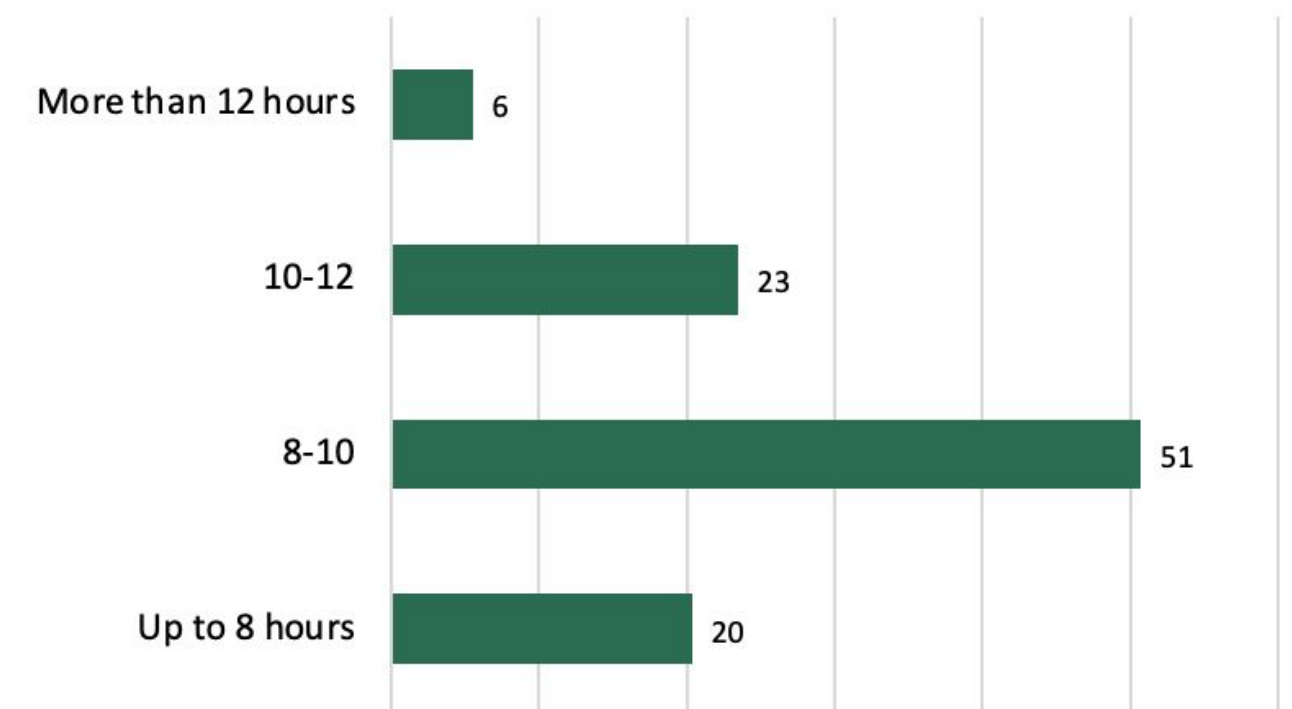
Hours	Value
More than 12 hours	6
10-12	23
8-10	51
Up to 8 hours	20

Biggest Concerns with Public Transport System

1 Problem Identification

Biggest Concerns with Public Transport System

Biggest Concern for Citizens with Public Transport

Biggest Concern with Public Transport (%)

Hard to find information about service	11
Fare too high	12
Journey feels uncomfortable or unsafe	14
Service is far or difficult to reach	21
Long waiting, long journey time or unreliable service	43
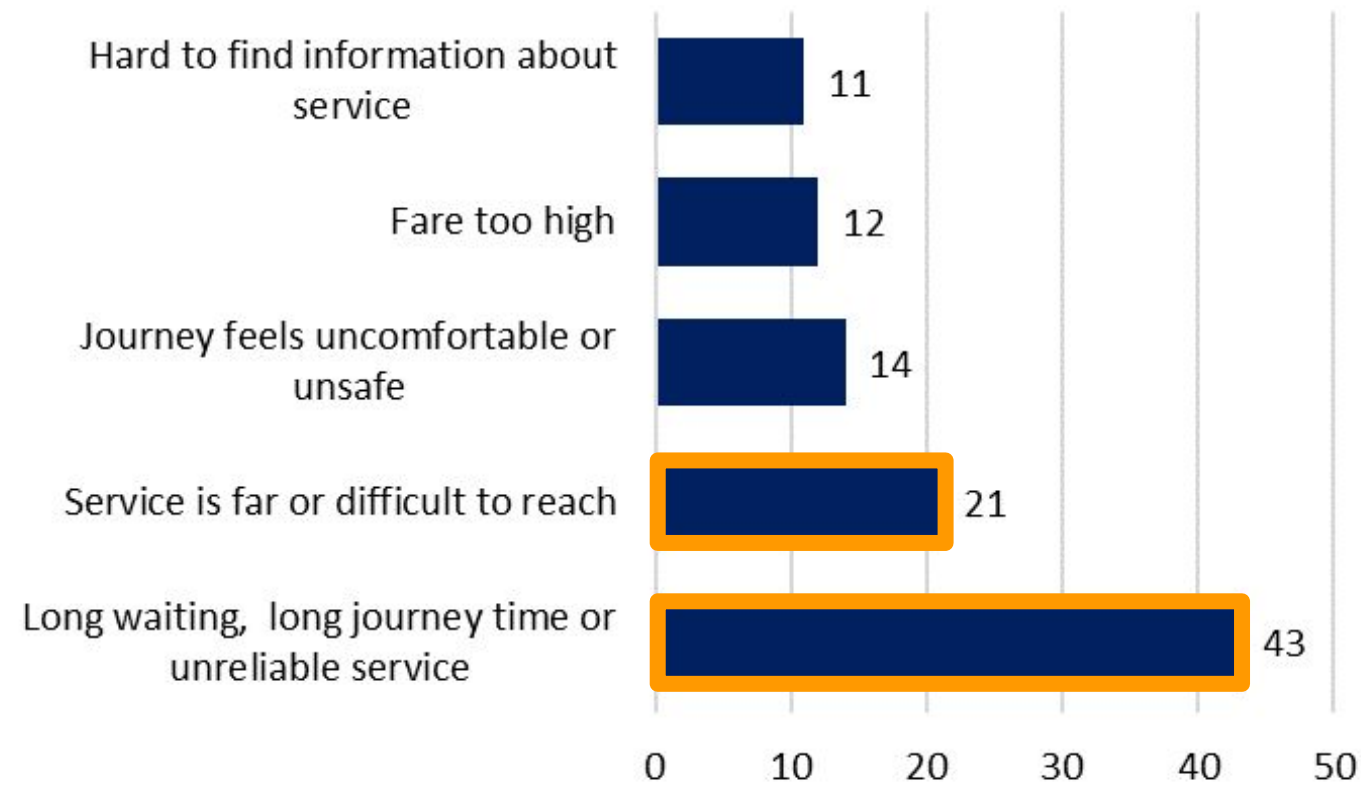
64% of respondents have raised concerns about long waiting time, long journey time and unreliable or inaccessible public transport

Discomfort in Public Transport (%)

Yes, harsh climate (heat or cold or rain)	5
Yes, vehicles are hard to climb into	6
Yes, vehicles are dirty	7
Yes, stations or stops are dirty	14
Yes, vehicles are too crowded	31
Yes, stations or stops are too crowded	37
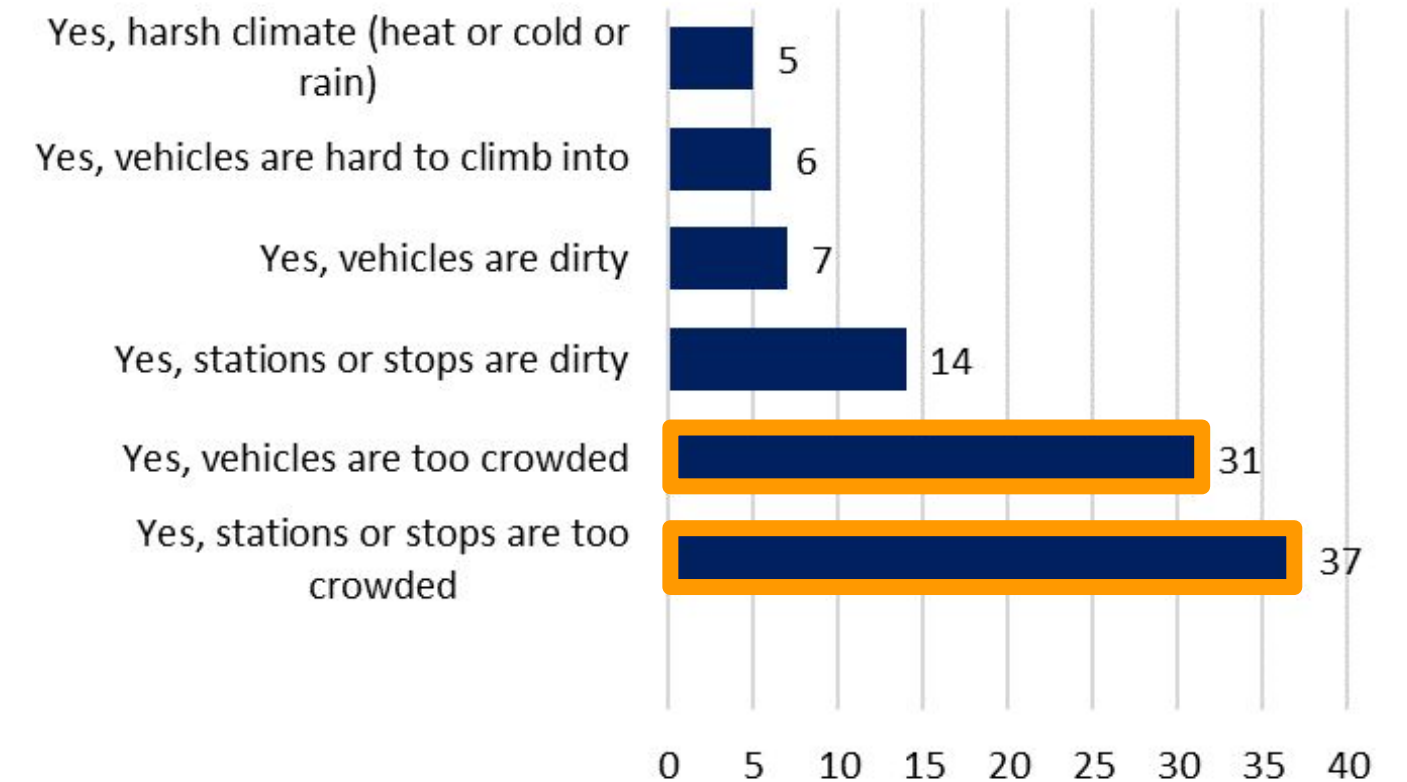
68% of respondents highlight overcrowding within the buses or at the bus stops as the reason of discomfort.

Problem Areas

Route rationalisation | Shortage of buses | Low frequency of buses | Poor scheduling |

Delay due to traffic congestion | Lack of monitoring

Biggest Concern for IPT Drivers

Biggest Concern for IPT Drivers (%)

Category	Value
Others	6
No problems	7
Permit- license related	14
No safe parking	18
Traffic Jam and Pollution	25
Competition for passengers	31
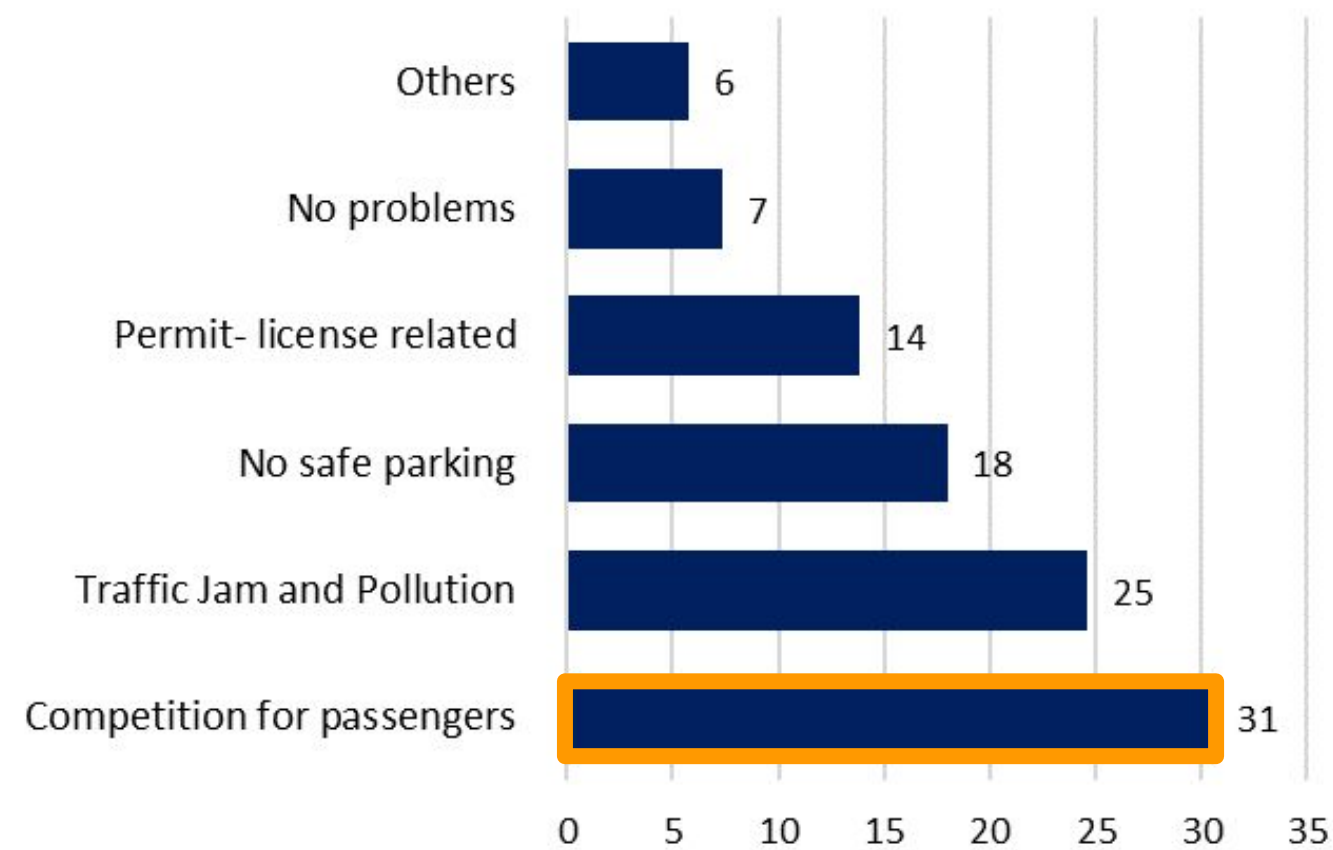
31% of IPT drivers raised competition for passengers as their major concern

Reasons for Not Getting Enough Passengers (%)

Category	Value
No Issues	16
Time lost in Traffic	23
Restriction due to Corona	24
Competition from other autos, taxis, e-rickshaws or buses	38
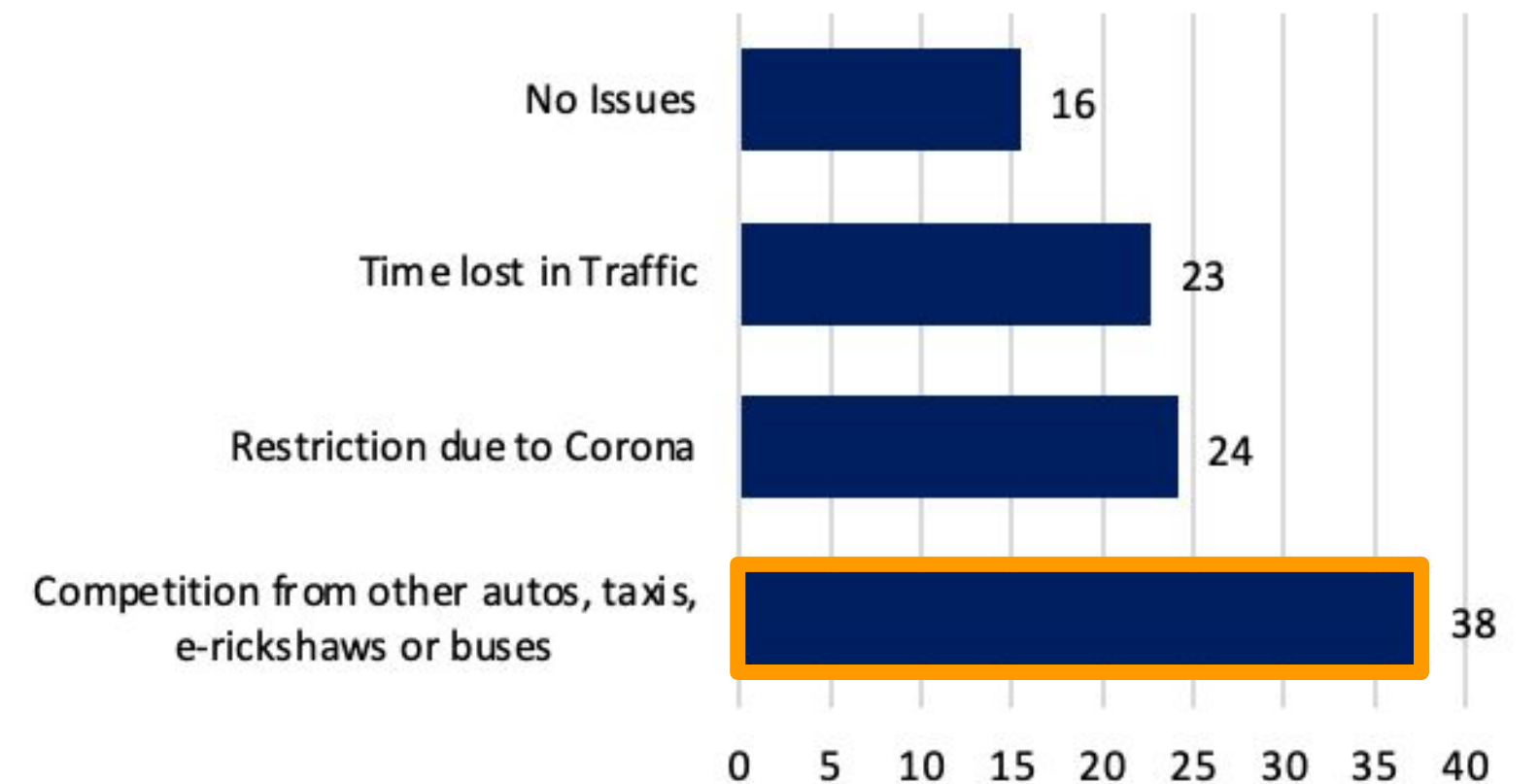
38% of IPT drivers highlighted competition from other modes of public transport as the major reason for not getting enough passengers

Problem Areas

Route rationalisation | Lack of standardized fare for distance/ routes |

Unregistered/no cap on the number of vehicles operating in the city than demand

Biggest concern for Bus drivers & conductors

Major Concerns with Passengers (%)

Concern	Value
Passenger harassing others	11
Crowding at the stop	13
Crowding inside the bus	15
Boarding a moving bus or foot-boarding	18
Demand to stop anywhere	21
Passengers not following COVID norms	22
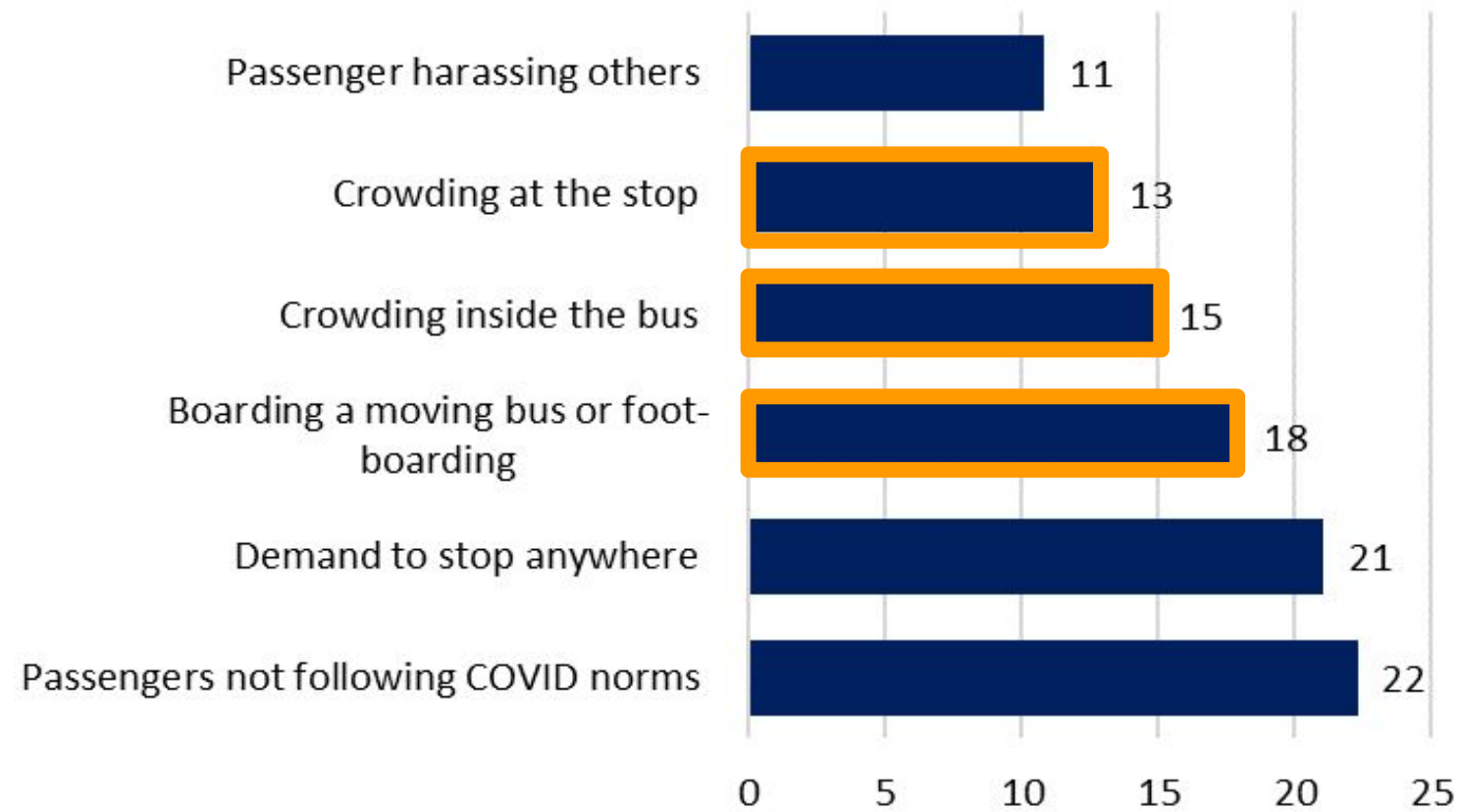
46% of the bus drivers and conductors have raised **overcrowding** as a major concern.

Major Concerns with Driving (%)

Concern	Value
Other problem	9
No problem	16
Fear of accidents	16
Parked vehicles blocking bus stops	29
Delay due to traffic jam	30
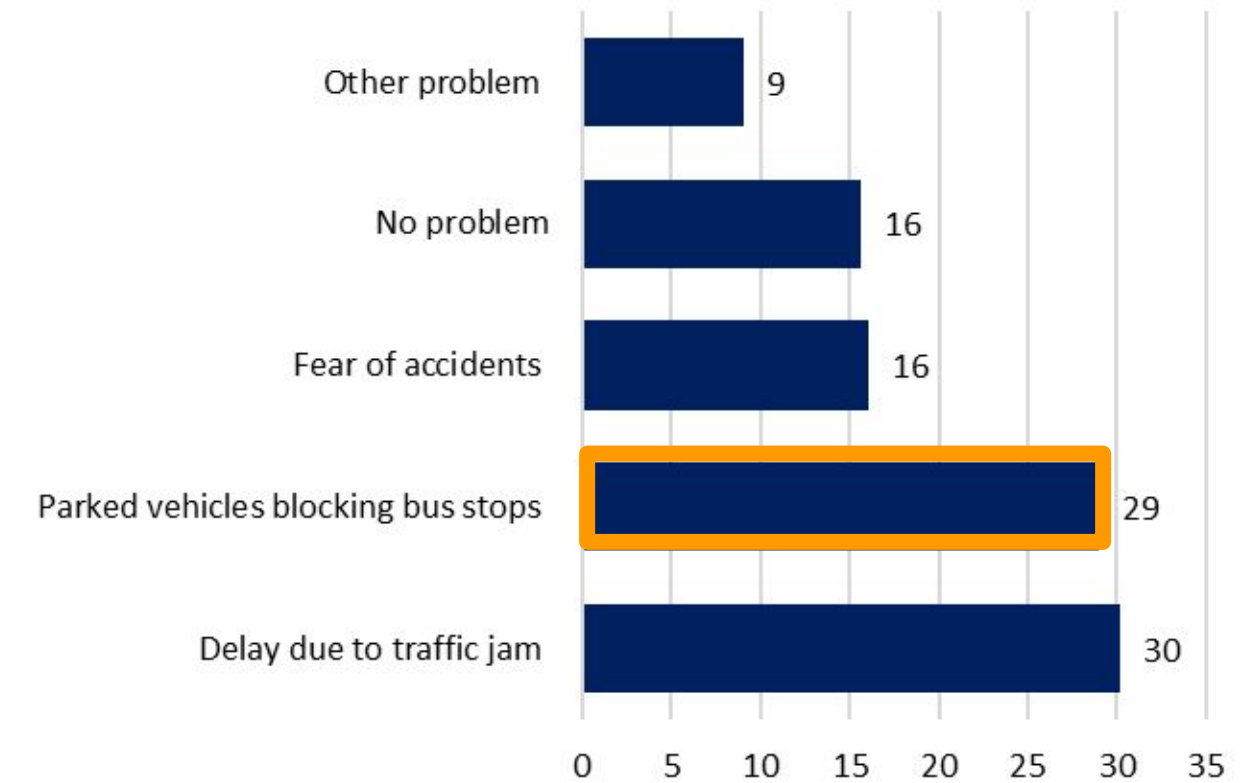
29% of the bus drivers have raised parked shared autos/autos blocking the bus stop as a concern.

Problem Areas

Shortage of buses | Low frequency of buses | Poor bus scheduling | Lack of monitoring & enforcement | Lack of Public Information System (PIS)

Poor bus stop/bus design | No parking management

Major Reasons for Inconvenience in Public Transport

52% of the respondents highlighted inconvenience of waiting time and difficulty in identifying the station/stop location as the major issue. While 22% highlighted the issue of stations/stop being too far or difficult to reach.

Problem Areas

Shortage of buses | **Low frequency of buses** | **Poor bus scheduling** | **Route rationalization** | **Lack of public information system** | **Lack of last mile connectivity** | **Lack of integration of different modes of public transport**

Inconvenience in Public Transport Modes (%)

Reason	Value
Yes, because of no electronic payment	4
Yes, because of no direct services to my destination or transfer is difficult	9
Yes, journey takes too much time	13
Yes, station or stop is far or difficult to reach	22
Yes, waiting time is long	25
Yes, can't find station or stop location	27
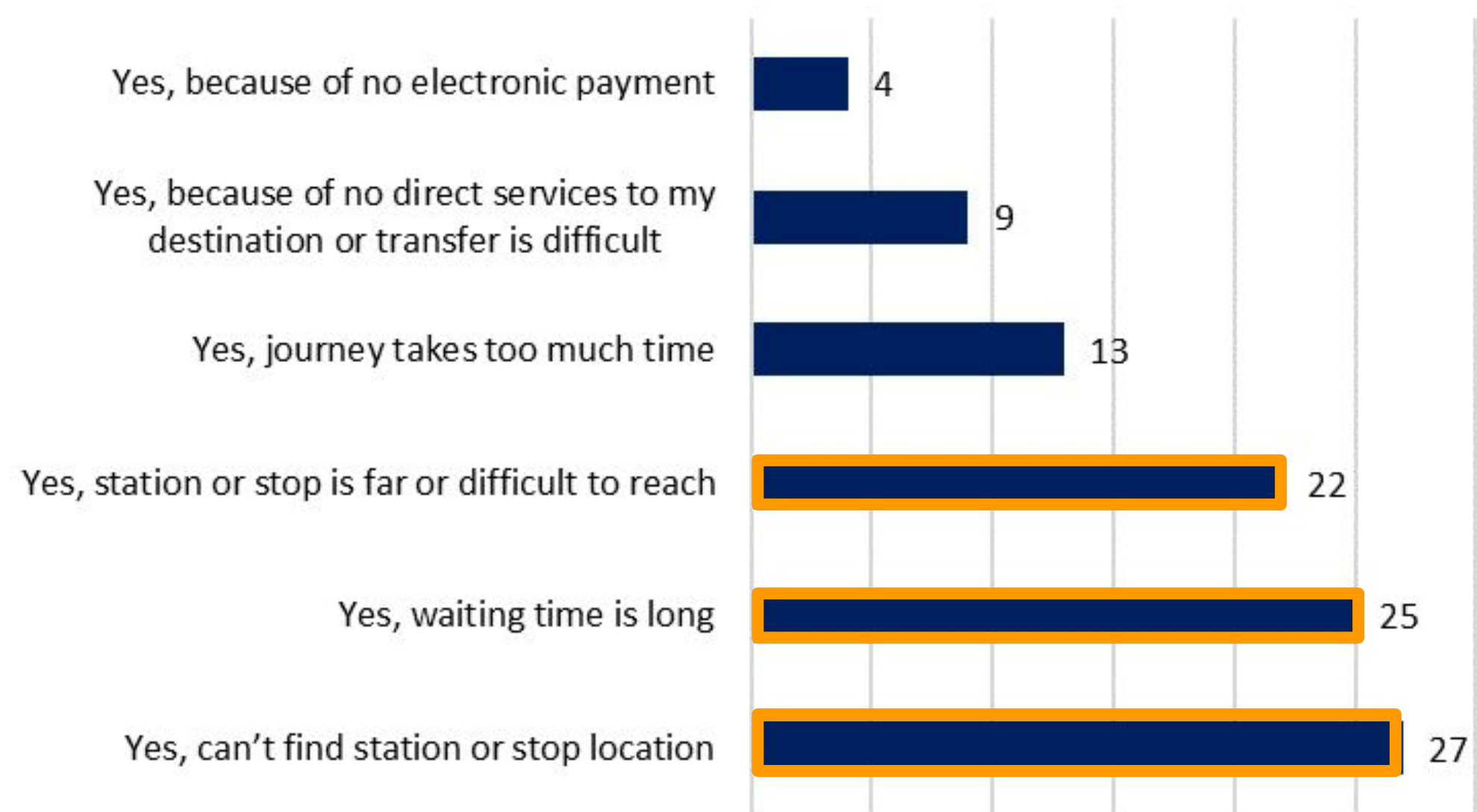
106 | BLK 283

BLK 289E

YUSOF ISHAK SEC SCH

BURGUNDY HILL

SHENTON WAY TER   10:23

2016

Come 2016, we can look forward to better bus services and a better journey for all.

Concerns with Digital Information & Cashless Payments

Citizens prefer Digital Information

Preference for Information Delivery (%)

Category	Value
Information in multiple languages	5
Information inside vehicle	7
Information outside vehicle	10
Information at stop or station	20
Online information	57
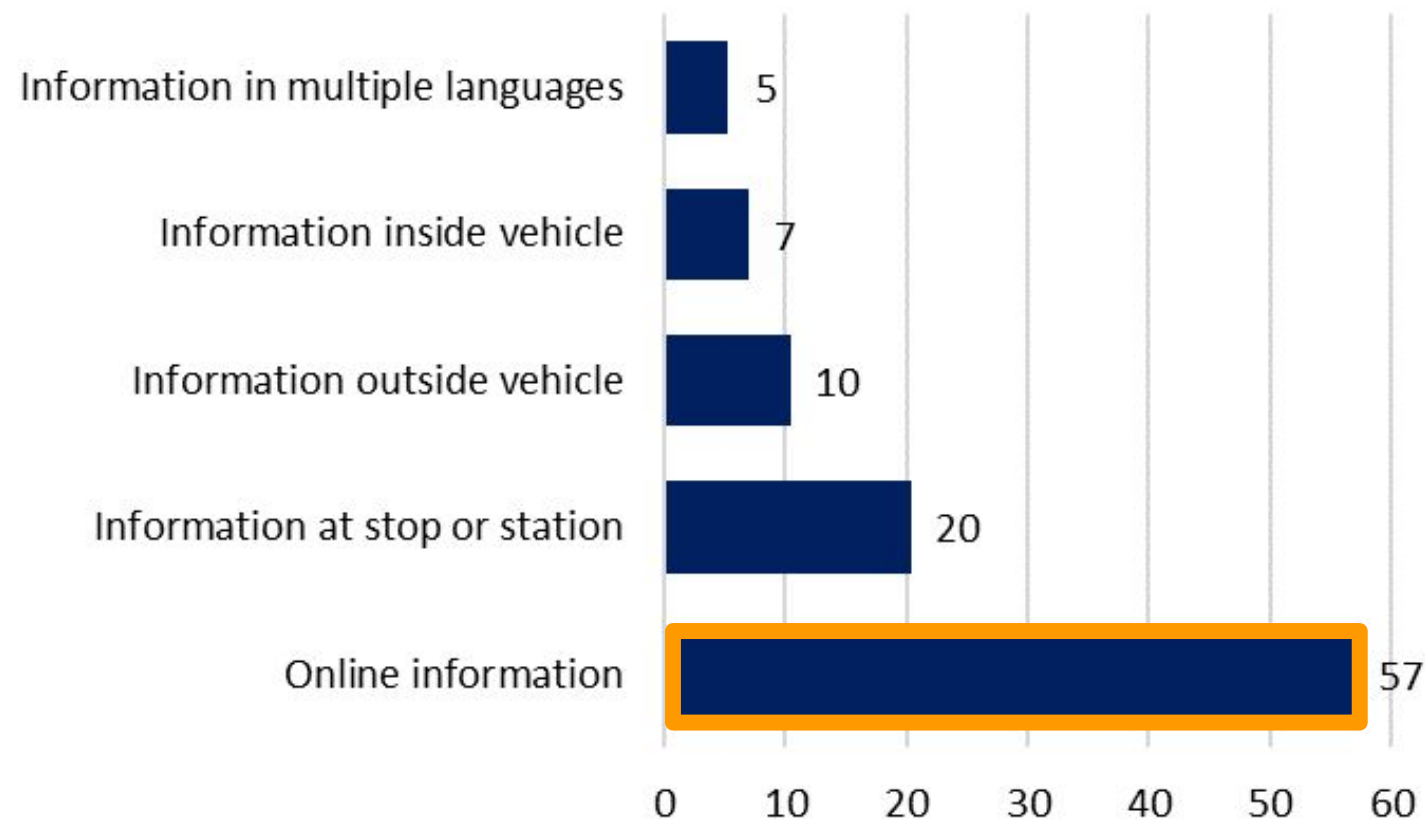
57% of the respondents would like to receive the information about routes, timetable and stops by online means.

Preference for Information Delivery by Age (%)

Age	Online information	Information at stop or station	Information outside vehicle	Information inside vehicle	Information in multiple languages
Above 60	34	39	12	9	6
46 - 60	48	25	12	8	6
19 - 45	61	18	10	6	5
14 - 18	59	18	10	7	5
Below 14	52	24	11	8	5
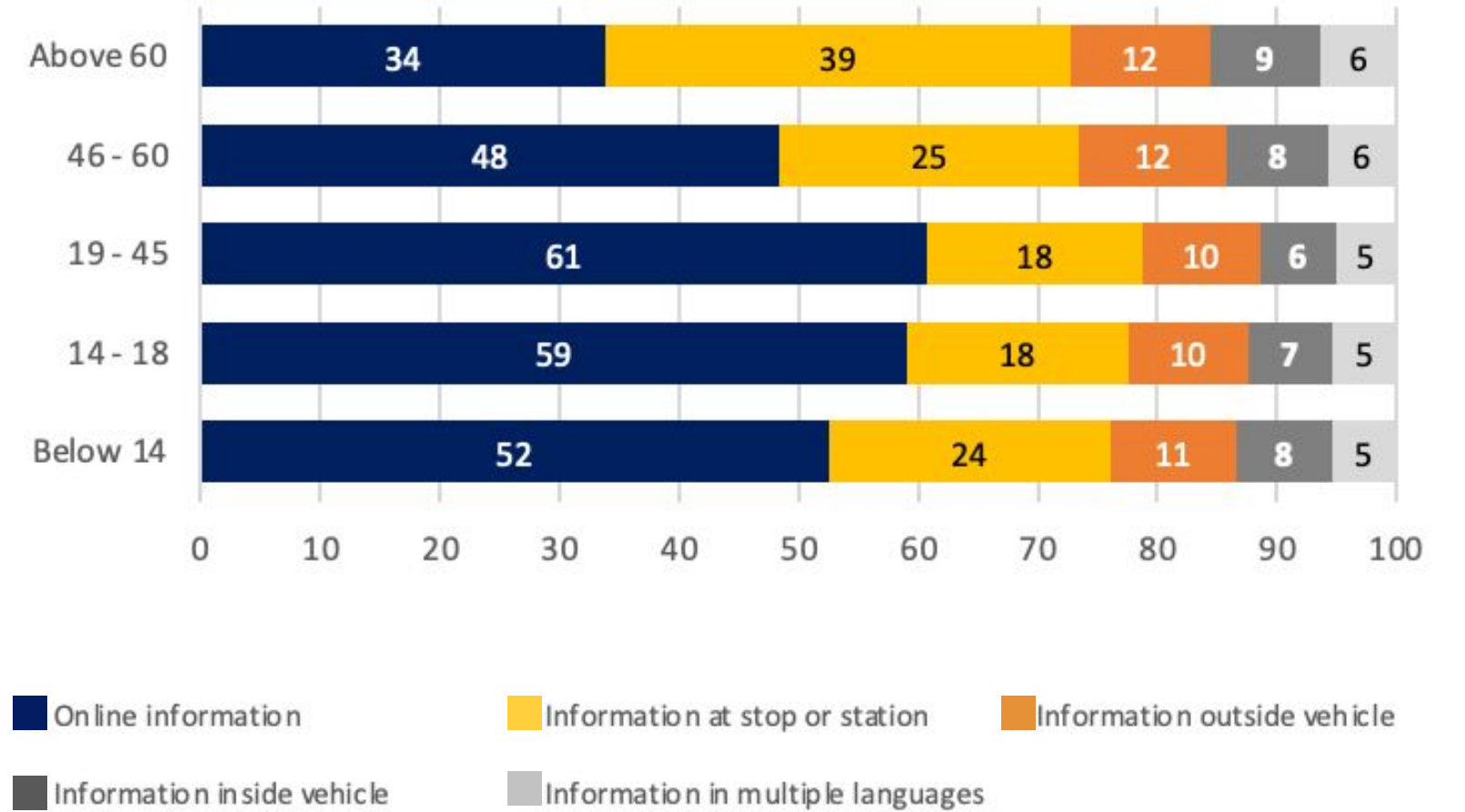
Preference by age:
Below 60 : Online information
Above 60 : Information at stops/stations

Problem Areas

Lack of Passenger Information System (PIS)
Online (apps,websites etc.) **& Offline** (at stations/stops,outside and inside vehicle)

Citizens prefer to Pay in Cash

Preference for Different Modes of Payment (%)

Monthly or weekly travel pass	21
Mobile payment or card for multiple modes	26
Cash payment for single journey	53
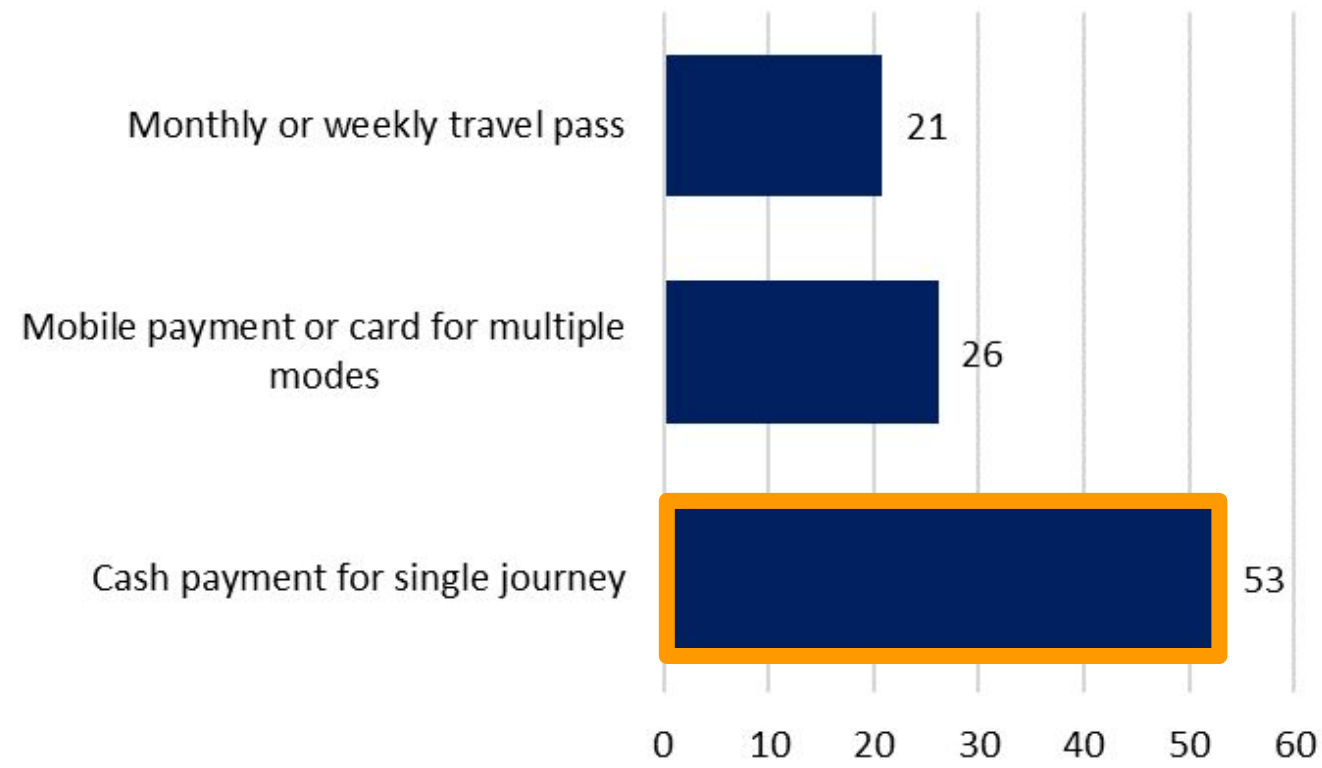
53% of the respondents prefer cash payment for the single journeys

Cashless Payments - Preference for Different Modes (%)

Prepaid travel card	18
Debit or Credit card	28
Mobile payment	54
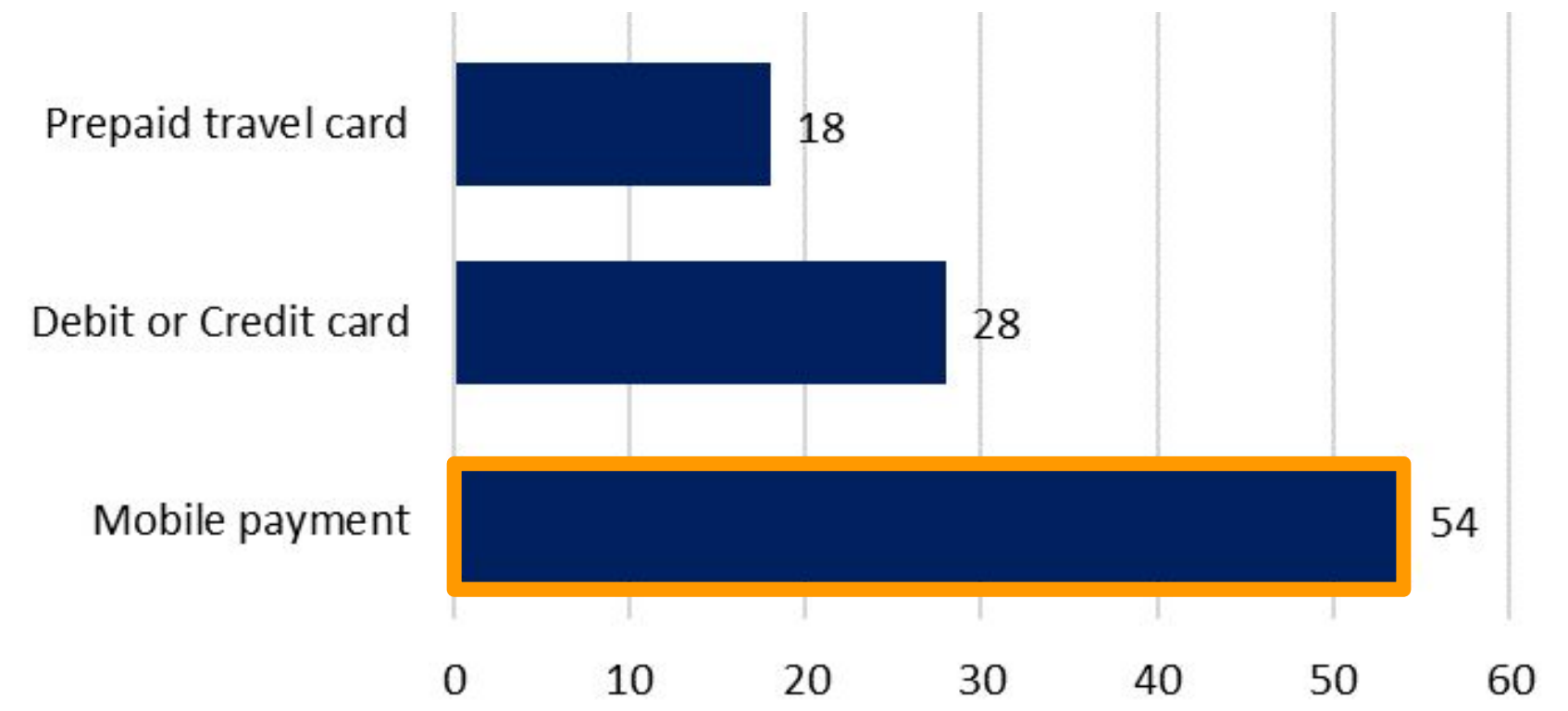
Out of the respondents preferring digital payment, **54%** prefer mobile payment.

Problem Areas

Lack of capacity development around usage of card/mobile payments | Inconvenience with current digital modes of payment for public transport | Lack of fare integration

But IPT Drivers do not prefer Cashless Payments

Willingness to Access Cashless Payment by Age (%) (Paytm/Gpay or similar)

Age	I already accept	Yes	No
Above 60	14	17	69
45 - 60	12	33	55
30 - 45	13	37	50
Below 30	17	45	38
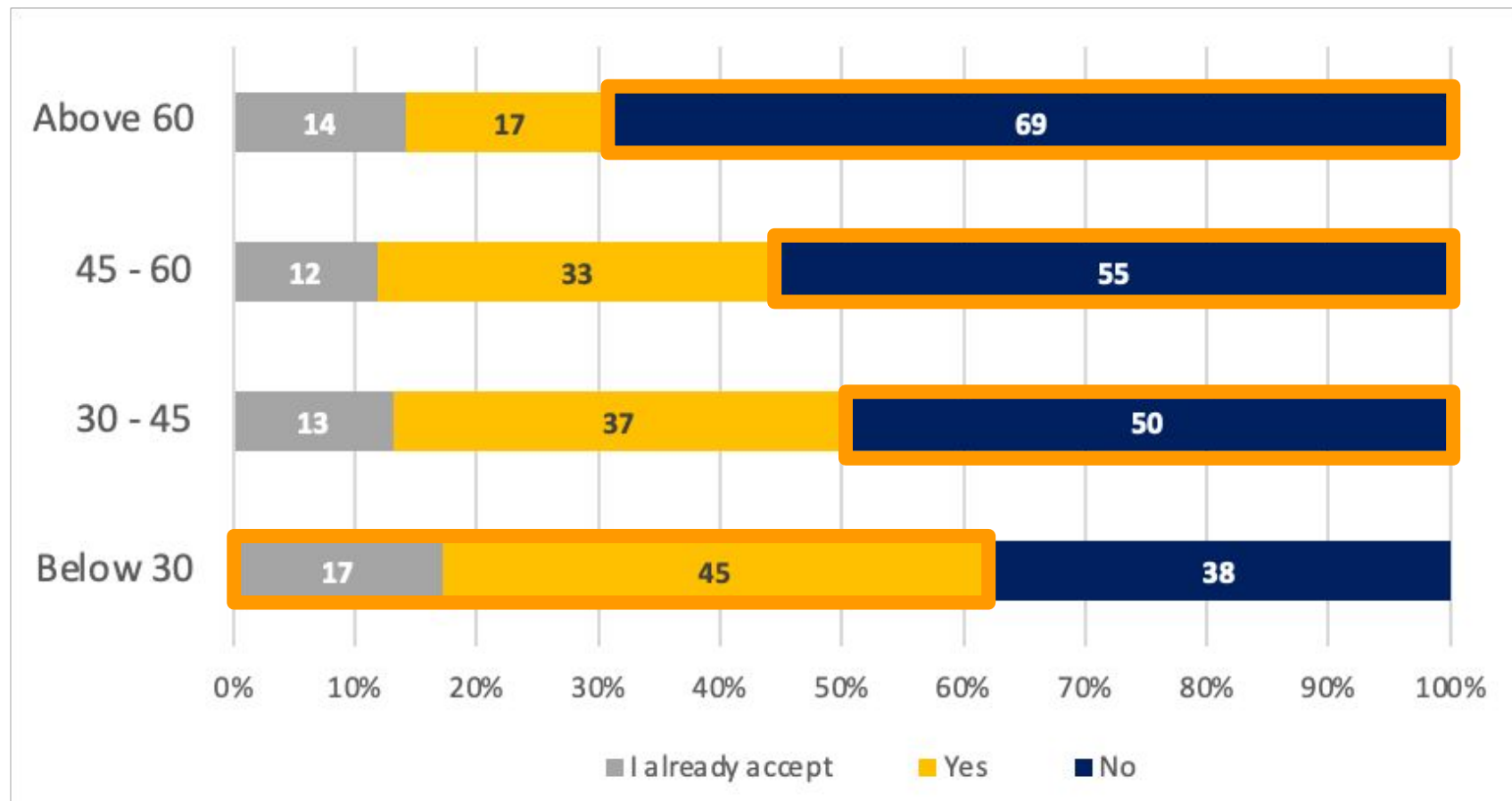
Above 30 : Preference towards Cash
Below 30 : Preference towards Digital Payments

Willingness to Access Cashless Payment by Vehicle Type (%) (Paytm/Gpay or similar)

Vehicle Type	I already accept	Yes	No
Taxi	17	52	31
E Rickshaws	10	37	53
3-seater auto	15	38	47
6-7 seater auto	12	26	62
Van like Tata Magic	12	30	58
Mini-bus	9	36	55
Large bus	10	54	37
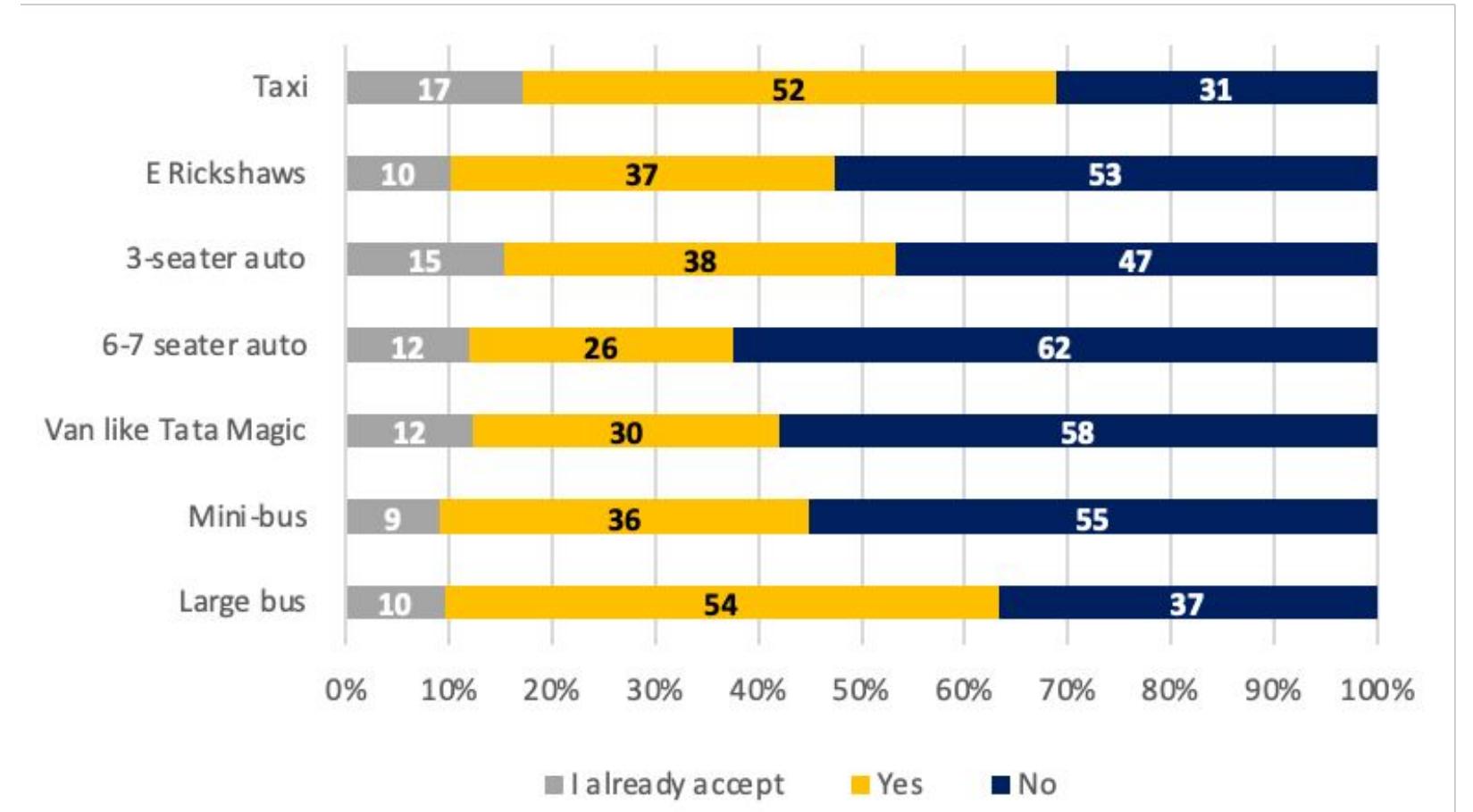
Most of the IPT drivers across all the modes are not willing to shift to cashless payments

Problem Areas explored on the next page

Safety in Public Transport

Reasons for Feeling Unsafe in Public Transport Modes

Safety in Public Transport Modes (%)

- Yes, rude staff or rash driving: 9
- Yes, harassment or theft inside vehicle: 10
- Yes, harassment or theft on the way to or at the station or stop: 17
- Yes, fear of COVID-19: 20
- No: 44
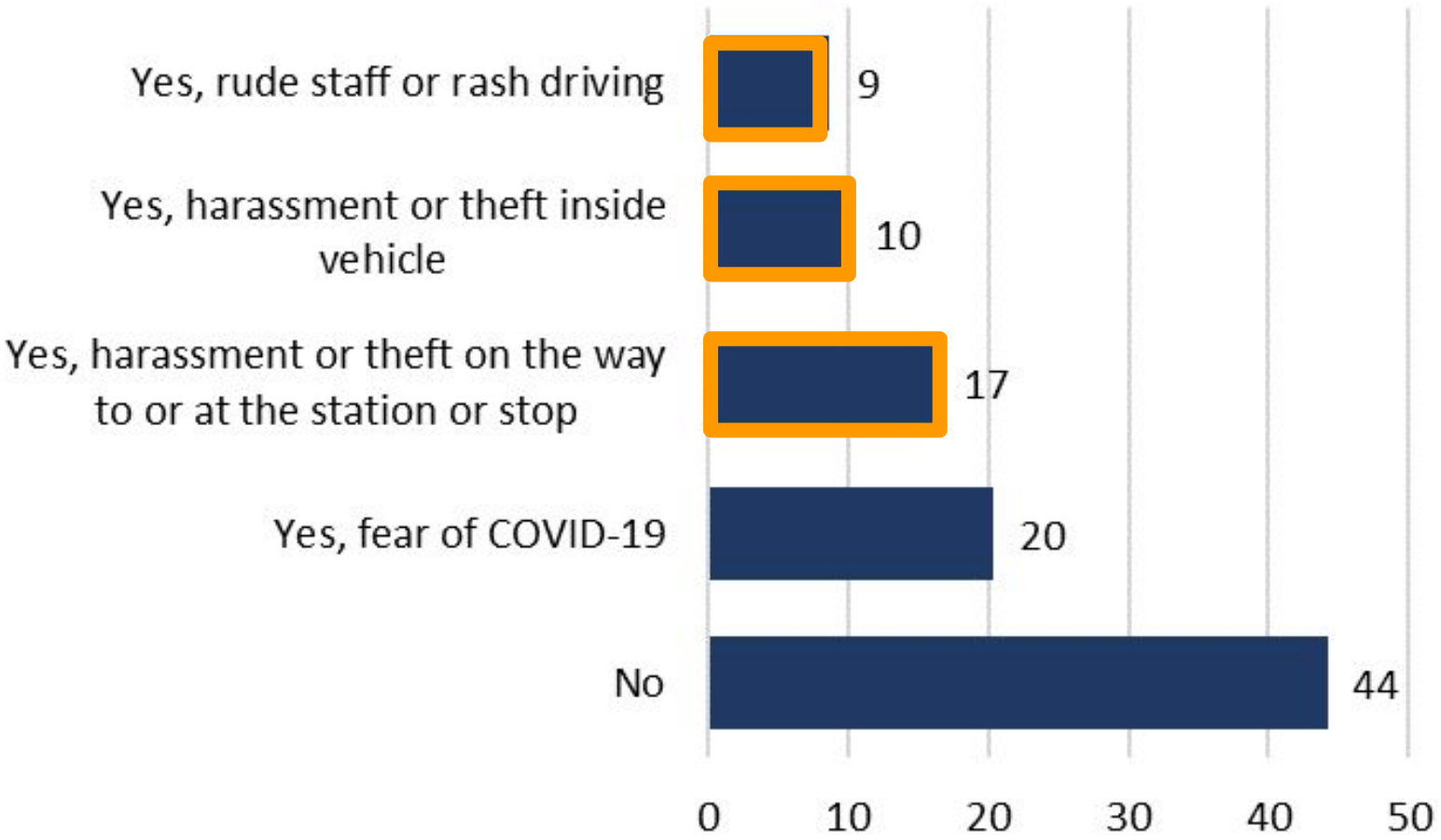
Safety in Public Transport Modes by Gender (%)

	Yes, harassment or theft on the way to or at the station or stop	Yes, harassment or theft inside vehicle	Yes, rude staff or rash driving	Yes, fear of COVID-19
Other or Prefer Not to say	33	27	21	19
Male	29	17	16	38
Female	31	20	14	35
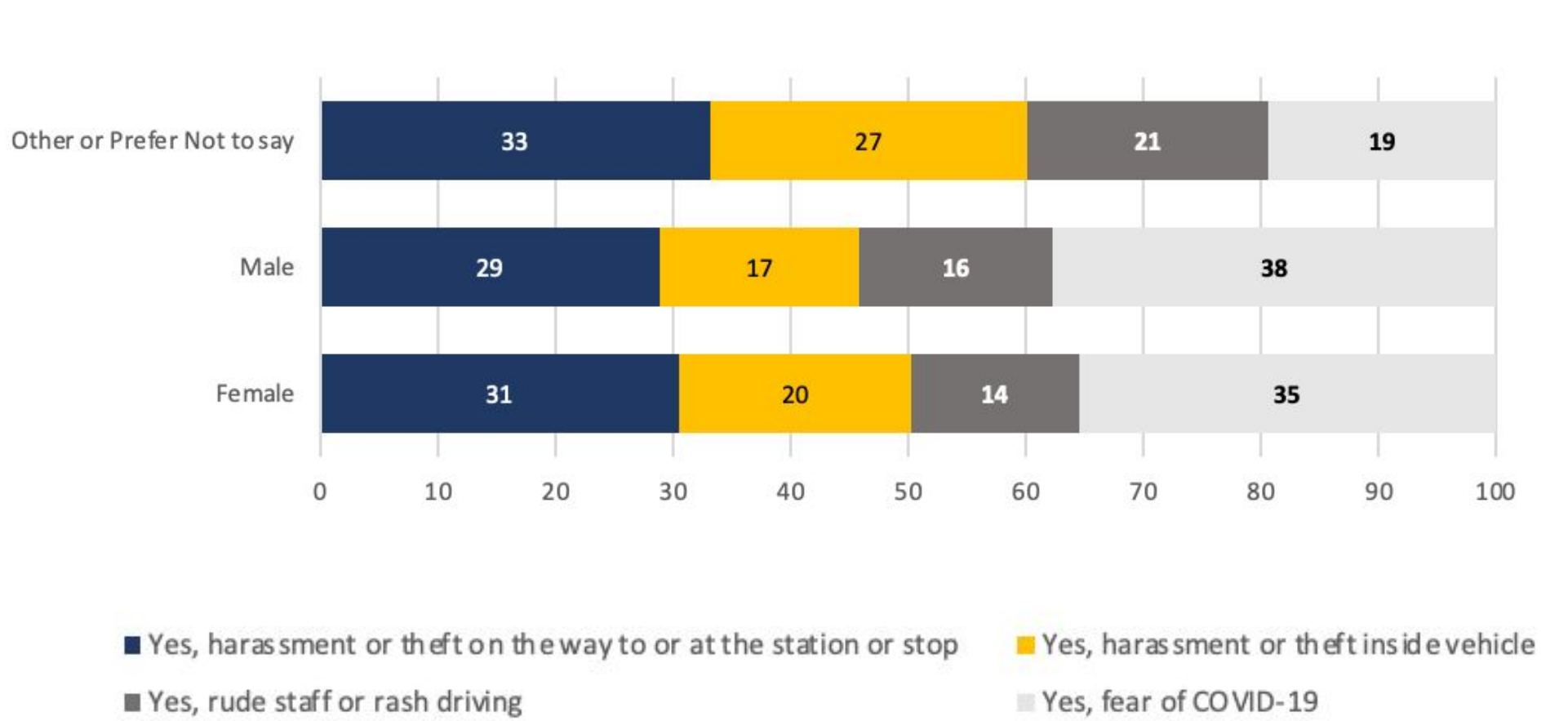
36% of commuters have raised concerns related to safety while travelling in public transport.

Problem Areas

Lack of monitoring and enforcement | Lack of effective grievance redressal system

Impacts of Traffic congestion & Health Care Facilities

(For Bus Staff & IPT drivers)

Impacts of **Traffic Congestion** on bus staff & IPT drivers

Impact of traffic jam on bus drivers (%)

Category	Value
Other problem	8
No problem	21
Unable to meet schedule	22
Stress or anxiety	24
High fuel consumption	24
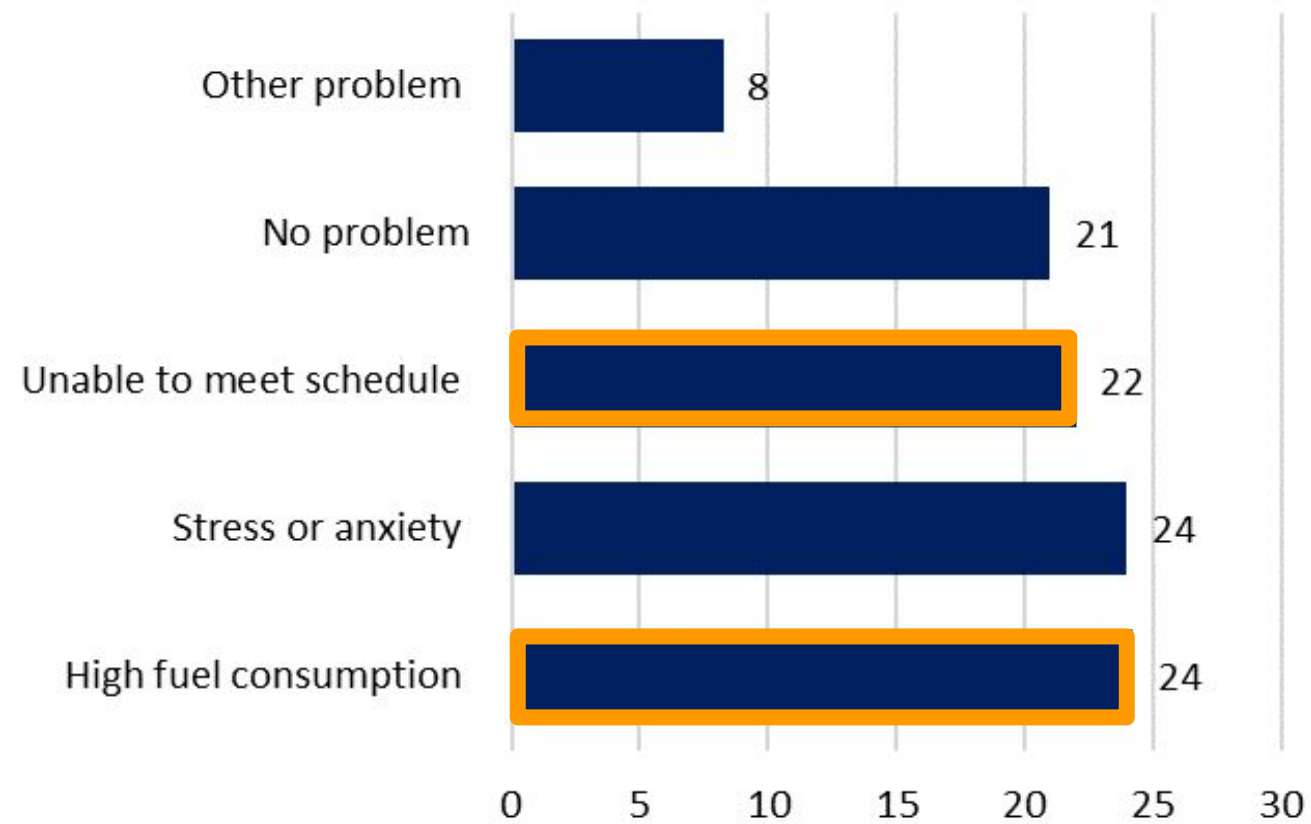
46% of bus drivers are not being able to meet their daily target of **schedule and fuel consumption** because of the congestion.

Impact of traffic jam on IPT drivers (%)

Category	Value
Does not affect me	5
Pollution	20
Stress or anxiety	21
High fuel consumption	27
Lost income	28
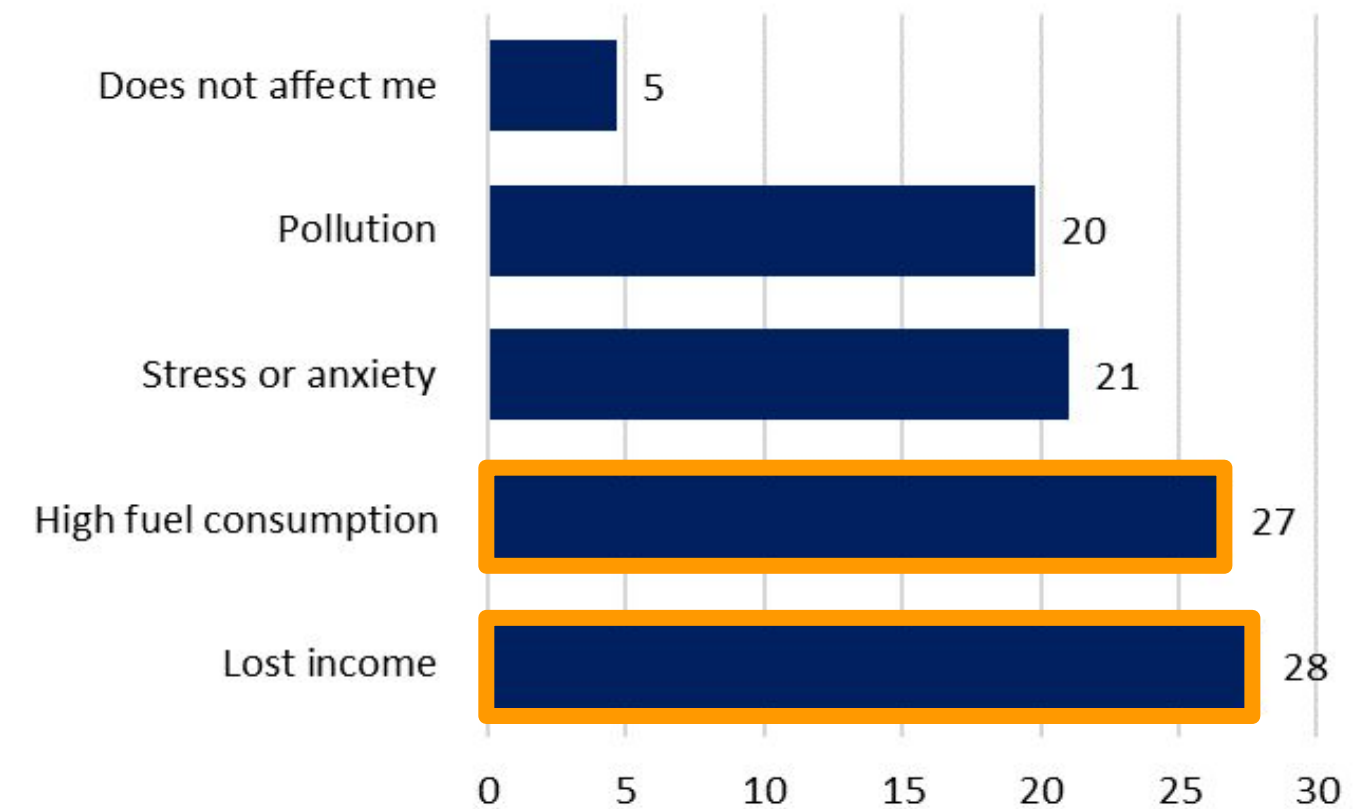
55% of IPT drivers are incurring loss of pay with **less patronage and high fuel consumption** because of the congestion.

Problem Areas

Lack of prioritization of public transport | Overspeeding / Rash Driving | Poor bus scheduling

Lack of **Healthcare Facilities** for Bus Staff

Health Problems Faced by Bus Staff (%)

Category	Value
Asthma	5
Other	8
Stress/Anxiety	10
BP or heart condition	11
Joint/body pain	16
No	50
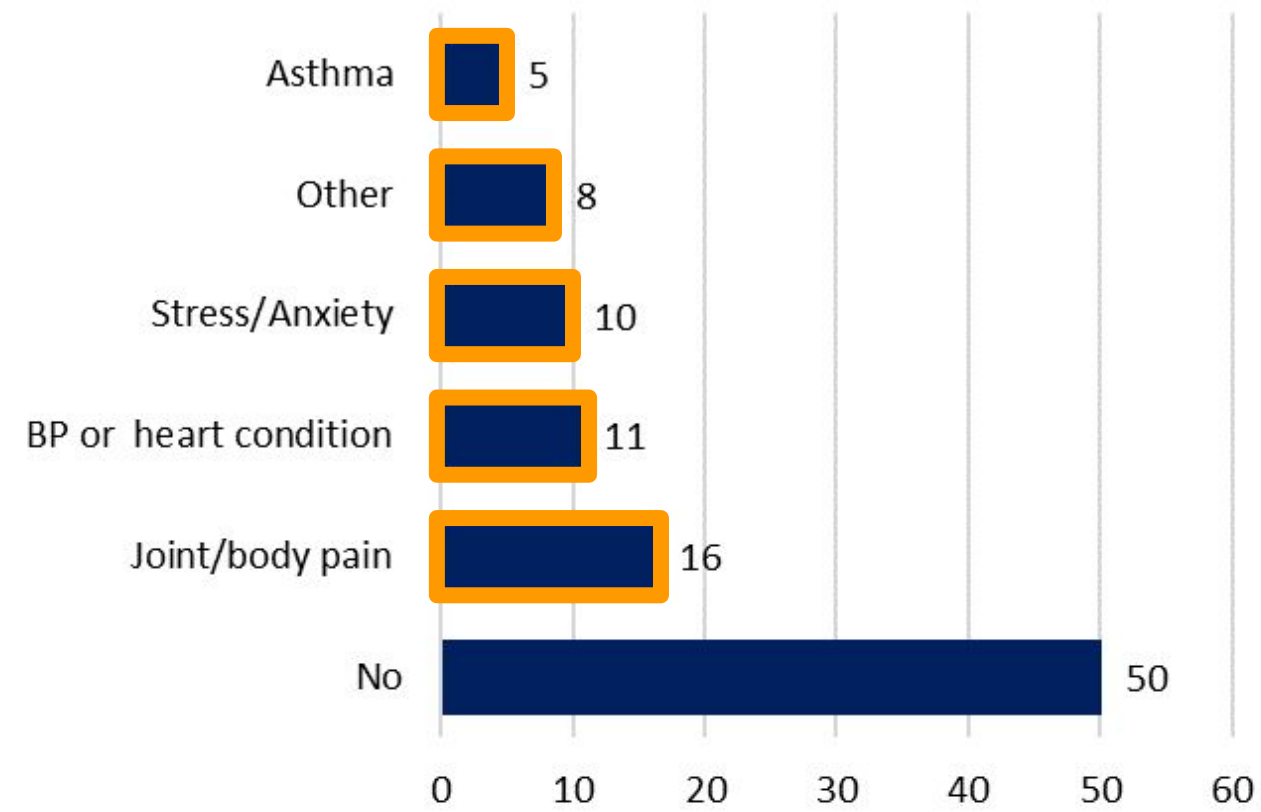
~50% of the bus staff are facing health problems

Insurance Coverage (%)

Category	Value
Health Insurance	13
Both	20
Life Insurance	33
None	34
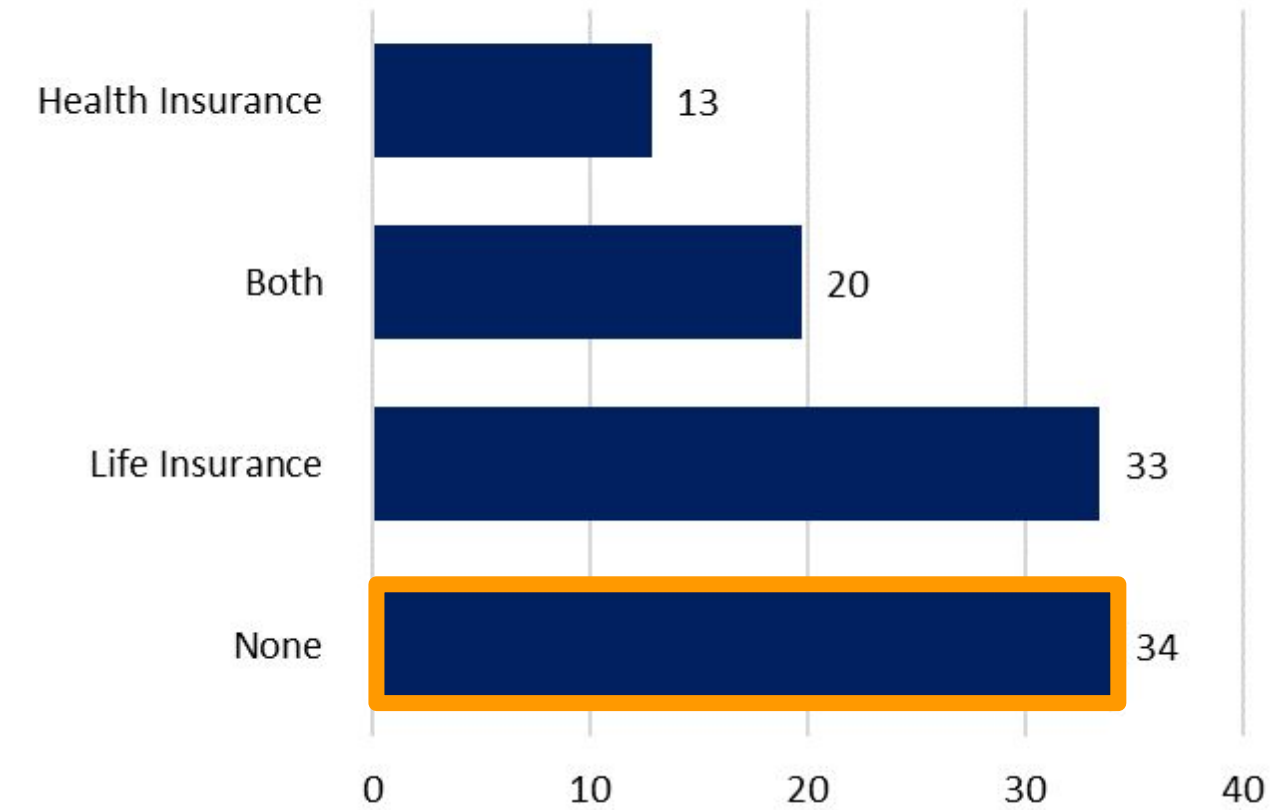
34% of the bus staff drivers do not have any insurance.

Problem Areas

Lack of proper social benefit schemes for staff | Lack of regular health check-up camps | Lack of awareness

Lack of **Healthcare Facilities** for IPT drivers

Insurance Coverage (%)

Category	Value
Health Insurance	12
Both	16
Life Insurance	27
None	45
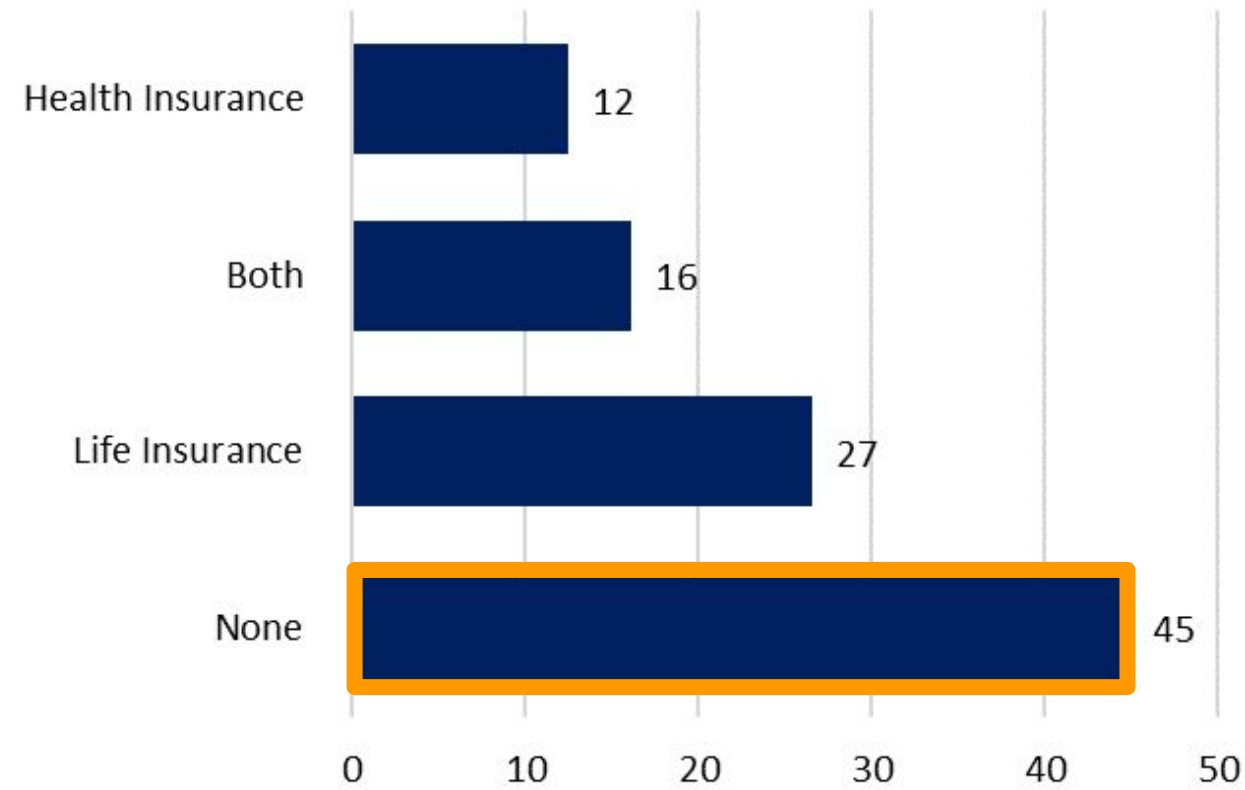
45% of the IPT drivers are not able to afford any of the healthcare facilities.

Insurance Coverage by Income (%)

Income	None	Health Insurance	Life Insurance	Both
More than 35,000	16	15	41	28
25,000 - 30,000	28	13	32	27
15,000 - 25,000	37	13	31	19
10,000 - 15,000	42	12	29	17
Less than 10,000	57	13	19	11

■ None   ■ Health Insurance   ■ Life Insurance   ■ Both
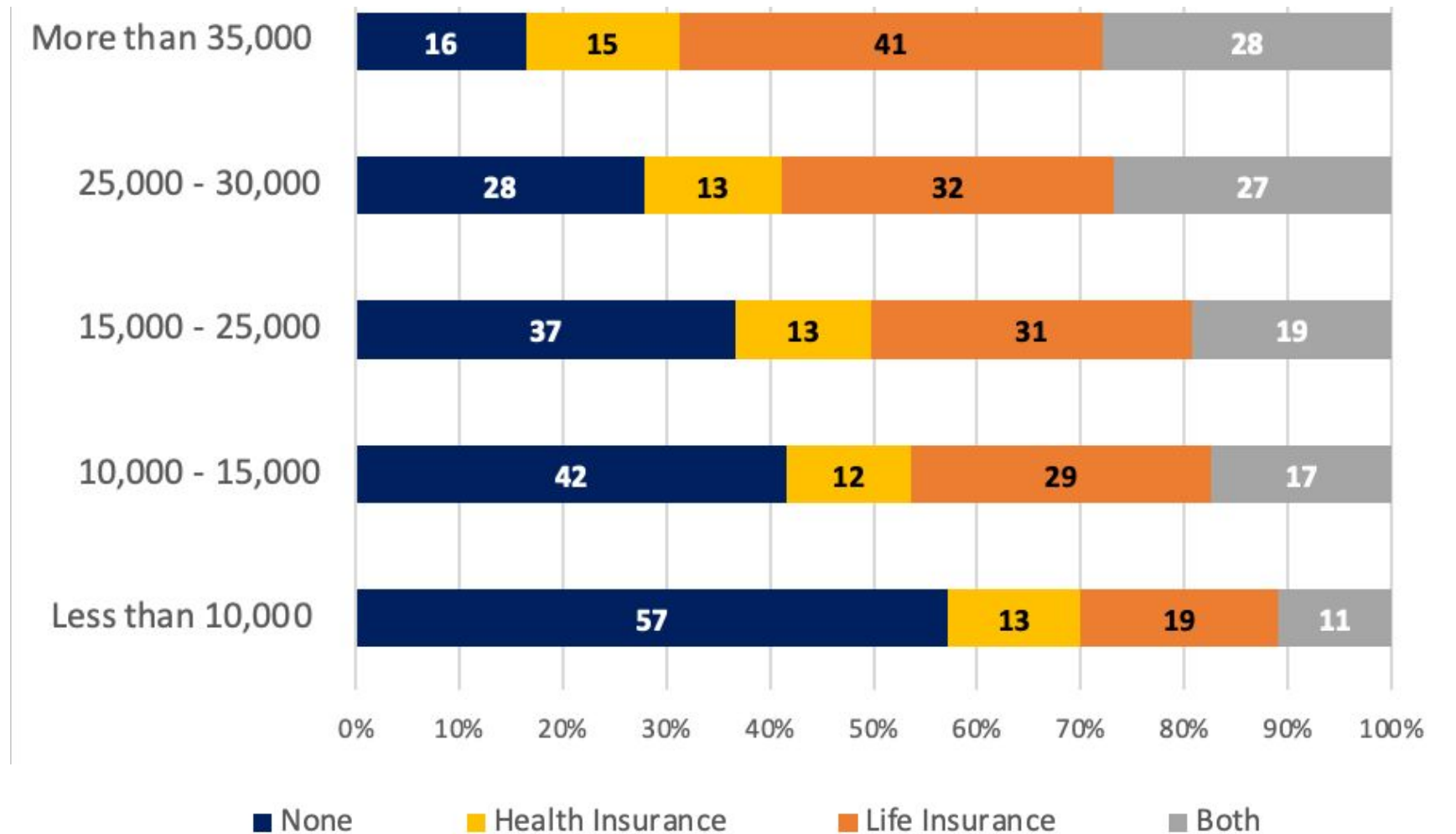
As the income decreases, the proportion of drivers without insurance coverage increases.

Problem Areas

Lack of proper social benefit schemes to ensure driver's health | Lack of regular health check-up camps | Lack of awareness

Bus Staff & Maintenance Scheduling

(For Bus drivers and conductors)

Issues with Bus Scheduling & Maintenance

Major Concerns with the Bus (%)

Category	Value
Poorly designed buses	3
Bad seating	8
Other	10
No protection from heat, cold or rain	12
Poorly maintained bus and frequent breakdown	28
No concern	39
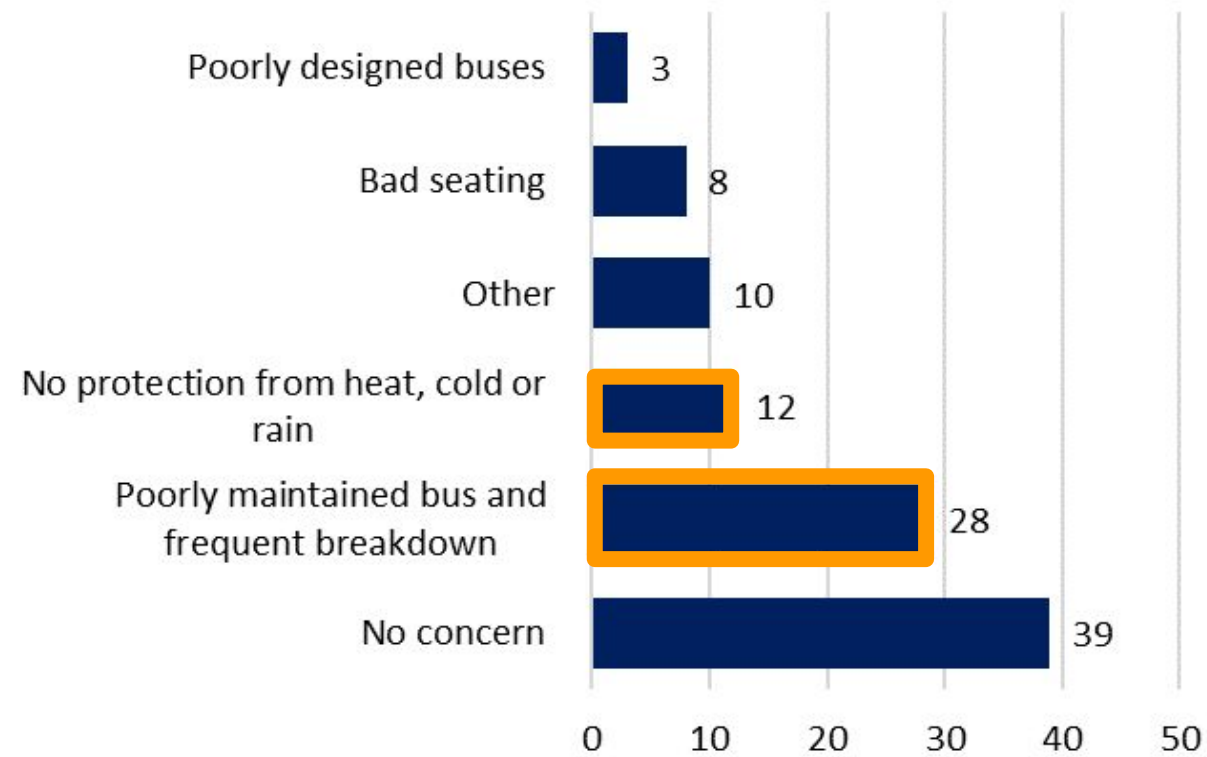
40% of the bus drivers & conductors report poor bus maintenance & lack of protection from heat, cold/rain as their major concerns.

Major Concerns with Bus Scheduling (%)

Category	Value
Duty assigned routinely for difficult shifts	4
Other problem	8
Duty assigned on unfamiliar routes	8
Irregular working hours and insufficient break time	13
Long wait at depot for duty assignment	28
No problem	40
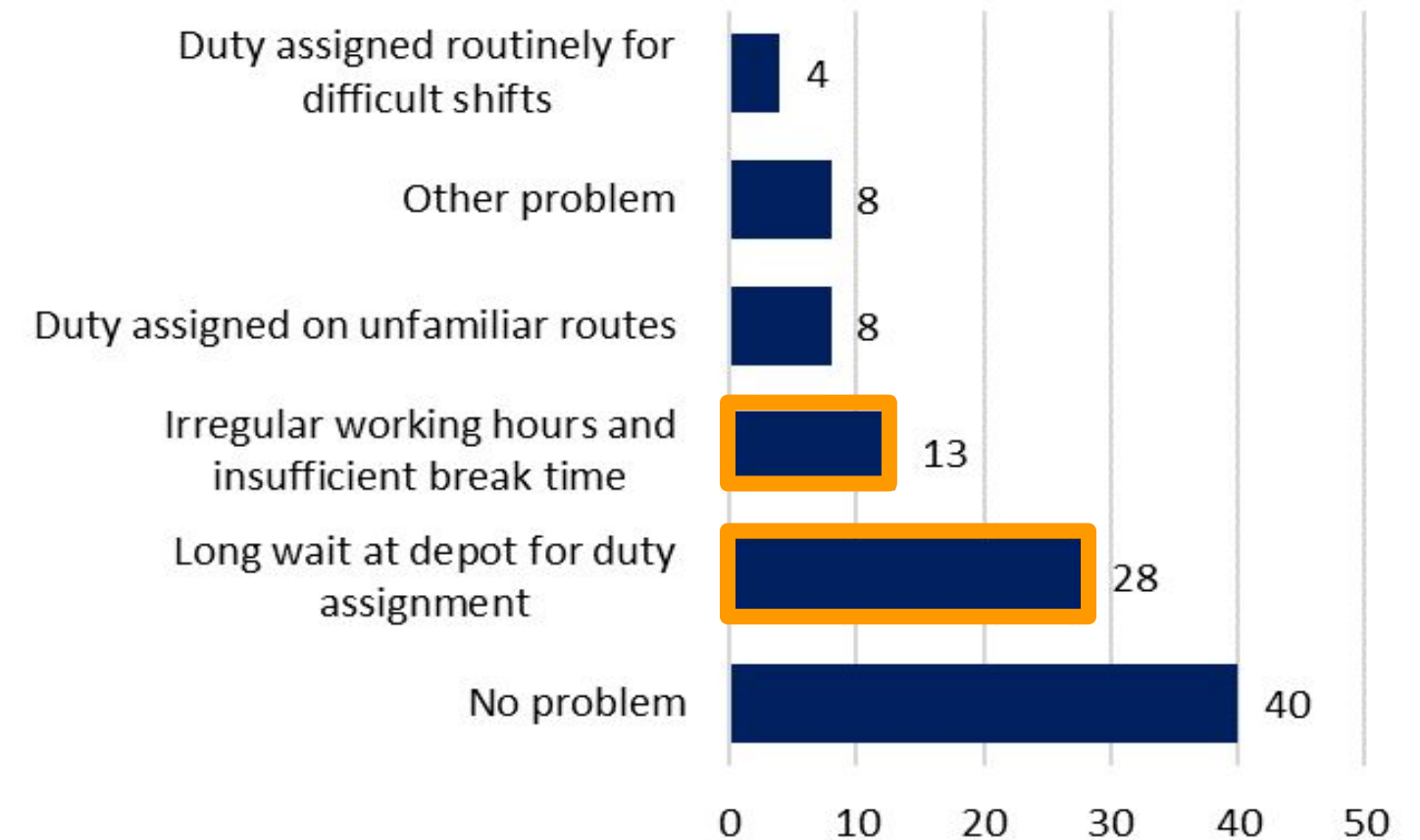
~40% of the bus drivers & conductors report lack of efficient bus scheduling as their biggest concern.

Problem Areas

Lack of periodic maintenance of buses | Lack of breakdown monitoring | Old bus fleet

Poor staff scheduling | Manpower crunch

6

Additional Concerns for IPT Drivers

Concerns with Private App based Operators

~50% of the IPT drivers are not happy using apps like Ola/Uber because of various reasons like insufficient income, delay in payments, fines and unavailability of information about the trip fare, drop location.

Issues with Companies like Ola/Uber (%)
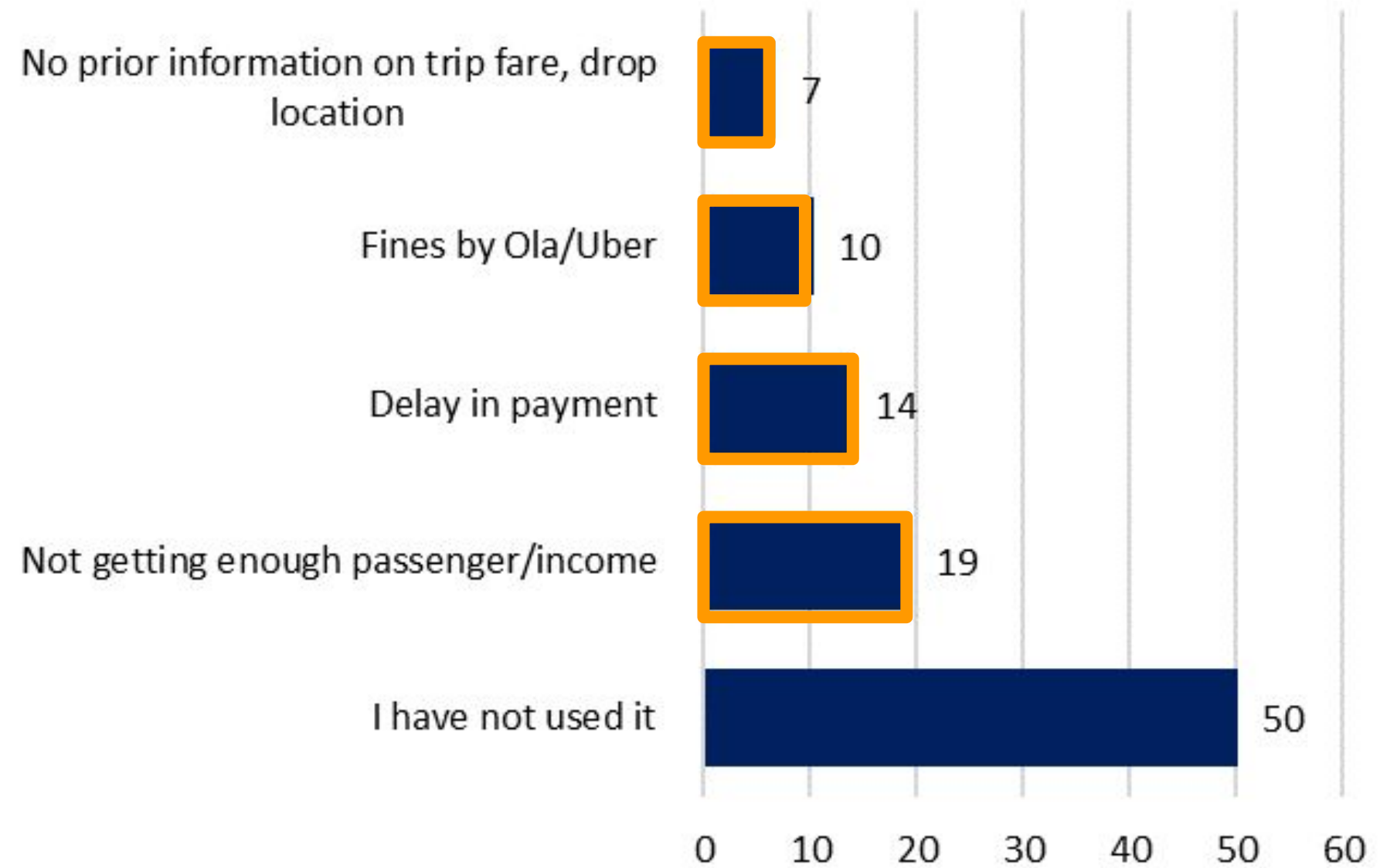
Funding options for IPT vehicles

Financing of the Vehicle (%)

Funding option	Value
Government scheme	8
Full cash payment without loan	15
Private finance	36
Loan from bank	41

Financing of the Vehicle by Vehicle Type (%)

Vehicle Type	Private finance	Loan from bank	Government scheme	Full cash payment without loan
Taxi	31	47	9	13
E Rickshaws	35	36	13	16
3-seater auto	36	42	7	16
6-7 seater auto	44	35	8	13
Van like Tata Magic	28	49	10	13
Mini-bus	23	51	16	10
Large bus	48	32	9	10

- ■ Private finance
- ■ Loan from bank
- ■ Government scheme
- ■ Full cash payment without loan

77% of the IPT vehicles are financed through loan from the bank or private finance.

Problem Areas

Poor access to government schemes | Higher interest rates | Lack of awareness

Reasons for Renting

Reasons for Renting the Vehicle (%)

Reason	Value
Part time job	8
Lack of proper documentation to get loans	13
Lack of easy loans to purchase vehicle	20
No tension for vehicle maintenance	25
Lack of income	33

Reasons for Renting the Vehicle by Vehicle Type(%)

Vehicle	Lack of income	No tension for vehicle maintenance	Lack of easy loans to purchase vehicle	Lack of proper documentation to get loans	Part time job
Taxi	34	18	22	15	11
E Rickshaws	32	26	19	12	11
3-seater auto	35	25	18	14	8
6-7 seater auto	30	27	25	12	6
Van like Tata Magic	28	30	24	12	5
Mini-bus	30	29	20	12	10
Large bus	40	21	18	11	10

Legend:
- Lack of income
- No tension for vehicle maintenance
- Lack of easy loans to purchase vehicle
- Lack of proper documentation to get loans
- Part time job

More than **~30%** of IPT drivers across all the modes are renting their vehicles as they cannot afford to purchase their own vehicle.

Problem Areas

Poor access to government schemes | Higher interest rates | Lack of awareness
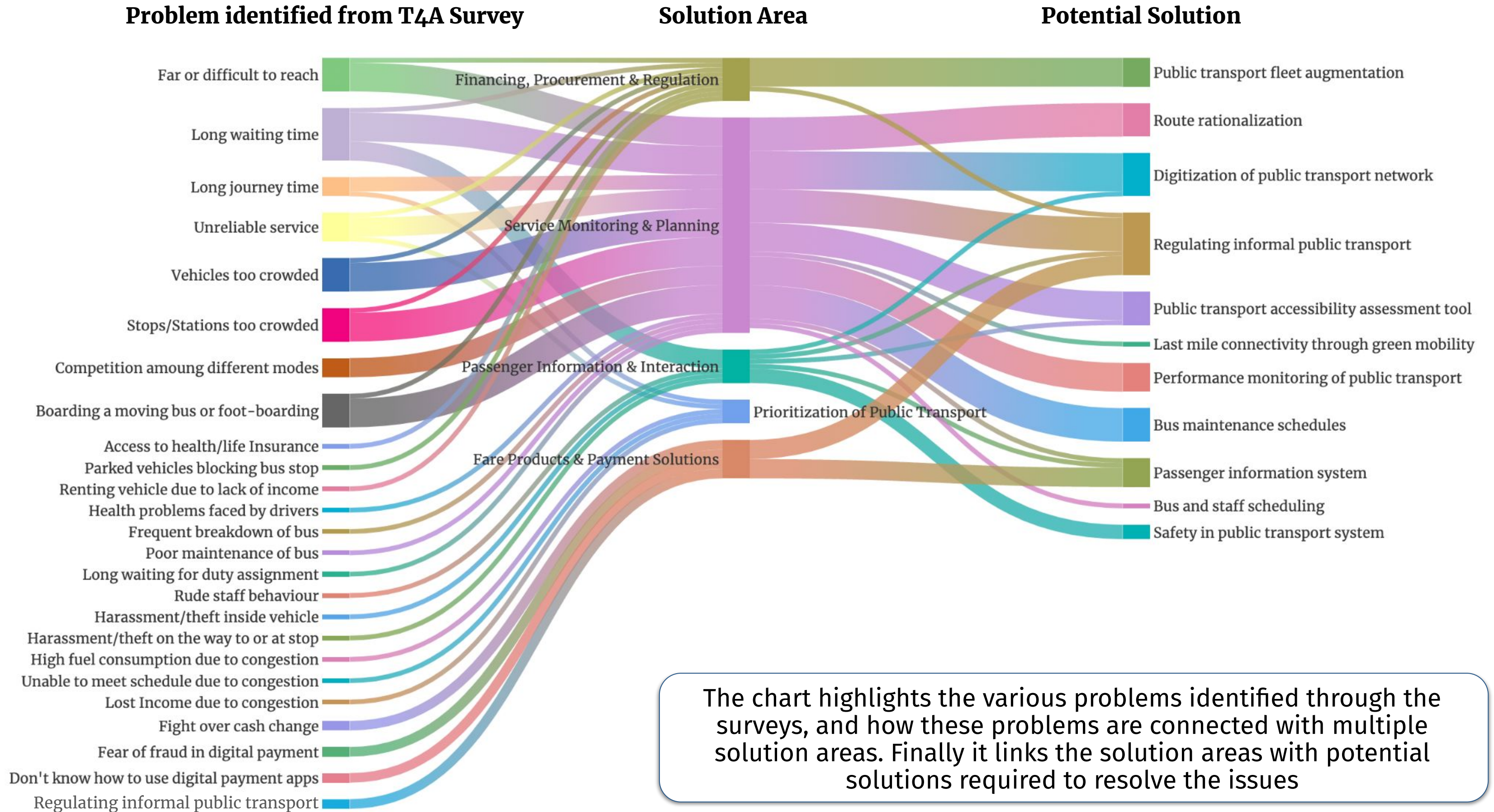
Problem Identification

Problem identified from T4A Survey — **Solution Area** — **Potential Solution**

Problems identified from T4A Survey:
- Far or difficult to reach
- Long waiting time
- Long journey time
- Unreliable service
- Vehicles too crowded
- Stops/Stations too crowded
- Competition among different modes
- Boarding a moving bus or foot-boarding
- Access to health/life Insurance
- Parked vehicles blocking bus stop
- Renting vehicle due to lack of income
- Health problems faced by drivers
- Frequent breakdown of bus
- Poor maintenance of bus
- Long waiting for duty assignment
- Rude staff behaviour
- Harassment/theft inside vehicle
- Harassment/theft on the way to or at stop
- High fuel consumption due to congestion
- Unable to meet schedule due to congestion
- Lost Income due to congestion
- Fight over cash change
- Fear of fraud in digital payment
- Don't know how to use digital payment apps
- Regulating informal public transport

Solution Area:
- Financing, Procurement & Regulation
- Service Monitoring & Planning
- Passenger Information & Interaction
- Prioritization of Public Transport
- Fare Products & Payment Solutions

Potential Solution:
- Public transport fleet augmentation
- Route rationalization
- Digitization of public transport network
- Regulating informal public transport
- Public transport accessibility assessment tool
- Last mile connectivity through green mobility
- Performance monitoring of public transport
- Bus maintenance schedules
- Passenger information system
- Bus and staff scheduling
- Safety in public transport system

The chart highlights the various problems identified through the surveys, and how these problems are connected with multiple solution areas. Finally it links the solution areas with potential solutions required to resolve the issues

165+ Problem Statements across 46 Cities

Problems that can be resolved by **technological solutions** through Transport4All Challenge

01 Reliable passenger information system with integrated multimodal journey planning
- PIS
- Grievance redressal
- Fare integration

02 Public transport route rationalization to enhance accessibility and increase service coverage
- Identifying, planning and regulating bus services

03 Bus and staff scheduling to optimize resource utilization
- Scheduling optimized shifts
- Fair workloads and distribution of shifts

04 Digitization of formal and informal public transport network and services
- Digitization of Public Transport and IPT data sets

05 Bus maintenance schedules for optimal utilization of the fleets
- Preventive maintenance scheduling ensuring maximum fleet utilization

B

165+ Problem Statements across 46 Cities

Problems that can be resolved by **technological solutions** through Transport4All Challenge

06 Regulating informal public transport by developing a locally tailored aggregate solution	• **Tracking IPTs** • **Aggregating IPTs locally** • **Regulating Fare**
07 Public Transport Accessibility Assessment Tool	• **Spatial tool that can visually indicate accessibility of PT**
08 Performance monitoring of Public transport system	• **Overseeing city bus operations**
09 Safety in public transport system	• **Ensure safe commute for transit friendly environment**
10 Last mile connectivity through green mobility	• **Better last mile connectivity planning with green modes**

165+ Problem Statements across 46 Cities

Problems that can be resolved by **non-technological solutions** through Transport4All Challenge

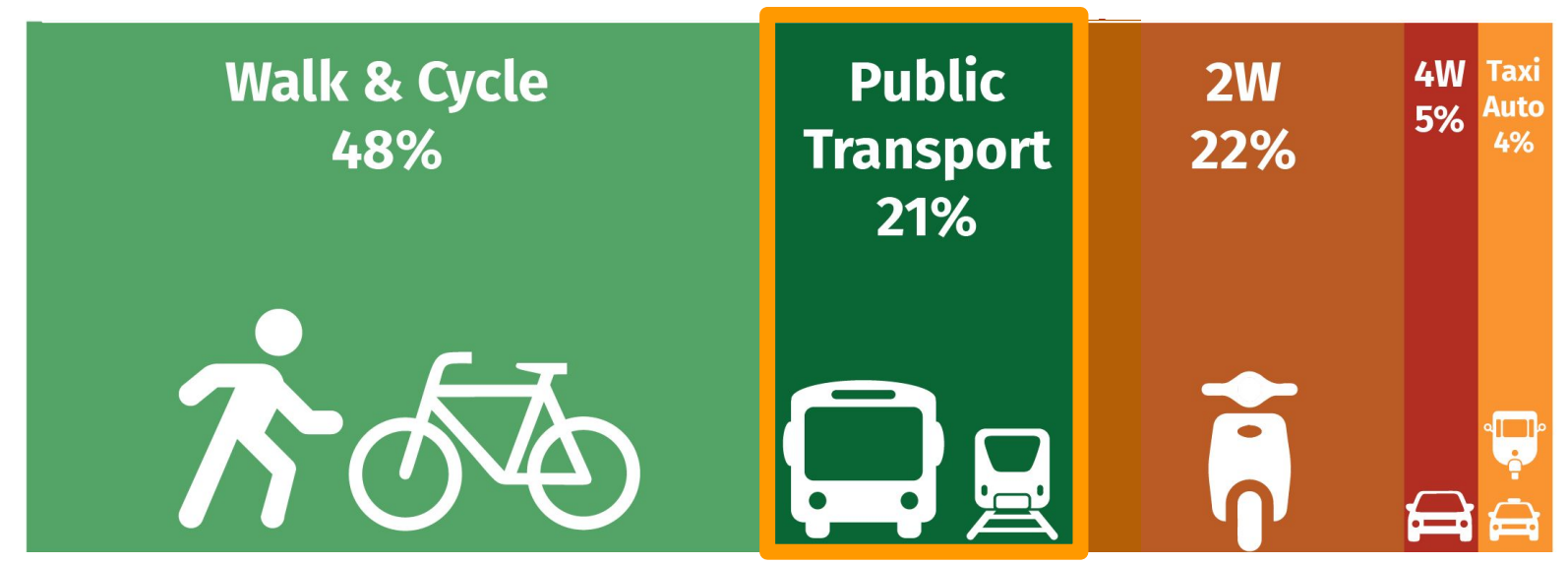| **11** Bus Fleet Augmentation	• Procurement of buses to match MoHUA guideline of 40-60 buses per lakh population
12 Public Transport Prioritization	• BRTS • Bus Priority Lanes
13 Public Transport Supporting Infrastructure and Regulations	• Basic infrastructure for passengers at bus stops and IPT • Space allotment to IPT • Organized parking
14 Financial and Healthcare Support	• Insurance for all drivers & staff • Financial support to drivers through government schemes

04

Conclusion

Transport4All challenge looks forward to solving various challenges faced by commuters, drivers and conductors using technology by bringing together the cities, citizens and start-ups.
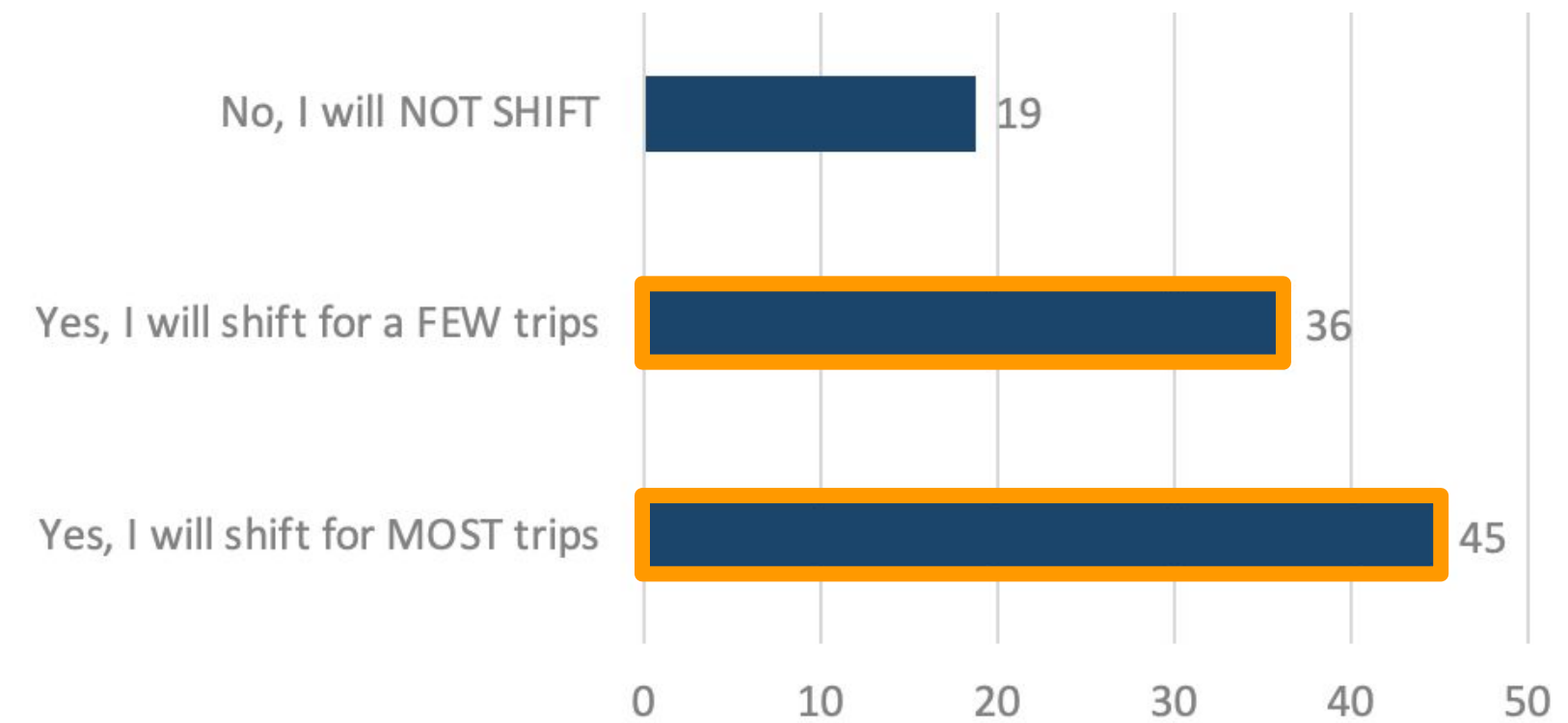
By improving the public transport user experience, citizens would be encouraged to use the public transport.

81% of the non-public transport users are willing to shift to public transport, if improvements are made.

Mode Share in Urban India - 2011 Census (%)

Walk & Cycle 48% | **Public Transport 21%** | **2W 22%** | **4W 5%** | **Taxi Auto 4%**

Willingness to Shift to Public Transport if Improved (%)

No, I will NOT SHIFT — 19
Yes, I will shift for a FEW trips — 36
Yes, I will shift for MOST trips — 45

0 10 20 30 40 50

SOLUTION AREAS TO IMPROVE PUBLIC TRANSPORT

Image Source - MangaloreToday

Service Monitoring and Planning

Passenger Information and Interaction

Fare Products and Payment Solutions

Financing, Procurement and Regulation

Prioritization of Public Transport

These solutions will help make public transport safe, convenient, affordable and accessible to all.

05

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MEET THE PEOPLE BEHIND THE SCENES

CHALLENGE HOST

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