



SESSION: RESILIENT TRANSPORT SYSTEMS (POST COVID)



CHANGES IN TRAVEL DEMAND DURING PANDEMIC

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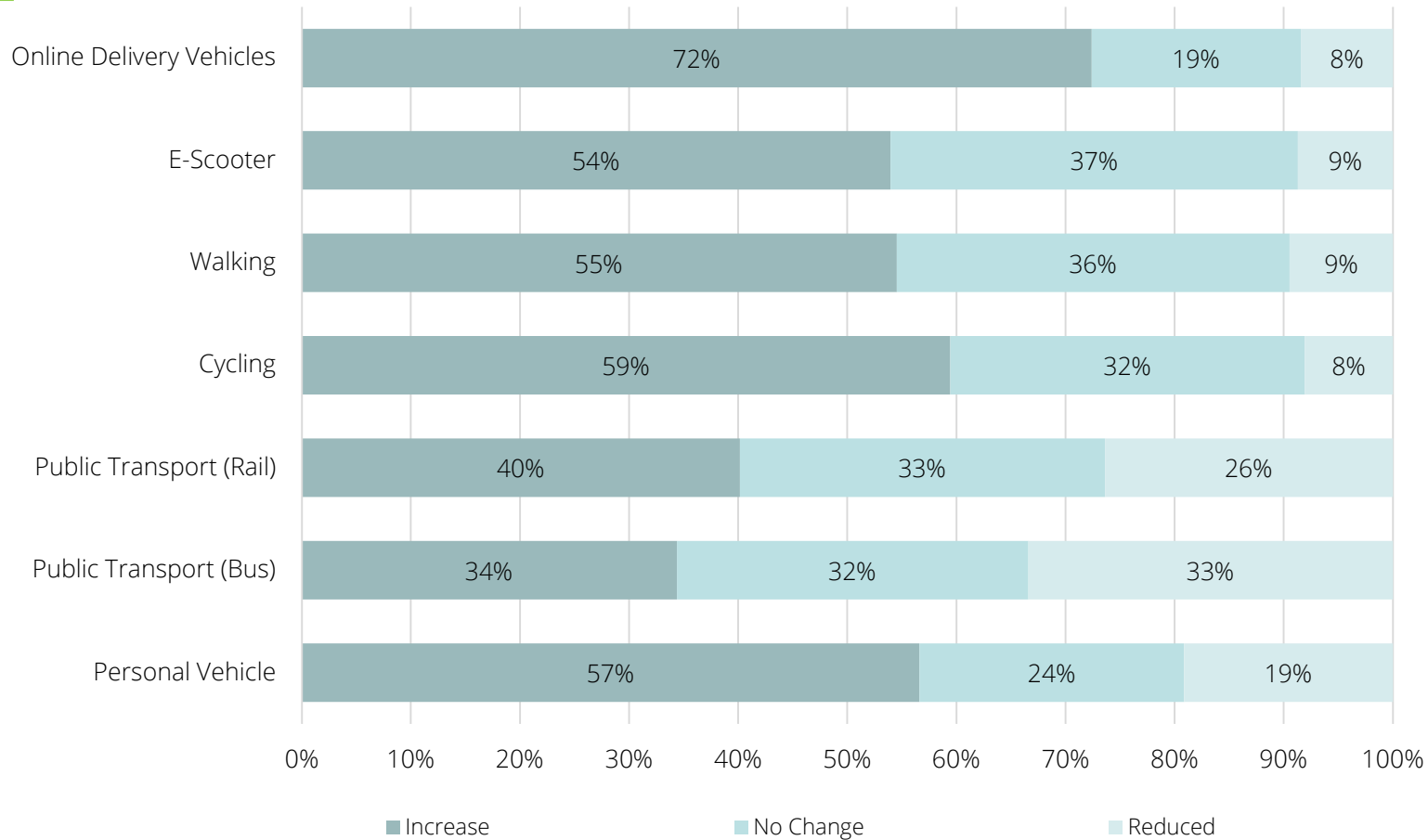


CHANGES IN TRAVEL DEMAND DURING PANDEMIC

1. IMPACTS OF COVID-19 ON URBAN TRANSPORT
2. INDIAN MOBILITY SCENARIO
3. CHANGING MOBILITY TRENDS
4. BUILDING BACK BETTER

IMPACTS OF COVID-19 ON URBAN TRANSPORT

In long term, Please rate how do you consider the travel demand of each of the following mode will be impacted post Covid-19 ?



Source : Findings from Project IMPACT Study - Survey to understand the impact of COVID 19 on Cities and Mobility

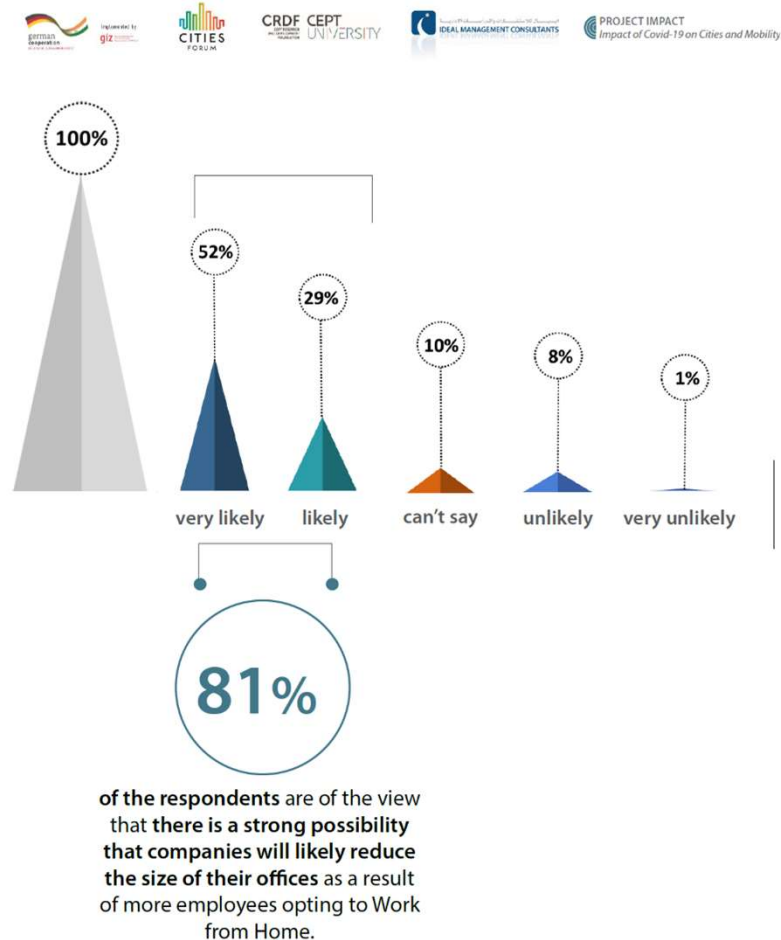


What do you think about the following statement?
Companies are likely to reduce the size of their offices with more staff working from home?



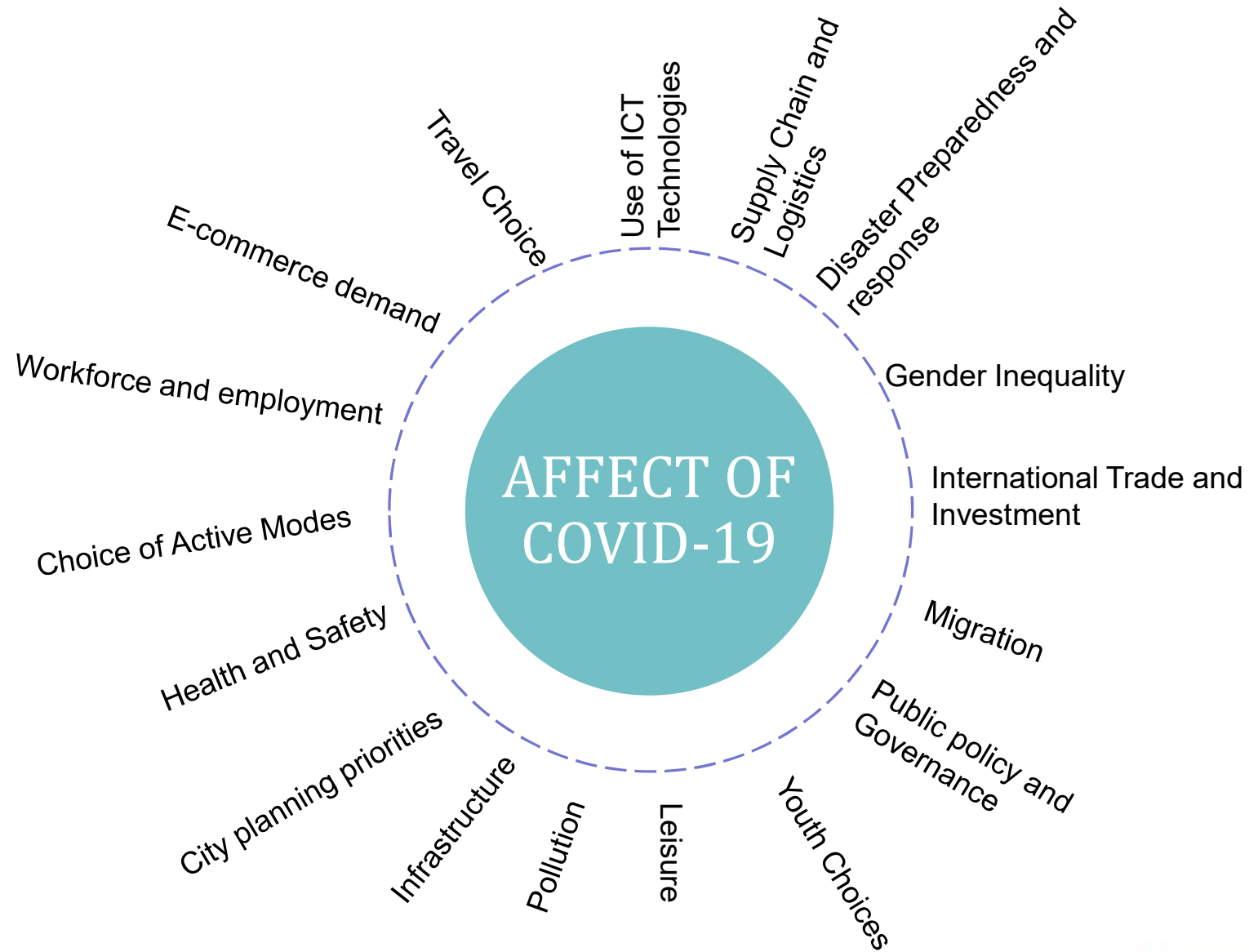
As many companies have already announced permanent working from home options for employees, we are already seeing many companies not renewing leases or reducing the amount of office space needed post COVID-19.

Amit Zavery,
VP and Head of Platform, Google
Cloud



Source : Findings from Project IMPACT Study - Survey to understand the impact of COVID 19 on Cities and Mobility





Impact

1

Economic Disruption

The economic disruption caused GDP contraction and hence closure of business, unemployment and reverse migration

Safety Perception

Increased sensitivity towards safety causing avoidance to crowded locations and being contactless

2

3

Government Commitment

Rise in dependency on government for maintaining essential services

Emergence of Smaller Cities

Popularity of E-commerce

Socio-economic inequality

**SOCIO ECONOMIC TRENDS INFLUENCING
POLICIES**

Work-from-home (white color jobs)

Travel safety consciousness

Healthier mobility lifestyle

Evolution of trip patterns
(repurpose, retime, respace)

**BEHAVIORAL TRENDS
INFLUENCING DEMAND**

Acceptance of new forms of mobility

Digitalization of offerings

Intelligent transport systems

Market consolidation of private
mobility players

**TECHNOLOGY & MARKET TRENDS
INFLUENCING SUPPLY**

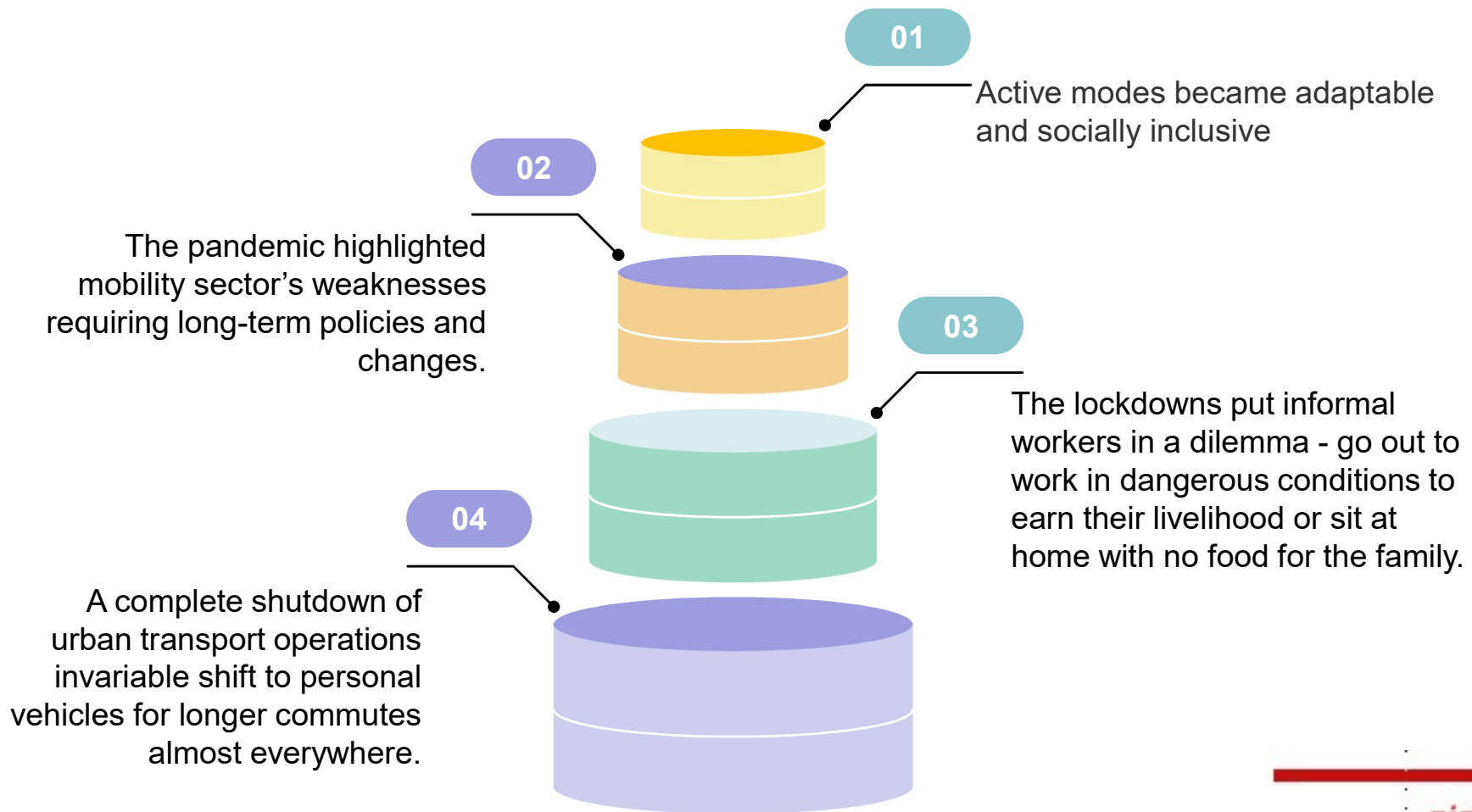
TRAVEL DEMAND

Source: WEF

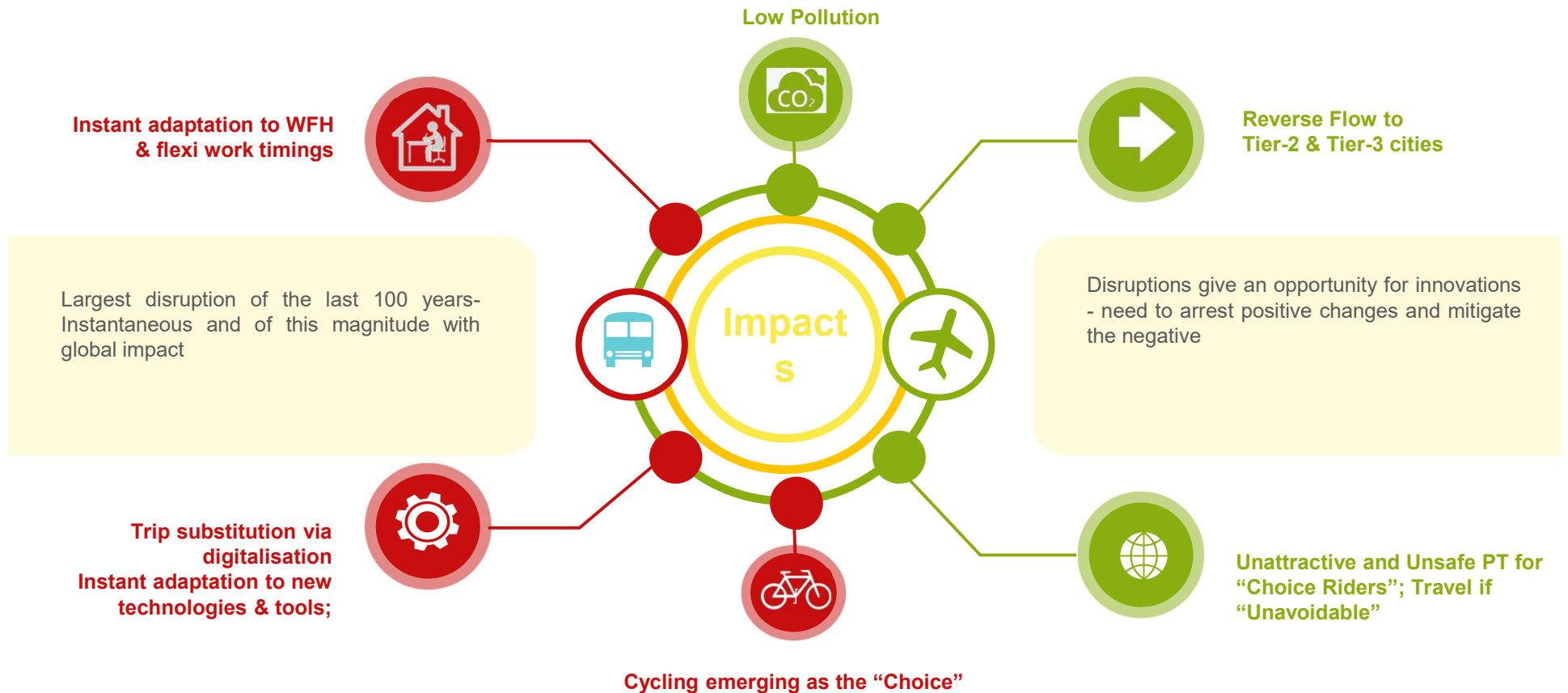
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IMPACT ON PASSENGER MOBILITY DEMAND

Altered mode choices to the detriment of shared vehicles and public transport out of fear of contamination in crowded environments



Covid 19 “Disruption”



Impact

Reduction in travel demand

Preferences to personal travel choices

Revenue gap and Fiscal support for public transport systems

Impact on public transport

Behavioural Shifts

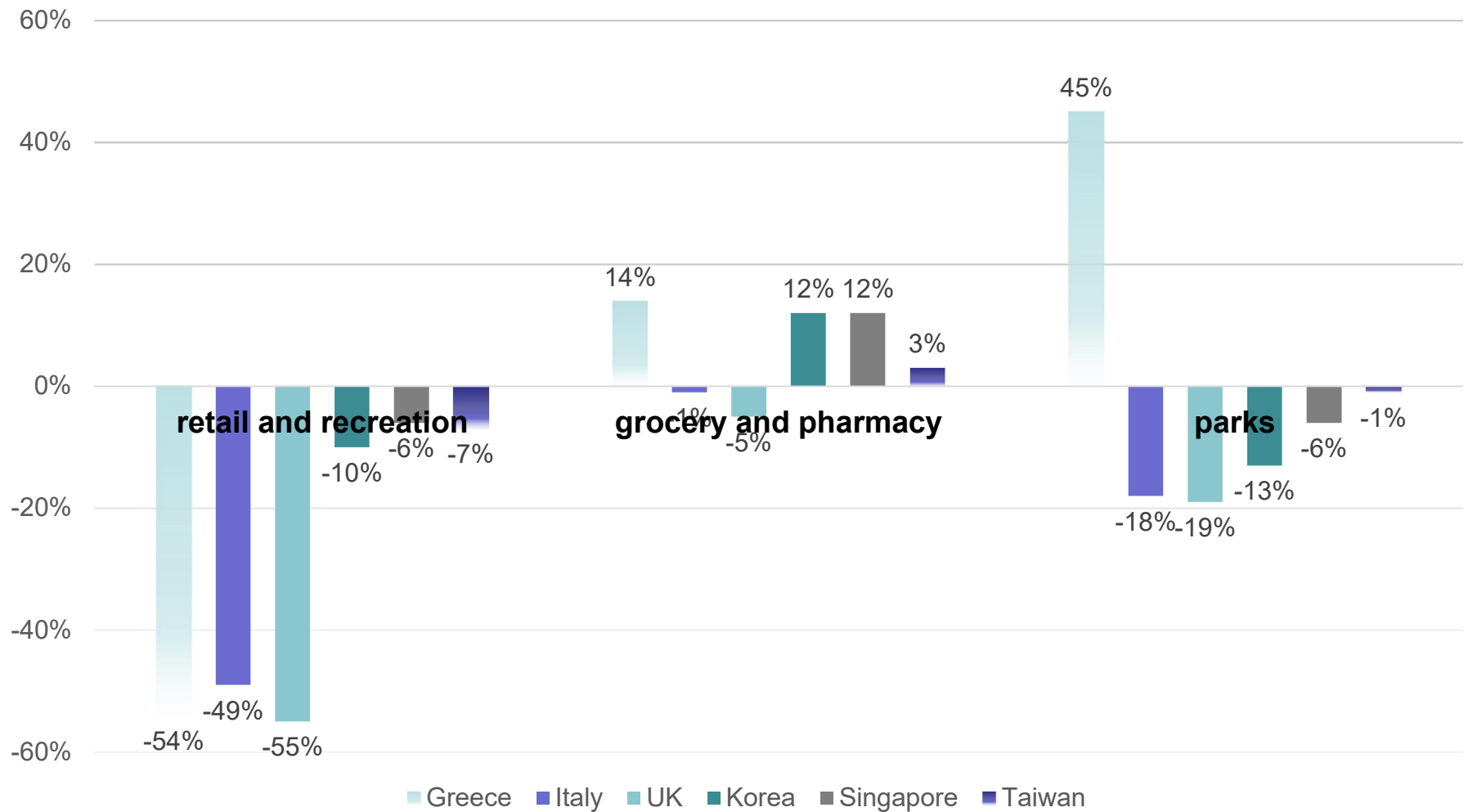
Digitalization of public transport systems

Emergence of cycling as a choice

Avoidance towards public transport

Impacts

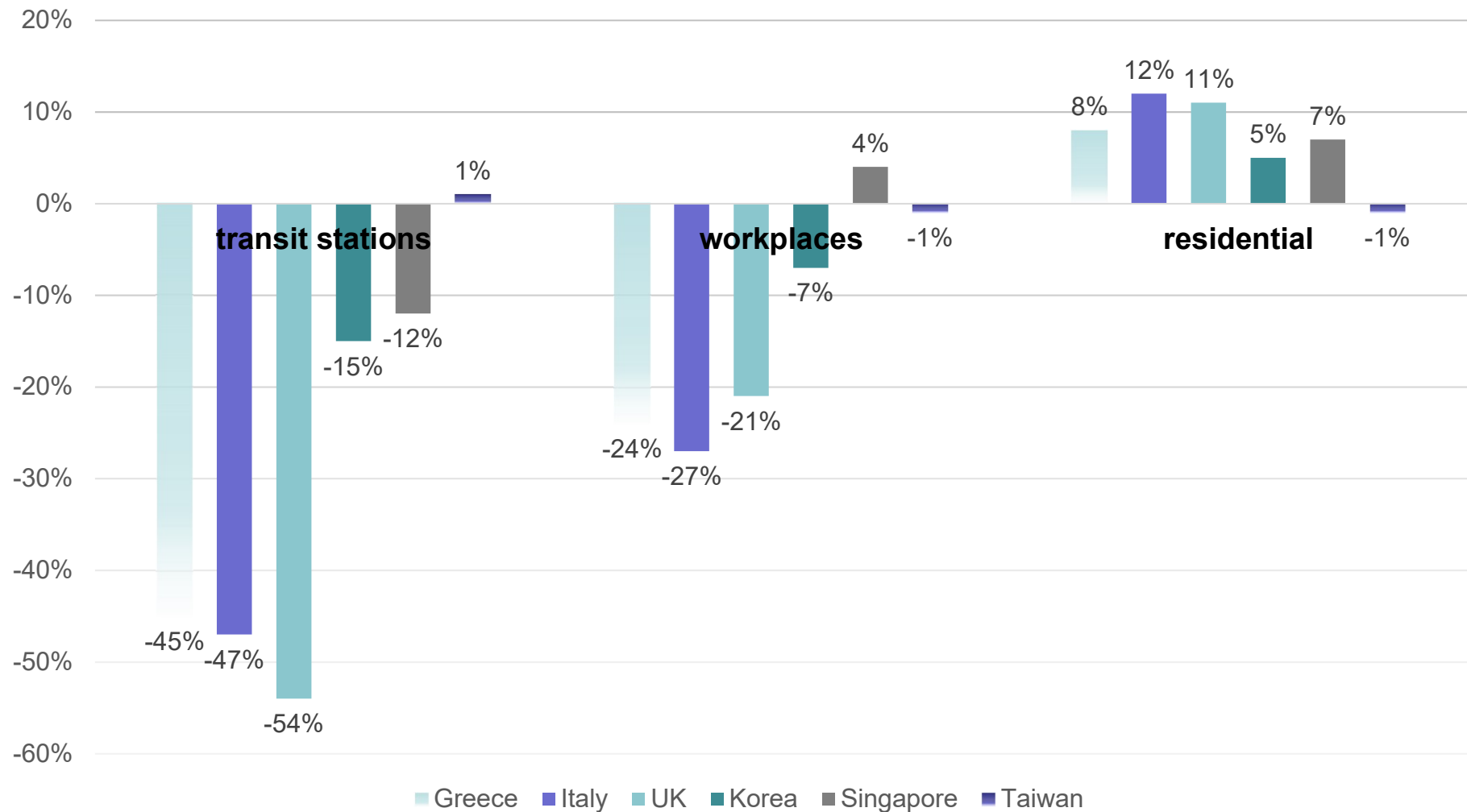
MOBILITY SHIFT ACROSS THREE COUNTRIES FROM EUROPE AND EASTERN ASIA EACH BETWEEN FEB 2020 TO MARCH 2021.



Source: Sustainable Urban Mobility in the post pandemic era, Christos Theodoridis, Yannis Theodoridis, 2020



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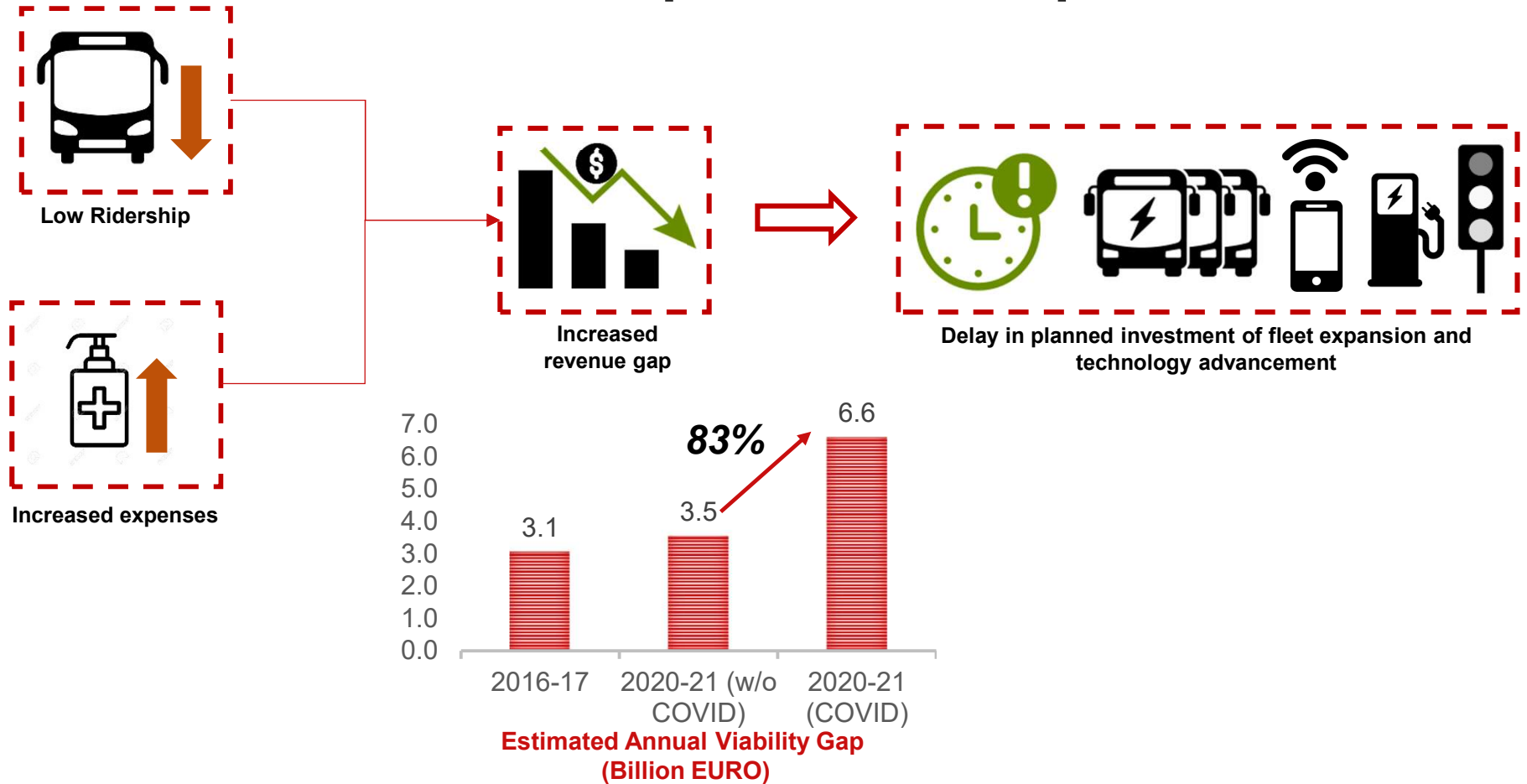
MOBILITY SHIFT ACROSS THREE COUNTRIES FROM EUROPE AND EASTERN ASIA EACH BETWEEN FEB 2020 TO MARCH 2021.

Comparing the impacts of COVID-19 on travel to different destinations, it appears that trips for retail and recreation and those to public transport stations have experienced the strongest decline.

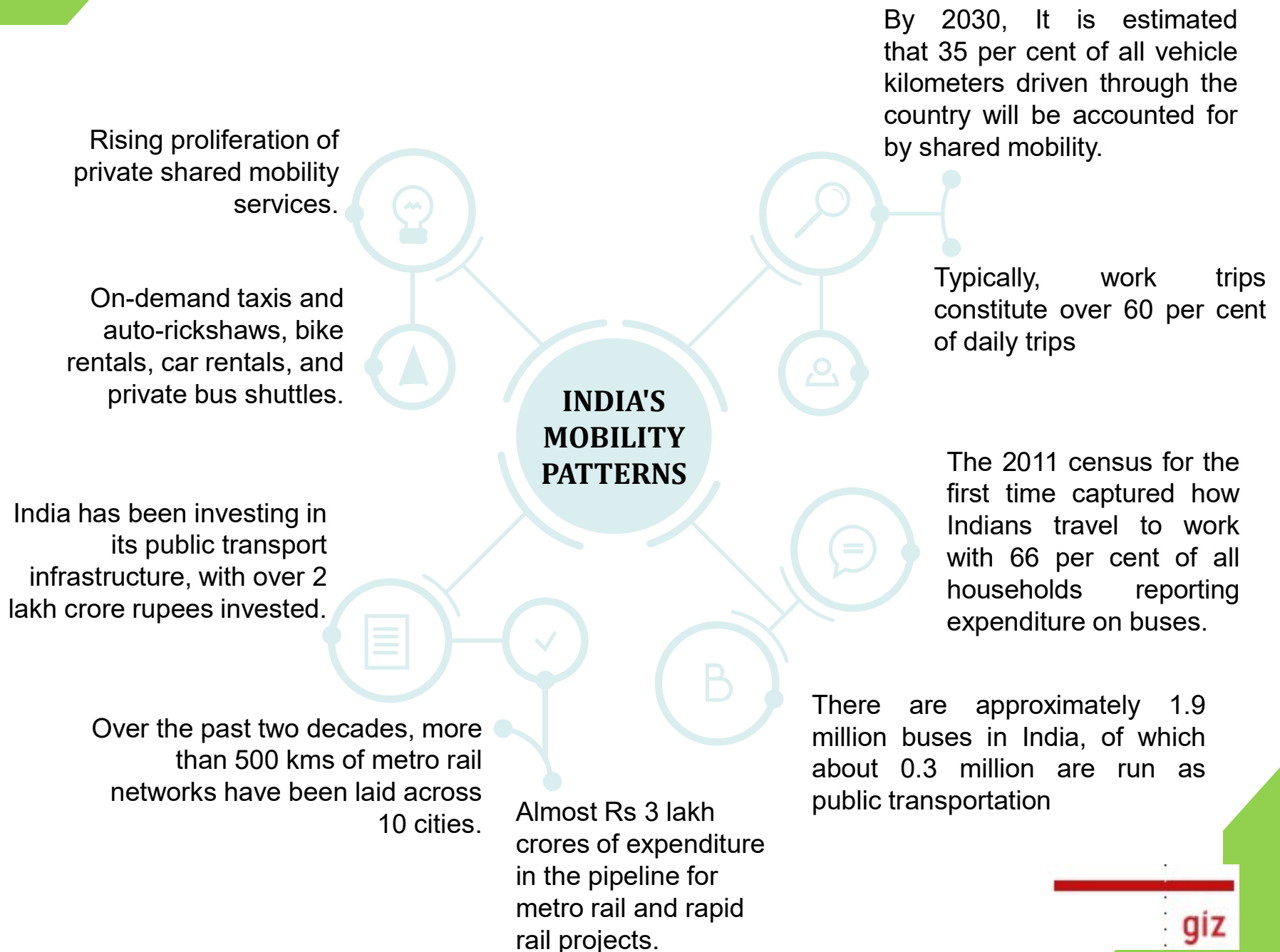
Since March 2020, there has been a steep decline in the number of people traveling to public transport stations in all regions. By mid-April, the global percentage of trips to public transport stations was half of the baseline.

Cities around the world are experiencing less public transport usage and lower occupancy rates.

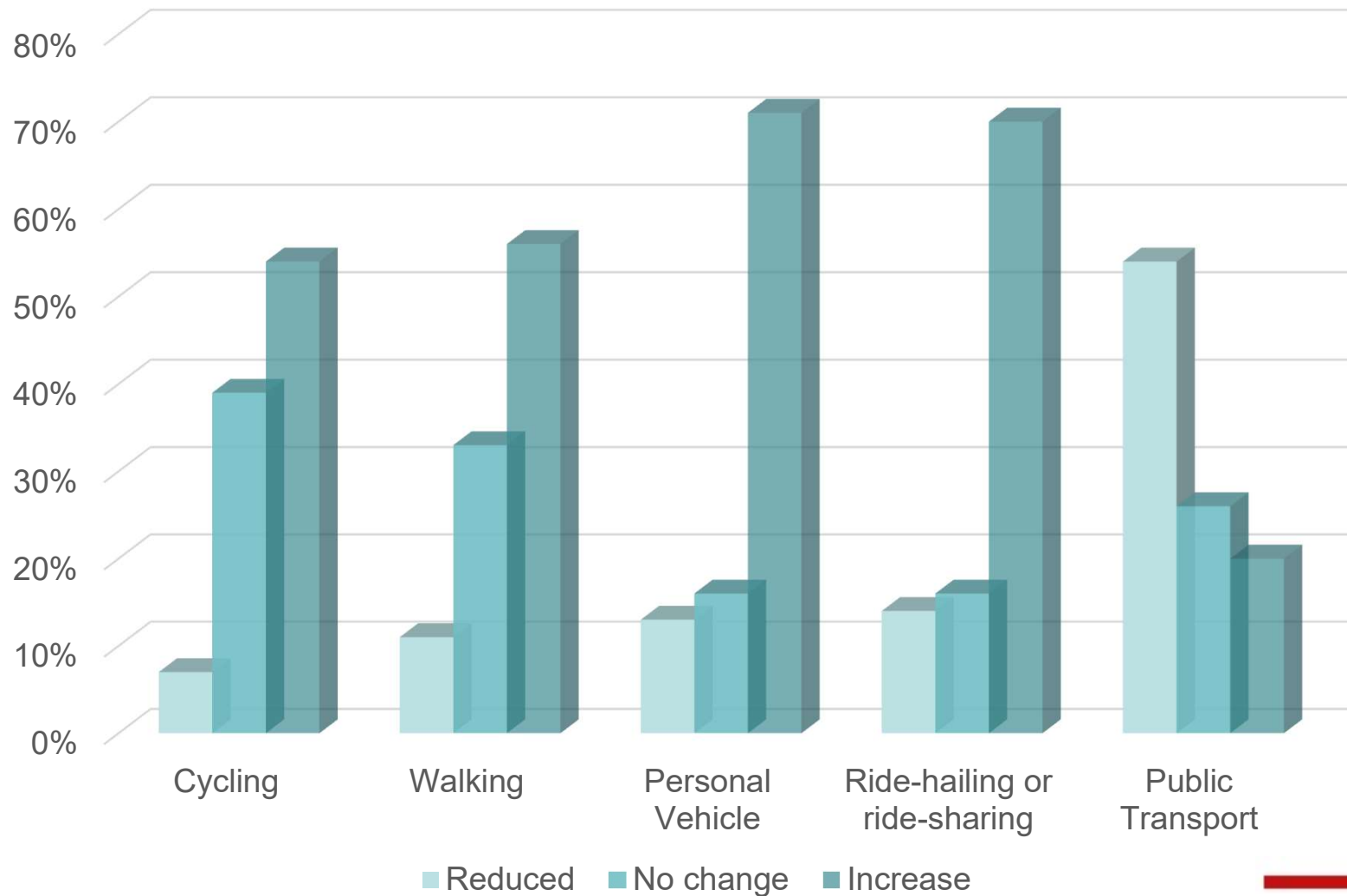
Public Transport Disruptions



INDIAN MOBILITY SCENARIO



MEDIUM TERM IMPACT OF COVID19 ON URBAN MOBILITY IN INDIA – JULY 2020



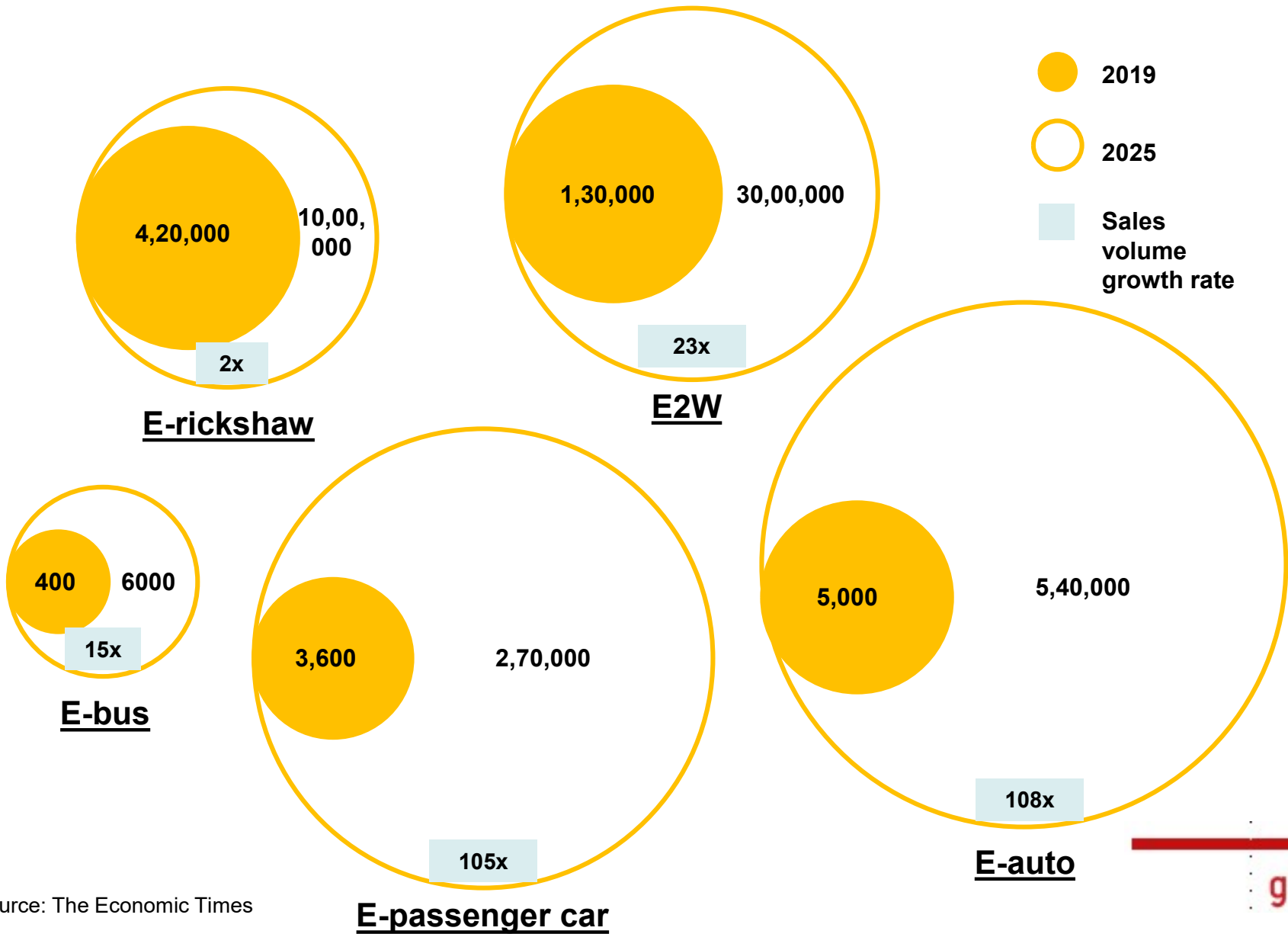
Source: www.statista.com

INDIA'S MOBILITY PATTERNS

A 2018 Niti Aayog and BCG report estimates that congestion costs in just four cities in India- Delhi, Mumbai, Bengaluru, and Kolkata- add up to Rs 1.44 lakh crore annually.

India houses 14 out of the world's 15 most polluted cities, with the Lancet Commission on Pollution and Health estimating that 2.5 million Indians lose their lives prematurely due to air pollution every year.

BOOM OF ELECTRIC VEHICLES IN INDIA



EMERGINNG TRENDS

EXPANSION ON THE EXTREMES

Reallocated road space for non-motorized modes and leisure activities with prominently reduced focus on cars.



Pollution and congestion rebounded sharply after the removal of restrictions as commuters shunned shared transport in favour of their cars.



EMERGING MOBILITY TRENDS

Local neighbourhoods as part of a green future - 15 minute city

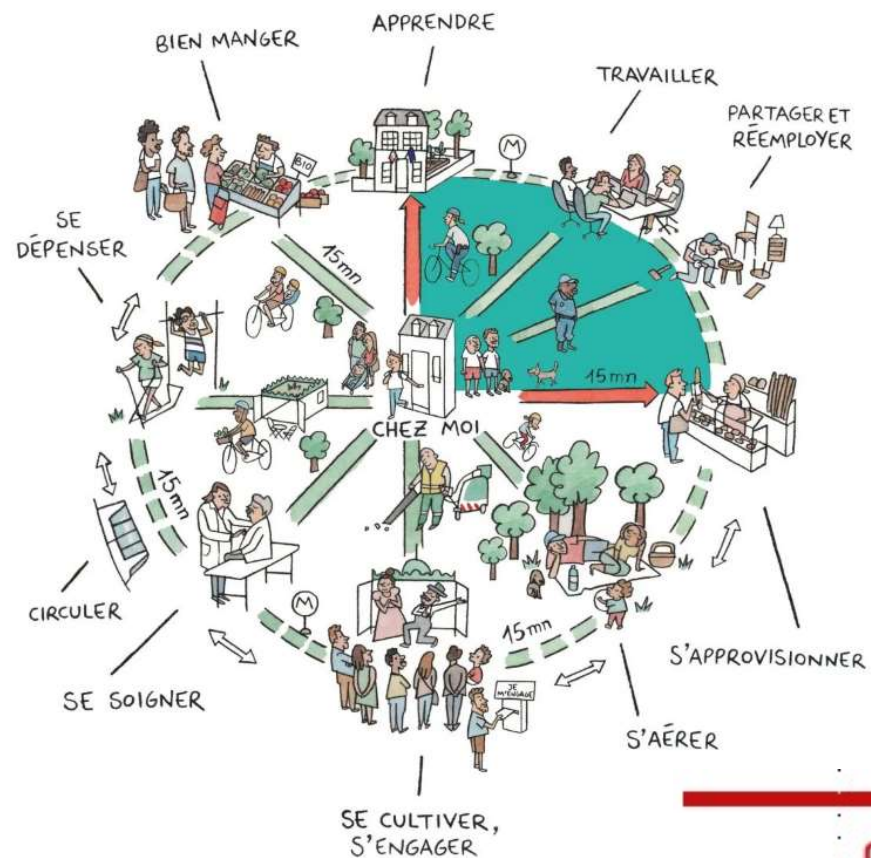
Focus on localism and access to services within a short walking or cycling distance of home, both in rural and urban areas.

Low traffic neighbourhoods supported the renewal of local high streets.

Proper strategic and local planning can help reduce the need for longer-distance travel, as part of a net zero carbon strategy.

The quarter-hour city of Paris.

Illustration by: Micaël Dessin / for Paris-en-commun



EMERGING MOBILITY TRENDS

Managing the home delivery freight

Road freight (both HGVs and vans) now significantly exceeds pre-pandemic levels, driven by the huge growth in online retail.

This trend points to the need for increased use of local consolidation centres and improved last mile delivery solutions.

Shifting to electric vehicles for cargo fleet must be a focus.



EMERGING MOBILITY TRENDS

Improve road charging mechanisms need to shift behaviour

To phase out petrol and diesel vehicles as part of the net-zero carbon targets, new road user charging mechanisms and parking charge schemes must be implemented soon.

Incentivising electric vehicle use and following the 'polluter pays' principle can potentially discourage unnecessary car travel and relieve congestion.



Towards Behavioural Shifts



Pop-up Bicycle Lanes and Dedicated Bicycle Lanes

Pop-up Bicycle lanes: Bangalore, Berlin, Milan, London etc

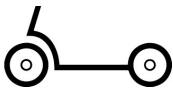
Dedicated Bicycle Lanes: Cycles4change Challenge-India; Bogota- 35 Kms, Paris- 50 kms, Medellin- Increase by 50%, Milan- 22 Miles



Development of Vehicle Free Zones

Stay Healthy Streets- Seattle

Paris- 30 streets as pedestrian only



Stimulus for shared/micro mobility

Medellin: 50000 electric bikes | Rome- Guidelines for shared electric scooters | Middlesbrough- legislation for rented e-scooters



Promoting Green Mobility

Incentive schemes for 10 cities in China | Guangzhou announced a subsidy of 10000 RMB for New Energy Vehicles



Acceleration of Mobility as a Service

Israel launched a MaaS pilot project for a tailored commuting system to revamp its rigid transport network

Towards Public Transport Systems



Long-term financial support

Netherlands adopted a €160 million scheme | Germany implemented a €6 billion scheme | Italy announced scheme to reimburse all the expenses



Green recovery of public transport

European Commission has been urged to set up a multi-billion euro grant scheme for zero-emission buses
Federal Transit Administration (FTA) (US) announced approximately \$130 million in grant selections through the Low- or No-Emission (Low-No) Grant program



Digitalization of public transport

Shanghai and Nanjing, for example, have put QR codes on buses and metro trains
In Auckland, an app to inform passengers whether an approaching bus or train for physical distancing
Washington Metropolitan Area Transport Authority (WMATA) roll out contactless payments in an integrated manner
Digital India initiative



Interaction with Private Players

European Union has urged that flexibility from on-demand and new mobility services can complement the public transport service

GLOBAL INNOVATIVE SOLUTIONS

Paris transformed over 50 km (30 miles) of lanes usually reserved for cars to bicycles.

New York City's public bikeshare system, Citi Bike, saw a 67% surge in demand in early March compared to last year.

Bogotá experimented with opening 22-mile Ciclovía network.

Montreal announced the creation of over 320 km (200 miles) of new pedestrian and bike paths across the city.

Seattle proposed to close 30 km (20 miles) of streets to most vehicles at the end of May.

Berlin repurposed some residential streets as "play streets" on Sundays during the lockdown.

Brussels has continued transforming 40 km (25 miles) of car lanes into bike paths.

In Philadelphia, cycling has increased by more than 150% during the COVID-19 outbreak.

Meituan Bikeshare, formerly Mobike, provided about 2.3 million trips in Wuhan, accounting for more than half of all non-walking trips in the city during the epidemic.

In October 2021, ridership across New York City's subway, bus and railroad services reached its highest number since the onset of the COVID-19.

GLOBAL INNOVATIVE SOLUTIONS

South Korean capital Seoul has installed glass-panelled bus shelters fitted with external thermal cameras and internal ultraviolet (UV) sterilizers. Installed along major routes, these shelters work to curb infection transmission by checking for fever and creating a sterile space in which to wait.

Argentina Trains network, combines facial recognition and ultra-fast temperature checks with thermal and light imaging, while also validating ticket reservations.



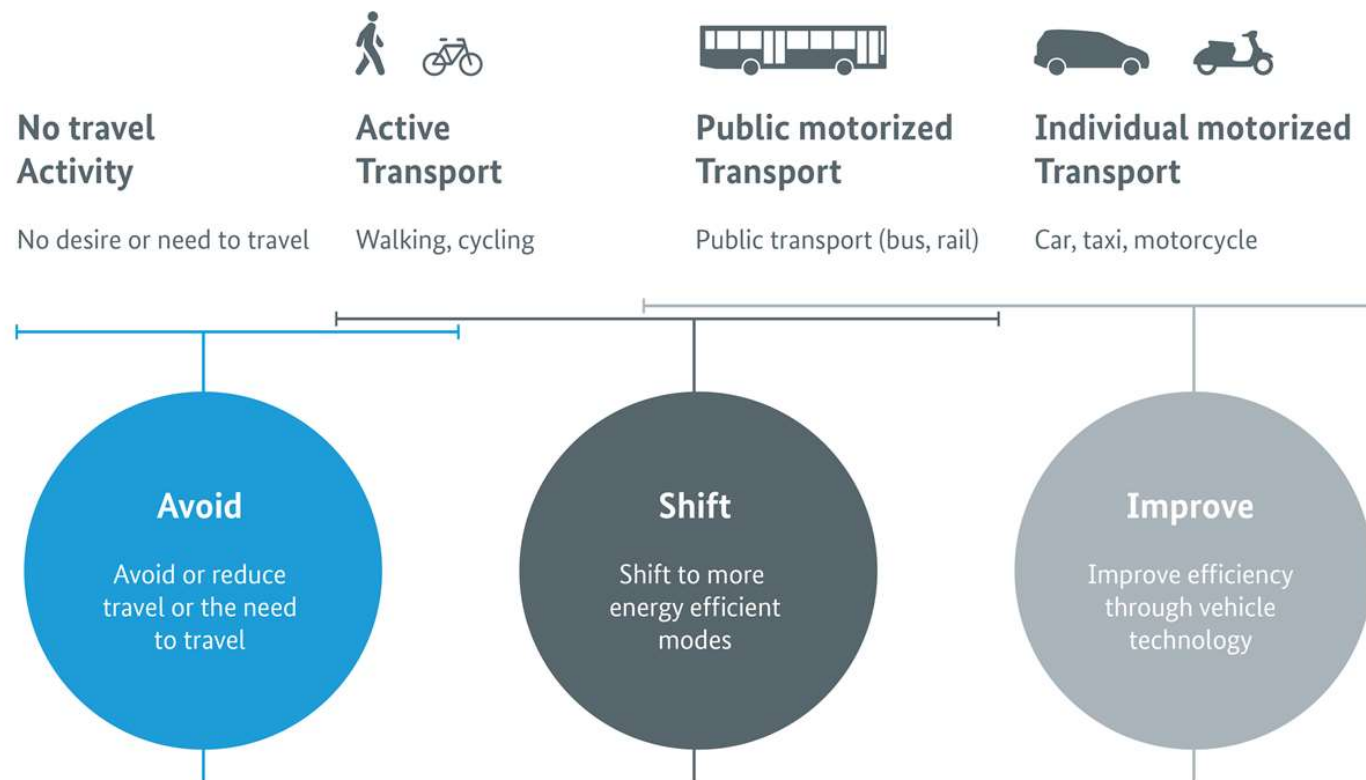
Photograph and Technology: Indracompany.com



Photograph: Jung Yeon-Je/AFP/Getty Images

BUILDING BACK BETTER

Pillars of Recovery



BUILD BACK BETTER

- ✓ Prioritise walkability at the urban scale
- ✓ A comprehensive strategy and funding that focuses on the recovery of the public transport system
- ✓ Establish partnerships for creating walkable communities – Tactical urbanism
- ✓ Support reform of urban and regional planning to de-congest and increase provision of basic services and amenities within walking and cycling distances of people's homes and workplaces.
- ✓ Develop greater institutional capacity for collaborative working between government agencies and operators.
- ✓ A policy change is needed to respond to behavioural changes, use of data driven planning and facilitation of mobility data sharing for innovative smart mobility solutions.

ACTIONS FOR SUSTAINABLE, RESILIENT AND HUMAN-CENTRI MOBILITY SYSTEMS

Think and act at system level

A long-term mobility vision to phase systematic implementation while constantly revising the funding equation as needed.

Fostering innovation through Private sector

India needs to focus on R&D for innovative technology and mobility solutions.

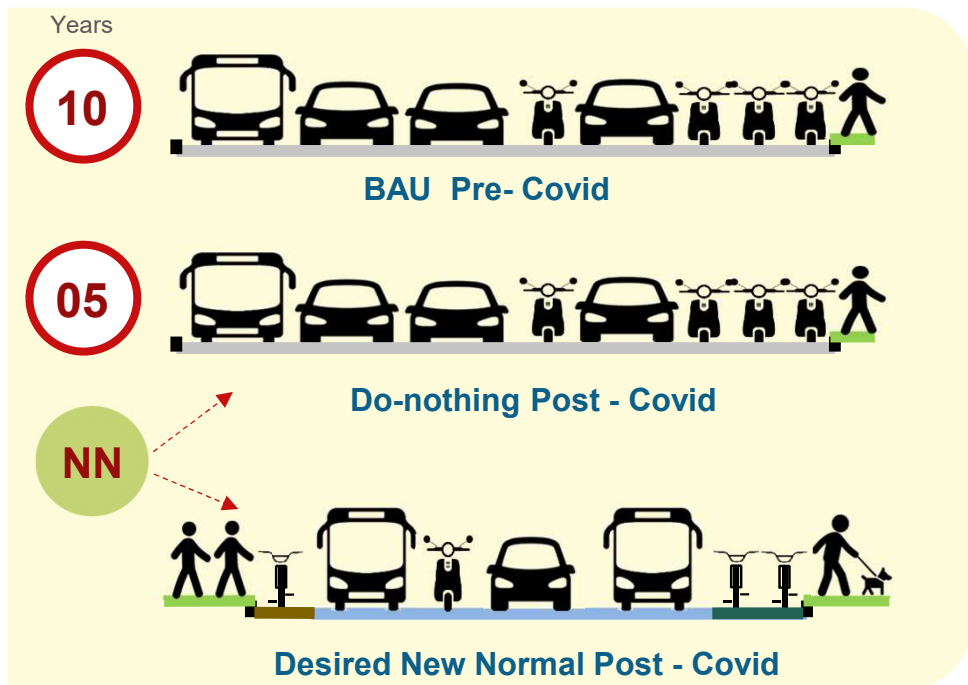
Collaboration and promotion of smart mobility solutions is the way forward.

Unified Mobility Management Model

Enable real-time optimization of mobility flows and assets at city or national level.

Standards for data collection, storage, and sharing is vital for smart integration of different mobility modes.

Reconfiguring Mobility Landscape



Guiding Principles for “New Normal”

- Ensure that **gain** due to change in travel behaviour sustains
- **Reset** priorities, standards and focus on **quality** (with quantity)
- Ensure **robust digital infrastructure**, especially in T-2 & T-3 cities
- **Bring cities closer** - High-speed/semi-high speed rail connectivity for region, buses within city
- **Raise and prioritise funds**- “who should pay” to create affordable infrastructure
- **Build capacity** of the cities/states

1. Investment in NMT Infrastructure



BAU



Desired



2. Investment in Bus Priority



BAU

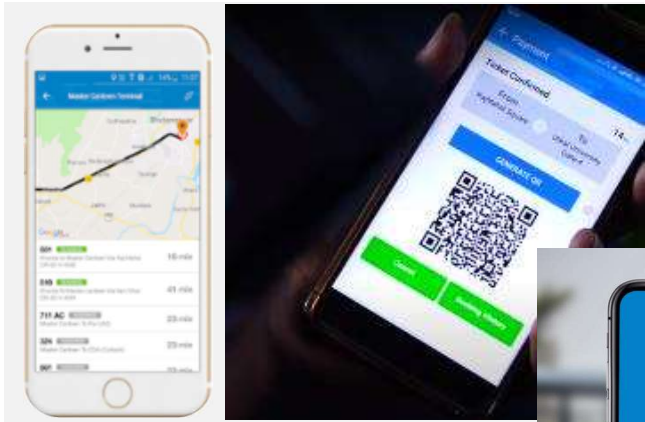


Desired

3. Investment in Digitalization



BAU



Desired



4. More buses, better buses and Integrated Metro rails



BAU



Desired

KEY CHALLENGES

Financial management challenges

- **Working capital to pay staff salaries**
- Financial needs for fuel expenses, maintenance expenses
- Capital for payment to operators

Operational and service delivery challenges

- **Service planning for uncertain demand**
- **Crowd management inside and outside buses**
- Difficulty in flexible scheduling

Crew management challenges

- **Training of staff on physical distancing**
- **Lack of equipment to ensure safety of crew**
- **Unavailability of crew**

Fleet management challenges

- **Availability of sanitization material**
- **Availability of fleet infrastructure post lockdown**

**WB & UITP*

4. But where are the funds?

Inconsistent funding at National level

Poor bankability of STUs

Limited revenue sources with ULBs

Significant share of budget goes towards road infrastructure

Reforms based national funding program – 10 years

Divert the state/ULBs budget to PT and NMT from road infrastructure

Identify new revenue sources

Funding for Resilient PT Systems



Well developed PT System



Wide and efficient NMT Infrastructure

Beneficiaries



Public Transport users



Non Public Transport users



People benefitted from transit corridors by better service access

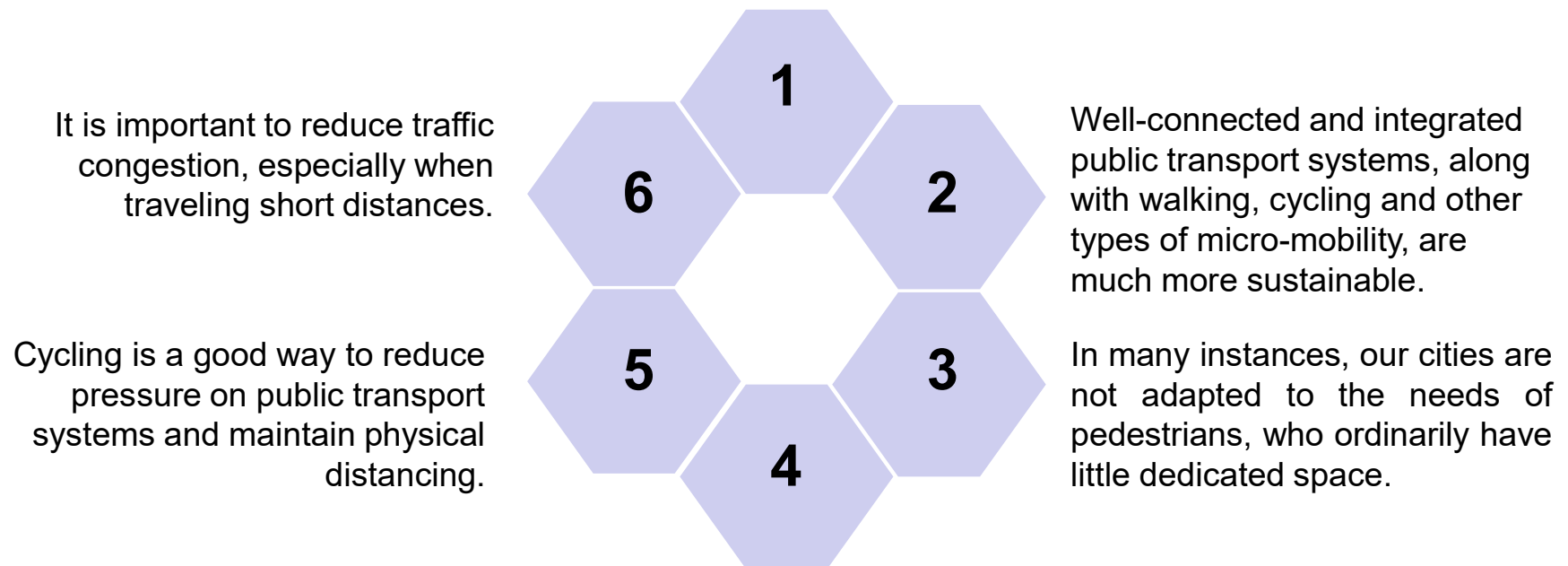


Wider society which benefit from lower pollution, accident risk and increased employment



TOWARDS GREEN MOBILITY

Greener modes have significant economic, health, social and environmental benefits..



Several municipalities around the world have been reclaiming their highways as spaces specifically for non-motorised transport – enabling people to travel by foot and bicycle while maintaining physical distancing.



ACTIONS FOR SUSTAINABLE, RESILIENT AND HUMAN-CENTRIC MOBILITY SYSTEMS

Authorities can act on the system by regulating each of its components.

- Urban space allocation and regulation
- Modes and market regulation – individual, mass transit & new mobility modes
- Contract reengineering and mass transit operators
- Infrastructure and data regulations
- Enforcement of regulations

Authorities can also enable other system actors to move things forward coherently & effectively.

- Governance ▪
- Infrastructure – physical and digital ▪
- Mobility demands incentives and marketing ▪
- Collaborative platforms and innovation ▪

THANK YOU