TOWARDS SUSTAINABLE MOBILITY

Global Challenges and Opportunities

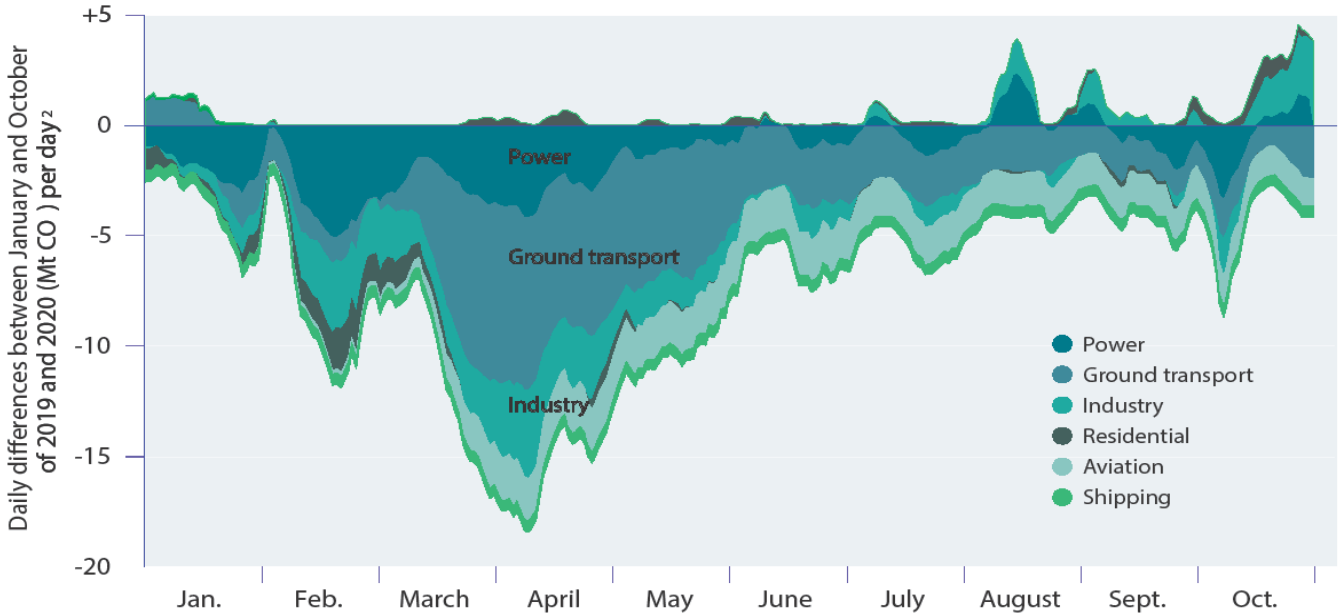
VIVRE EN VILLE

Holger Dalkmann
CEO & Founder Sustain2030

UNEP Emissions Gap Report (2019)

Source: https://www.unenvironment.org/news-and-stories/press-release/cut-global-emissions-76-percent-every-year-next-decade-meet-15degc

UNEP Emission Gap Report (2020): Decrease of 7% in 2020 in comparison to 2019 due to COVID-19



Source: UNEP 2021, https://www.unep.org/emissions-gap-report-2020

2-5% cost of GDP through traffic congestion

CONGESTION

ROAD SAFETY

Traffic fatalities lead to 1.4 million deaths every year and many more injuries

PUBLIC HEALTH

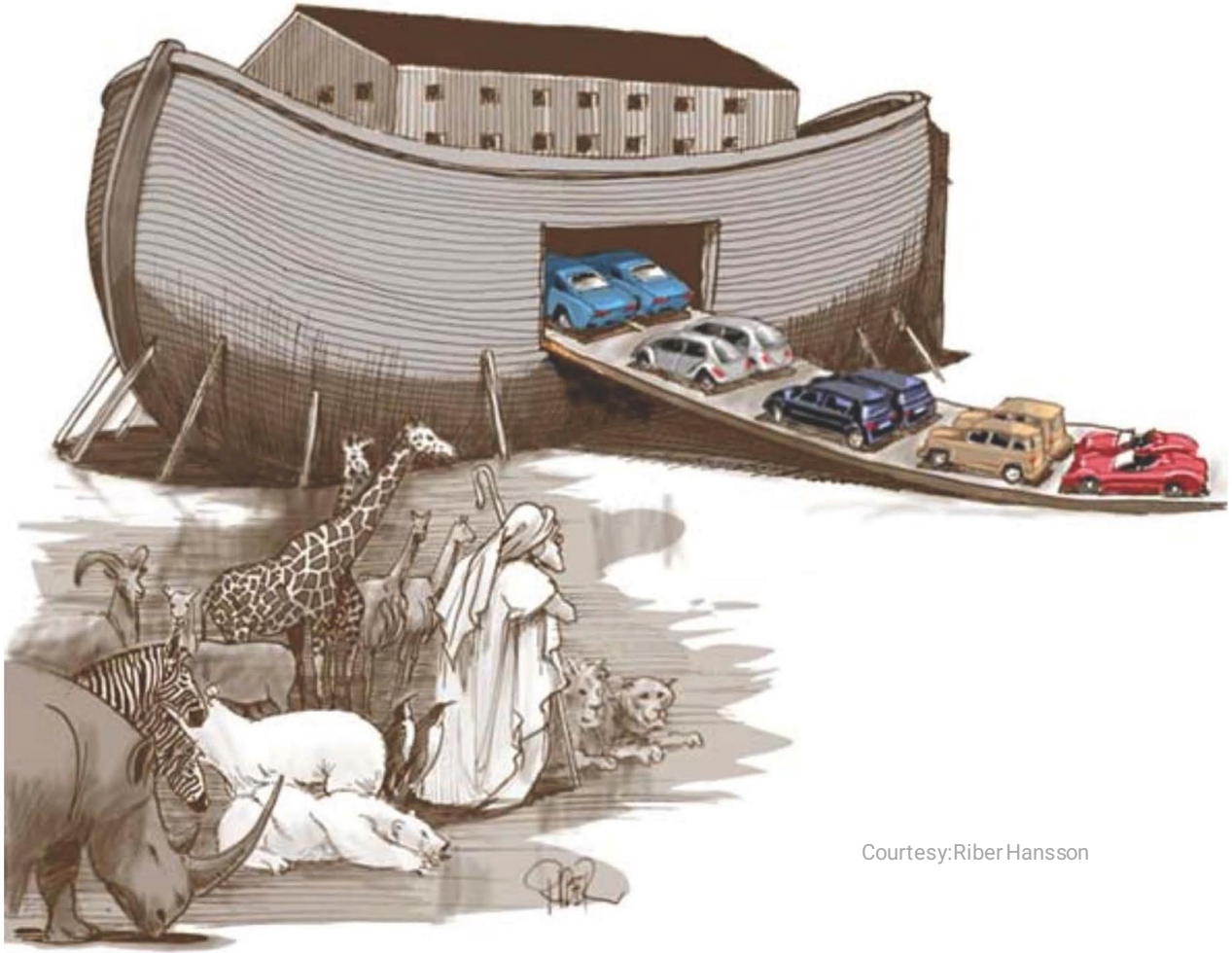
Outdoor air pollution was estimated to cause 4m premature deaths worldwide in 2019

CLIMATE CHANGE

Transport accounts for one-quarter of global CO_2 emissions

Wide range of (co-)benefits of decarbonization of transport

Health & social	Morbidity&mortality	Economic	Environment	Climate change
Lower pollutant exposure NOx, CO, SO2, PM2.5	Vision Zero & safe systems	Lower welfare costs	Higher resilience & liveability	Higher RE uptake
Lower noise pollution	Enhanced road safety – lower traffic fatalities	Lower health expenditures	Vegetation lowers pollutant levels	Reduced GHG emissions
Increased Last-mile connectivity & transit use	Reduced VKT	Increased labour productivity	Mitigation of heat-island effect	Less fossil fuel use
Social equity & affordable access – vulnerable groups	Lower speeds cause less PM2.5 from braking	Lower journey times & costs of congestion	Lower ambient temperature	Higher Energy security
		Lower fuel spending and oil imports		Lower energy-intensity of GDP
		More local jobs & industries		

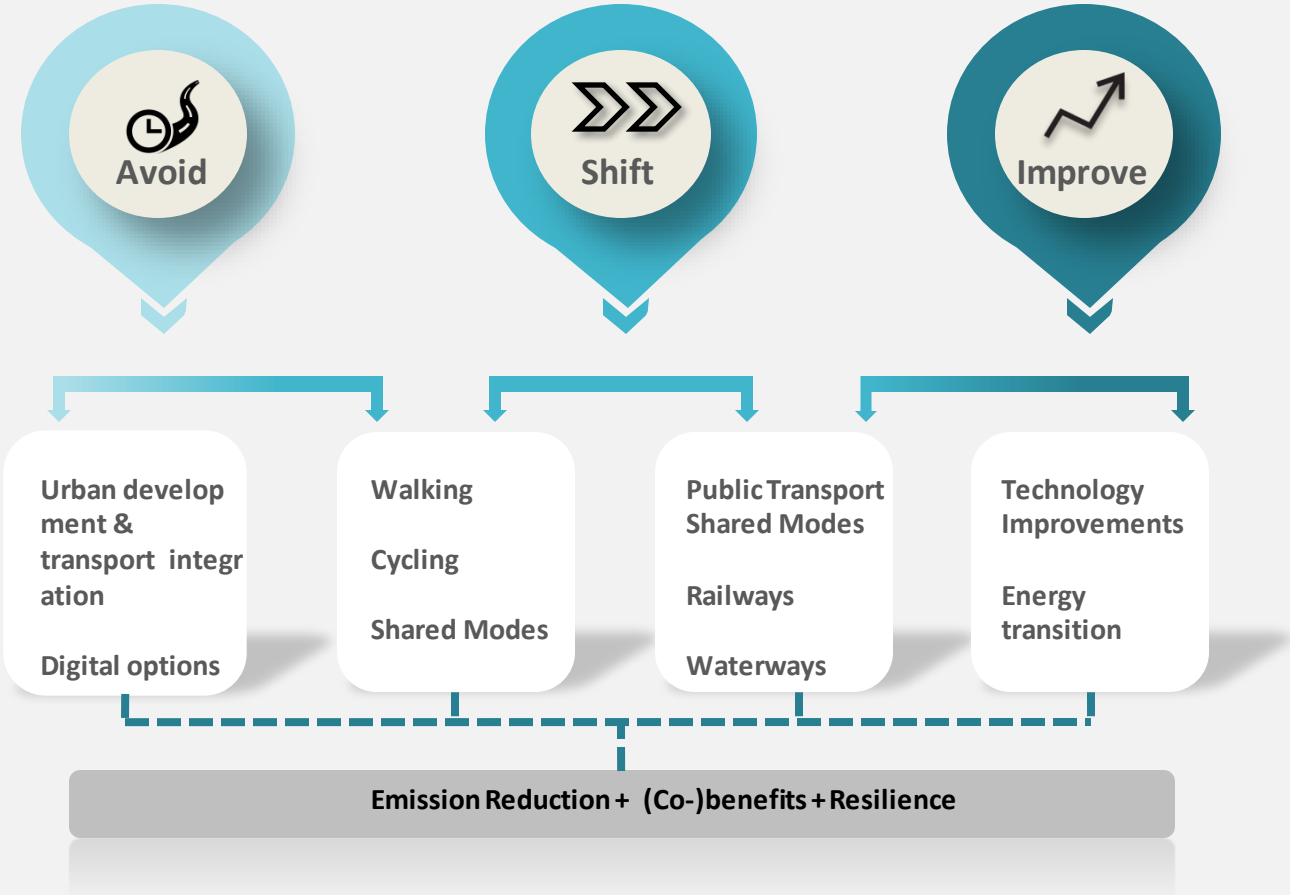


Courtesy:Riber Hansson

Are we going to sacrifice our planet to drive fossil fuel cars?

AVOID-SHIFT-IMPROVE (ASI)

PARADIGM TOWARDS SUSTAINABLE MOBILITY



ADB ASIAN DEVELOPMENT BANK

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

International Organizations

Scenarios/ Analysis

Adaption

ICLEI Local Governments

EASI conceptual framework

ENABLE	AVOID	SHIFT	IMPROVE
Establish an effective and responsible governance system with adequate : • institutions, • human resources, • financing.	Minimize the need for (individual) motorized travel through adequate land-use and transport planning and management.	Increase or maintain shares of more socially & environmentally sustainable modes (public transport, walking, cycling).	Improve the efficiency and safety of transport modes & services while minimizing their environmental footprint.
Governance efficiency	Land use efficiency	Multimodal transport system efficiency	Road space use & vehicle efficiency

SSATP Africa Transport Policy Program

ASI APPLICATIONS

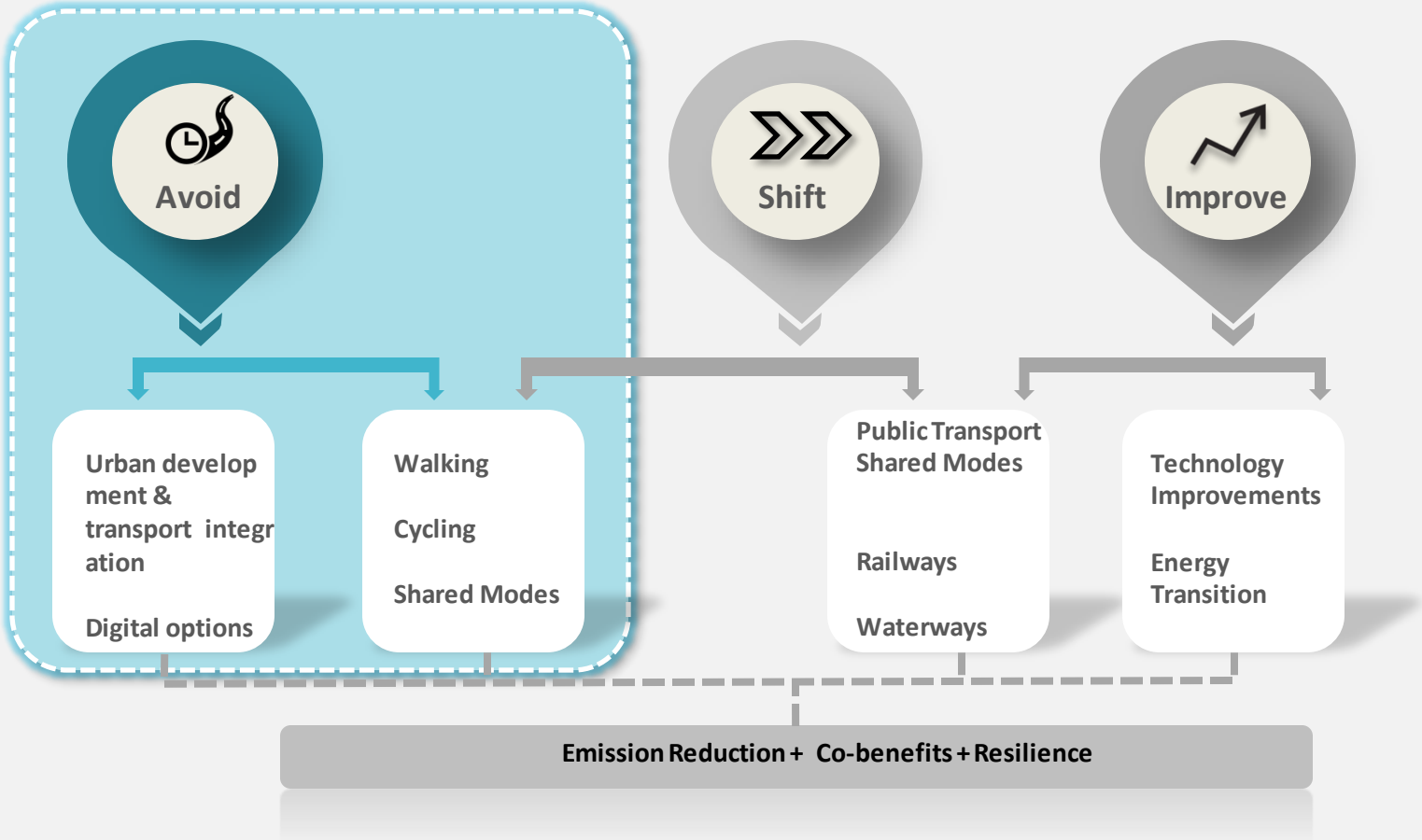
UN Processes

Local or National

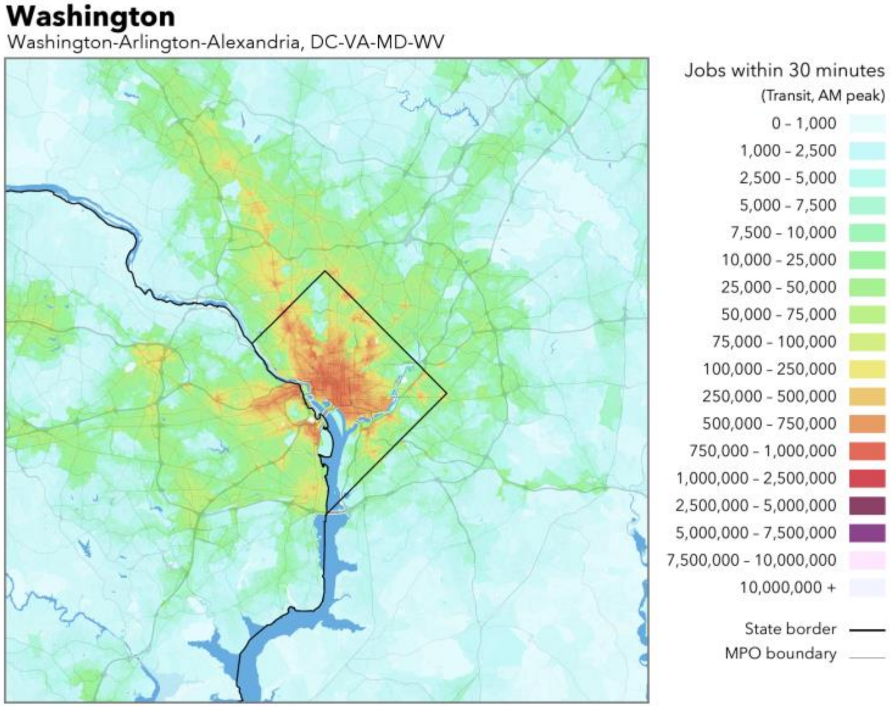
transport-outlook-executive-summary-2021-english.pdf (itf-oecd.org)
ITF Transport Outlook 2021 | ITF Transport Outlook | OECD iLibrary (oecd-ilibrary.org)

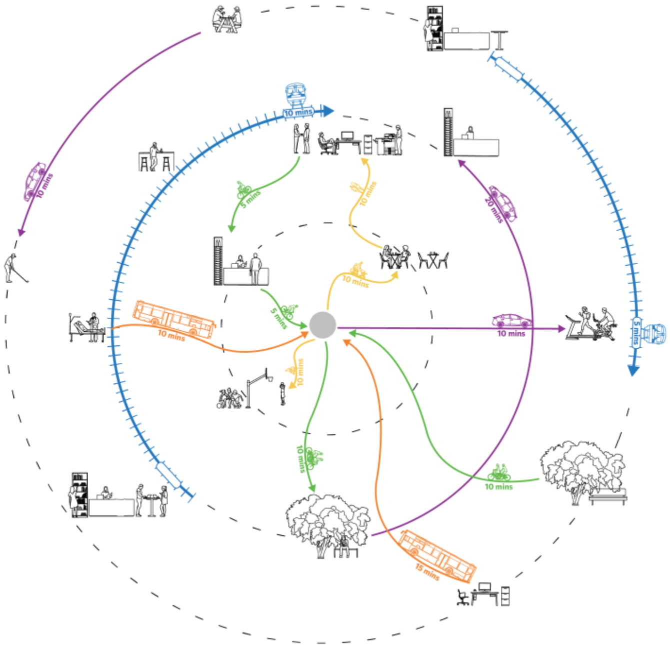
AVOID-SHIFT-IMPROVE (ASI)

PARADIGM TOWARDS SUSTAINABLE MOBILITY



Sustainable Mobility: It is about accessibility/proximity not transport





Transport Access Manual: A Guide for Measuring Connection between People and Places (usyd.edu.au)

Singapore's AVOID STRATEGY : 20 Minute Towns And 45 Minute City

Source: Prime Minister's Office, Singapore (2020)

The need for reallocating space: Abolishing highways:
Cheonggyecheon Stream Restoration Project, Seoul (Korea)

The need for reallocating space: Abolishing highways:

Seoullo, Seoul, South Korea

Source: Dalkmann 2018

Parking Management is Key

Source: http://www.thegherkinlondon.com/#transport

Transit Oriented Development: Curitiba, Brazil

1974

2006

Transit oriented development to integrate land-use and transport

Principles of TOD
High traffic/commuter attractors & generators to be located closest to the transit station. Such as business, commercial, institutional, high density housing
Decreasing density of development moving further away from the station
Strong NMT connectivity and infrastructure to the stations
Seamless interchange between transit modes and corridors
Finance opportunities through Land Value Capture

Source: http://www.compassblueprint.org/node/49

189 housing units

0.2 parking units

Integrated mobility offers: Public transport ticket, Car sharing, bicycle infrastructure (parking, access)

Nordrhein-Westfalen

Gartensiedlung Weißenburg in Münster





Potential in Germany for Densification:

1.5 – 2 Million units

- 20.000 on parking decks
- 560.000 units for extension on existing offices and housing
- 350.000 units through better management of existing empty buildings
- 400.000 units on top of supermarkets

Potential for densification: Extending number of floors

AVOID-SHIFT-IMPROVE (ASI)

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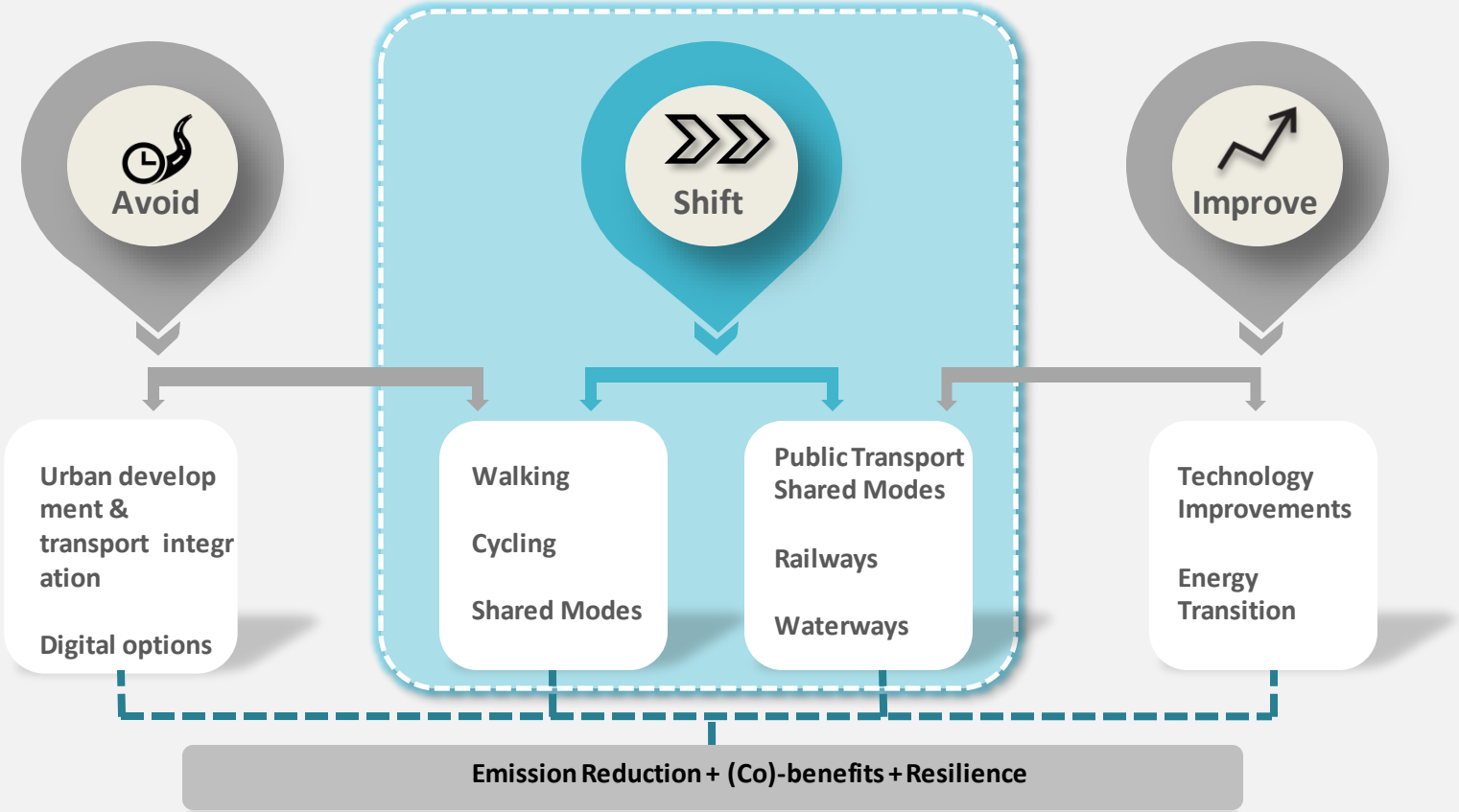
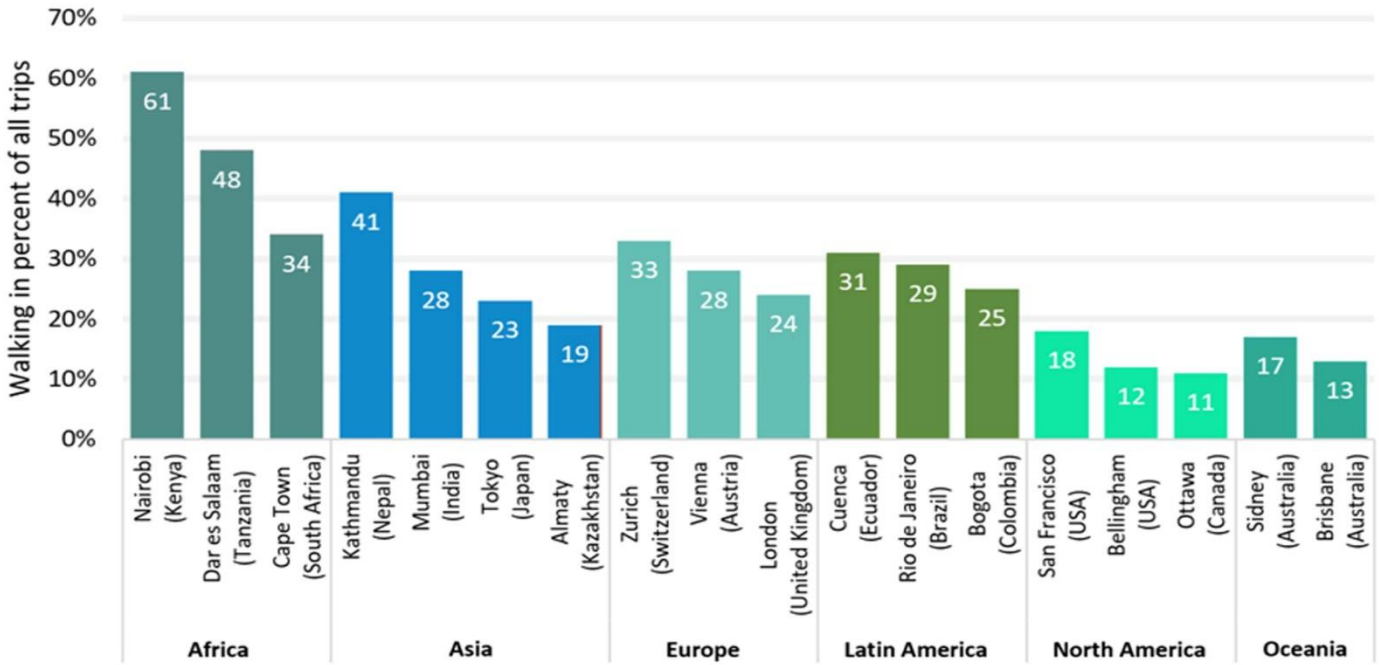


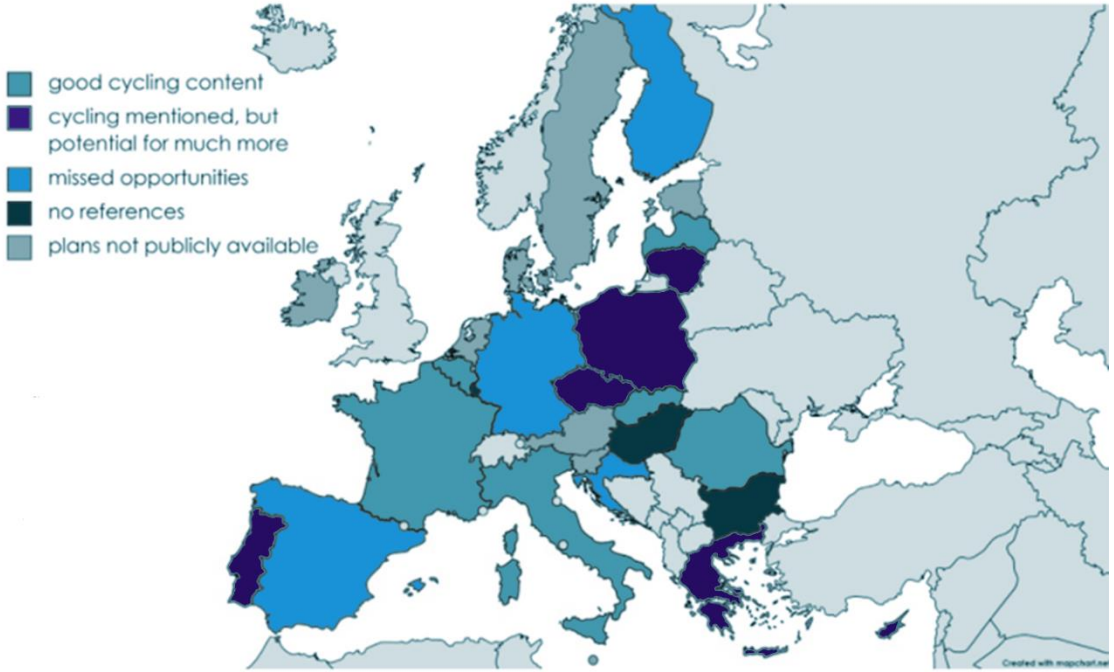
The Future Of Walking



Walking share highest in dense cities and developing countries
Walking level in North America on a very low level

Source: SLOCAT 2020

1.3 bn EUR had been committed to cycling in the Post Pandemic Recovery in half of the EU member states



- Source: ECF 2021, https://ecf.com/news-and-events/news/eu-member-states-are-neglecting-cycling-post-pandemic-recovery-plans

European Cycling enhanced in times of the Pandemic

CYCLING BEYOND THE CRISIS

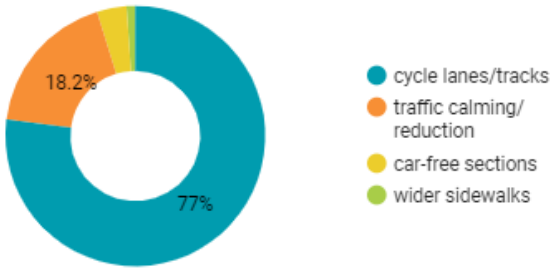
COVID-19 measures tracker v1.1

ECF
EUROPEAN CYCLISTS' FEDERATION

KEY NUMBERS (change in last 30 days)

Total KM of measures announced	Total KM of measures implemented	Total budget allocated for cycling promotion
2,591.84	1,464.88	1,695,742,723 €
0	0	0 €

Infrastructural measures breakdown



43 **out of 94 biggest EU cities** announced or implemented COVID cycling measures

Source: ECF 2021, https://ecf.com/dashboard

COVID responses on cycling:
Bogota accelerating the Master Plan – Bangalore piloting new routes

BangaloreMirror
Fri ,Jun 26, 2020 MUMBAI MIRROR | AHMEDABAD MIRROR | PUNE MIRROR

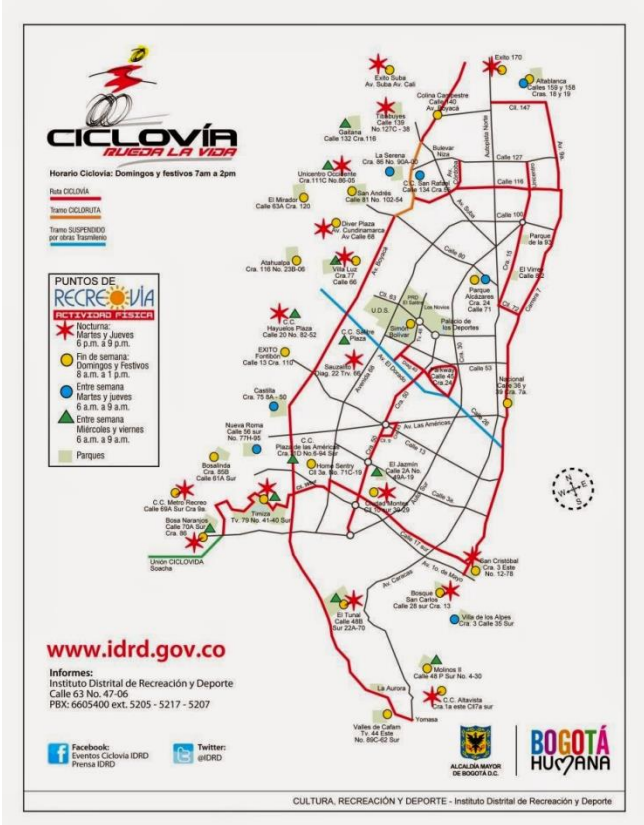
Pop-up cycle lanes on ORR?

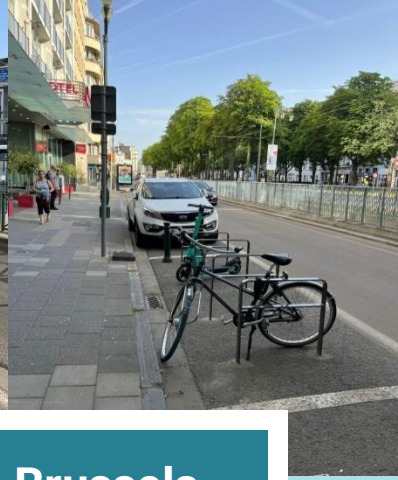
By Naveen Menezes / Updated: May 29, 2020, 06:11 IST

BBMP has partially completed placing plastic bollards for creating a dedicated bus lane but the project is far from complete

DULT studying the proposal; officials inspect busy stretch to understand feasibility of the project

The Directorate of Urban Land Transport (DULT), which reports to the Urban Development Department of the State Government, is examining the possibility of creating pop-up cycle lane along the Outer Ring Road (ORR) between Central Silk Board and KR Puram. The proposal comes at a time when numerous cities across the globe are setting up temporary cycle lanes to help people get around during the pandemic.





▲ Open one way street

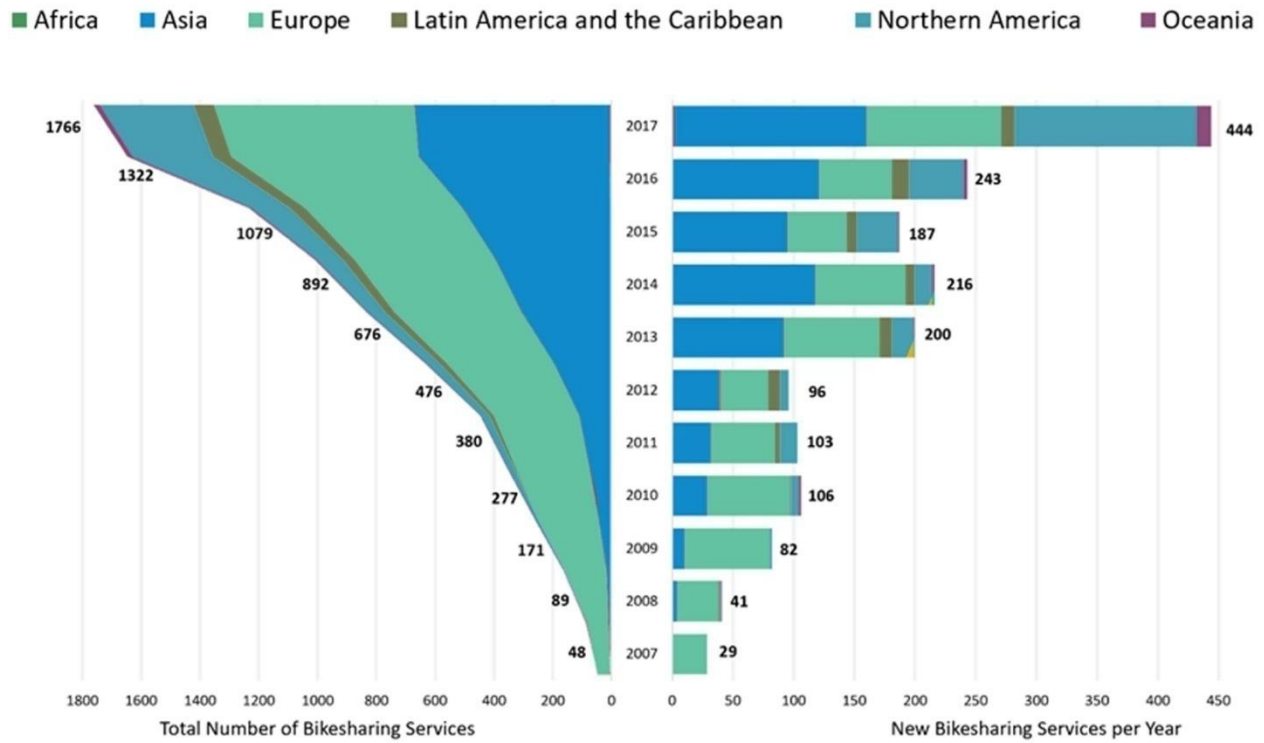
▲ Bicycle Highways

▼ Integration with Public Transport

Success Factors cycling in Brussels

◀ Closing car lanes

Bike Sharing as a growing feature of urban mobility (2019)

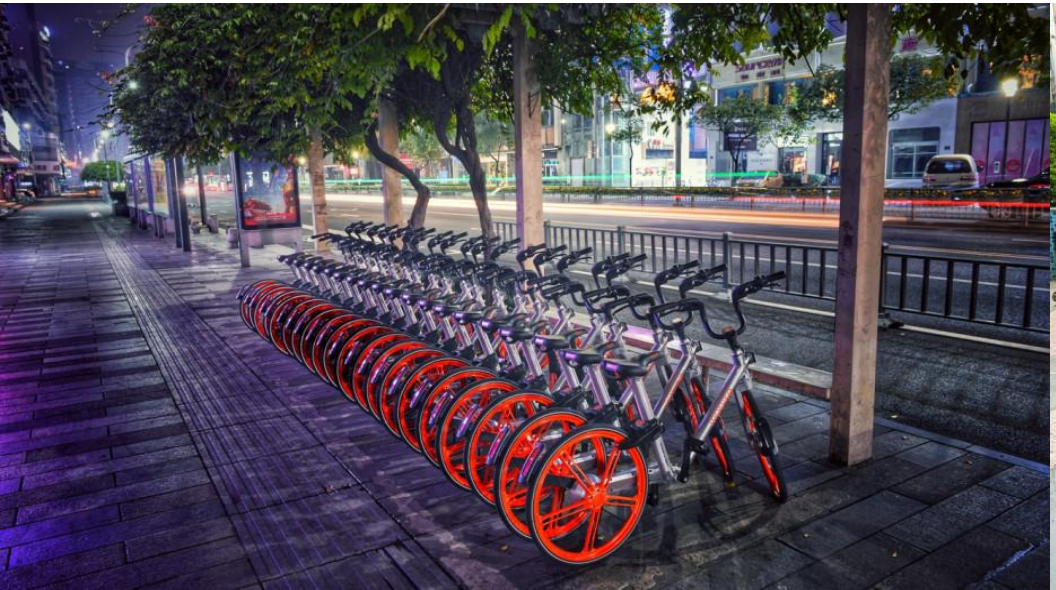


Source: SLOCAT 2020

New Mobility - Heaven or hell?

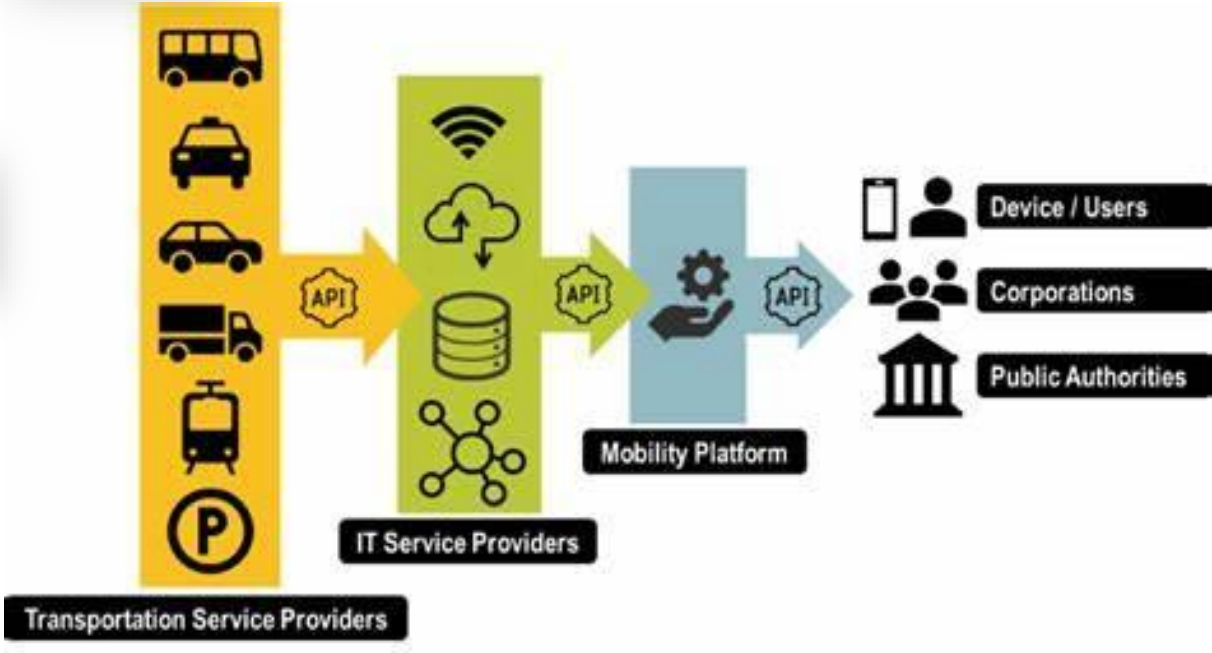
Lessons learned: Geo fencing, Pricing policy, local regulation, early communication with local authority

Integration into local transport system

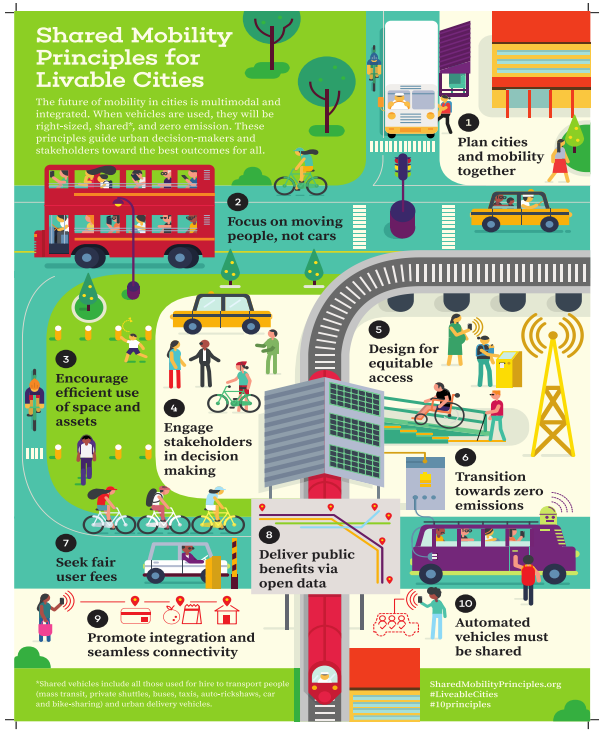


Digital Mobility as a Service | The Geography of Transport Systems (transportgeography.org)
Jelbi errichtet fünften Hub Ullsteinhaus Berlin | eMobilität Blog (emobilitaetblog.de)
Trafi Vilnius - Navigate Public Transit

Shared Mobility – towards Mobility as a Service (MaaS)



The future of transport: shared, electric and automated: Shared Mobility Principles for Liveable Cities



Source: https://www.sharedmobilityprinciples.org/

Graz districts supplied by GLS Austria using e-bikes as an important step towards sustainable city logistics

The Need For Solutions In Urban Freight

Cargo bikes: Partnership with Companies (Avocargo in Berlin)

OBI

OBI will cover 1 hour of your Avocargo trip

BIO COMPANY

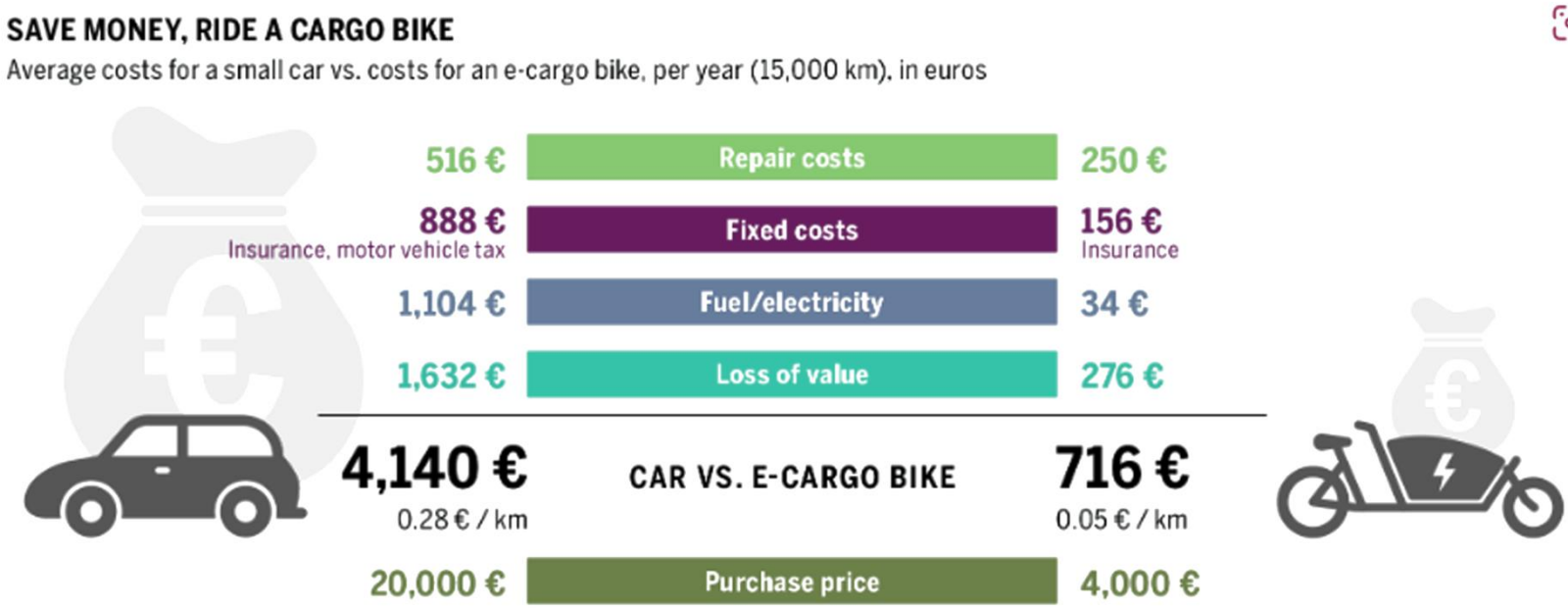
BIOCOMPANY will cover 45 minutes of your Avacargo trip

GALERIA

GALERIA will cover 1 hour of your Avacargo trip

Top picture here: Avocargo I Electric Cargo Bike Sharing I Berlin
Others here: Partnership | Avocargo
Parking here 7560068252_44bde04be7_b.jpg (1024×750) (staticflickr.com)

Cargo bikes as an option for urban mobility



Source: ECF 2021, https://ecf.com/news-and-events/news/eu-member-states-are-neglecting-cycling-post-pandemic-recovery-plans
Cargo Bikes: Sustainable and Resilient Transport | Heinrich Böll Stiftung | Brussels office - European Union (boell.org)

AVOID-SHIFT-IMPROVE (ASI)

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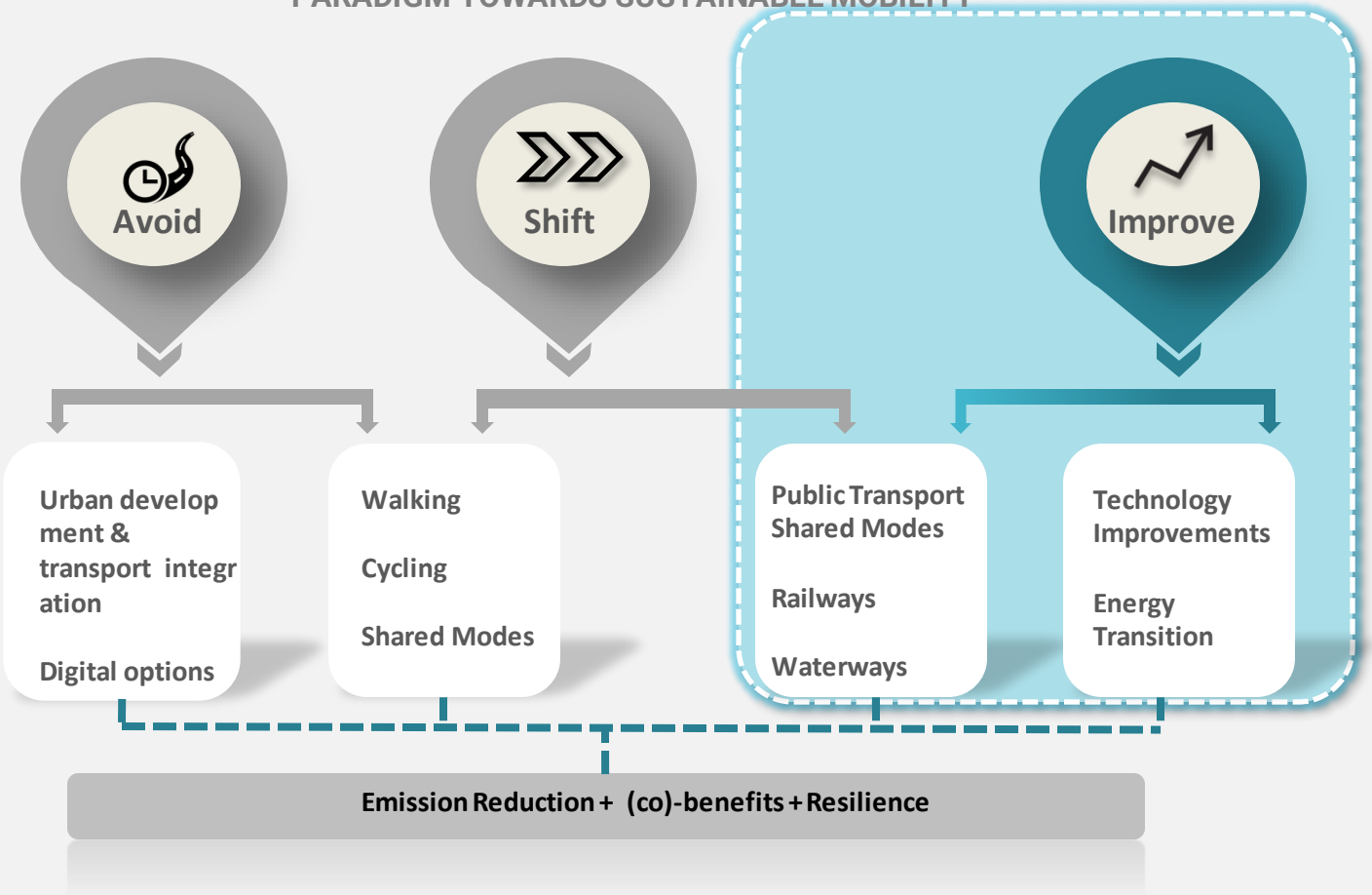


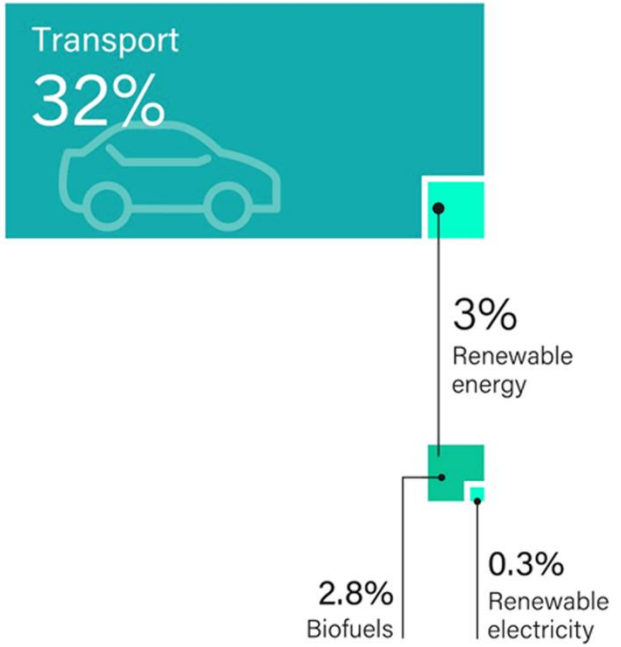
Transport and Renewable Energy

Transport is responsible for 32% of total final energy consumption, but renewable energy in transport accounts for only 3.1%

90% provided by liquid biofuels

Use of biogas is very limited

Electrification of transport is rising, but it will only have climate benefits if the power comes from renewables



Source: REN21, Renewables 2018 Global Status Report)

Renewable Energy and E-mobility: Battery swapping in Taiwan

Gogoro Opens in Taichung, Taiwan – Gogoro

Solar Power is Charging Batteries – Gogoro

MISSION 2050:
ZERO EMISSIONS

To drive the logistics industry toward a sustainable future, we are aiming for zero emissions by 2050. We want to achieve this for and together with our customers.

GOGREEN

Deutsche Post DHL Group

OUR MISSION

The world community has set a goal to limit global warming to less than two degrees Celsius. As the leading mail and logistics company, we intend to make our business sustainable. **Our goal is to reach zero emissions by 2050.**

Our green logistics expertise and the innovative ideas of our 510,000 employees around the world will help turn this bold vision into reality. As we continue to expand the use of e-mobility and green delivery solutions in our operations, we are also driving the innovation of environmentally friendly technologies and fuels, such as biofuels for aviation. Together with partners, we are engaged in the research and development of logistics solutions that are environmentally friendly and conserve resources. And when the market can't come up with the solutions, we're taking the initiative ourselves.

Germany Company DHL set 2050 goal: Zero Carbon

Interim goals 2025:

Increase the carbon efficiency by 50% compared to the 2007 baseline.

Operate 70% of its own first and last mile services with clean delivery solutions e.g. by bike and electric vehicle.

More than 50% of sales will incorporate Green Solutions.

Train and certify 80% of its employees as GoGreen specialists by 2025,

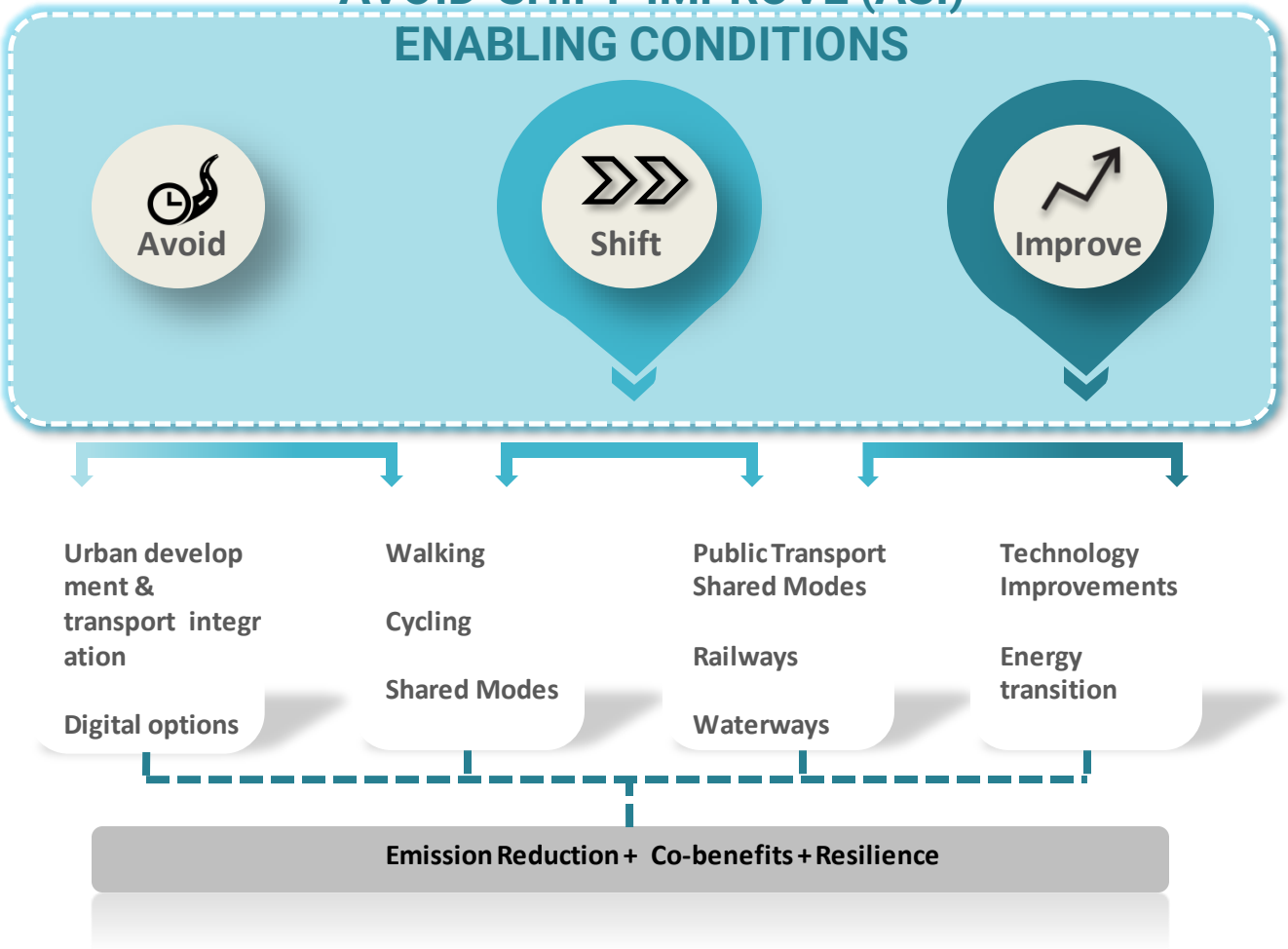
Join with partners to plant one million trees every year.

Source: DHL, Agora Verkehrswende

E-Scooter – delivery vehicle produced by DHL

Source: DW

AVOID-SHIFT-IMPROVE (ASI)



Integration mobility and planning + horizontal and vertical integration

Capacity Building

Financing

Institutional Set-Up

National (Urban) Mobility Policy + NDC

Sustainable Urban Mobility Plans + Metropolitan Governance + Resilience

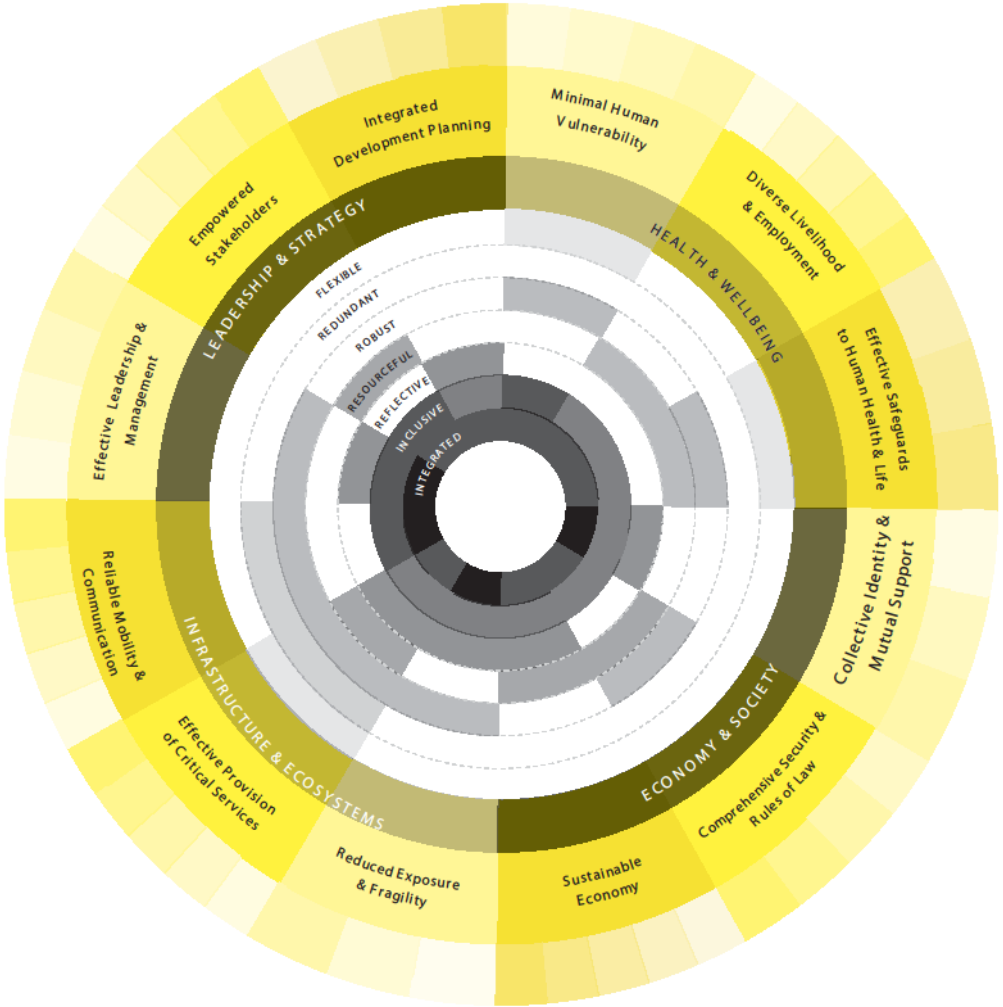
TOD+MRT&BRT+Bus+ Feeder/Shared Mobility

Safe and accessible neighborhoods + new mobility solution

Complete Streets + Walking and Cycling + Parking Policies

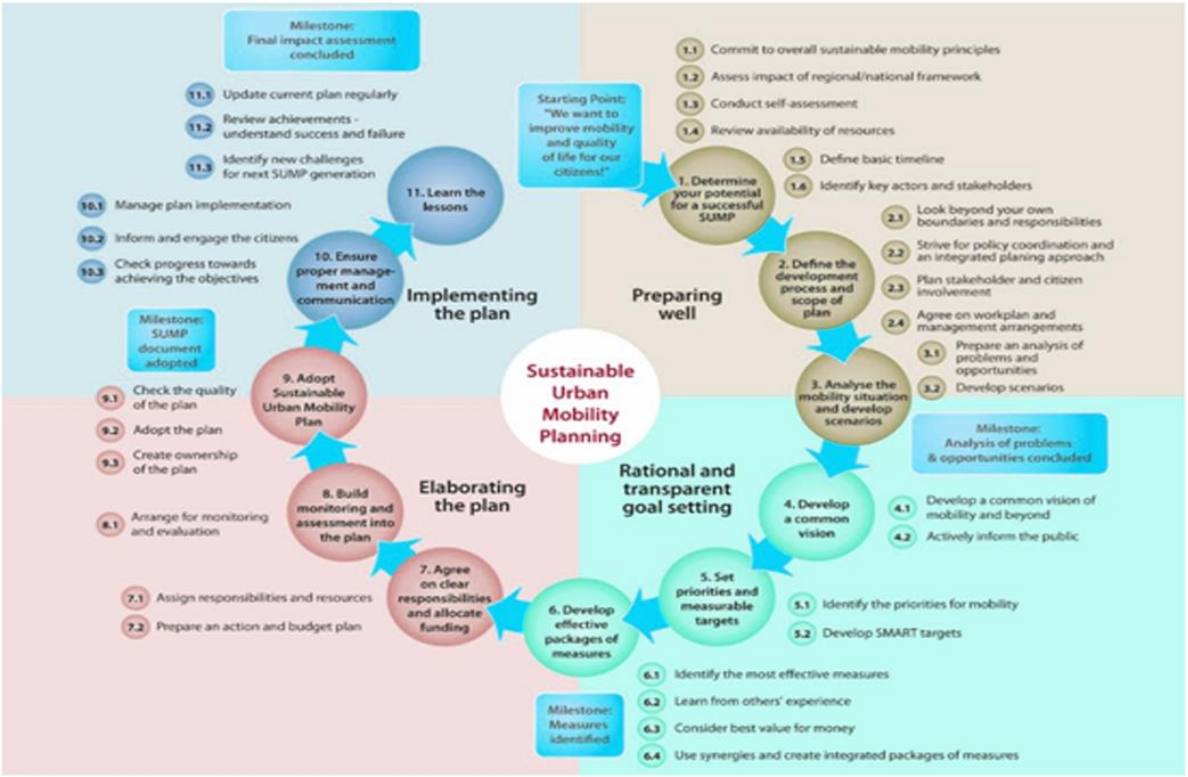
Resilience as a cross-cutting issue
Resilience City Index

- **Robustness** to withstand hazard events, with historic and real time data used to forecast and mitigate potential challenges.
- **Redundancy** with spare capacity to accommodate disruption and potential alternate routes.
- **Flexibility** to facilitate systems to change evolve and adapt to dynamic circumstances.
- **Responsiveness** to support data exchange allowing commuters to make informed decisions
- **Coordination** of systems to facilitate consistent decision making aligned to the desired outcomes



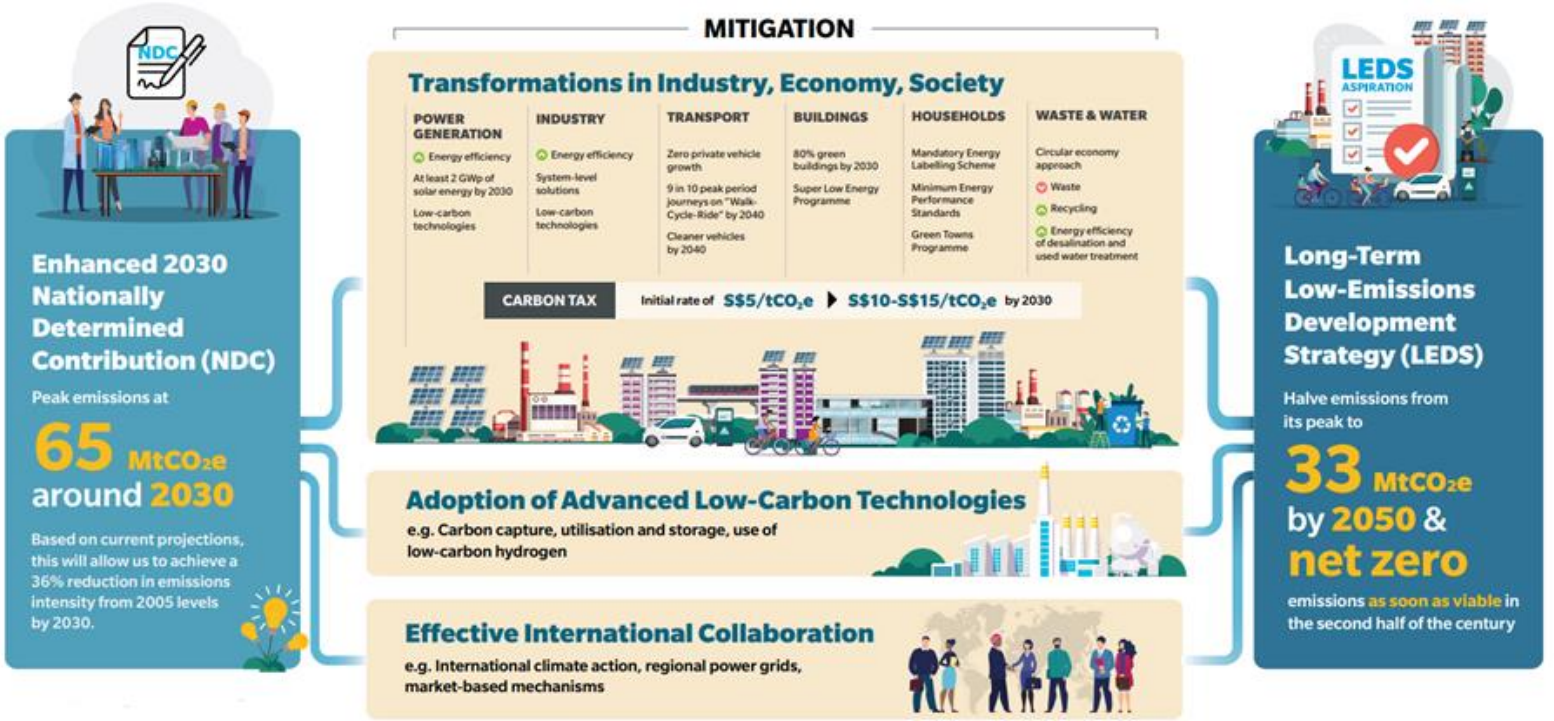
Sustainable Urban Mobility Planning

European Union



Brazil

Integrated Vision: Long term Strategy Singapore



Source: Prime Minister's Office, Singapore (2020)

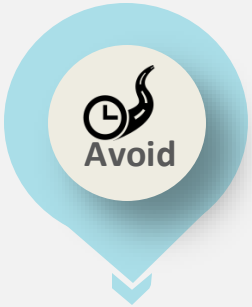
ENABLING AVOID-SHIFT-IMPROVE (ASI) PARADIGM TOWARDS SUSTAINABLE MOBILITY

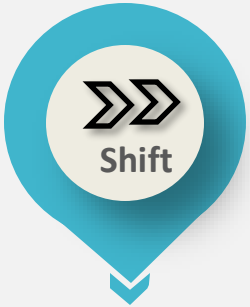
National Urban Mobility Policy + SUMP

Finance: From brown to green infrastructure &services

Private Sector commitment and action

Technology acceleration & Energy transition





Urban development & transport integration

Digital options

Walking

Cycling

Shared Modes

Public Transport Shared Modes

Railways

Waterways

Technology Improvements

Energy Transition

Ensuring equality & public involvement

Improve data collection & analysis & application

Green jobs and manufacturing

Towards a city for all –
Principles for better mobility and urban development

Public transit as a backbone for structuring urban growth

Street connectivity to facilitate walking and cycling

Complete streets to balance road space allocation to cater to all users

Compact regions to discourage urban sprawl

Mixed uses to reduce trips and trip lengths

Mixed incomes to cater to ensure affordability and equity

Transportation demand management including pricing

Urban Design for place making

Thank you for your attention!

VIVRE EN VILLE

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