

Smart Mobility Session

17 November, 2023



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Smart City Institute



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STIB-MIVB



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Ngage Consulting ;
MaaS Program Manager
STIB-MIVB

17th November 2023

SMART MOBILITY

TO SUPPORT TERRITORIES

Audrey Lebas



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CHALLENGES

|

DEFINITION AND TRENDS

ELECTRIFICATION, SHARING, CONNECTIVITY, AUTOMATION

|

INTERMODALITY & MULTIMODALITY

DEFINITION, DIGITAL INTEGRATION, PHYSICAL INTEGRATION

|

GOVERNANCE OF MOBILITY

|

CASE STUDIES

LIEGE (CITY OF LIÈGE), BRUSSELS CAPITAL REGION (NGAGE)

|

CONCLUSION & TIPS





|

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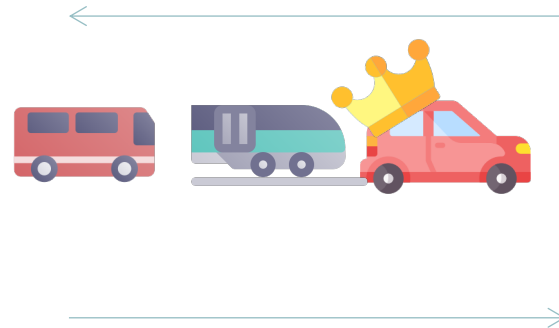
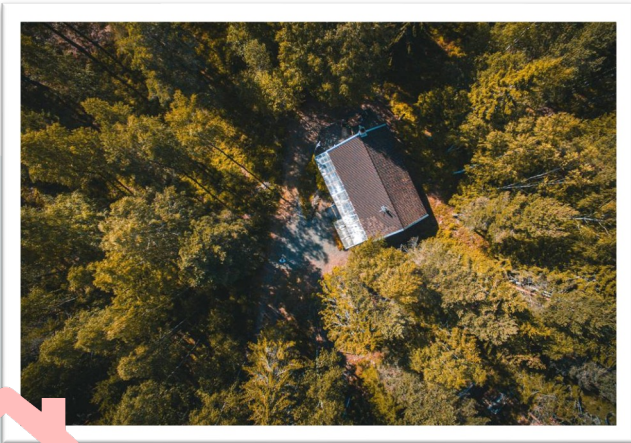
LIEGE (CITY OF LIÈGE), BRUSSELS CAPITAL REGION (NGAGE)

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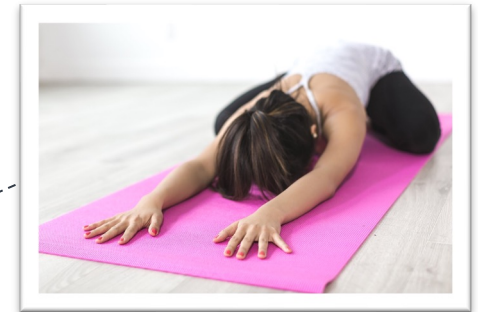
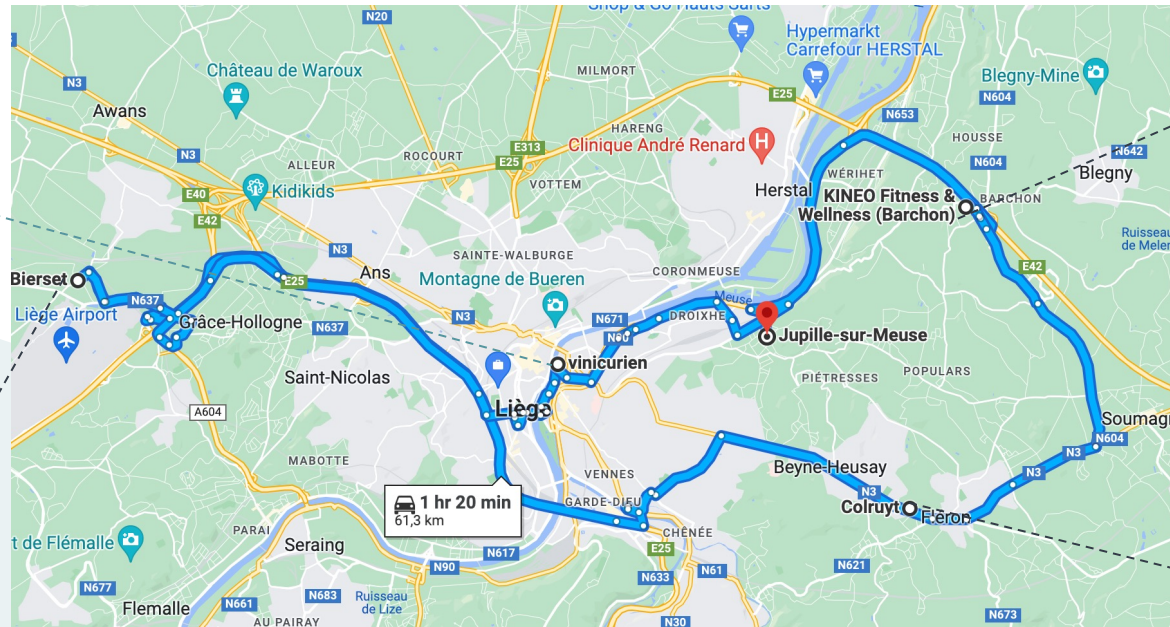
CONCLUSION & TIPS



MOBILITY : A CHANCE...



MOBILITY: A CHANCE

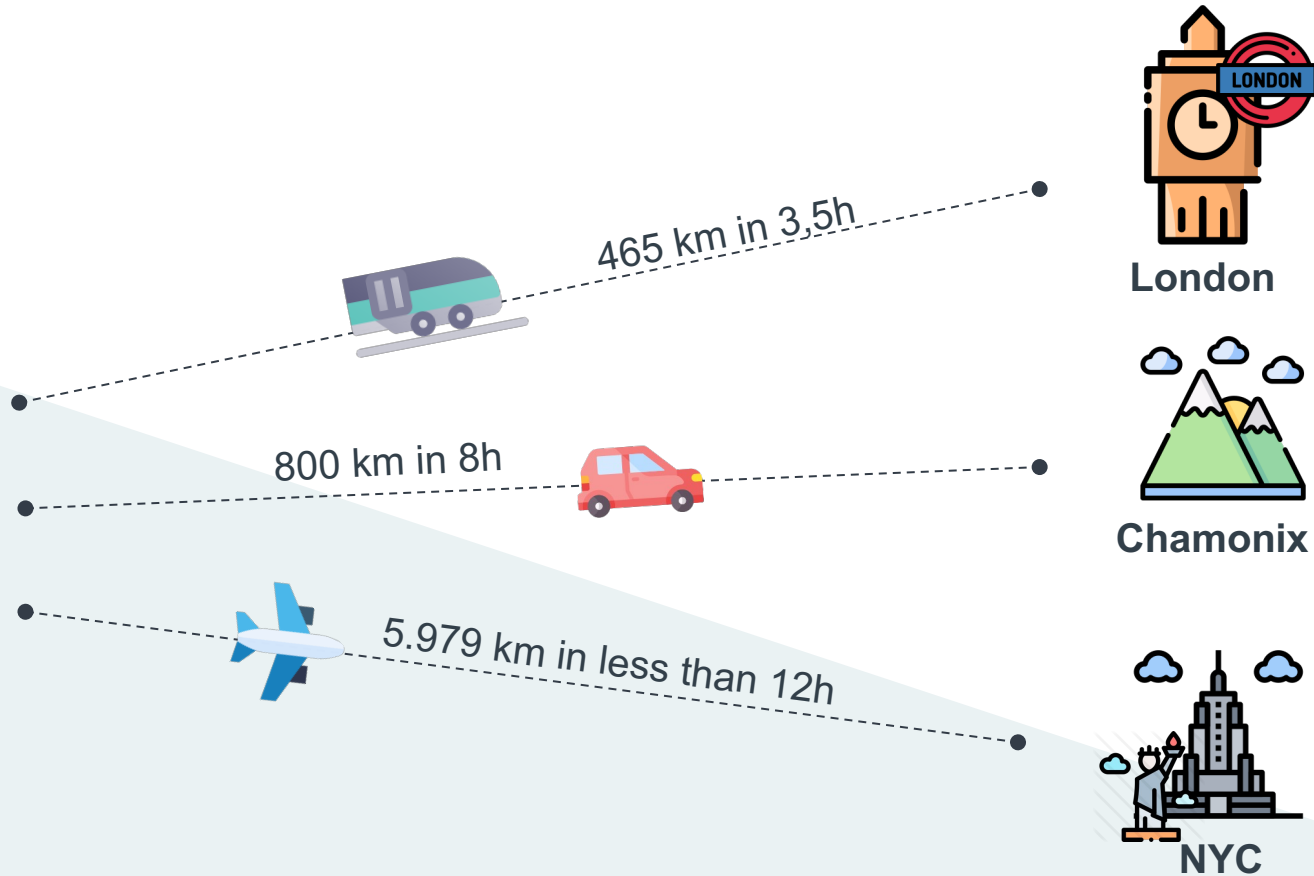


MOBILITY: A CHANCE



Liège

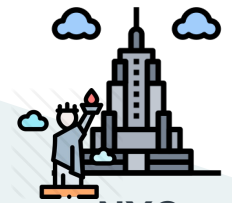
Une ville, un esprit.



London

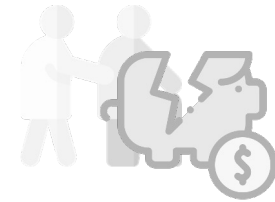
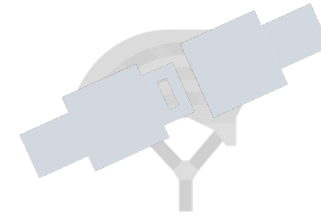


Chamonix



NYC

... WITH AN IMPACT



1/4

of green house gases
come from the
transport sector
(people and goods)

+2,8%
by 2040*

following current policy (in
Belgium)

-60%
by 2050**

to respect the Paris
agreement

* In comparison with 2015 levels
** in comparison with 1990 levels

... WITH AN IMPACT



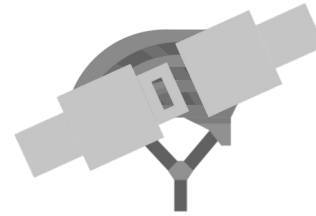
€147 bi.

The extended mobility and transport industry in Belgium



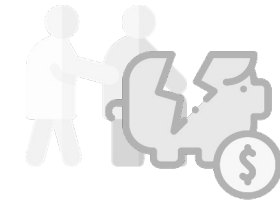
€4,8 bi.

Total cost related to traffic jams

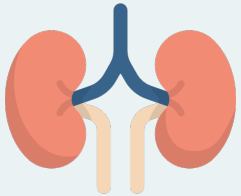
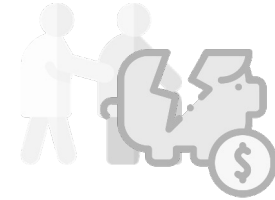
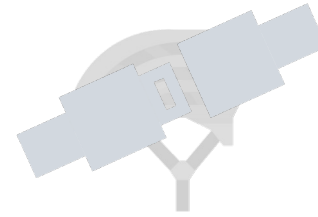


1 week 

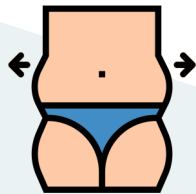
Work time lost annually by Belgians due to traffic jams



... WITH AN IMPACT



Respiratory and cardiovascular diseases



Obesity

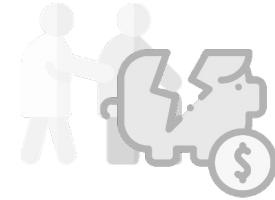
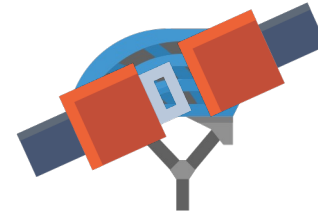


Stress, depression and accidents



Irritability, insomnia, et heart issues

... WITH AN IMPACT



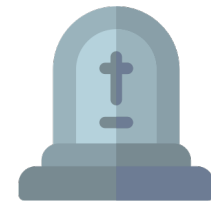
37.643

Traffic accidents in 2022 (+9%)



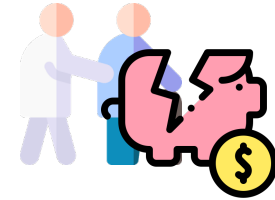
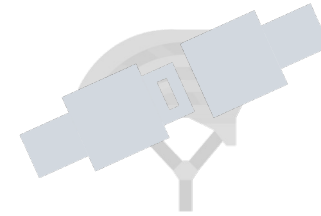
84.785 involved...
42.1134 slightly injured
3400 seriously injured..

.. and 540 deaths

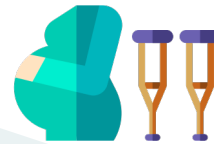


216 cars drivers (40%), 102 cyclists (19%)

... WITH AN IMPACT



Car dependence
for suburban and
rural areas

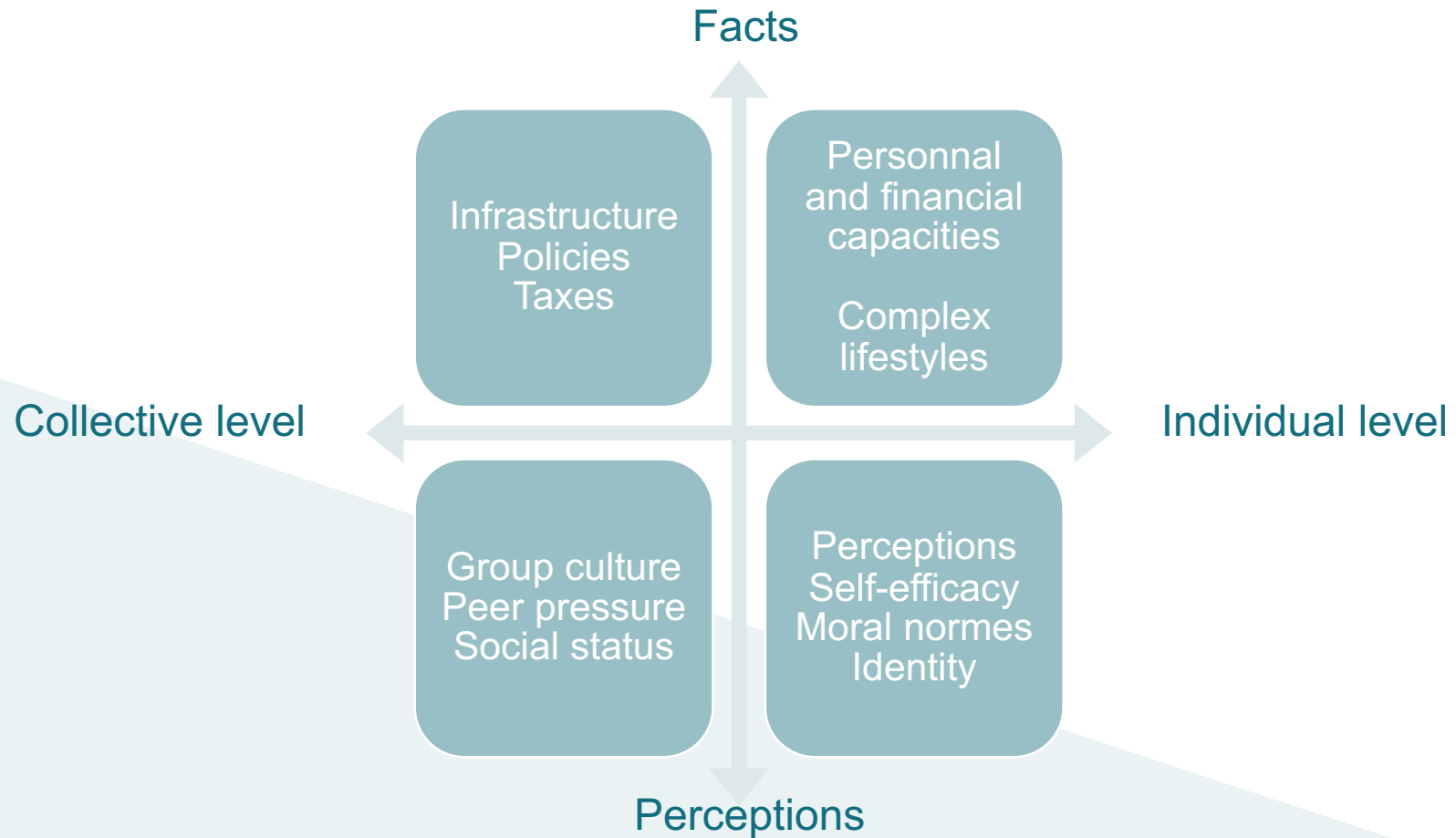


PMR access

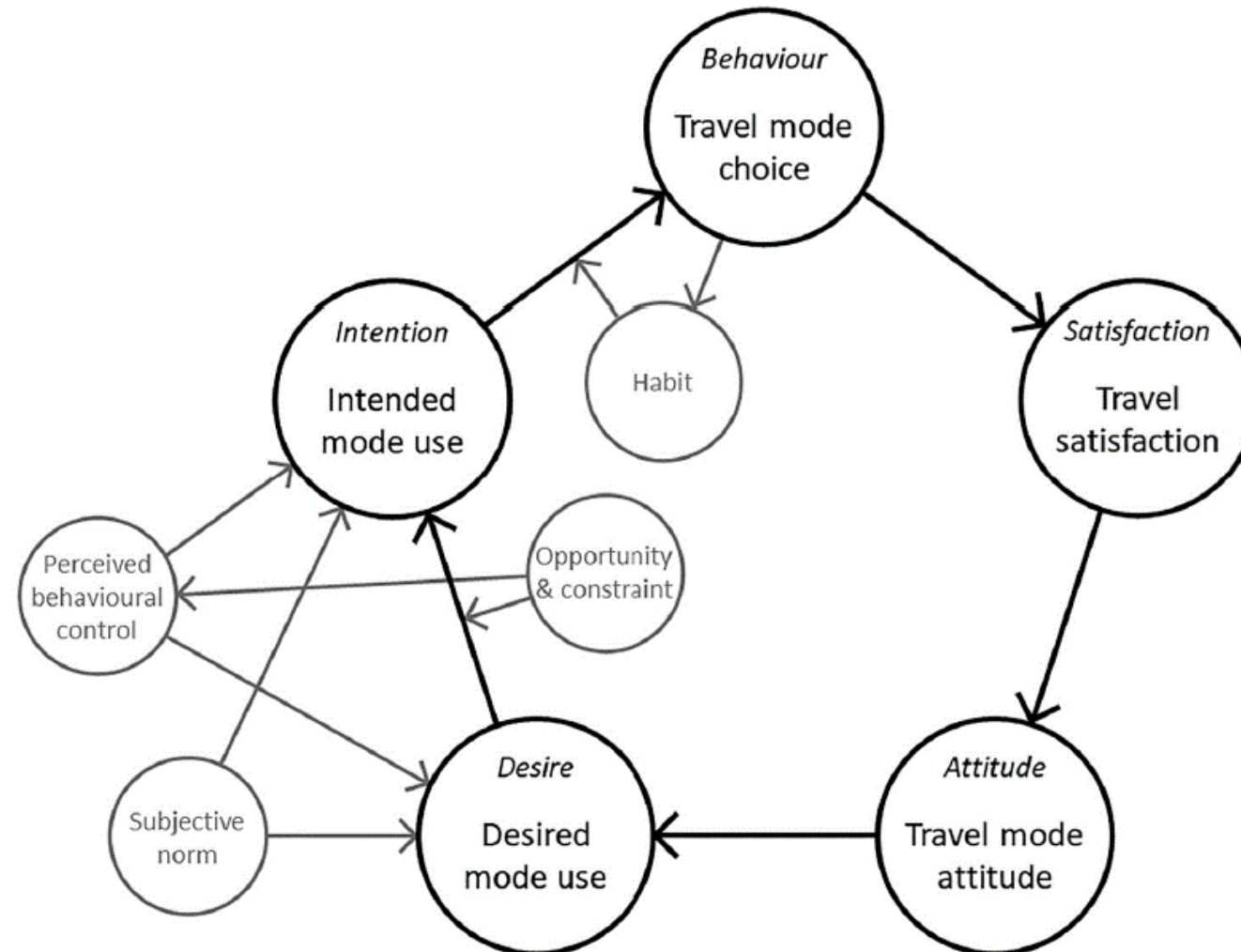


Individual abilities

BARRIERS TO THE CHANGE OF MOBILITY BEHAVIOURS



BARRIERS TO THE CHANGE OF MOBILITY BEHAVIOURS



SMART MOBILITY



A new paradigm to overcome those barriers?



CHALLENGES

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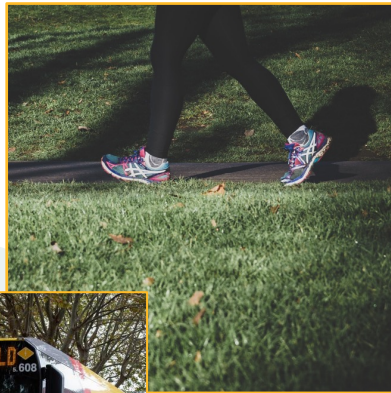
CASE STUDIES

LIEGE (CITY OF LIÈGE), BRUSSELS CAPITAL REGION (NGAGE)

CONCLUSION & TIPS



SMART MOBILITY: DEFINITION



#1



#2



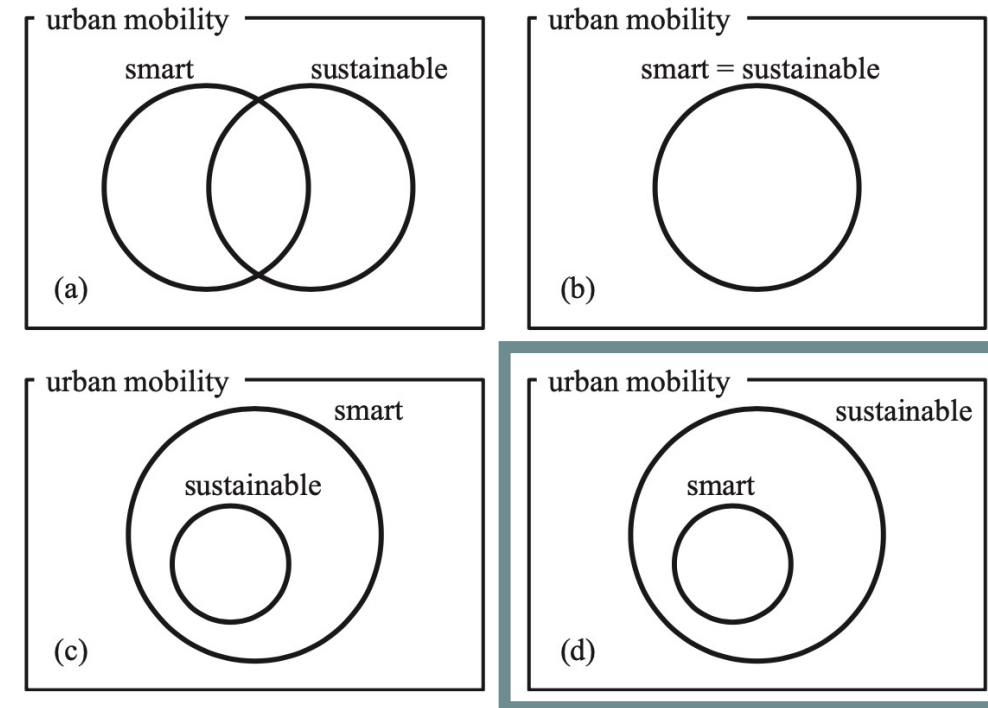
#3



SMART MOBILITY: DEFINITION

Smart mobility is a broad concept which facilitates to achieve a sustainable development **by optimising transport services**, taking into account technological, societal, economic and environmental challenges (Zawieska & Pieriegud, 2018)

Smart Mobility brings together all the solutions aimed at **optimising the use of infrastructure, vehicles and equipment** to facilitate the mobility of people and goods (European Commission, 2011)



Alternative Venn diagrams of urban mobility
Source: Lyons (2018).

SMART MOBILITY: DEFINITION



#1



#2



#3



SMART MOBILITY: DEFINITION



4 INNOVATION TRENDS IN SMART MOBILITY



#1
Electrification



#2
Sharing



#3
Connectivity

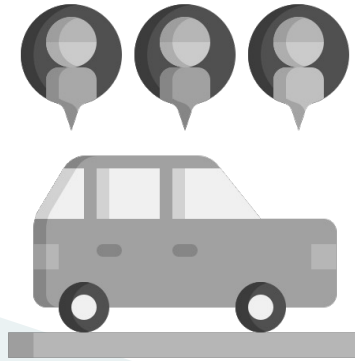


#4
Automation

4 INNOVATION TRENDS IN SMART MOBILITY



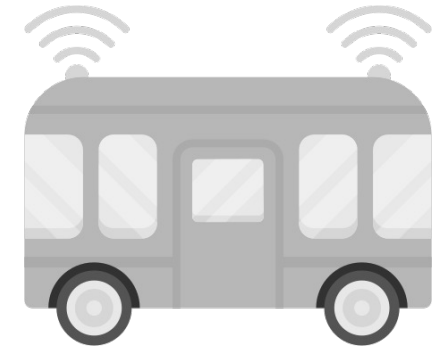
#1
Electrification



#2
Sharing



#3
Connectivity



#4
Automation

#1 ELECTRIC MOBILITY

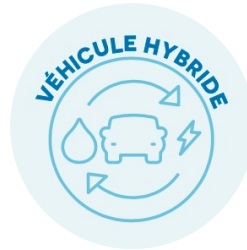
Use of modes of passenger or goods transport using vehicles powered exclusively or partially by an electric energy source (French Ministry of Culture, n.d)

- Cars
- Electric bikes (from city bikes, recumbent bikes, pedelecs to cargo bikes or carrier cycles)
- Electric and hybrid trucks
- Electric and hybrid buses
- Wheels: electric mopeds and motorcycles (two or three wheels), e-scooters, Segways, hoverboards, mobility scooters, one-wheelers
- Etc.

#1 ELECTRIC MOBILITY



Internal
Combustion
Engine



Hybrid
Engine



Plug-in
Hybrid
engine



Electric
Engine



#1 ELECTRIC MOBILITY

NOT A 21ST CENTURY INNOVATION

1834: first electric motor
(Thomas Davenport)



1884-84: electric car (Thomas Parker)

50km/h max

Early 1890s: 38% of all circulating vehicles

Reduced noise, simplicity of use, and improved comfort.

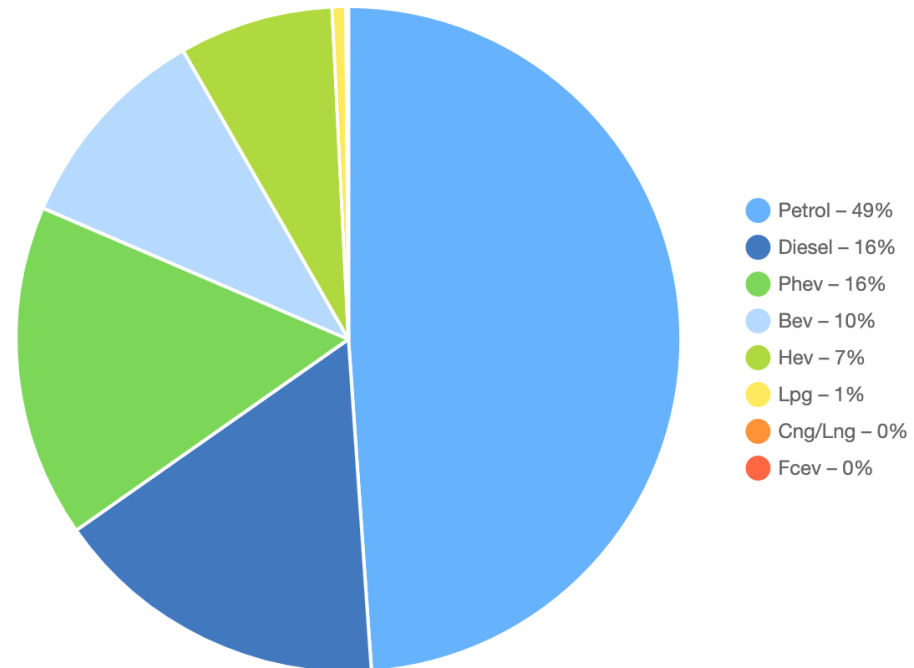
1915 : the Autoped



#1 ELECTRIC MOBILITY

CARS IN BELGIUM

2022 Registrations by type of fuel



#1 ELECTRIC MOBILITY

CARS IN BELGIUM



S Voitures électriques : le volume dérisoire des ventes aux particuliers

Par **Benoît July**

Le Soir, 17th November 2023

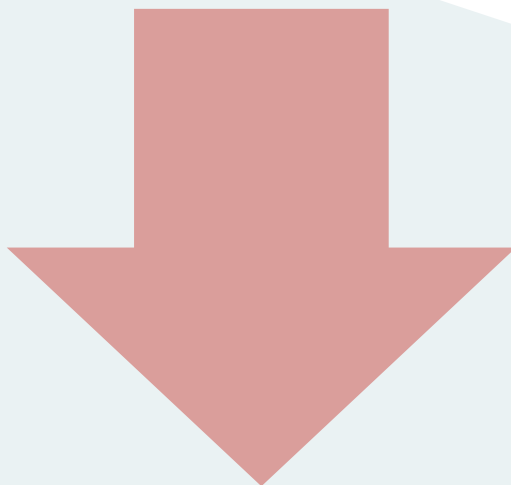
Less 2% of cars sold to individuals between January and September 2023 were electric (5.857/ 374.848 registered cars)

- Important role for company cars
- Price -- 4 % of those 2% (249 cars) are for a « cheap » model (as of 20.990 euros).
- Reluctance to electric mode (range anxiety, “nostalgia”) → see graph

#1 ELECTRIC MOBILITY



- Car, public transports, trucks: No CO₂ while driving
- Stimulates the use of soft and active mobility solutions (bikes, scooters) → modal transfer
- Social
 - Electricity cheaper than diesel and petrol
 - Lower cost of maintenance

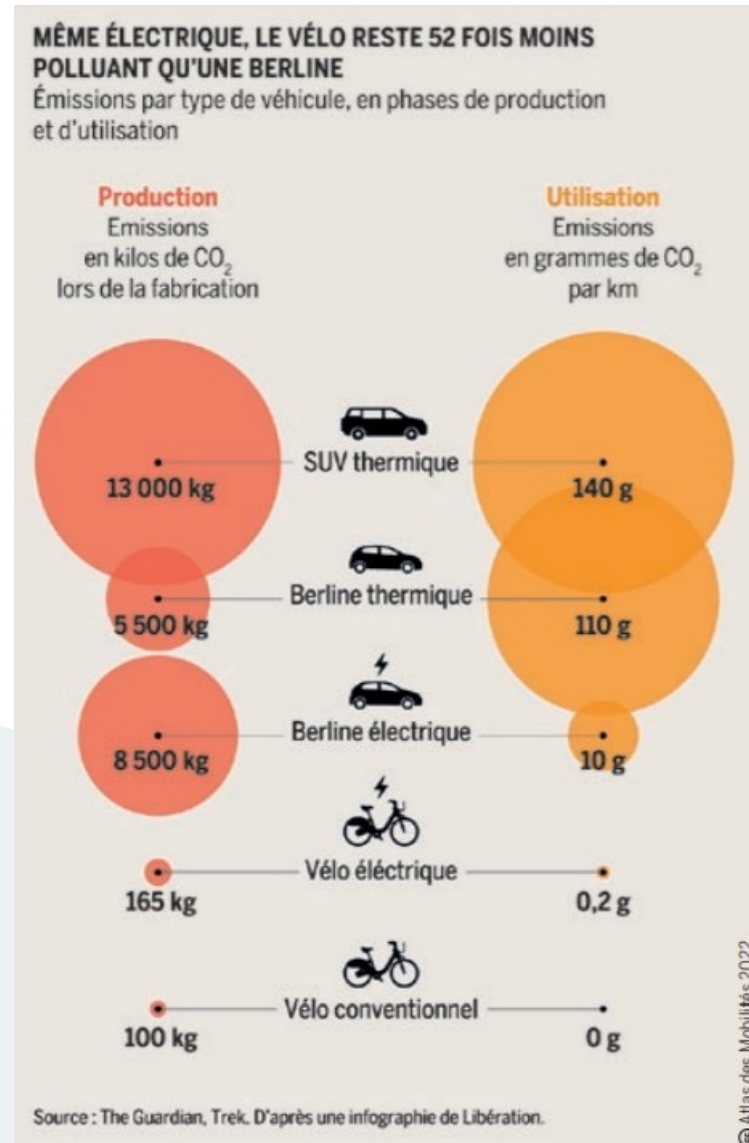


- Not carbon neutral
 - car and battery production
 - electricity production
- Geopolitical implications
- Electric cars do not solve traffic issues
- Can only happen if infrastructure follows

#1 ELECTRIC MOBILITY



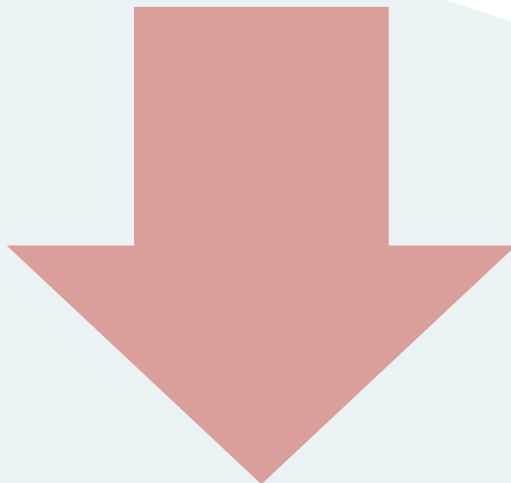
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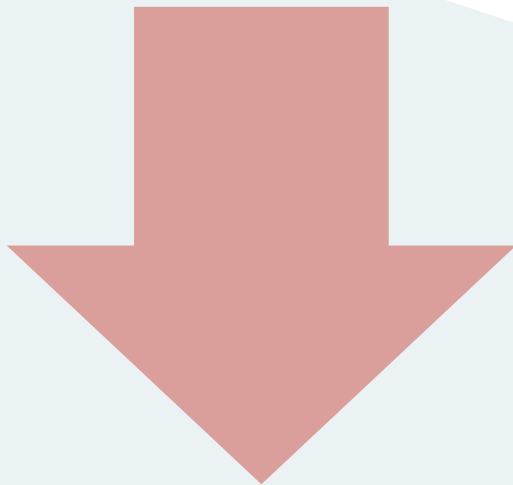


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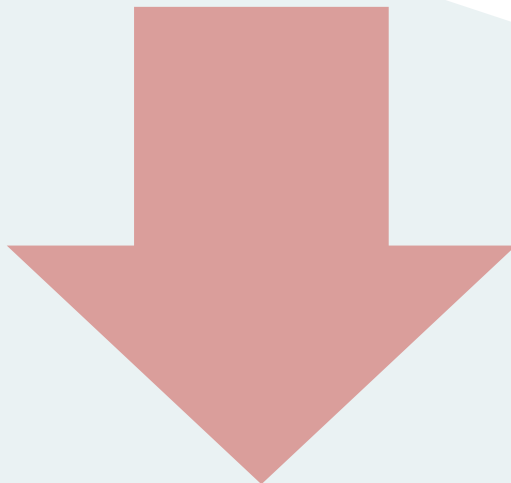


Source: twitter

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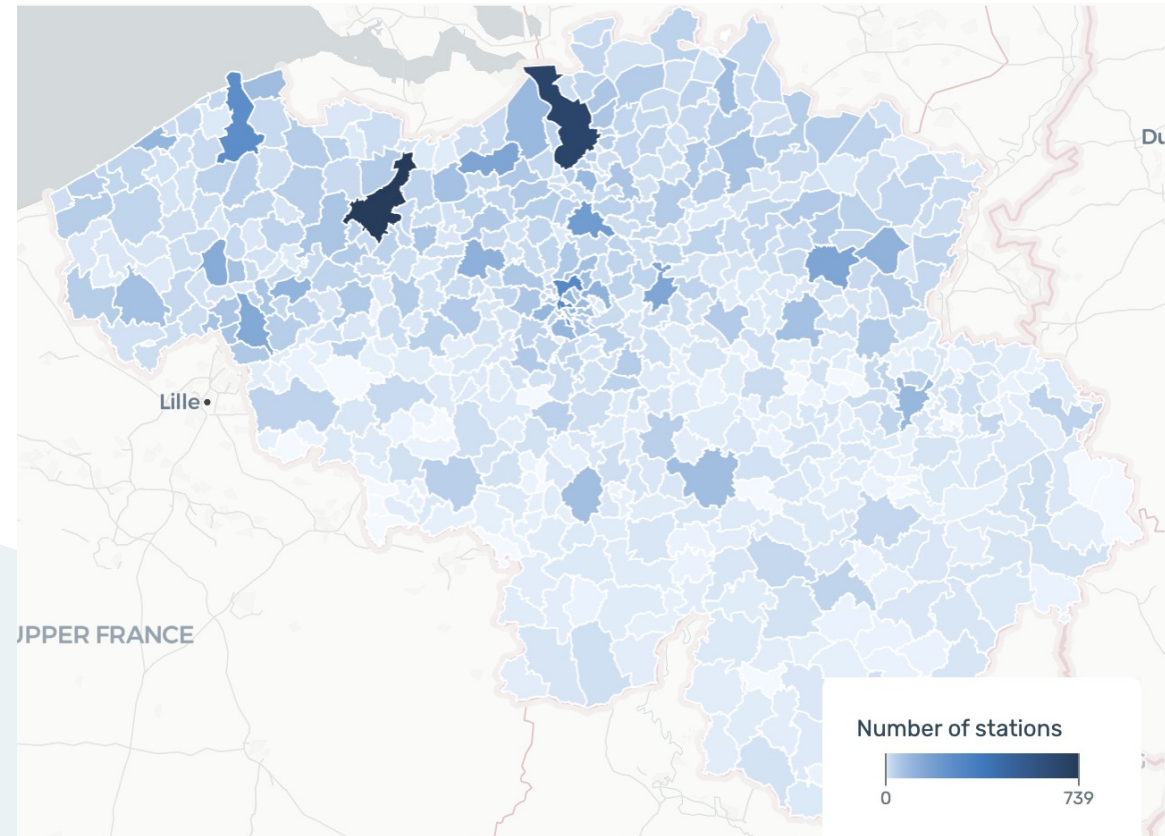


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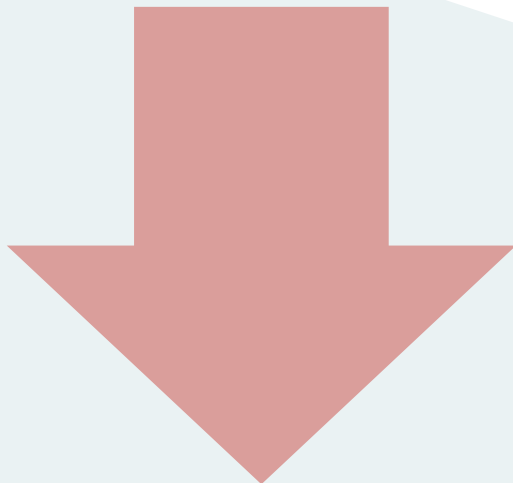
#1 ELECTRIC MOBILITY

CHARGING INFRASTRUCTURE IN BELGIUM

October 2023: 13 388
(+ 2000 between March and August)



#1 ELECTRIC MOBILITY



Source: X/twitter

4 INNOVATION TRENDS IN SMART MOBILITY



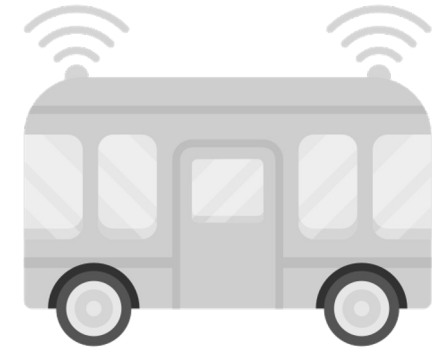
#1
Electrification



#2
Sharing



#3
Connectivity



#4
Automation

#2 SHARED MOBILITY

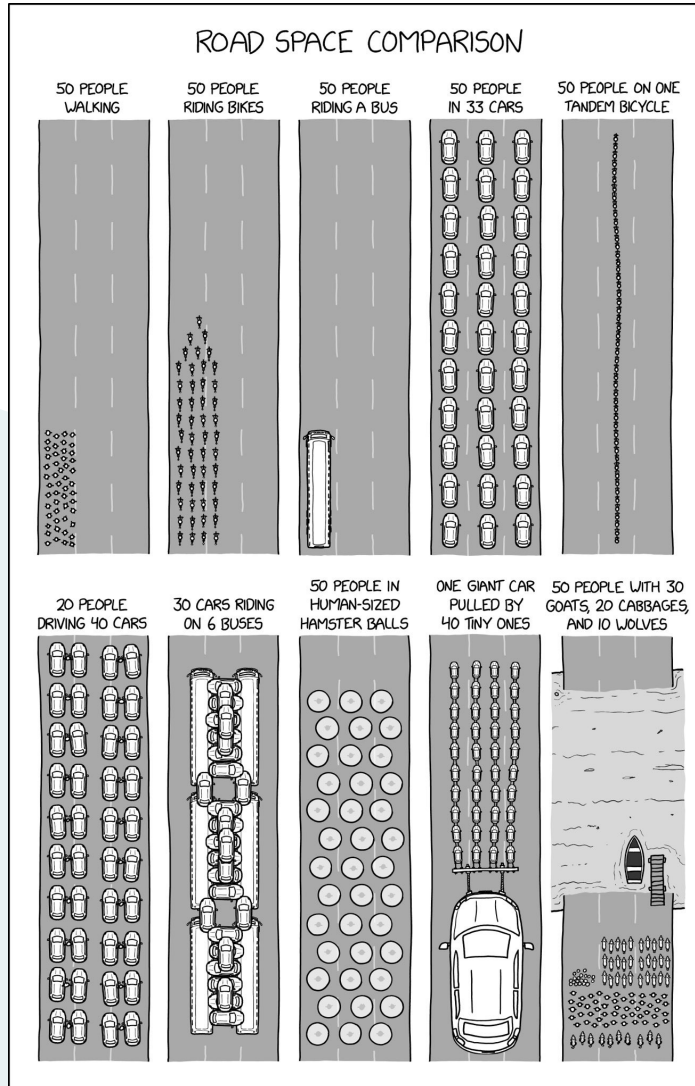
A car usually remains parked

96% of the time
(Deloitte, 2019)



International Institute for Sustainable Development (n.d)

#2 SHARED MOBILITY



If you are in traffic

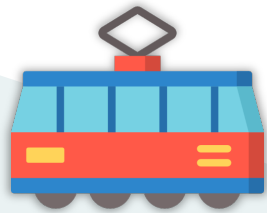
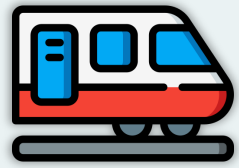


You are traffic

#2 SHARED MOBILITY

PUBLIC TRANSPORTS

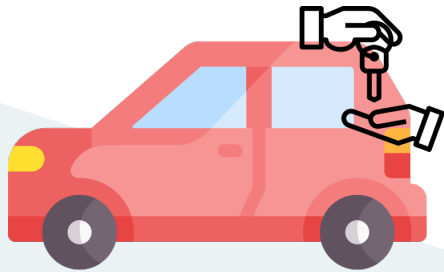
11% modal share**



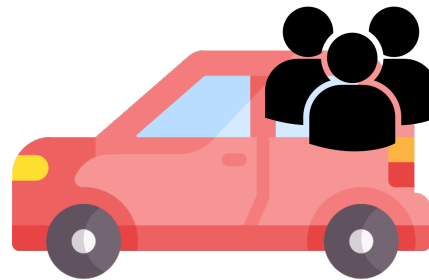
- Reliability
- Frequency
- Speed
- Accessibility
- Price
- Information
- Ease of transfers
- Vehicle condition
- User experience
- Comfort
- Security
- Commodity

#2 SHARED MOBILITY

CARS



Carsharing
Ex. cambio



Ridesharing/Carpooling
Ex. Blablacar



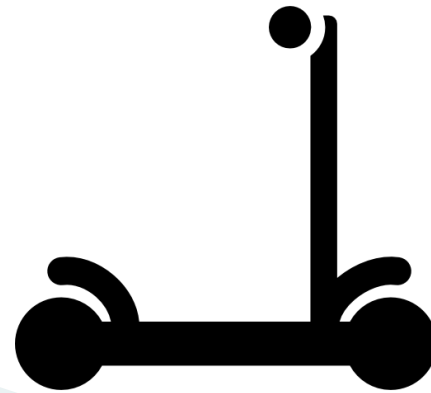
Ride hailing
Ex. Uber

#2 SHARED MOBILITY

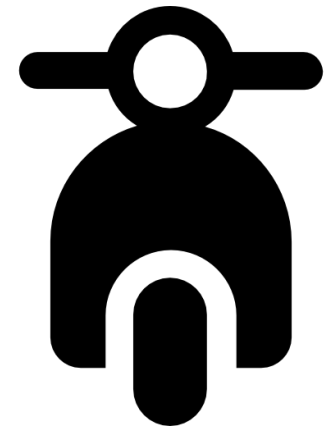
BIKE AND MICROMOBILITY



(e)bikes

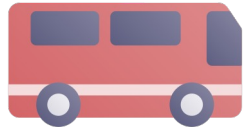


(e)scooter



(e)Motor scooter

#2 SHARED MOBILITY



Public Transports



Carsharing (Autopartage)
Ridesharing (covoiturage)
Ride-hailing



(e)Bikes
(e)Scooters
Motor scooters

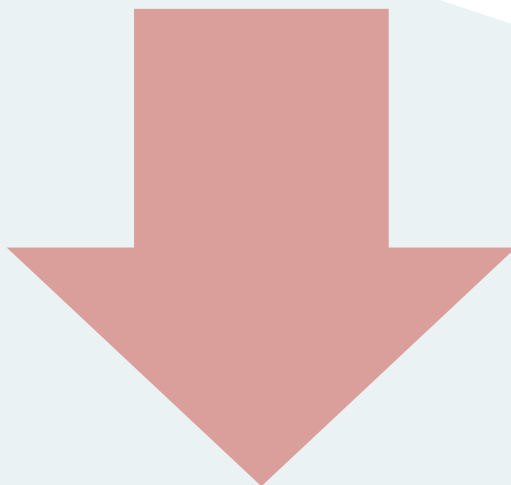
Help to overcome the limits of public transports
(timetables, zones, etc)

#2 SHARED MOBILITY



- Gives access to different modes without the costs of owning them (environmental, social and economic benefits)
- More efficient use of the public infrastructure

$$1x \text{  } = 50x \text{  } - 10\% \text{  }^* = -40\% \text{  }$$



- Costly for public administration ...
- ... or heavily dependant on private sector
- Not coronaproof?
- Can be more expensive than owning a vehicle

* Deloitte, 2019

** TEC 2019

#2 SHARED MOBILITY

THE CASE OF AUSTIN'S YELLOW BIKE PROJECT



#2 SHARED MOBILITY

HITCH HIKING BENCHES



Grafring (Bavaria, Germany)
13.800 inhab.



Grafringer Transition Town Initiative
4-8 volunteers (collab. municipality)
External artists
Local workers for maintenance

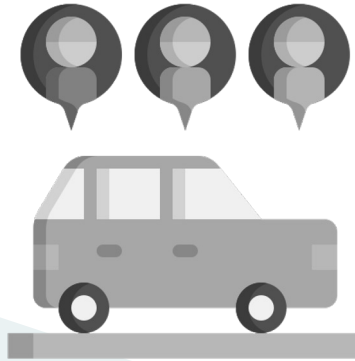


800€ - wood bench
126€ - 9 directions panels
74€ - Sponsoring
50€ - Annual maintenance cost

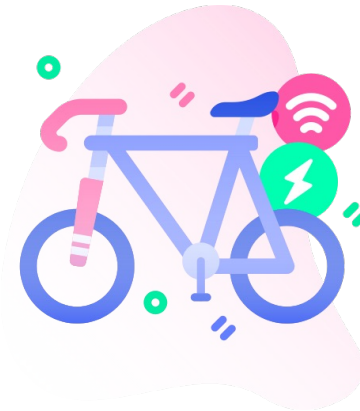
4 INNOVATION TRENDS IN SMART MOBILITY



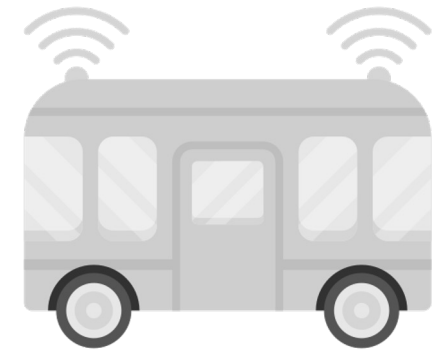
#1
Electrification



#2
Sharing



#3
Connectivity



#4
Automation

#3 CONNECTED MOBILITY

DATA USAGE PROCESS IN MOBILITY

Adapted from Lebas, A. (2020)

COLLECTION

Data are generated through various channels (Big Data, sensors, Internet, etc.). These data are generated in real time.



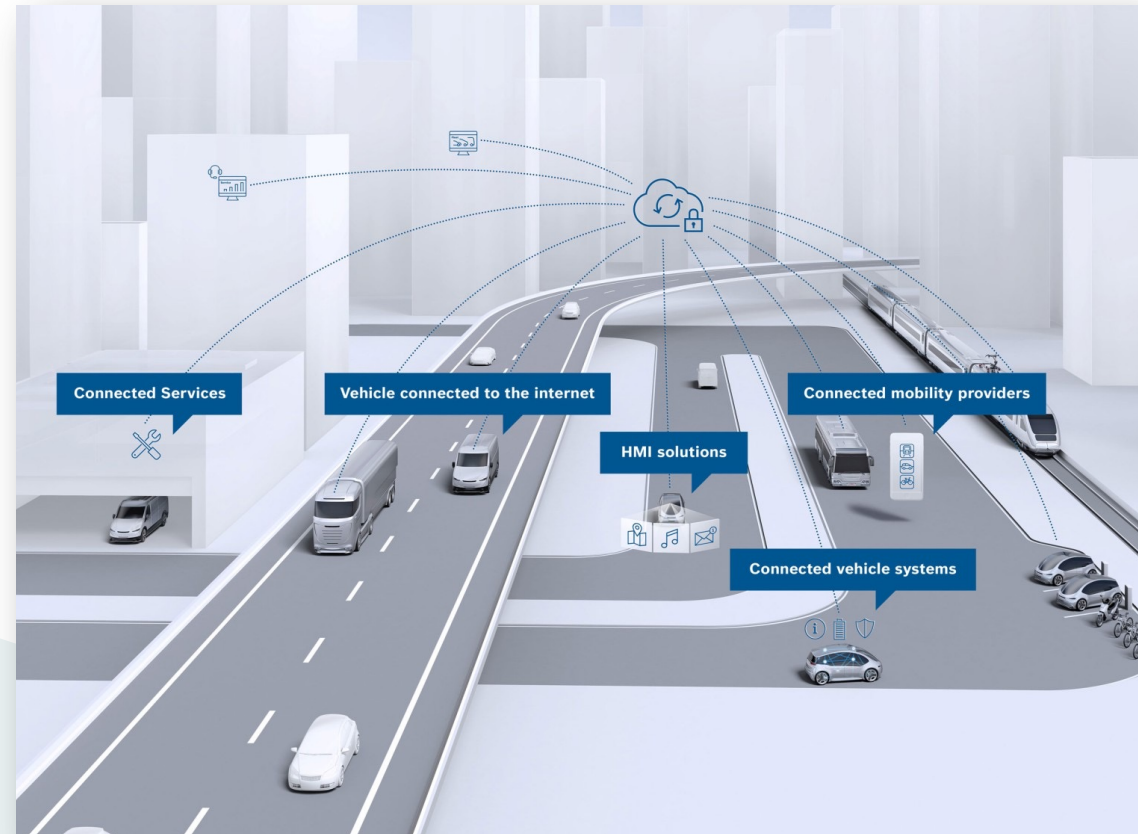
CONNECTION

Data are shared on the network, either from vehicle to vehicle (v2v), from vehicle to infrastructure (v2i)



USE

Infrastructures and vehicles instantly learn from the collected data and adapt towards greater efficiency, optimisation, fluidification, prédication and personnalisation



Bosch.com

#3 CONNECTED MOBILITY

● Liege-Guillemins ★
● Bruxelles-Nord

07:10 +4	0:55h 0x	08:05 +0
07:31 +0	0:53h 0x	08:24 +0
07:53 +10	1:12h 1x	08:50 +3

⚠ Due to delays a connecting service may not be reachable.
? For this route you may need to buy two tickets. [Read more here.](#)
📢 1 info message

↶ 910 m
Rue de Boix-de-Breux

📍 Re-centre
 1:25 h • 125 km Overview

Google
 Get free rides
 Scan to ride

Uber

Where to? Now

- 📍 Hotel Granvia
 Gran Via de les Corts Catalanes, 64...
- 📍 Plaça de Catalunya
 Barcelona

Suggestions See All

Ride

Promo
Travel

Home Services Activity Account

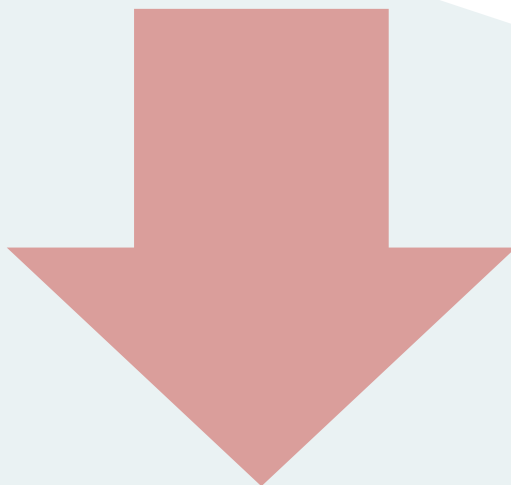
#3 CONNECTED MOBILITY



- Real time information (work construction, parkings, etc)
- Personnalisation
- Safety



More inclined to travel with shared transport?



- Data as the new gold?
 - Generation (volume)
 - Management (Who does what? Where?)
 - Safety & ethical issues
- Health impact?
- Energy dependency?
- Digital divide? What about rural areas?

4 INNOVATION TRENDS IN SMART MOBILITY



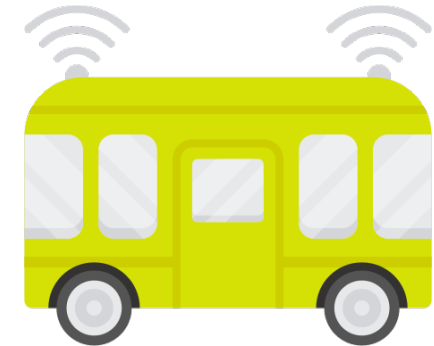
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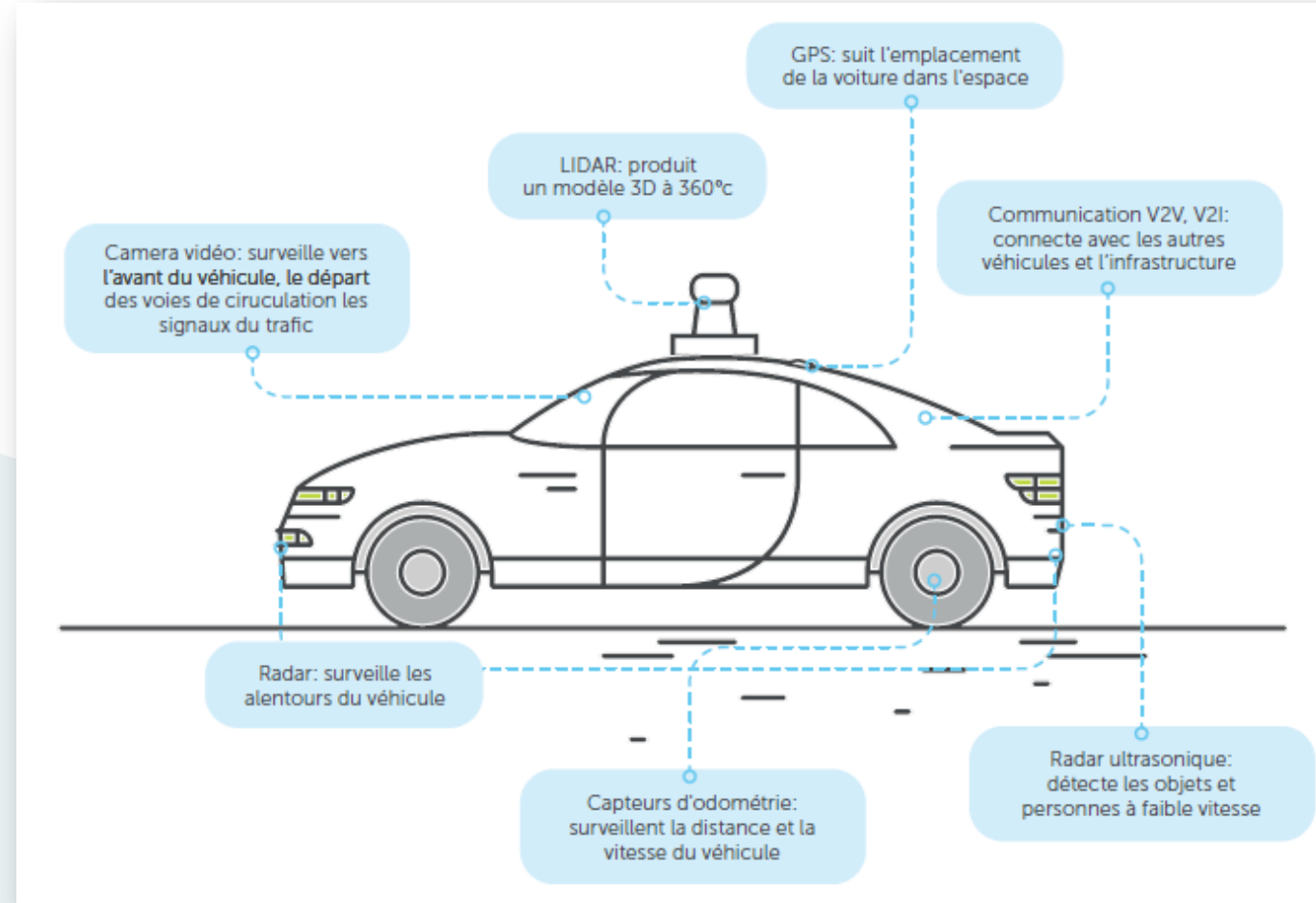


#4
Automation

#4 AUTONOMOUS MOBILITY

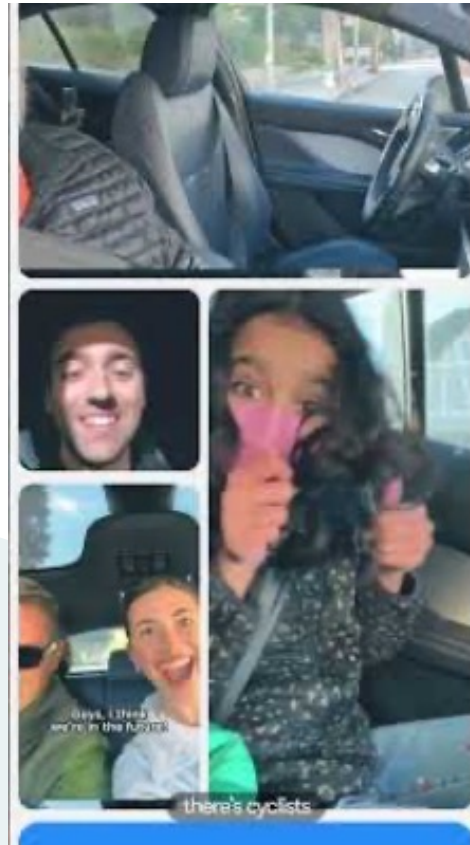
	Non autonomous vehicle				Autonomous vehicle	
Level of autonomy	0 None	1 Assistance	2 Partial Autonomy	3 Conditional technology	4 High Autonomy	5 Total Autonomy
	Nothing	Assist, accelerates, brakes or gives direction	Assist, can perform steering and power control features	Everything on short periods	Everything in a restricted environment Attendant present in bus and shuttles	Everything
	Everything	Everything , with assistance	Everything, with more assistance	Nothing but ready to take back control	Nothing in a restricted environment	Nothing

#4 AUTONOMOUS MOBILITY



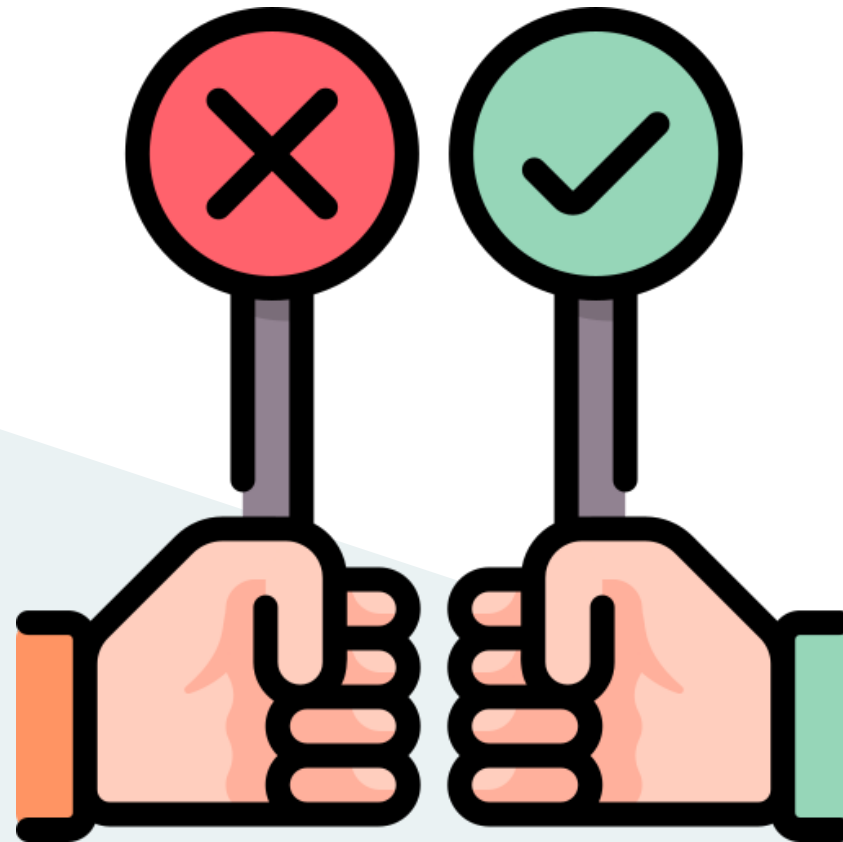
#4 AUTONOMOUS MOBILITY

THE CASE OF WAYMO IN SAN FRANCISCO



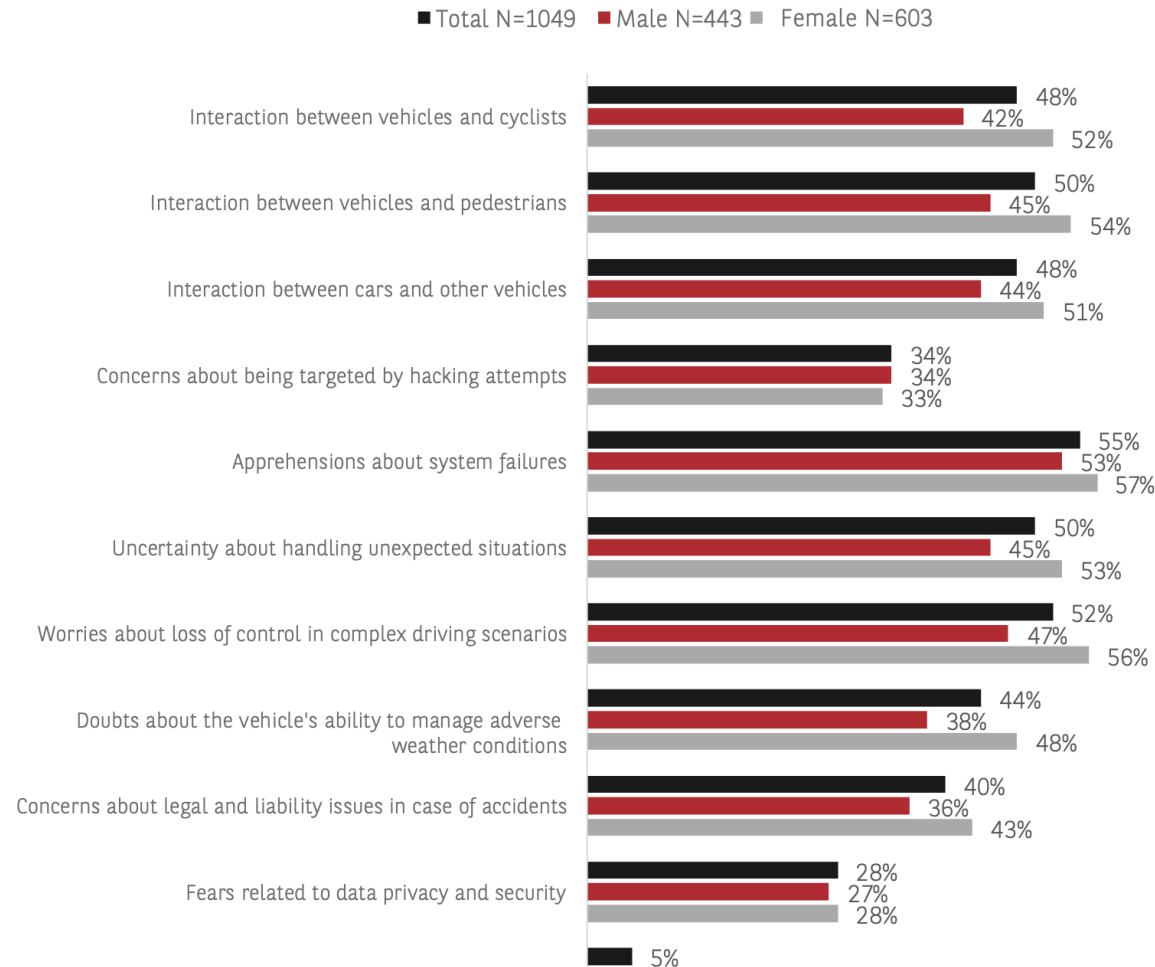
<https://www.youtube.com/shorts/4O0h0EqNvnM>

#4 AUTONOMOUS MOBILITY



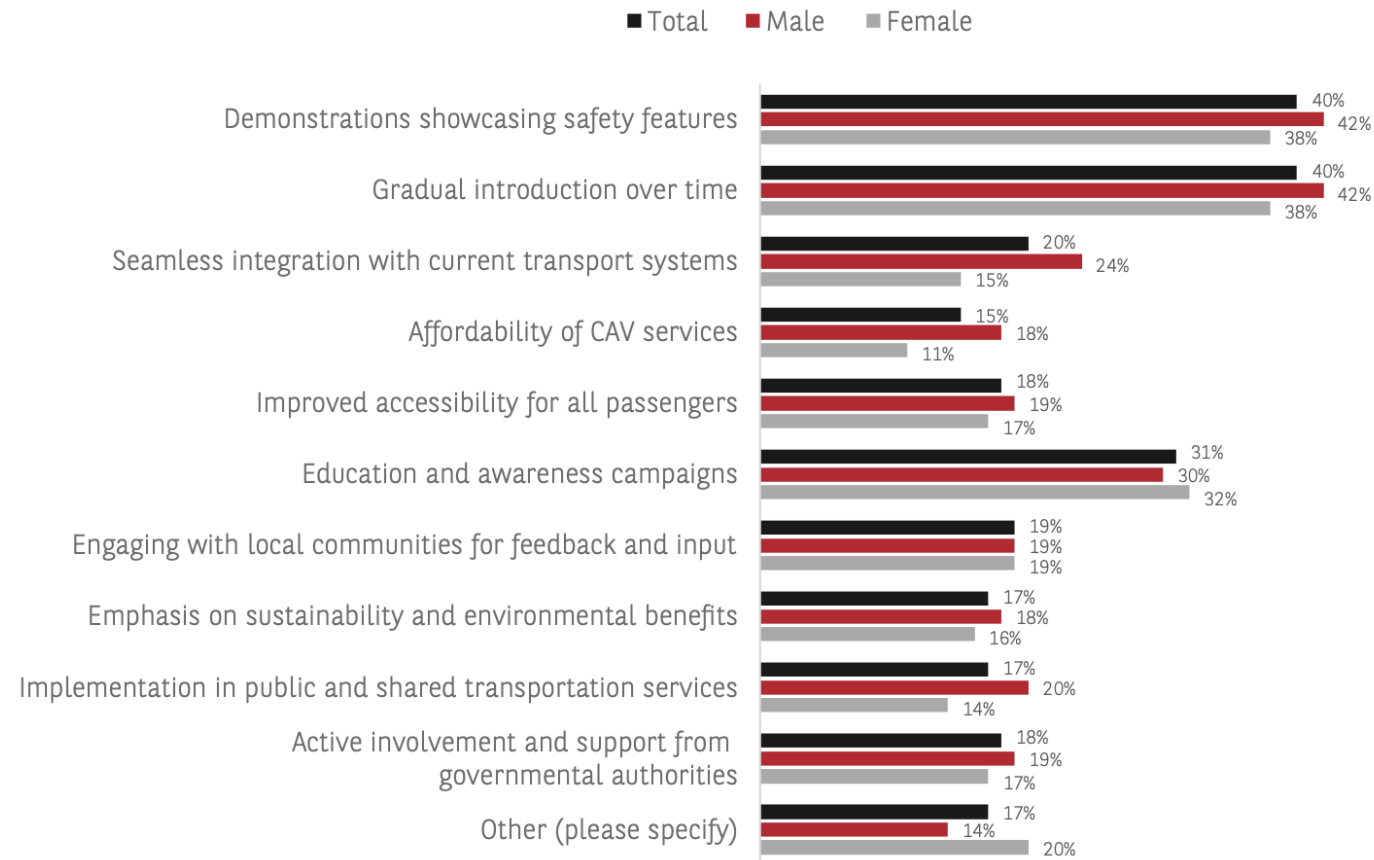
#4 AUTONOMOUS & CONNECTED MOBILITY

What factors contribute to your reservations regarding self driving vehicles?



#4 AUTONOMOUS & CONNECTED MOBILITY

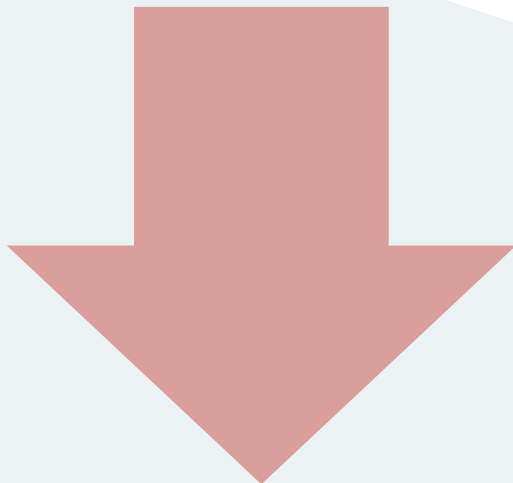
Which of the following factors would enhance your confidence in the introduction of self driving vehicles in local areas?



#4 AUTONOMOUS MOBILITY



- Ensure greater security (adapt speed, distraction)
- Monitors the vehicle's health
- Adaptation to real time information (work construction, parkings, etc)



- Costs and political issues related to infrastructure adaptation
- Data
- Raises a number of debates (jobs, dilemmas, data, cyber attack)

BREAK
(10 MIN)





|

CHALLENGES

|

DEFINITION AND TRENDS

ELECTRIFICATION, SHARING, CONNECTIVITY, AUTOMATION

|

INTERMODALITY & MULTIMODALITY

DEFINITION, DIGITAL INTEGRATION, PHYSICAL INTEGRATION

|

GOVERNANCE OF MOBILITY

|

CASE STUDIES

LIEGE (CITY OF LIÈGE), BRUSSELS CAPITAL REGION (NGAGE)

|

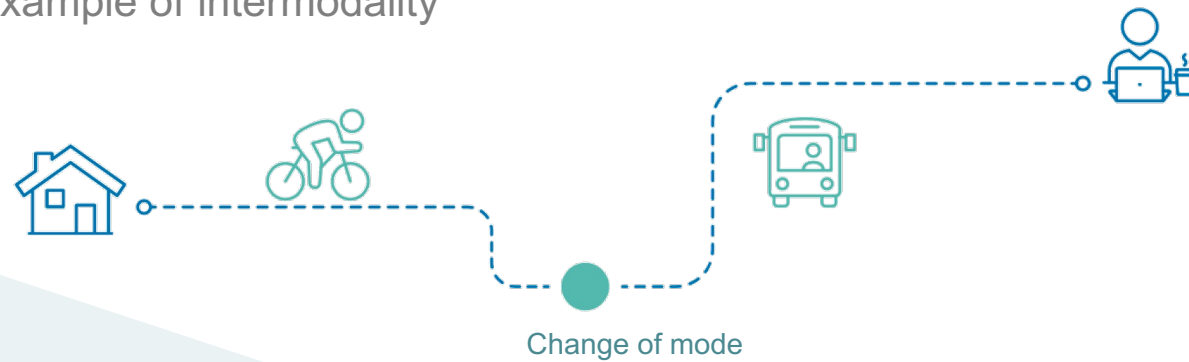
CONCLUSION & TIPS



MULTIMODAL MOBILITY

MULTIMODALITY & INTERMODALITY

Example of intermodality



Example of multimodality



Adapted from Lebas, A. (2020)

MULTIMODAL MOBILITY

INTEGRATION OF SERVICES

Digital integration

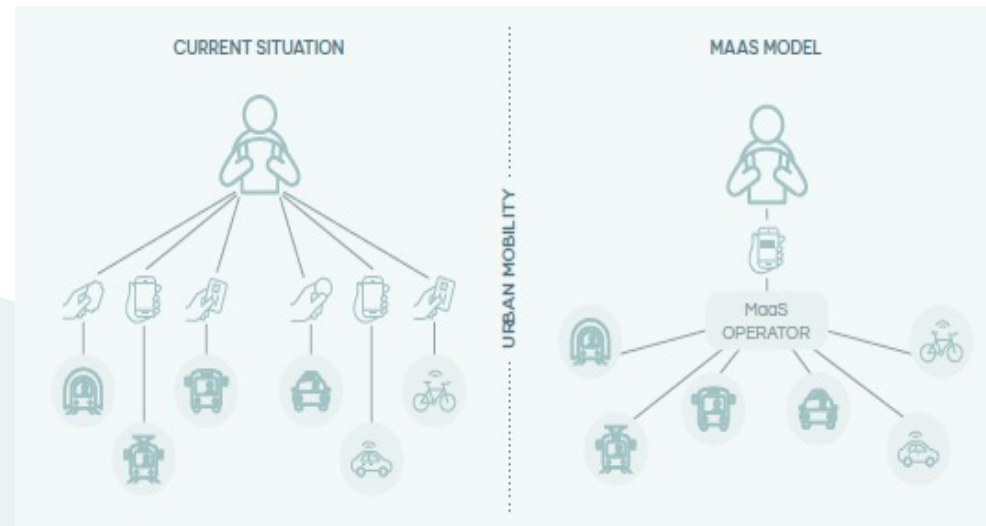
Physical integration

MULTIMODAL MOBILITY

DIGITAL INTEGRATION OF SERVICES

Digital integration

E.g. platforms for centralising information, booking and/or payment (e.g. Google Maps, Mobility as a Service → Floya)



Lebas (2020). Adapted from Kamargianna & Mathyas (2017)

MULTIMODAL MOBILITY

INTEGRATION OF SERVICES

Digital integration

Physical integration

MULTIMODAL MOBILITY

INTEGRATION OF SERVICES

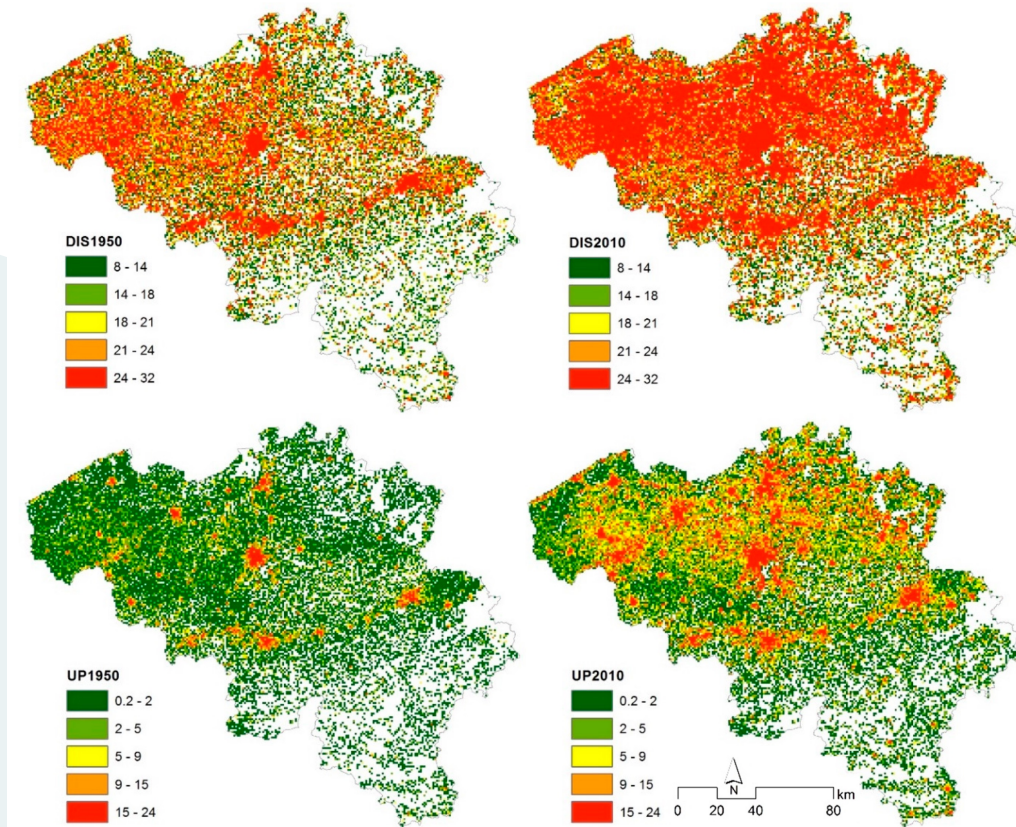


Land use and urbanism

Physical integration

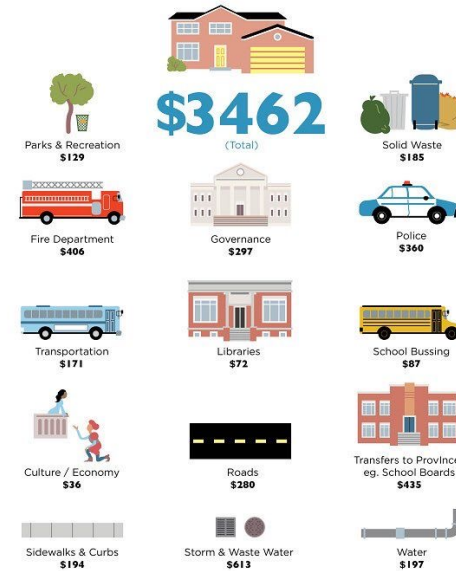
MULTIMODAL MOBILITY

PHYSICAL INTERGRATION: URBAN SPRAWL



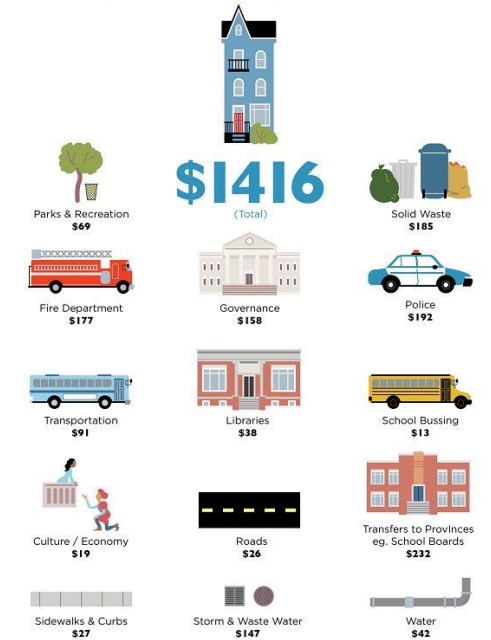
Mustafa & Teller, 2020

Suburban City's Annual Cost, per Household



SP Sustainable Prosperity
For more data and more reports, visit thecostofsprawl.com
Data based on Halifax Regional Municipality

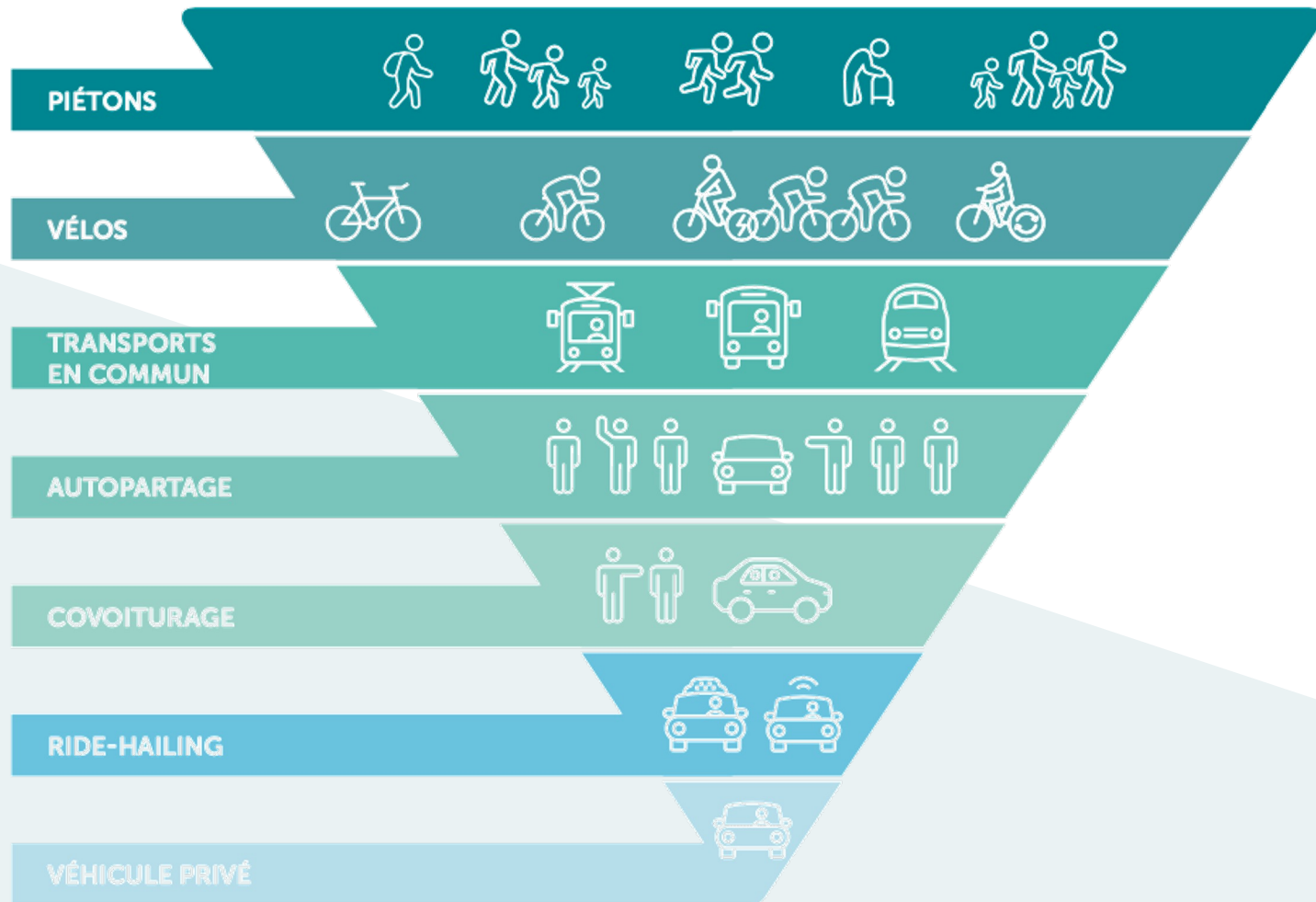
Urban City's Annual Cost, per Household



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Data based on Halifax Regional Municipality

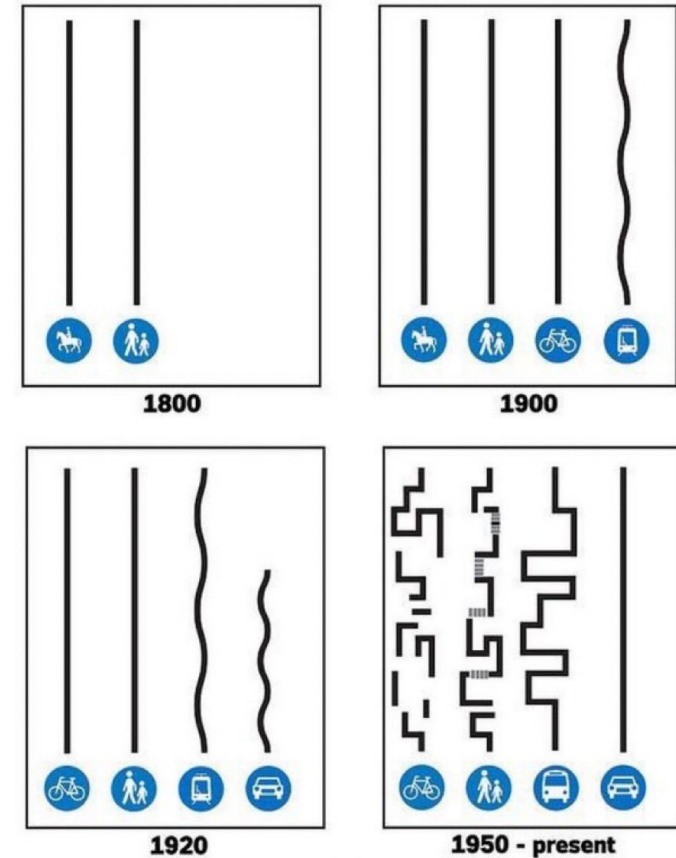
MULTIMODAL MOBILITY

PHYSICAL INTEGRATION: URBANISM



Lebas & Crutzen, 2020

A Short History of Traffic Engineering



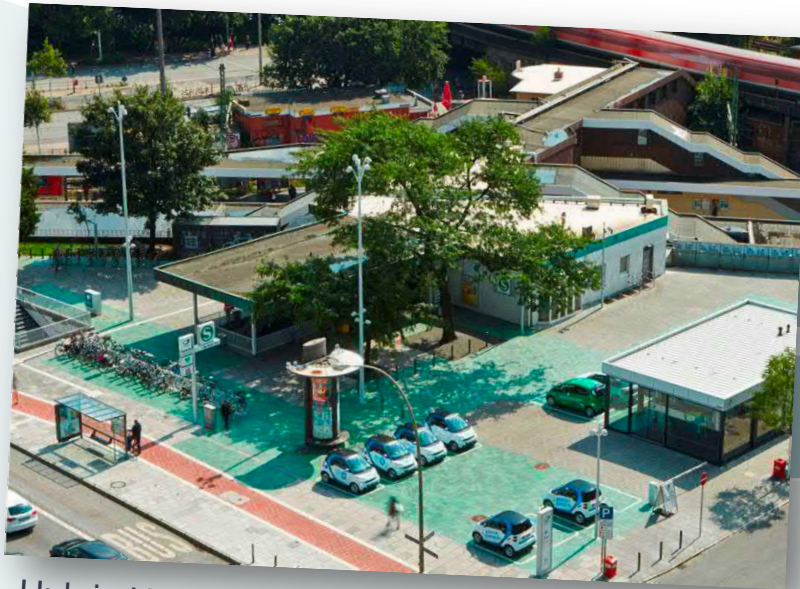
COPENHAGENIZE EU
Copenhagenize Design Co.
2013

Copenhagenize Design Co, 2013

MULTIMODAL MOBILITY

PHYSICAL INTEGRATION: MOBILITY HUBS

A mobility hub is a place that connects at least 3 mobility modes to facilitate transfers among them. (CPDT, 2019; CEREMA, 2017)



Hub in Hamburg, Germany
Shared-use mobility Center, n.d.

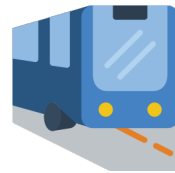
Transport function

Urban function

Services function

MULTIMODAL MOBILITY

PHYSICAL INTEGRATION: MOBILITY HUBS



In a station or along a major public transport axis (ex. metro, tram)



In commercial or economic zones



In the center of a city or a village



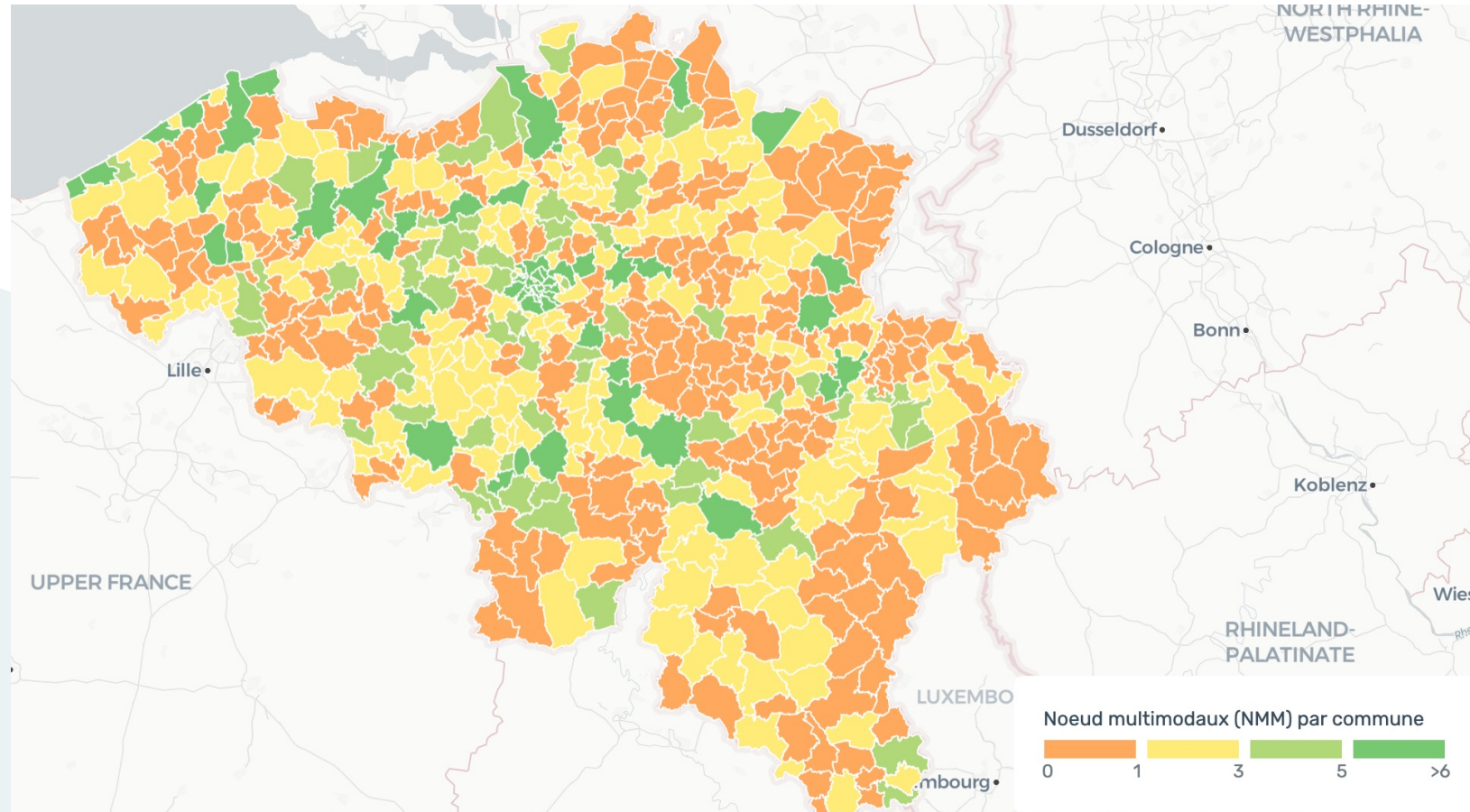
Outside urban centers (ex. P+R)



At the intersection of major road infrastructures

MULTIMODAL MOBILITY

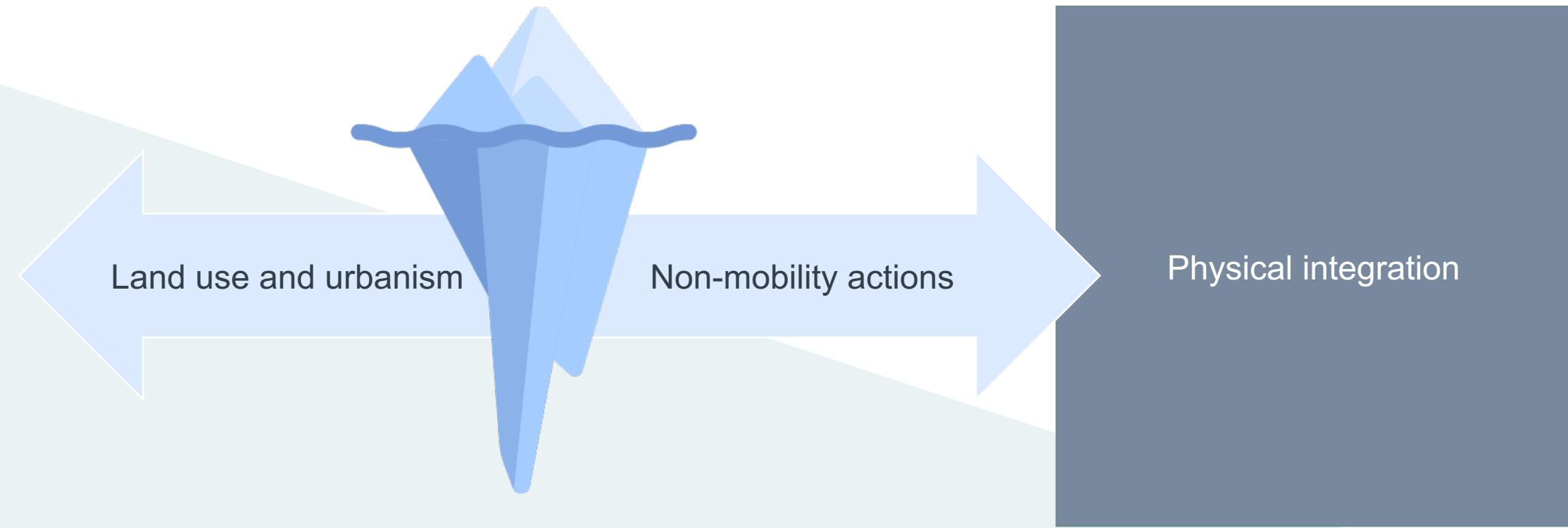
MOBILITY HUBS IN BELGIUM



Mobility Dashboard, n.d.

MULTIMODAL MOBILITY

PHYSICAL INTEGRATION OF SERVICES



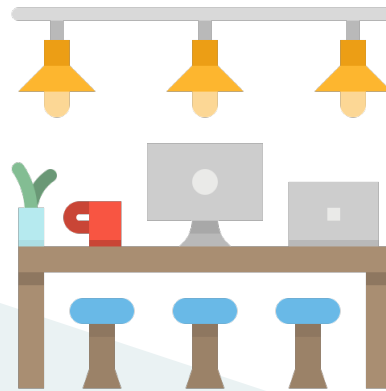
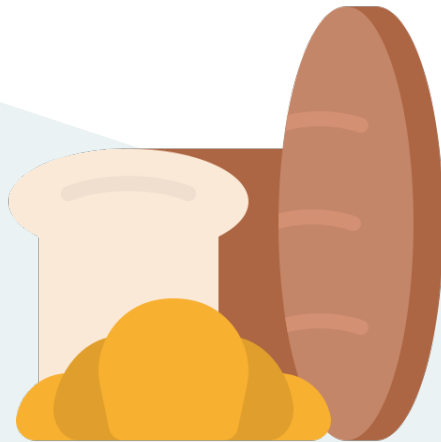
Land use and urbanism

Non-mobility actions

Physical integration

MULTIMODALITY & INTERMODALITY

LESS MOBILITY FOR A BETTER MOBILITY





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CHALLENGES

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DEFINITION AND TRENDS

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GOVERNANCE OF MOBILITY

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CONCLUSION & TIPS



SMART MOBILITY

STAKEHOLDERS/GOVERNANCE



GOVERNMENT/PUBLIC

local, provincial, regional, federal, european

ACADEMIC

Universities, research institutes (public/private)

INDUSTRY

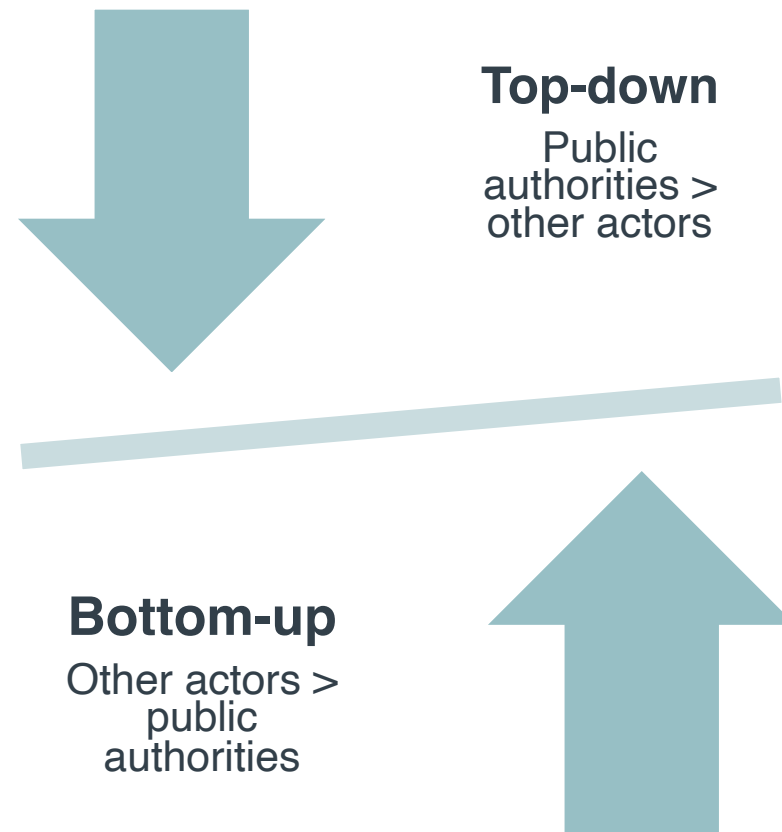
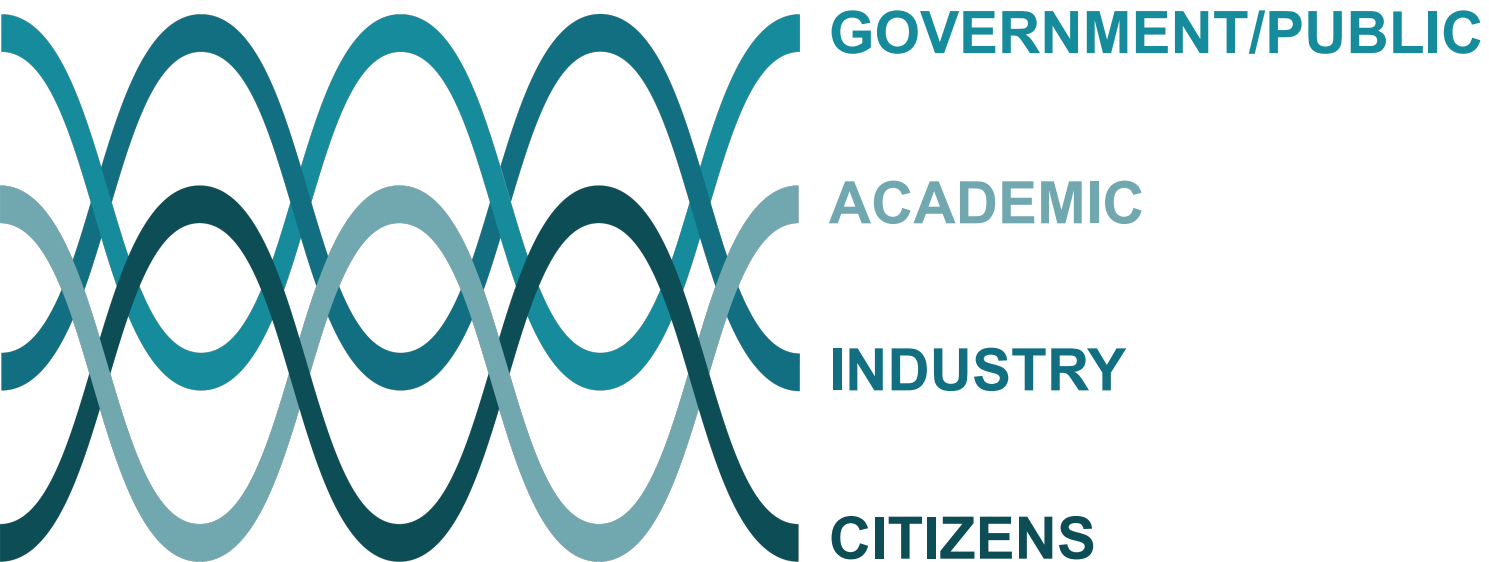
Mobility solutions providers, employers (SMEs and multinational) Union Wallonne des Entreprises (mobility cell), indirect ecosystem (energy providers, insurances, etc)

CITIZENS

Individual citizens, civil society (e.g. NGOs)

SMART MOBILITY

STAKEHOLDERS/GOVERNANCE



GOVERNANCE

LEGAL COMPETENCES



EU

- Development of integrated transport networks for smooth, efficient, safe and free movement of people and goods
- Integration with other cross-cutting policies (e.g. climate change, passenger rights and clean fuels)



PROVINCES / SUPRALocal

- Do not have legal powers in this area
- Support for the municipalities as an intermediary power of proximity
- Harmonious development and facilitate mutualisation and cooperation of larger scale projects. (e.g. carpooling, charging stations)



BELGIUM

- Road safety (traffic regulations, repressive policy, etc.)
- Vehicle registration
- Driving licences and road freight transport.
- Management of the train network



WALLONIA

- Initiation and coordination of transport and mobility policy (by road, rail, air and water)
- Development of the cycling network
- Management of the road and motorway network + traffic
- Electromechanical aspects (lighting, traffic lights, etc.)
- Cleanliness
- Etc.



LOCAL AUTHORITIES

- Influence on the implementation of mobility services
- Local awareness
- Support and incentives (services, premiums, etc.)
- Ownership of 90% of the roads in Wallonia.



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CHALLENGES

|

DEFINITION AND TRENDS

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|

INTERMODALITY & MULTIMODALITY

DEFINITION, DIGITAL INTEGRATION, PHYSICAL INTEGRATION

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GOVERNANCE OF MOBILITY

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CASE STUDIES

LIEGE (CITY OF LIÈGE), BRUSSELS CAPITAL REGION (NGAGE)

|

CONCLUSION & TIPS



A light blue diagonal shape that starts from the left edge and extends towards the bottom right corner of the slide.

CASE STUDY

Mobility strategy in Liège

By Michel Duc, Ville de Liège



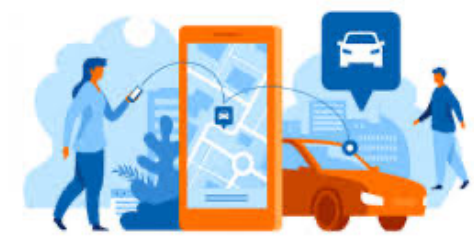
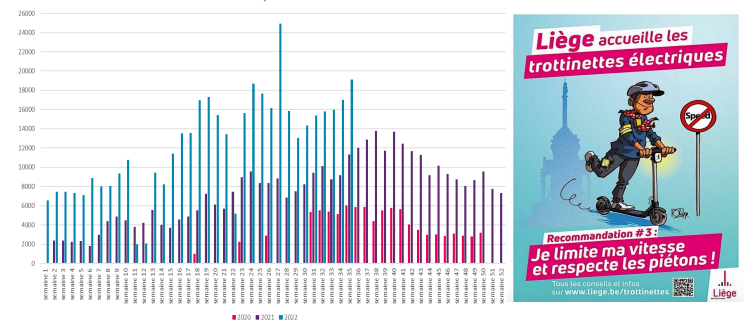
LA MOBILITÉ EN CITÉ ARDENTE POUR TOUTES ET TOUS !



Tomorrow's Mobility

Michel Duc - advisor for the Alcermar, for the ecological transition of mobility, creates in digital technology

Major mobility trends



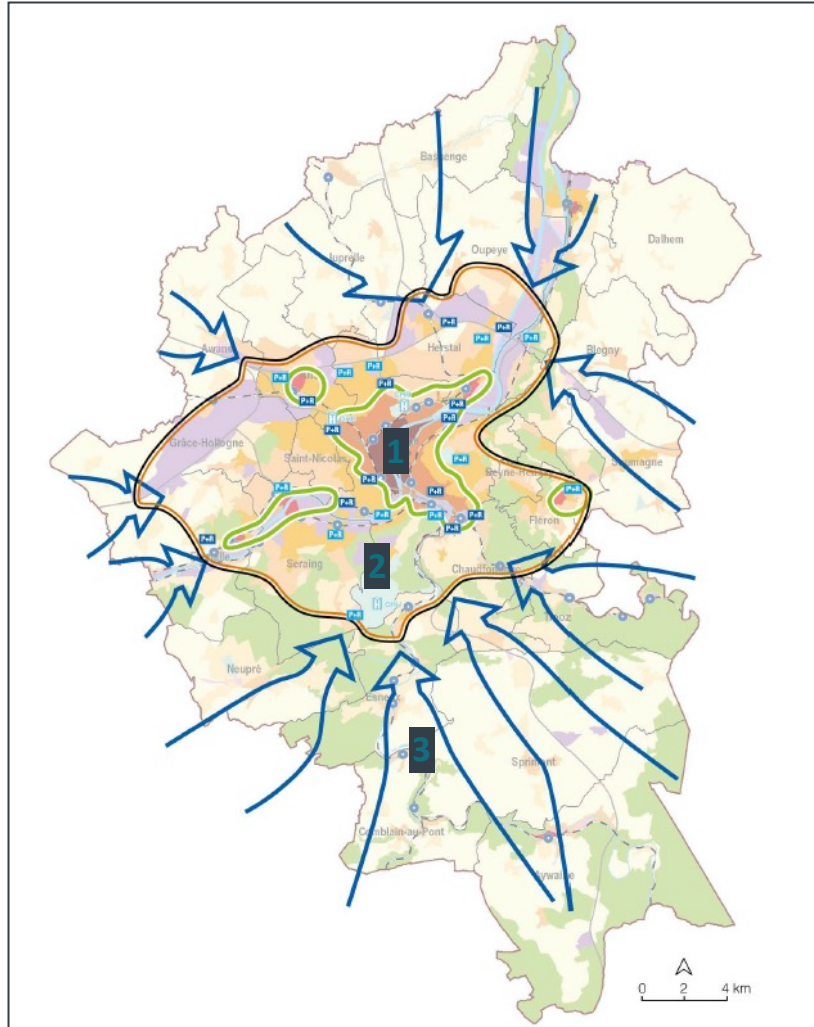
M O B I B

Mobility, a major challenge and a lever for transforming cities

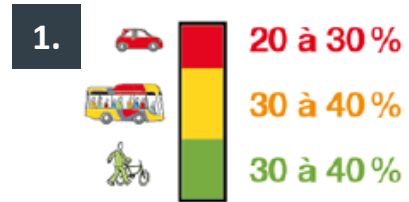




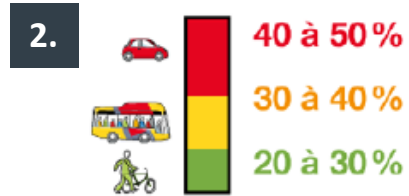
Vision FAST



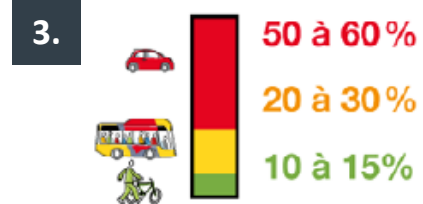
Dense urban zone



High-level service transport zone



Metropolitan corridors zone



Municipal Mobility Plan

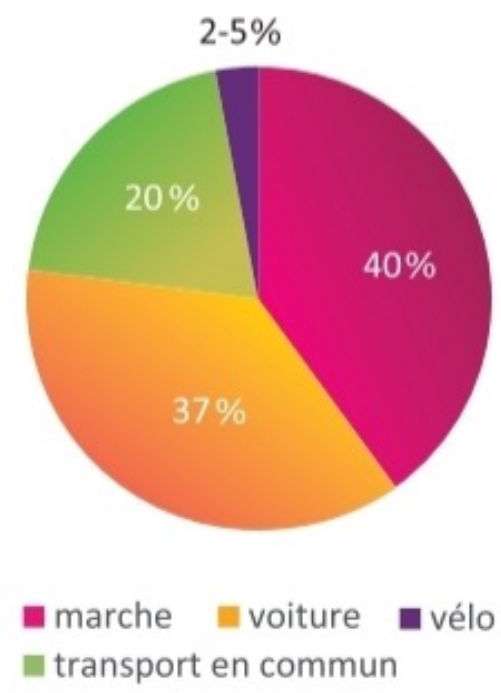
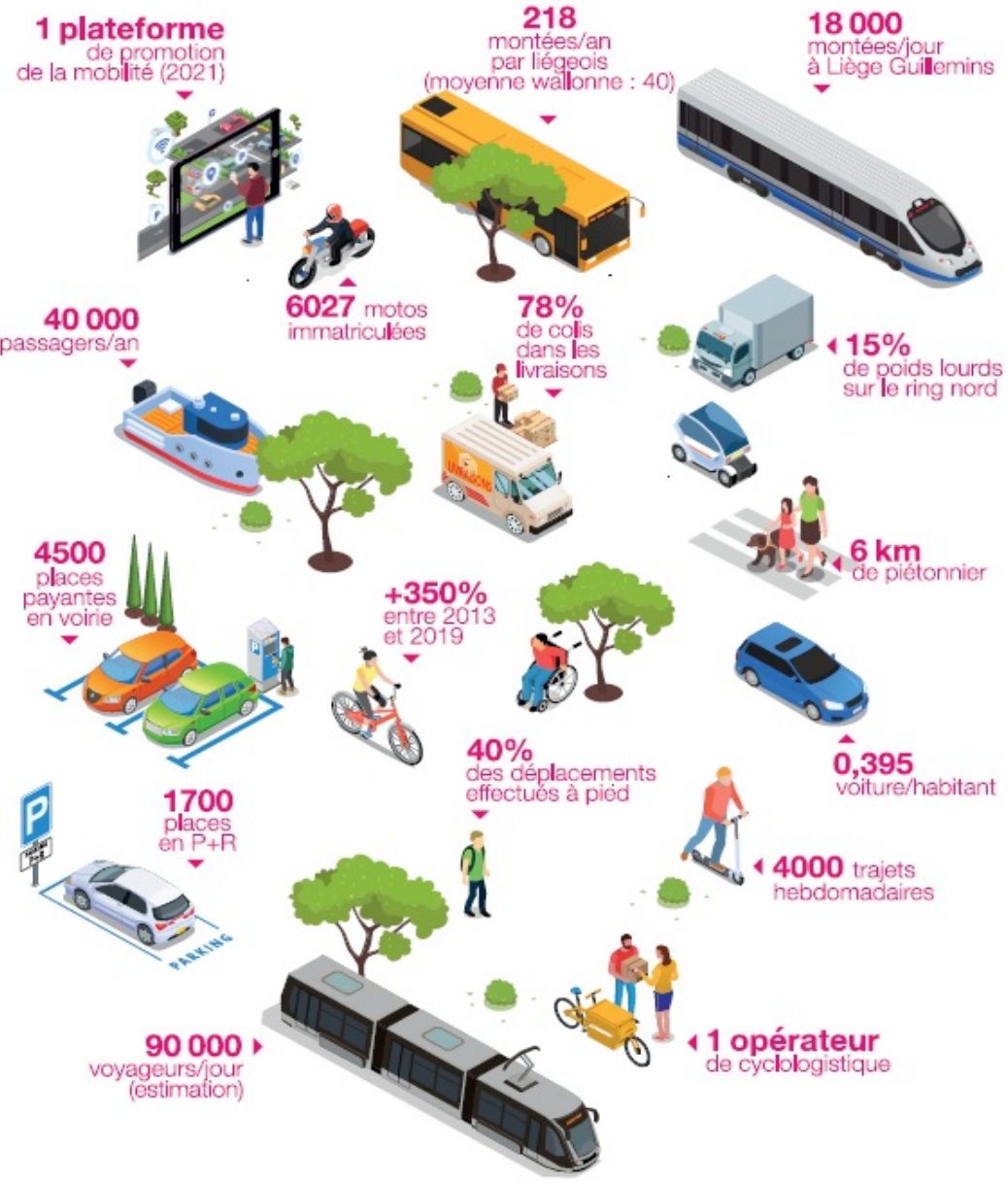


PCM

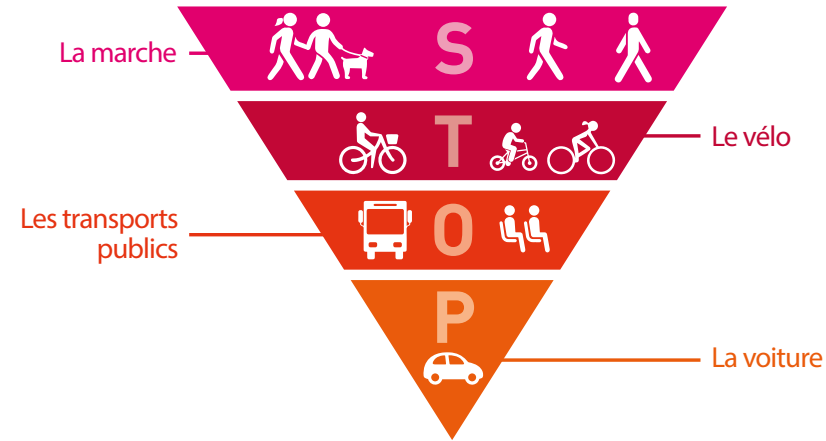
→ *10-year strategic tool*

→ *Decision-making tool to improve accessibility and mobility, road safety and living environment*

PCM -> Plan de circulation



PCM: STOP principle and issues



56 Actions



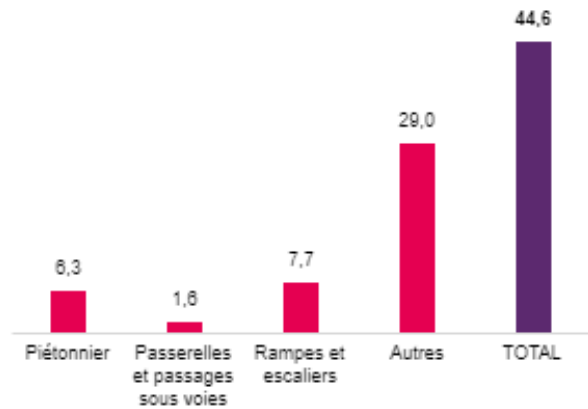
Pedestrian mobility

44,2 km



Plus de 44 km de cheminements dédiés aux piétons dont plus de 6 km de piétonnier traditionnel

Longueur cumulée du réseau piétonnier 2022 (km)



40% of trips on foot

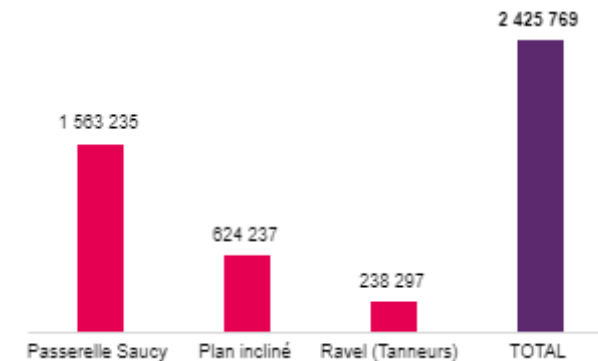
19 bridges 12 footbridges

+1 km en 4 ans



En 4 ans, mise en place de plus d'1 km d'aménagements spécifiquement dédiés aux cheminements des piétons dont 3 nouvelles passerelles (Chênée et quartier Saint-Léonard)

Nombre de piétons (janvier à novembre 2022 inclus)



Awareness



L'échevin était présent au Thier-à-Liège pour inaugurer ces panneaux.

Parce que la ville, c'est à pied avant tout

MOBILITÉ
La Ville de Liège déploie une nouvelle signalétique pour favoriser la marche.

Avec 40% de part modale, la marche demeure le mode de déplacement le plus utilisé à Liège. Tout le monde est à un moment piéton en ville quand il se déplace. Pour cette raison, il est nécessaire de créer les conditions optimales pour les déplacements à pied...

Bien droit sur ses gambettes, l'échevin de la Mobilité Gilles Foret profitait, ce mardi matin, de cette semaine wallonne des sentiers pour rappeler toute l'importance de la marche lorsqu'on se déplace

parce que la ville, c'est à pied avant tout. c'est en effet le fait que les cyclistes et les piétons sont trop souvent "confrontés à de nombreux exemples de voies sans issue". Pour remédier à ce problème et pour avertir que la voie est libre, il est possible depuis 2013 d'adapter la signalétique, en transformant un panneau J-45 en F-45 R... via un simple autocollant. De la sorte, il s'agit de favoriser ces cheminement et de permettre la redécouverte de certains chemins voire d'en créer de nouveaux, "en donnant plus de place à la mobilité active".

Assises de la marche
Toutes les actions en faveur de la marche seront mises en lumière, durant le mois de no-



Cette carte reprend les temps de parcours à pied entre les différents pôles frontaliers ou quartiers de la ville. Elle a été réalisée par l'ASBL Tous à Pied.



Citizen involvement



Thématique : **INCIVILITÉS (PROPRETÉ, CODE DE LA ROUTE, ...)**

Objectifs	Action proposée	Parties prenantes
<ul style="list-style-type: none"> • SÉCURITÉ • BIEN VIVRE ENSEMBLE • ↑ DÉPLACEMENTS à PIED • ATTRACTIVITÉ (TOURISTIQUE) • CONFORT • ENVIRONNEMENT 	<ul style="list-style-type: none"> • Plus de contrôle / Verbalisation / TIG • Sensibilisation citoyenne • Privatisation • Qualité de l'aménagement (benchmarking Pays-Bas et Londres (situation) aut co) • Investissements plus significatifs des services locaux / privés • Cartographie plus (ex points de dépôt) • Meilleure réactivité "entre contact" (Police) et opérationnalisation (Ville de Liège) • Moyens budgétaires à consacrer à la problématique • Se réapproprié l'espace public • Sensibilisation Jamesse (ex retour à l'école = renouveau d'écoles dans le milieu (partenaires)) 	<ul style="list-style-type: none"> • Ville de Liège • Police • Citoyens • Comité de quartier • Associations • Prestataires dans le cadre des marchés publics avec Ville de Liège • SPW • Ecoles • Entrepreneurs • Gestionnaires importants

10/11/2020

Les Assises des Piétons

International Walking Charter



CHARTRE INTERNATIONALE DE LA MARCHÉ

Créer des collectivités saines, viables et efficaces, où les gens choisissent de marcher

Nous, soussignés, reconnaissons les bénéfices de la marche comme indicateur clé de la bonne santé, de l'efficacité, de l'insertion sociale et de la viabilité des collectivités, et reconnaissons les droits universels des personnes de marcher en toute sécurité et de profiter d'espaces publics de très bonne qualité partout et à tout moment.

Nous nous engageons à réduire les obstacles physiques, sociaux et institutionnels qui limitent la marche. Nous allons travailler avec d'autres personnes et organismes afin de contribuer à la création d'une culture où les gens choisissent de marcher, en élaborant un plan d'action qui comporte des engagements envers les principes suivants :

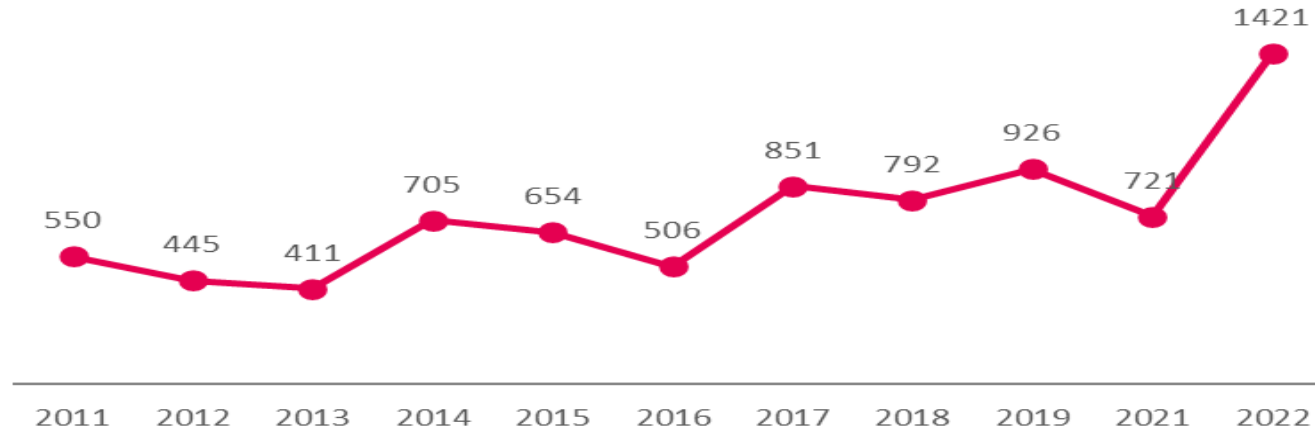
- 1. Une mobilité qui favorise l'insertion sociale**
- 2. Des espaces et des endroits bien conçus et bien gérés destinés aux personnes**
- 3. Intégration améliorée des réseaux**
- 4. Planification spatiale et d'utilisation du sol favorables**
- 5. Réduction des dangers de la route**
- 6. Moins de délits et de peur de délits**
- 7. Des autorités plus à l'écoute**
- 8. La culture de la marche**

Date :

Signatures et noms des organisations :



Cycling mobility



1000
cyclistes/h



En 2022, plus de 1000 cyclistes sont comptabilisés par heure de pointe du matin pour chaque campagne de mesure



Minimum
5%

En 2021, la part modale du vélo dans les rues de Liège est au minimum de 5%

28% rue de la Belle jardinière

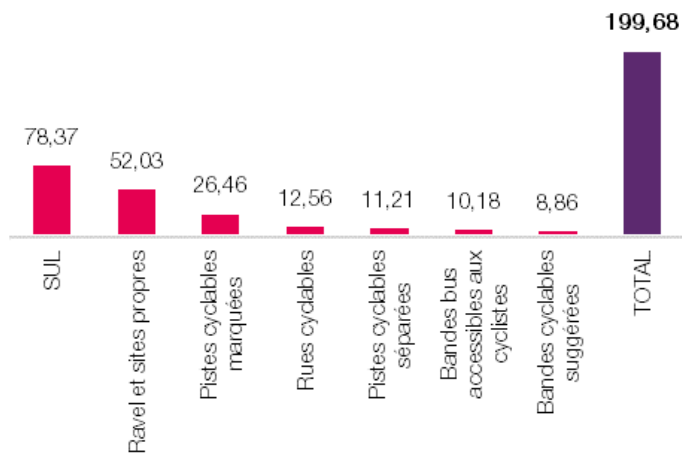
Il y a actuellement
1733
arceaux vélos répertoriés
pour un total de
3626
places disponibles
à Liège.

+5 km /an

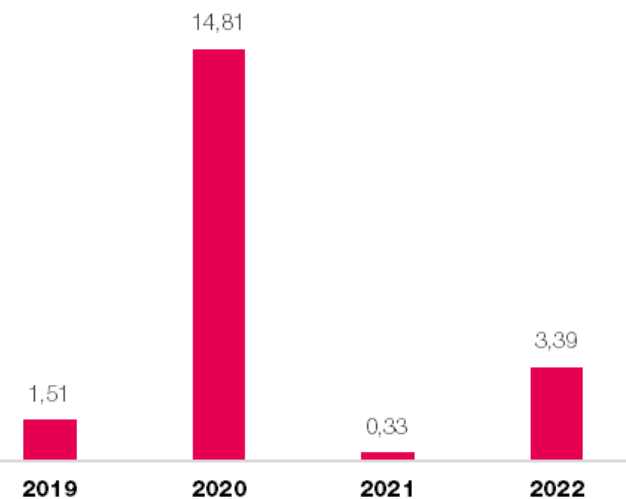


En moyenne, sur les 4 dernières années, 5 km d'aménagements cyclables nouveaux sont réalisés chaque année

Longueur cumulée des aménagements cyclables 2022 (km)



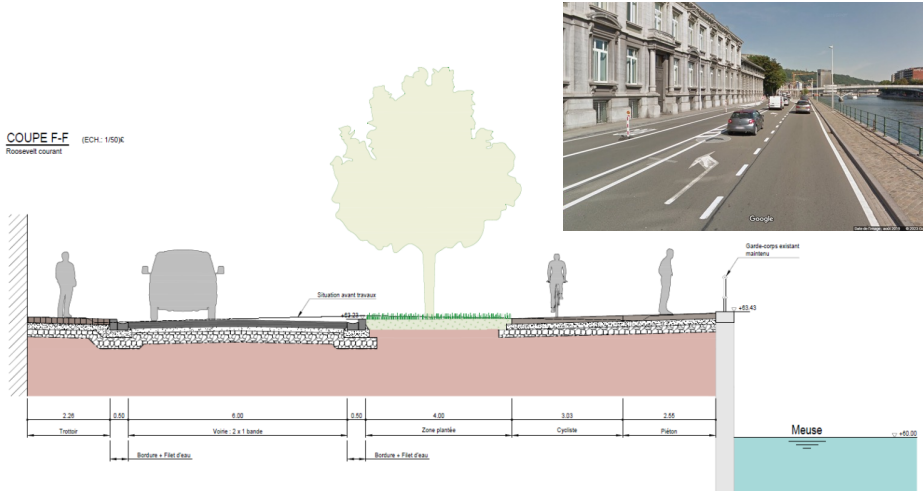
Ajout aux aménagements cyclables (km)



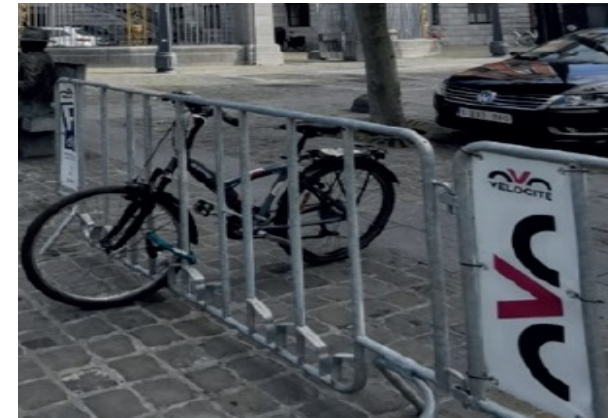
Awareness



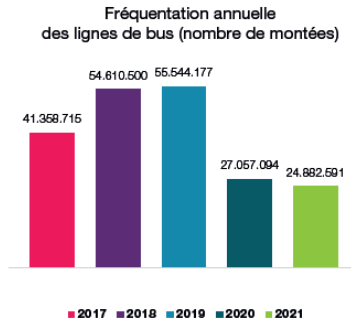
Infrastructures



Secured parking



Public transport



Les chiffres compilent le nombre de montées sur les 67 lignes de bus desservant partiellement ou complètement la Ville de Liège (1 à 10, 12, 13, 17 à 31, 33, 35, 39, 41, 48, 53, 56 à 58, 60, 61, 64 à 73, 75, 76, 78, 81 à 85, 88, 90, 94, 134, 138, 140, 158, 175, 240, 248, 377). Les années 2017 à 2019 montrent une belle évolution stoppée par la pandémie de COVID et la perte d'habitude de validation du titre de transport (la montée ne s'effectuait plus par l'avant sous le contrôle du chauffeur).

Source : TEC

17931
montées
à Liège Guillemins



En 2019, dernière année de référence «pré-COVID», presque 18.000 voyageurs quotidiens sont comptabilisés à Liège Guillemins, classant la gare dans le top 10 des gares belges

152 000
montées quotidiennes



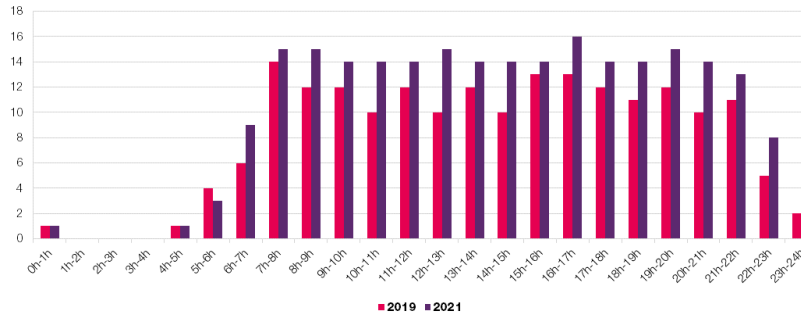
En 2019, dernière année de référence «pré-COVID», plus de 152 000 montées par jour sont comptabilisées en moyenne sur les lignes circulant à Liège

60,6%
de la flotte est hybride



En 2022, 286 véhicules sur les 472 des dépôts de bus liégeois sont hybrides

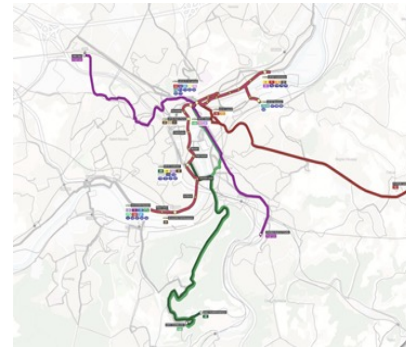
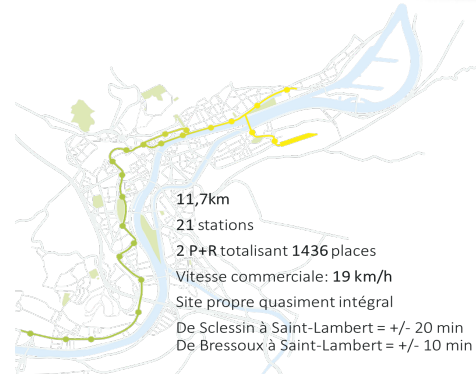
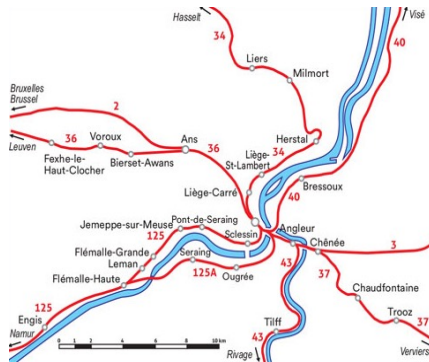
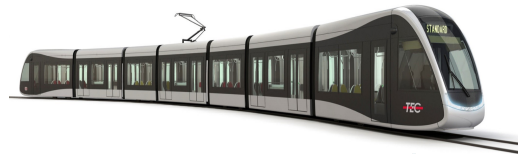
Offre de trains par jour dans la liaison Guillemins / Carré / Saint-Lambert





+33%

En 2019, dernière année de référence «pré-COVID», le nombre de montées le weekend a bondi de 33%. Il y a plus de montées le week-end qu'en semaine

Train, Tram, Busway





sncb 



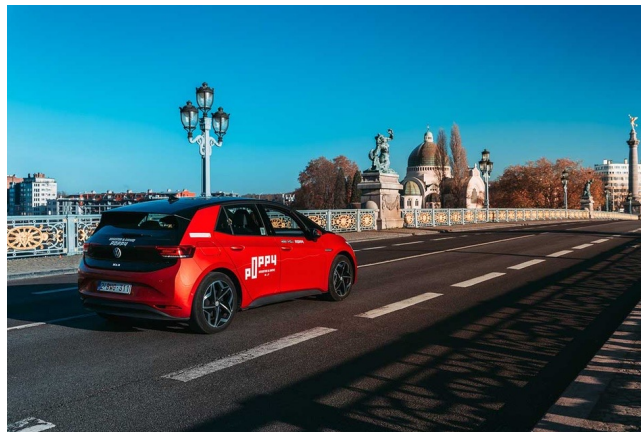
City Pass Liège

Achetez votre City Pass et voyagez sans limites dans et autour de Liège en train et bus.

Infos et conditions sur sncb.be

Produit de  et 

Shared mobility



Micromobility



3 operators
1000 scooters
250 electric-assist
bicycles
3000 users/week

15 000

trajets/semaine en trottinettes

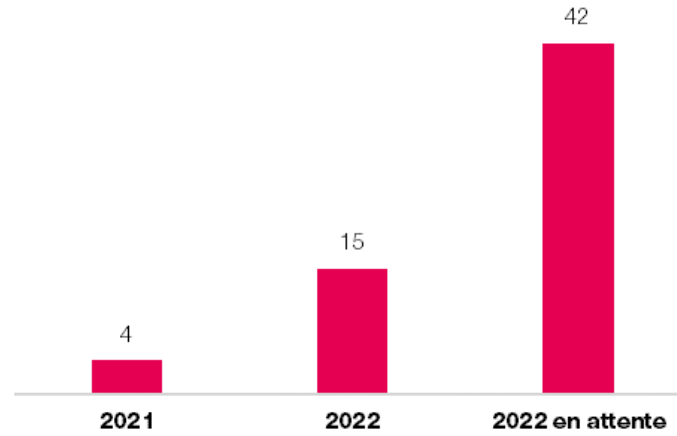


En 2022, les 1000 trottinettes présentes à Liège effectuent en moyenne pendant les beaux mois, 15 000 trajets individuels par semaine d'une distance moyenne de 2,4 km par trajet

	Liège	Paris	BXL capitale now	BXL capitale futur
Scooters	1000	15000	21000	8000
Area km ²	70	105	168	168
Scoot/km ²	14	143	125	48
Ratio / Lg	1	10	8,8	3,3

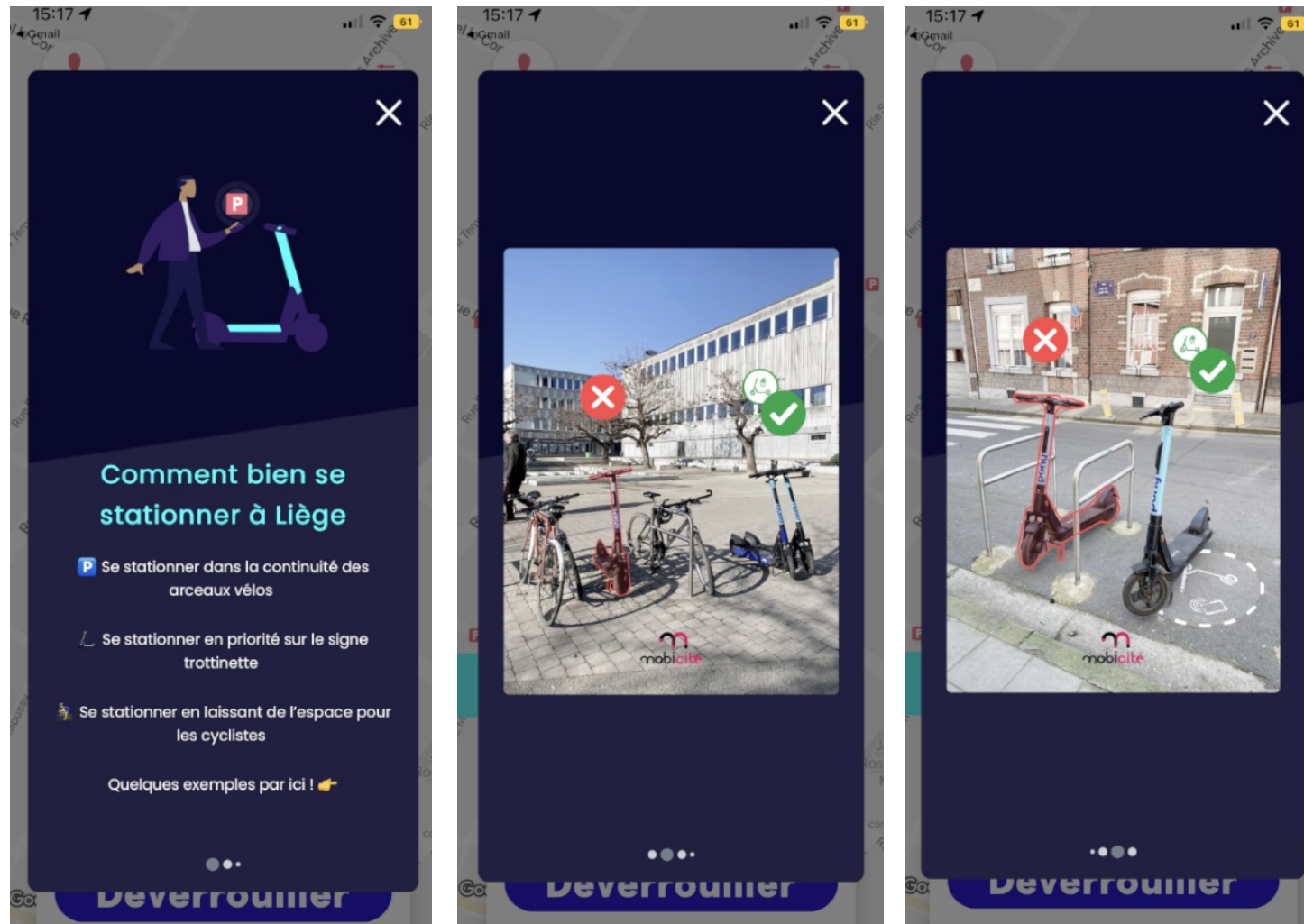
Dedicated parking space

Ajouts d'emplacements de stationnement spécifiquement dédiés aux trottinettes partagées



Awareness





1 framework (Charter) and permanent dialogue

Shared cars



Station base

22 stations ~ 60 vehicles

5 new stations by the end of 2023

cars are reserved 12H/24H



Freefloating

80 vehicles - 1 van

~ 900 trip/week Trip

distance ~ 25km

Private motor vehicles

30%
de part modale



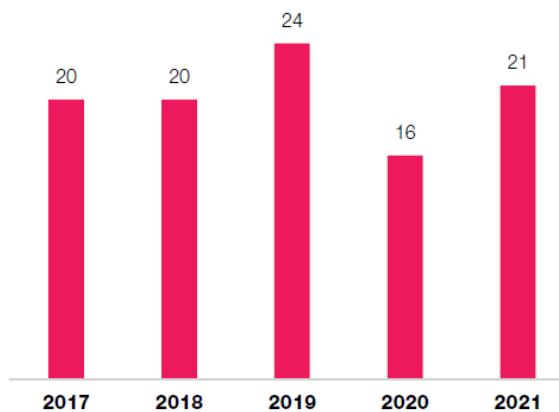
En 2017 (dernière enquête disponible),
30% de travailleurs liégeois se
déplacent autrement qu'en voiture pour
se rendre au travail

35 km



En 2022, près de 35 km
de voiries sont associées
à des mesures qui dissuadent
le transit des poids lourds

Taux de congestion (%)

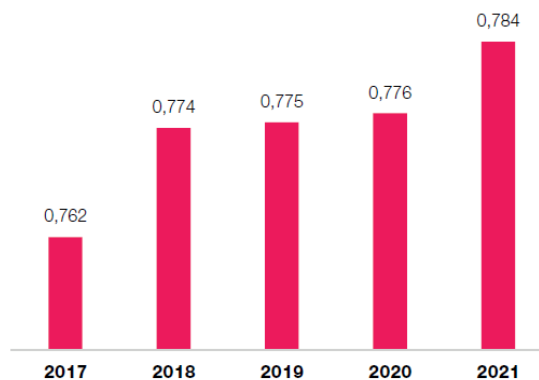


12%
de victimes d'accidents
de la route en moins



Entre 2017 et 2019, période de
référence «pré-COVID», le nombre de
victimes de la route a baissé de 12%

Nombre de véhicules / ménage



1 à 2%
de hausse
du nombre
de motos



Depuis 2017, le nombre de
motos augmentent chaque
année de 1 à 2%

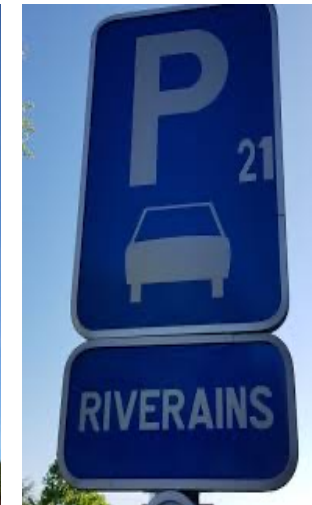
Road safety

Calming local districts by reducing speed and restricting through-traffic



Parking

Making parking policy clearer and more controllable

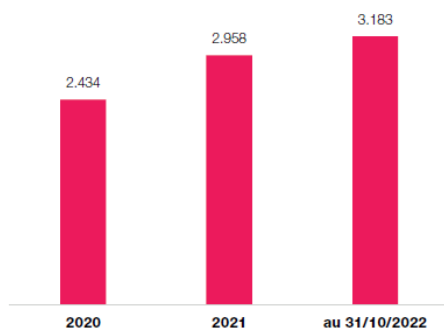


0,9
place en ouvrage
par place réglementée
en voirie

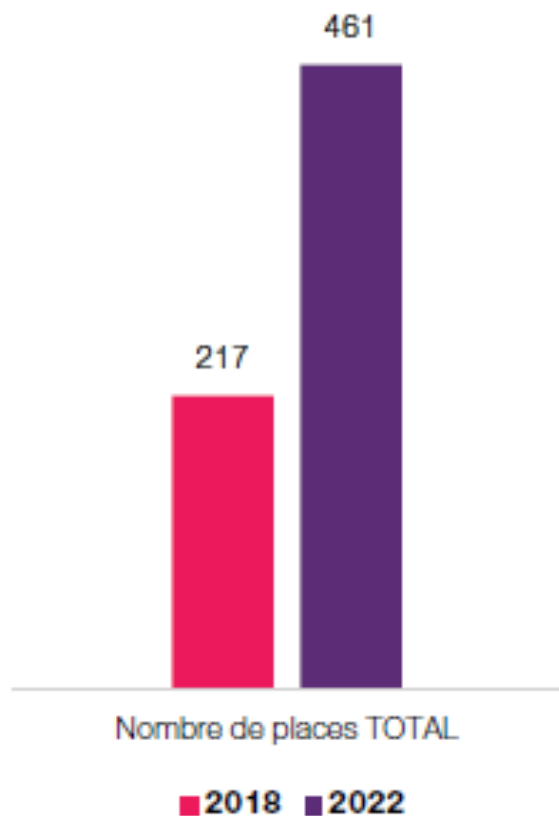
En 2022, il y a quasiment
autant de places réglementées
en voirie que de places
de stationnement en ouvrage



Nombre de places "Riverains"



SHOP&DRIVE / KISS&RIDE



47,6 %
de paiement
dématérialisé



En 2021, près d'un paiement
sur deux est réalisé via SMS
ou appli mobile

3 P+R
1780
places



En 2022, 3 P+R sont opérationnels
à Liège et offrent près de 1800 places.
Dès 2024, ils passeront à 5
pour plus de 3200 places

Protecting local residents

Preserving the quality of life in our neighbourhoods



ZONE PAYANTE

4.585 places payantes

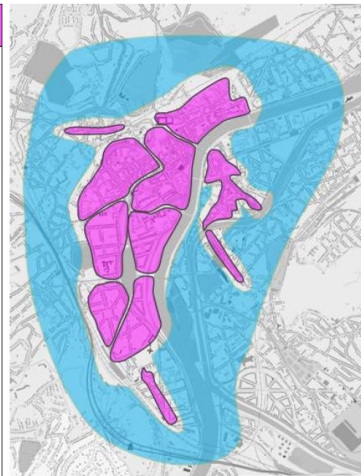
1,50 € / h de 8h à 18h

Maximum 1h30 ou 3h00

Abonnement (600€/an) sans contrainte horaire

3 cartes de riverains gratuites

Riverains sur place payante selon découpage en zones



RIVERAINS

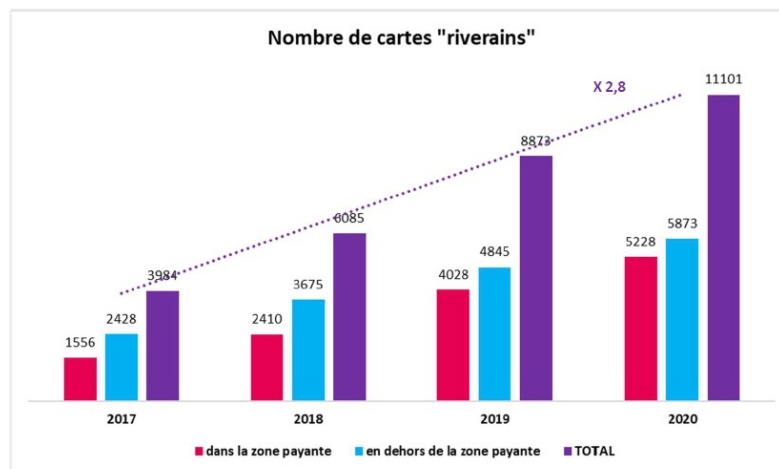
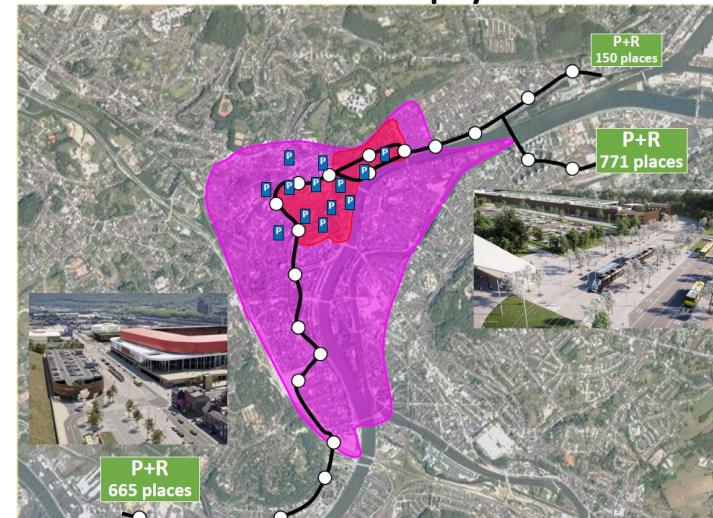
3.183 places dédiées

Sans limite de temps

3 cartes de riverains gratuites

Riverains sur place dédiée selon découpage en zones

Extension zone payante



COMPARATIF	Nombre d'hab.	Première	Deuxième	Troisième
ANVERS	530.000	GRATUIT	GRATUIT	
GAND	263.000	GRATUIT	250 €	
CHARLEROI	202.000	GRATUIT	100 €	100 € en zone « blanche »
NAMUR	112.000	30 € pour étudiants	GRATUIT en zone « blanche »	100 € en zone « blanche »
		80 € (zone horo)		
		10 € (zone bleue)	150 €	
BRUXELLES	185.000	10 € (pas valable en zones rouge et orange)	50 € (pas valable en zones rouge et orange)	250 € (pas valable en zones rouge et orange)
LIEGE	197.000	GRATUIT	GRATUIT	GRATUIT

Attractiveness of the city

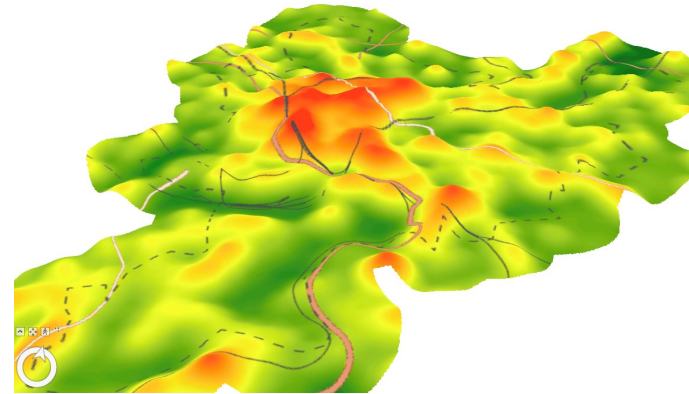
Directing motorists to the most suitable parking spaces / Ensuring accessibility for customers, medical professionals and artisans



New forms of mobility and innovative mobility



Low-carbon mobility



School mobility

*Placer le monde scolaire au cœur de la mobilité actuelle et future
100.000 élèves au quotidien (40.000 dans le supérieur) qui se déplacent !*



Internal mobility & urban logistics

*Supporting businesses and public authorities
through more sustainable mobility*



INVITATION

Chère Madame, cher Monsieur, Chers Commerçants,
Grâce à vous, Liège propose la plus grande offre commerciale de Wallonie. De ce point de vue, la Ville et les différents acteurs du commerce sont confrontés à de nombreux défis en matière de logistique urbaine.

En effet, le territoire liégeois accueille chaque jour en son sein un nombre considérable de véhicules de transport destinés à l'approvisionnement des commerces et des habitants. Bien que nécessaires à la vie de la cité, ce charni porte avec lui de nombreuses nuisances : gaspillage de temps, particules fines, bruit, congestion...

Afin de les réduire et de repenser la mobilité des marchandises au centre-ville à moyen terme, la Ville de Liège a confié au consortium formé par les sociétés MOBLIA, l'URBINE / STEP ENTREPRENEUR la réalisation d'une étude de faisabilité.

Bien que générale et touchant l'ensemble du territoire de la Ville, les défis de la logistique urbaine sont d'autant plus ambitieux :

- dans l'hypercentre (secteur plattenhof) qui concentre les activités commerciales, de loisirs, du secteur de l'IBRECA, etc.

- dans les zones dont la physionomie sera profondément modifiée et agitée grâce à l'arrivée du tram.

C'est la raison pour laquelle un périmètre prioritaire sera mis de cadre à l'est de la gare de Meuse et de la rue de la République à la place des Députés en rive gauche de Meuse avec la volonté d'élaborer des principes applicables ensuite à d'autres quartiers (il ne s'agit donc pas de solutions temporaires).



Une première rencontre avec les logisticiens, transporteurs, propriétaires d'espaces immobiliers s'est tenue le 19 avril 2022. En effet, l'apport des professionnels du secteur logistique est primordial pour dialoguer, avec vous, des pistes de solutions pouvant satisfaire tous les acteurs impliqués.

C'est la raison pour laquelle, Monsieur le Bourgmestre, Madame l'Échevine du Commerce et Monsieur l'Échevin de la Mobilité vous convient à un atelier collaboratif afin d'échanger ensemble sur le futur de la logistique urbaine liégeoise. Deux séances sont prévues à partir de 19h pour permettre à chacun d'être présent :

ATELIERS COLLABORATIFS
Le Lundi 21 Mars et le Mardi 22 Mars
à l'Office de Mobilité - Quai de la Sarte 13 à 4000 Liège
(accès libre PMI assurés)

La soirée sera décalquée comme suit :
- 19h00 - 19h30 Accueil
- 19h30 - 21h00 Atelier d'atelier
- 21h00 Fin des ateliers

Les places étant limitées, pourriez-vous confirmer votre participation individuelle à l'atelier en vous inscrivant soit par téléphone : 049780.45.76 soit via l'adresse mail suivante : info@mobilia.be

Votre participation à l'atelier sera en deux temps. N'hésitez pas à compléter une enquête qui permettra de mieux appréhender votre organisation logistique. Après analyse, les statistiques recueillies seront exploitées pour prioriser et enrichir les sujets qui vous seront soumis lors de l'atelier.

Le formulaire est disponible en scannant le QR code suivant. Si l'atelier ne vous est plus intéressant possible et fera usage de quelques outils numériques simples mais nécessitant l'usage d'un smartphone. N'hésitez donc pas à vous manifester pour l'occasion.

Nous tenons à vous remercier d'avance pour votre participation à ce processus direct et participatif.

Nous vous prions de croire, Madame, Monsieur, chers commerçants, en l'assurance de notre sincère considération.

La Ville de Liège



Printemps du vélo

Mardi 21 Mars 2023



Mobility monitoring

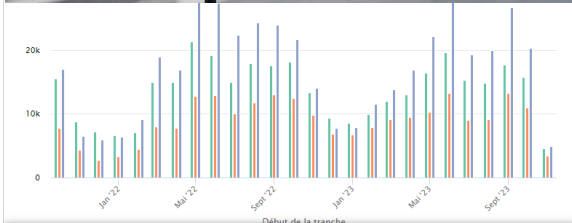


Sensors,

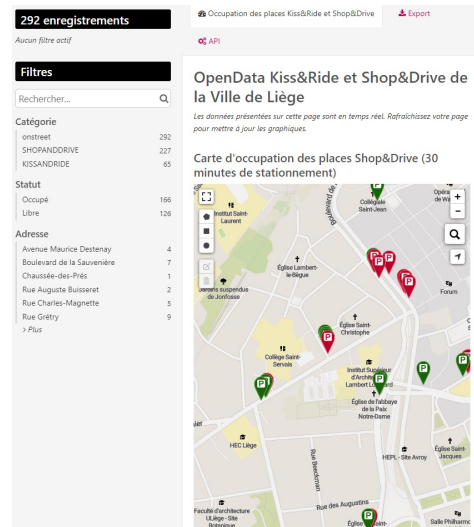
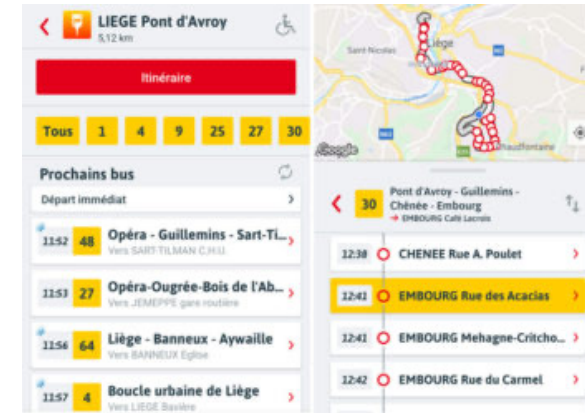
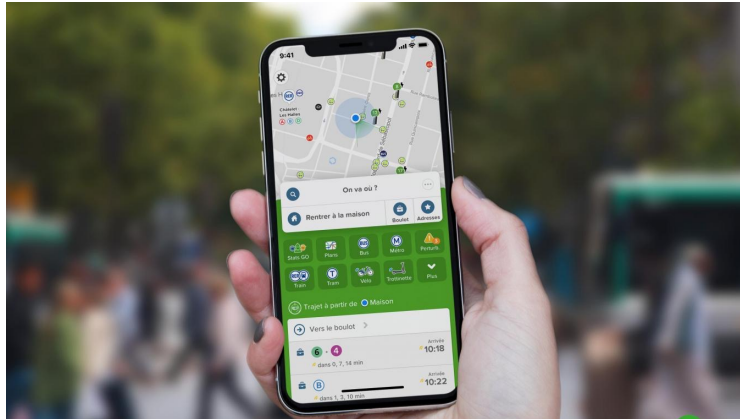
Digital mapping

Dashboards

Studies



Mobility as a Service (MaaS)

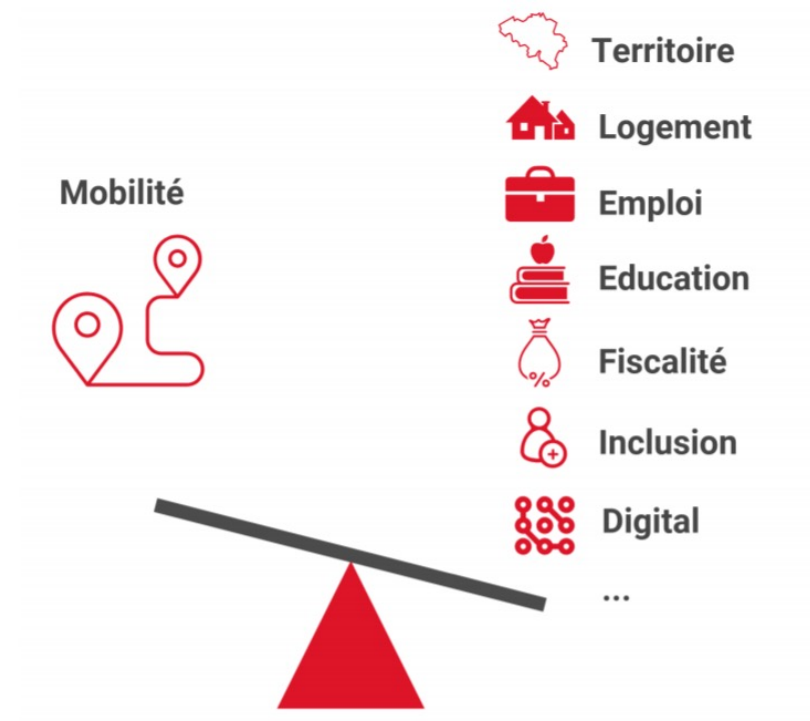


opendataLiège



Conclusion

MODALITY REQUIRES CROSS-FUNCTIONALITY



 **MERCI**

A light blue abstract shape, resembling a stylized mountain or a large 'L' rotated 90 degrees, is positioned on the left side of the page, extending from the top left towards the bottom right.

CASE STUDY

Mobility as a Service in the Brussels Capital Region

By Thomas de Bassompierre & Gregory Reuter, Ngage



WHO WE ARE, WHAT WE DO, HOW WE DO IT

Liège, 17/11/2023

Who we are

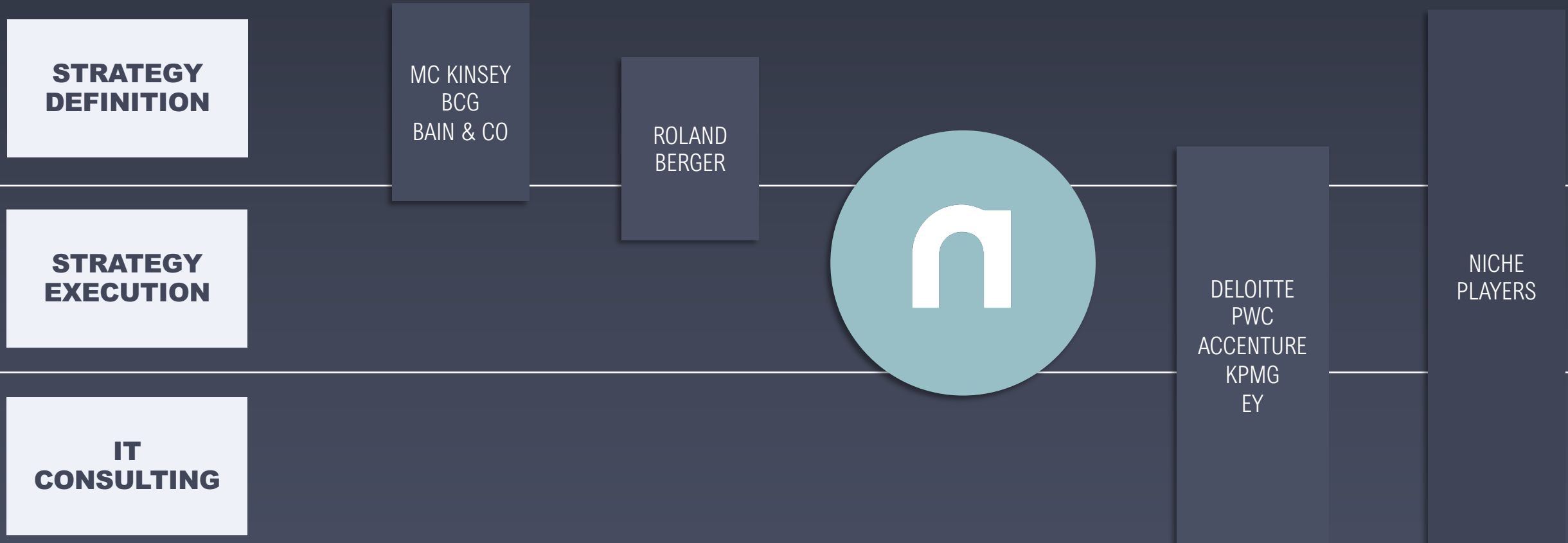


THOMAS DE BASSOMPIERRE
SENIOR MANAGER @ngage Consulting
MAAS PROGRAM MANAGER @STIB



GREGORY REUTER
SENIOR CONSULTANT @ngage Consulting
MAAS CUSTOMER CARE SET-UP @STIB

WE **TRANSFORM ORGANISATIONS,** EMBRACING **SOCIETAL TRANSITIONS**



WE DESIGN AND EXECUTE **TRANSFORMATIONS**



EXPERIENCE

Future-proofing customer and employee experiences



PERFORMANCE

Optimizing and aligning processes, systems & governance



DIGITAL

Leveraging the power of digital technology

WE GUIDE THROUGH **SOCIETAL TRANSITIONS**



SUSTAINABILITY

Putting sustainability at the core



MOBILITY

Unlocking a disruptive mobility

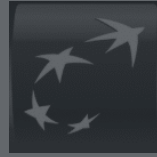


ENERGY

Joining the energy transition



voi.



Nordea

Volkswagen D'Ieteren Finance
driving your mobility



WE HAVE BROUGHT ANOTHER CHAIR INTO THEIR GAME



SAMSUNG



DARWIND



Good to know ...



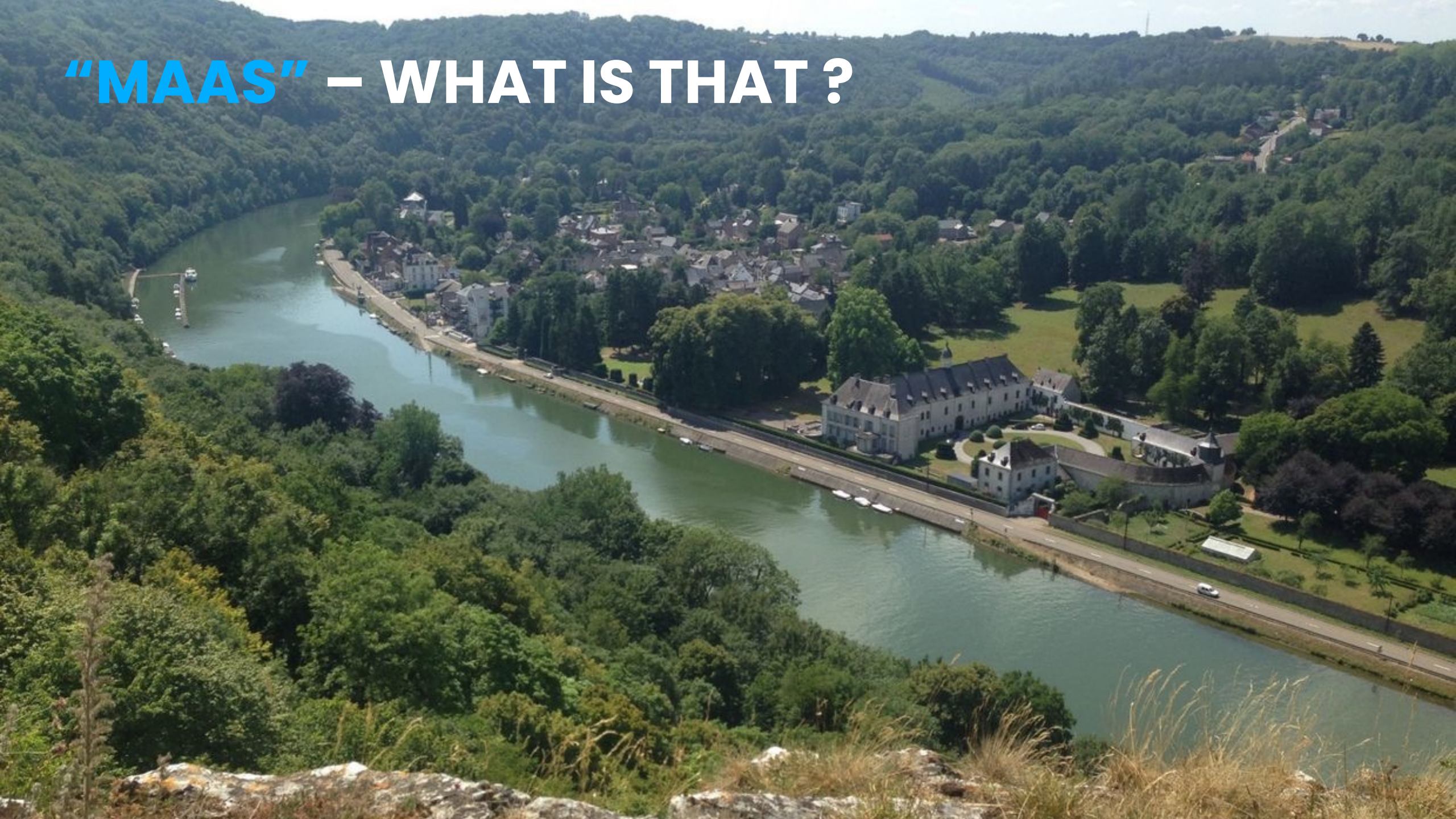
As a B Corp in the consulting world, we're counted among businesses that are leading a global movement for an inclusive, equitable and regenerative economy !



Great Place To Work Certification recognizes employers who create an excellent employee experience, where the employees have a great level of trust in their leaders and a great level of pride in their jobs

N

“MAAS” – WHAT IS THAT ?



MaaS application ?

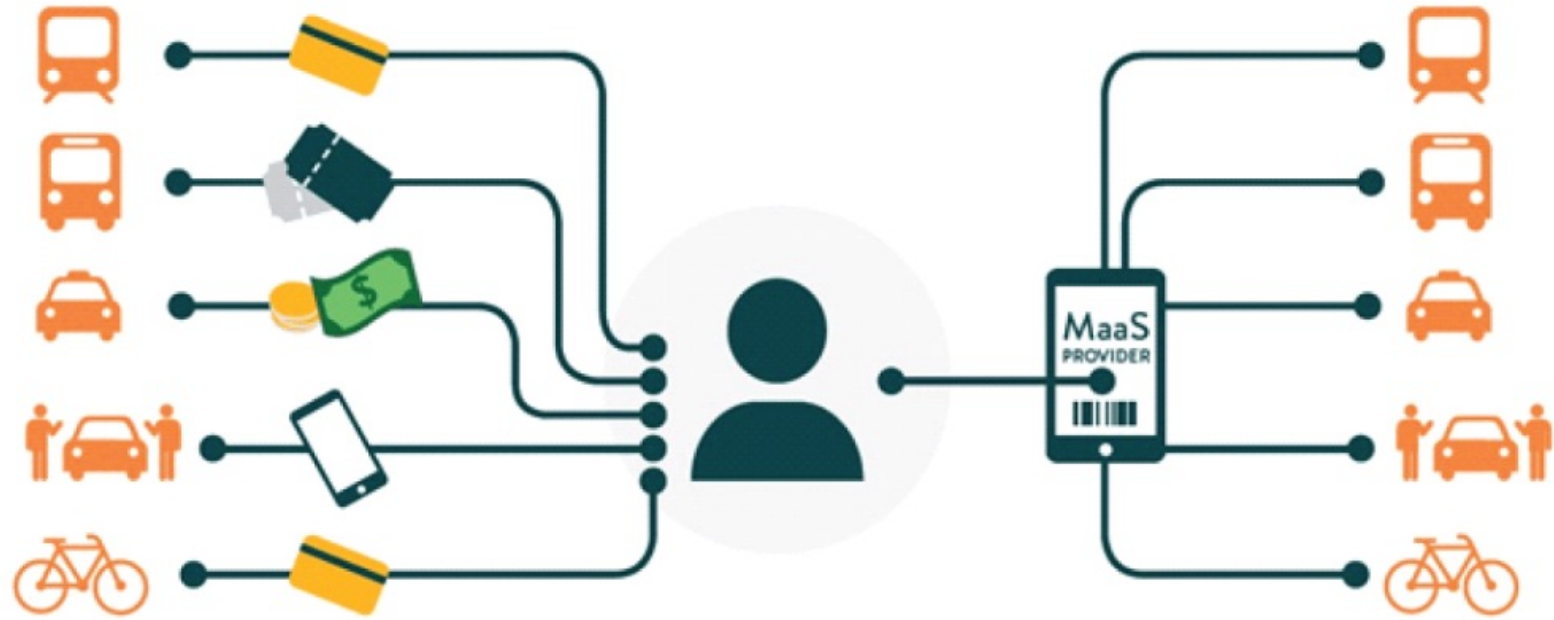
Mobility as a Service (MaaS) is the **integration of different forms of transport** into a single (digital*) mobility service, accessible on demand and managed through a **single channel**.

MaaS offers the **opportunity to reduce personal car ownership** and move cities towards more user-centric, efficient, fuel-efficient and environmentally conscious mobility choices.

** MaaS must also be based on a high-performance physical mobility service.*



MAAS APPLICATION ?



MaaS Framework (Source: UITP)

MAAS IS NOT A DESTINATION... MARKET INSIGHTS*

* Cap Gemini 2022

Local authorities in the lead

As travellers discover quicker and cheaper alternatives to car travel, MaaS becomes a **powerful public policy tool**.

Local authorities, also **data-rich** with insights on public transport and traffic levels, develop MaaS platforms, and become the '**control tower**' of MaaS.

They implement **flexible mobility policies**, for example with route recommendations that are adjusted according to the needs of the city, including promoting public transport.

Employee-centric mobility

Increasingly, governments require **employers to reduce their carbon footprint**. MaaS can be an answer.

The B2B model directly targets employers by providing them with closed platforms for journey management, backed by a mobility budget and dedicated payment cards.

MaaS players already specialising in this area include **Skipr & Olympus** in Belgium.

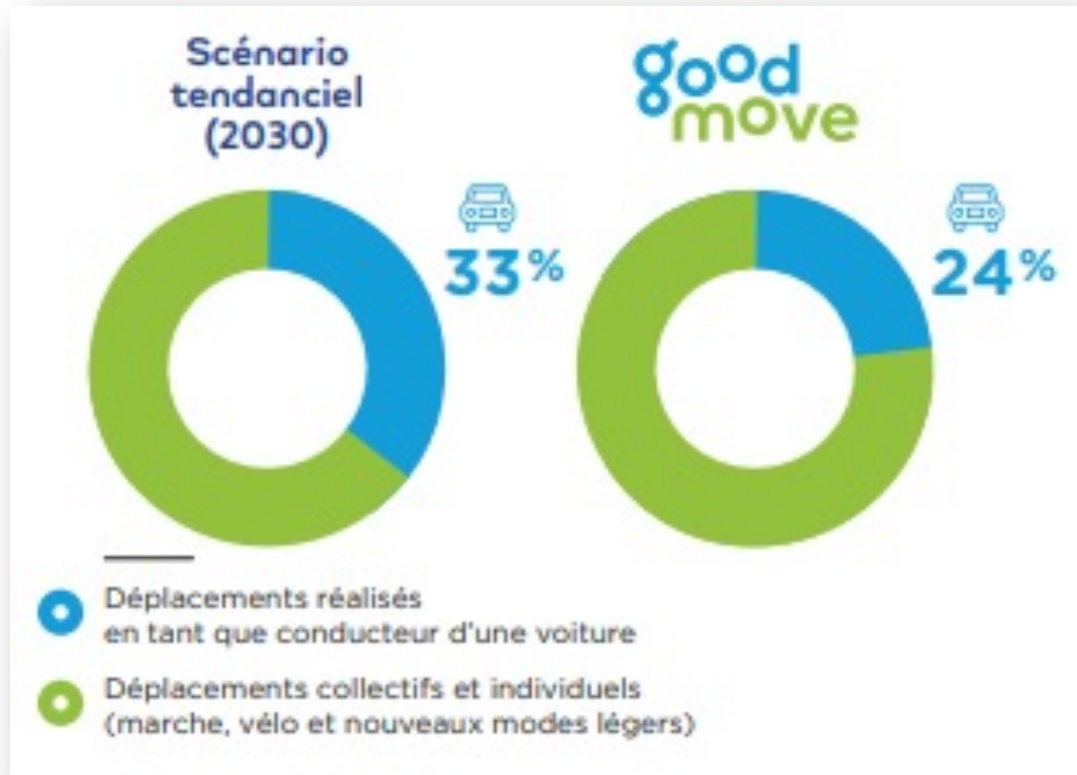
A varied ecosystem

A **variety of MaaS models** will coexist, across consumer, B2B and public-sector applications.

However, this requires a high level of **platform interoperability and data standardisation**.

Local authorities have a key role, by opening access to public-transport data for the entire mobility ecosystem, and by developing a MaaS back end, to which any operator can connect.

GOODMOVE



◀ Ambition de diminution de la part modale automobile individuelle (en tant que conducteur)

Regional mobility plan « Goodmove »



2 key objectives of Good Move*



Improve the environment
& quality of life
of the people in Brussels



Support
Brussels Capital Region's
economic development

*Regional Mobility Plan 2020-2030

expect us to...



...**meet** their (personal)
mobility needs



...**solve** the **inconvenient**
parts of **individual**
journeys



...**improve** the efficiency of
the **entire transport**
system

ADVANTAGES



Sustainable mobility improvement



Multimodal mobility **data** source



Improved quality of **life**



Possibility to part with (2nd) **private car**

CITY & INHABITANTS



Innovative business model



Digital platform



Ecosystem with partners

MaaS OPERATOR



Expand into a **competitive multimodal** offering



Improve **customer experience** through simple digital offerings

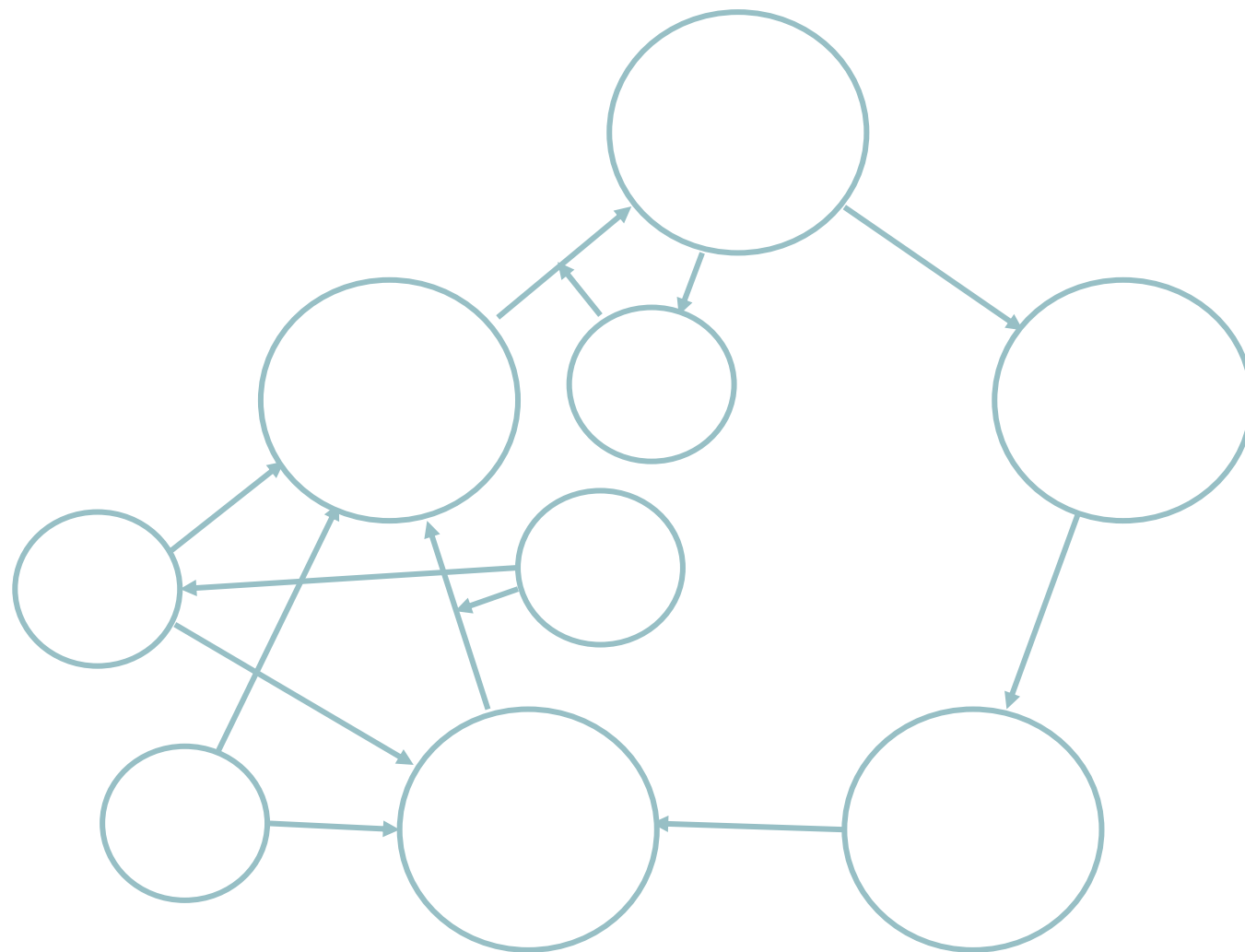


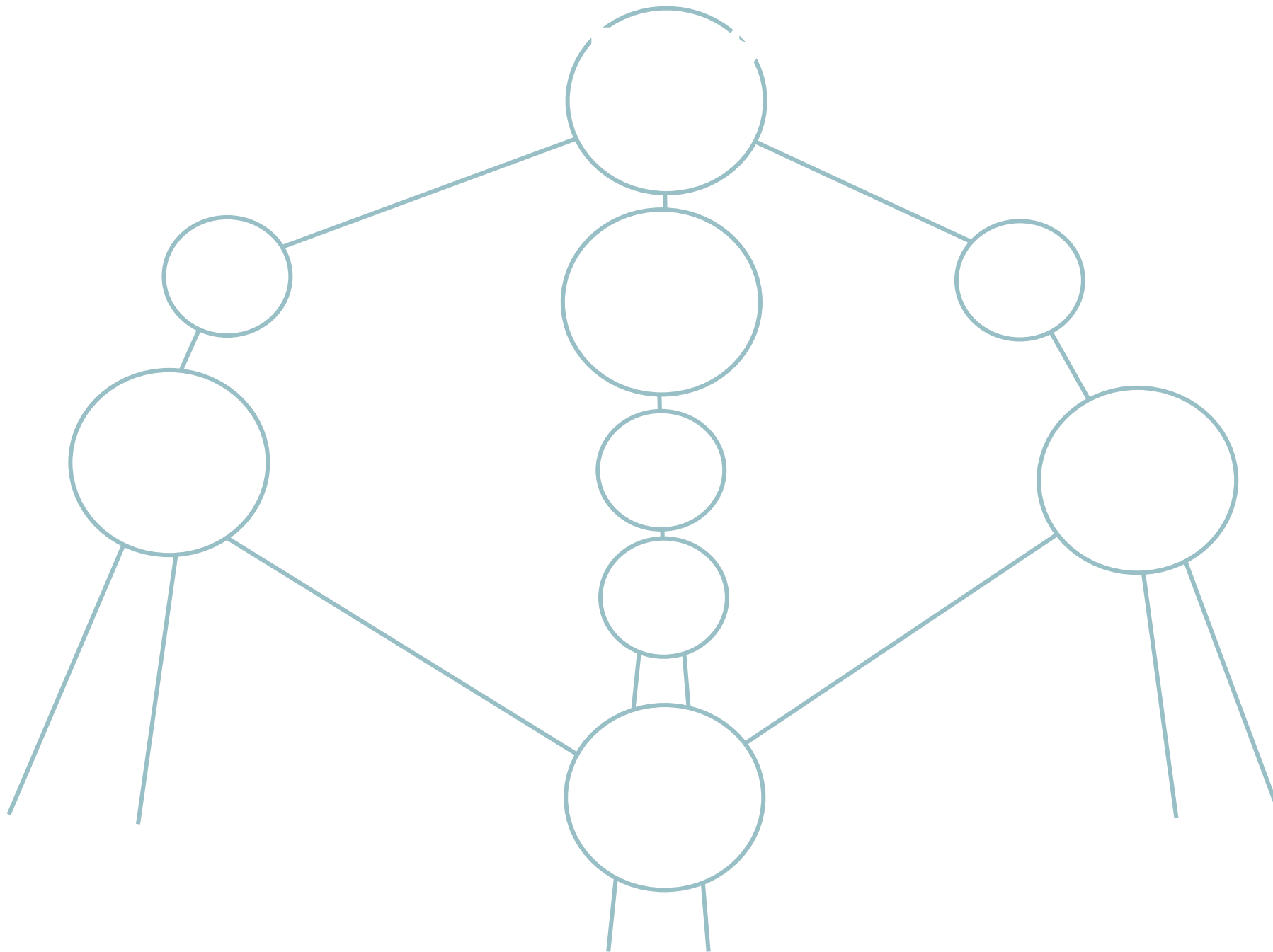
Strengthen **customer relationship** through support & loyalty programs



Mobility **data** & customer **insights**

MOBILITY SERVICE PROVIDERS



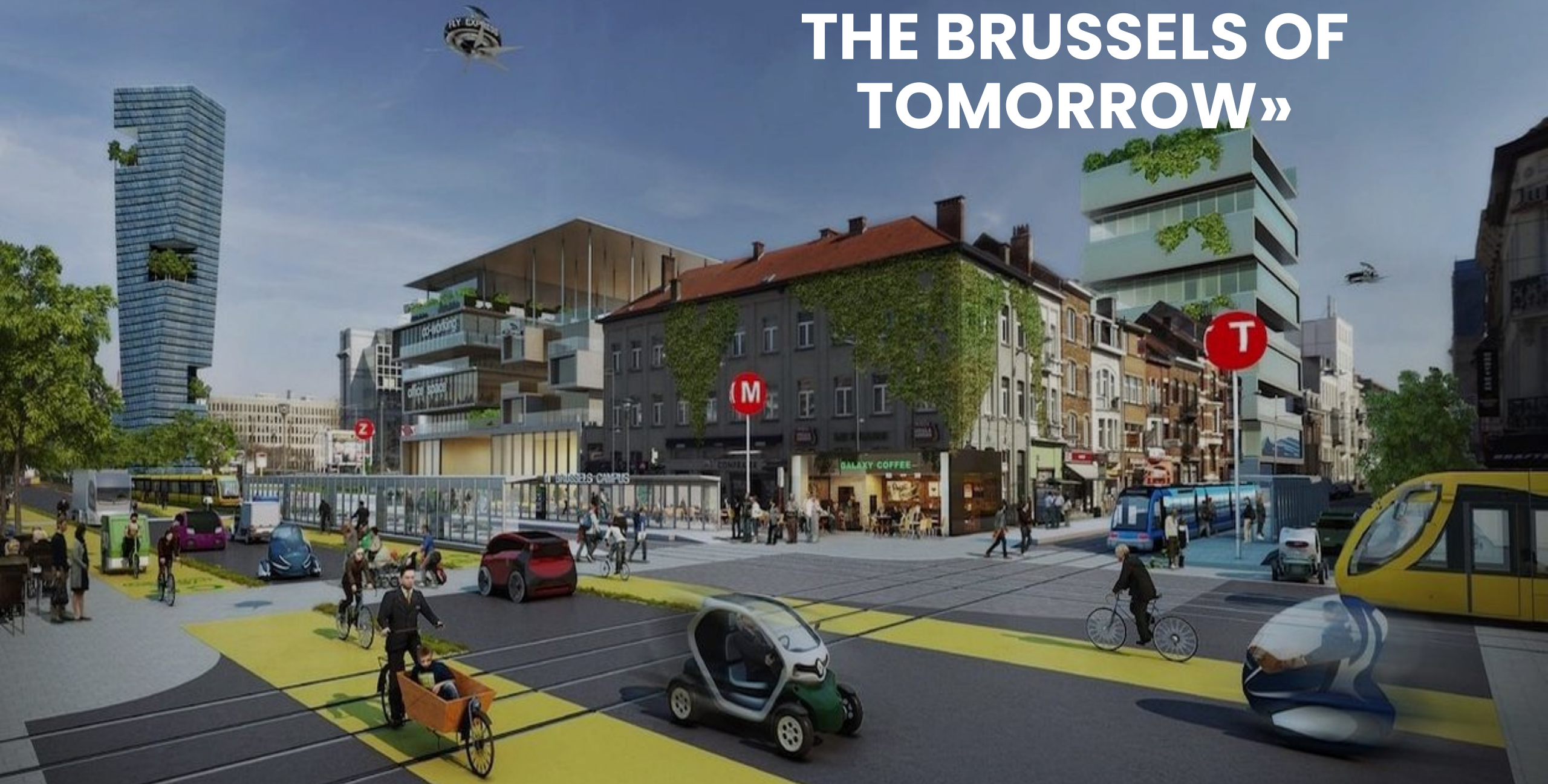


STIB-MIVB HAVE A GREAT VISION & MISSION.

PLAN D'ENTREPRISE
BIGGER ROLE



« TOGETHER LET'S MOVE THE BRUSSELS OF TOMORROW »



TIME
10KM IN
BXL BY CAR

BRUSSELS REMAINS QUITE CONGESTED AND IN THE TOP 10 OF EUROPE: > 25MIN TO DO 10KM

Rank by filter	World rank	City	Average travel time per 10 km	Change from 2021
1	1	London United Kingdom	36 min 20 s	+ 1 min 50 s
2	3	Dublin Ireland	28 min 30 s	+ 1 min 40 s
3	5	Milan Italy	27 min 30 s	- 20 s
4	7	Bucharest Romania	27 min 20 s	- 10 s
5	11	Paris France	26 min 10 s	- 30 s
6	12	Rome Italy	25 min 40 s	+ 10 s
7	14	Brussels Belgium	25 min 30 s	+ 50 s
8	15	Turin Italy	25 min	+ 10 s
9	18	Wroclaw Poland	24 min 30 s	+ 30 s
10	23	Hamburg Germany	23 min 10 s	no change

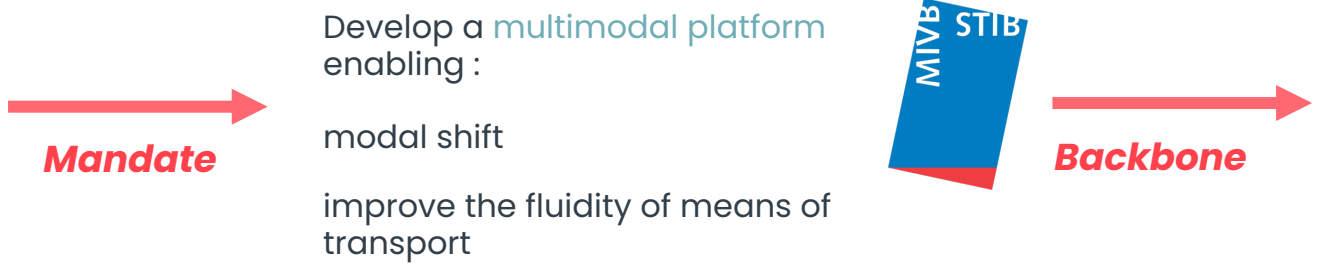
BY TomTom®

Full ranking 2022

EUROPE

(excl. Russia, Ukraine, Turkey)

*Brussels was
8th in 2021...*



Central role thanks to its public transport network and its position in RBC transport;
 Opportunity to strengthen position as mobility planner and organizer.

Ambition supported by the 3 MaaS roles

MaaS Provider (Floya)

Smoother mobility thanks to a "one-stop shop" platform for both B2C and B2B.

Optimization of the STIB's own network and direct management of its customers thanks to collected data.

Enhanced planning role (vs CIRB-BM datalake).

Mobility Service Provider (STIB)

Positioning the STIB through an MSP strategy in the ecosystem of MaaS providers.

Offer a consistent user experience while maintaining customer relations.

Positioning itself on new distribution channels while safeguarding its interests.

STIB's legitimacy to support and develop the creation of a national MaaS backed by the 4 PTO's thanks to its experience and positioning.

Avoiding the disintermediation of customer relations and related risks in the future thanks to this ecosystem.

Maas in « Business plan » STIB-MIVB

Our core “metro tram bus” public transport business model is different to the MaaS “integrator” & “provider” business models.

MaaS should be seen as a **new business, adjacent to our core business.**

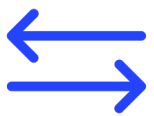
CORE BUSINESS:
PUBLIC TRANSPORT
w/ Metro, Tram, Bus
(« MSP »)



ADJACENT BUSINESS:
« MaaS Provider »



NEW MISSION:
« MaaS Integrator »



OF B2B & B2C CLIENTS

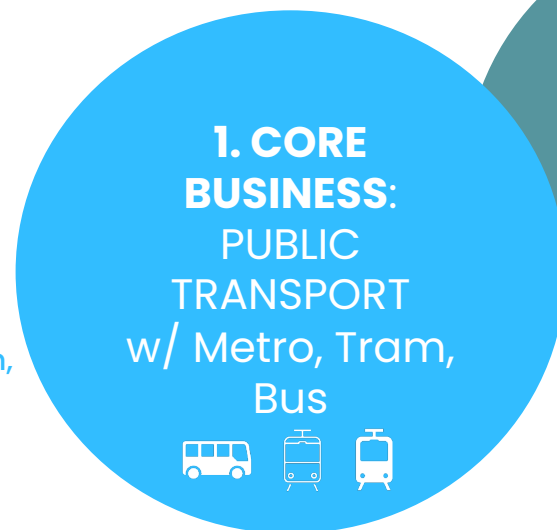


B2C clients:

PT users

B2B Clients:

Large cooperation,
stable network



2. ADJACENT NEW BUSINESS: MaaS Provider

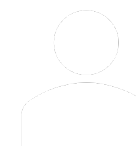


B2C clients:

Same + car drivers, eco-travelers, active
travelers, tourists

B2B Clients:

Same + Companies with mobility/cafeteria
budget



B2C clients:

N/A

B2B2C Clients:

Smartmove, Skipr, Parking Brussels... Any
MaaS provider, other service providers

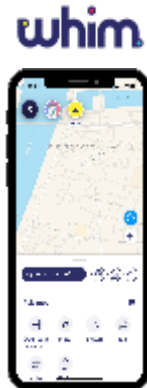
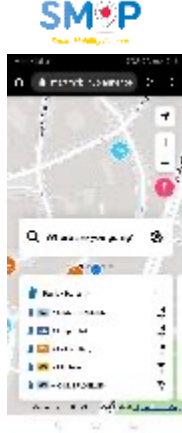


WE OPERATE IN A COMPETITIVE ENVIRONMENT

BUT HAVE UNIQUE DIFFERENTIATORS

B2C

B2B



IN 2022 & 2023, WE SET THE FOUNDATIONS

Pilot

Name & Brand

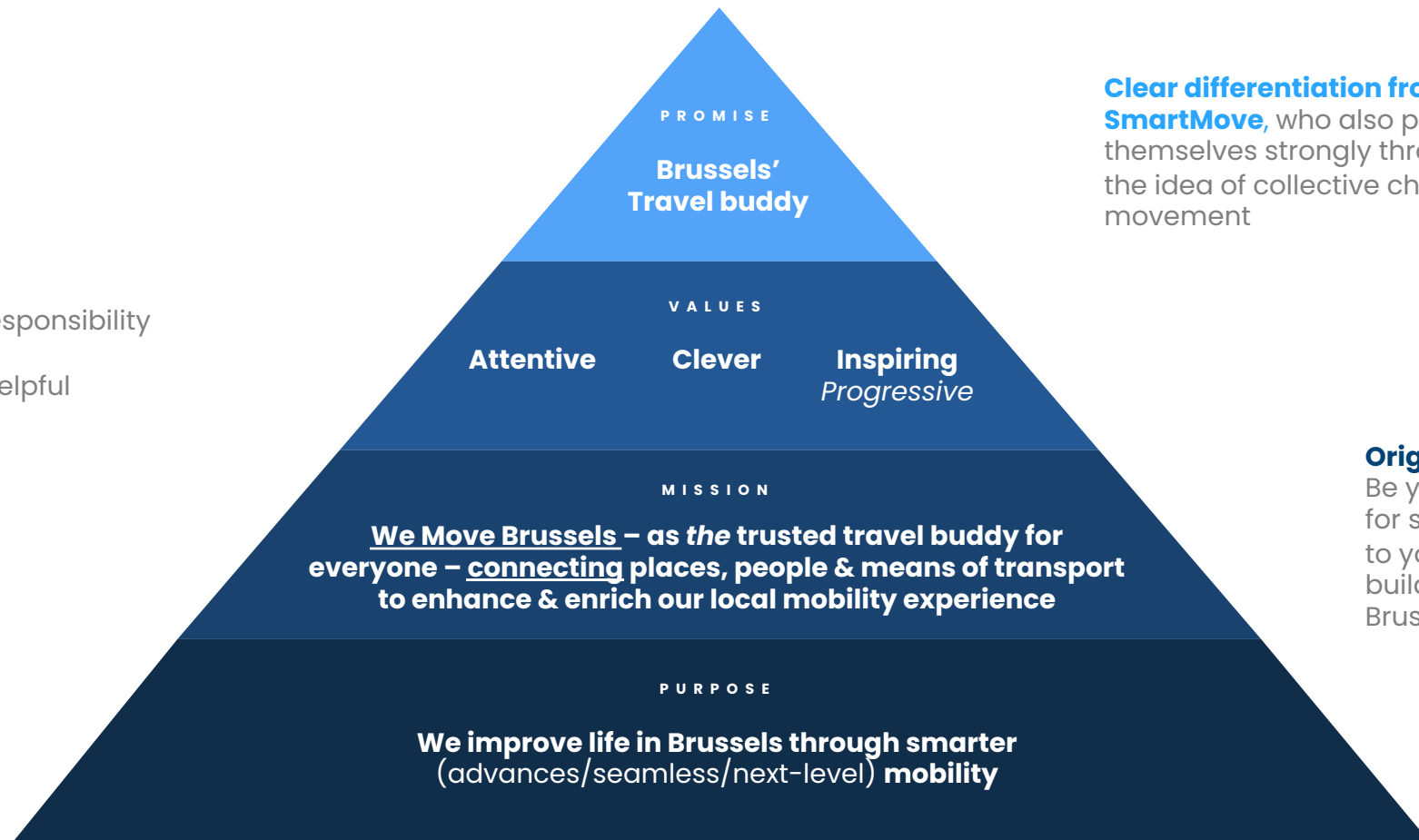
Marketing Strategy

Launch of the new App

Collaboration with Mobility Partners



PURPOSE – MISSION – VALUES – PROMISE



Clear differentiation from SmartMove, who also present themselves strongly through the idea of collective change movement

Original values:

- Simplicity
- Reliability & responsibility
- Innovative
- Convenient/helpful
- Personal

Original mission:

Be your trusted travel buddy for smooth mobility tailored to your needs, whilst building a better life in Brussels

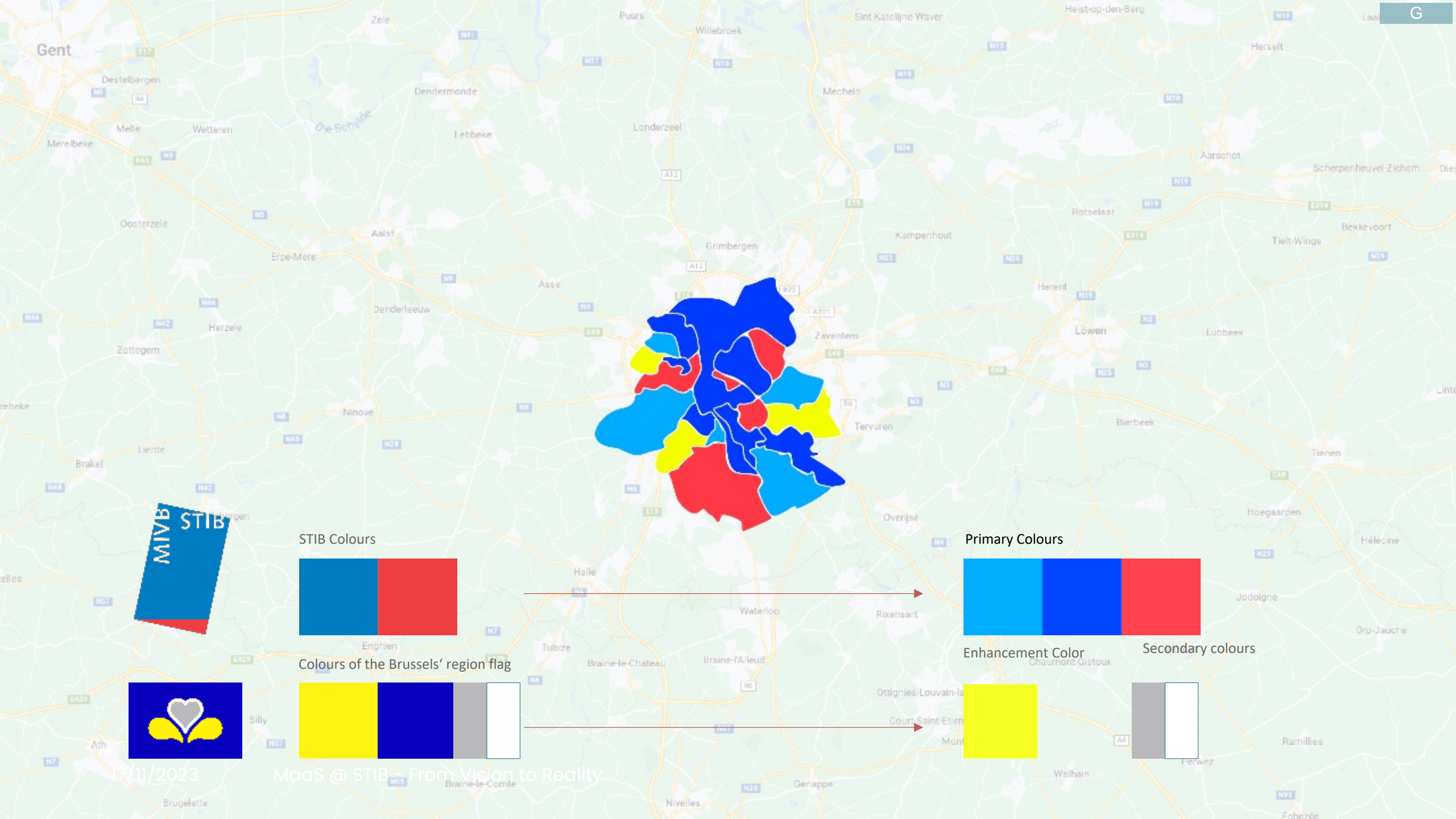
Original vision:

Smarter mobility in Brussels, for a hyper-efficient city and an enhanced quality of life

THE FLOYA BRAND NAME: CONCEPTUAL BACKGROUND

FLOYA

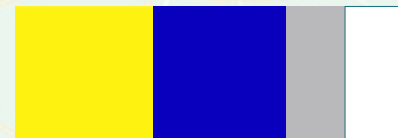
- Idea:**
- The origin is the Norwegian word »fløy« = wing (also simple past of »to fly«)
 - The wing presented a nice metaphor for freedom, independence and effortless movement
 - The smooth, harmonious sound hints at the efficient, seamless and nimble travel experience we want to provide and evokes the idea of »flow for you«
 - It also sounds like a first name, so works well as a personification of the »travel buddy«



STIB Colours



Colours of the Brussels' region flag



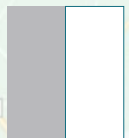
Primary Colours



Enhancement Color



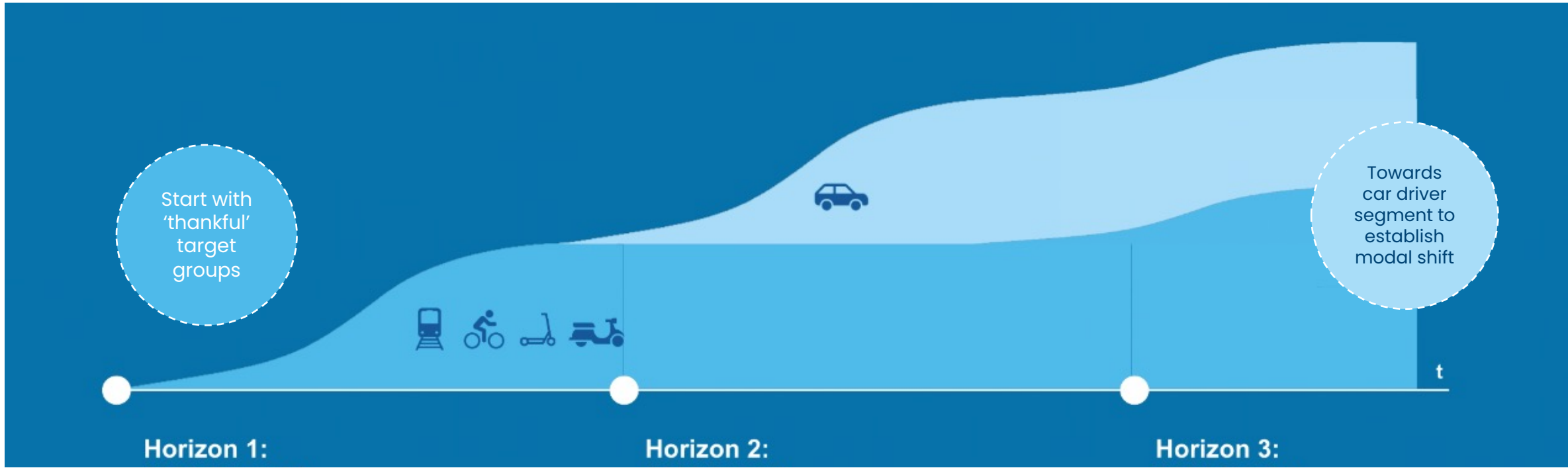
Secondary colours



17/11/2023

MadS @ STIB - From Vision to Reality





💡 in-market experimentation / validation to further finetune & improve Value Propositions towards our different target groups

FLOYA : HOW DOES IT WORK ?



INTEGRATION OF 10 PARTNERS IN 2023





Public Partners Integrated









Private Partners Integrated



Integration levels in Floya
 L1: Information
 L2: Reservation
 L3: Payment

	L1	Static & Real Time Data + Access to network via EMV
	L3	Static & Real Time Data + Ticket purchase
		
	L1	Static & Real Time Data

		
		
		
	L3	Booking and riding with vehicles (payment)
		
	L1	Booking of vehicles



+ "marketing above the line": tagging, follow-up, GDPR, analysis, etc.



Internal Communication 10

1 Press Event on 6th Sept. & Brussels without car

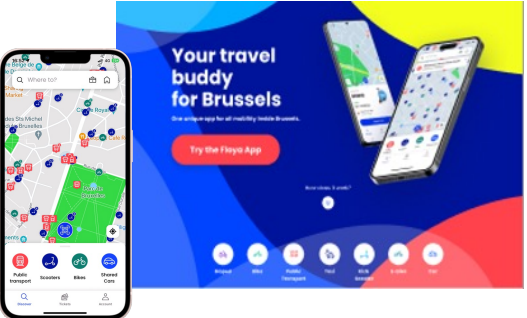
Conversion Rate Optimization (CRO) 9



2 SoMe & SEA Campaigns

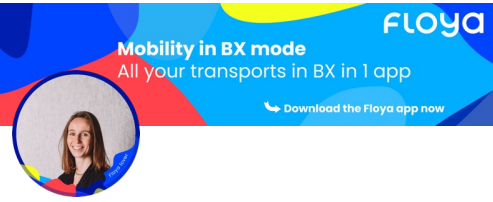


II bomb 8



3 CRM email flows & push notifications

05/09	06/09	07/09	08/09	09/09	10/09	11/09
Logo	Floya is born - press is here	What is Floya?	Teaser video	MSP's in app	Discover the city w/ Floya	
12/09	13/09	14/09	15/09	16/09	17/09	18/09
LAUNCH CAMP. Did you spot us in the streets already?				Start mobility week	Carless Sunday	
19/09	20/09	21/09	22/09	23/09	24/09	25/09
USP's			Testimonial	Your adventure starts w/ Floya		



theguide_brussels

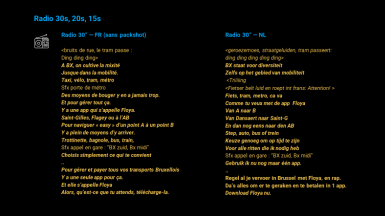
387 posts 92.8K followers 6,681 following

NANCY L THE GUIDE BRUSSELS Blogger

- Ex-banker | I love vlogging
- Discover @rediscove#brussels with me
- Food | Art | Things to do | Escapes
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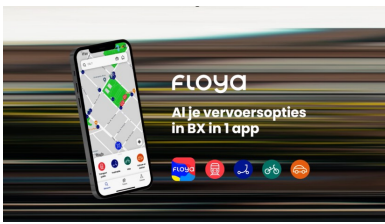
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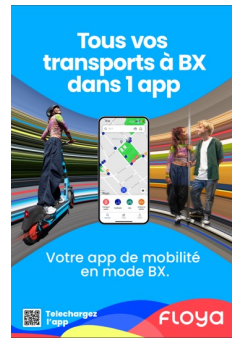


5

Movie Theaters



4 OOH Campaigns

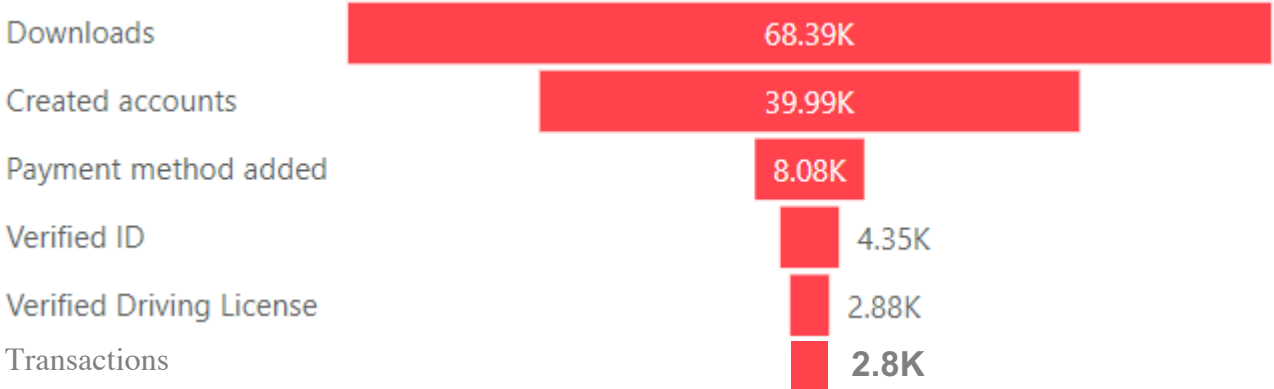


Welcome Journey – Account not created

The user downloaded the Floya app but did not create an account. One day after downloading the app, user receives a push notif 1. Don't forget to create your account. Then the journey waits for 3 days (FC). Two options: First, user creates the account. Therefore, user ends the journey and goes to the Welcome Journey – Account created! Second, user does not create the account. Then he will receive push notif 2. Additionally, if we notice that CSAT survey is useful and relevant in the Welcome Journey – Account created user will receive a CSAT asking him why he did not create an account. If he creates the account after push notif 2, he will go out of the journey. He is entry on the journey.



SOME FIGURES & FEEDBACKS (16/11/2023)



High rate of accounts creation



Low rate of transactions made



2,7 k Daily Average Users



10 k First Searches Performed

- Onboarding process
- Absence of digital tickets
- Payment experience & payment means
- Routing options and preferences

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TIPS FOR THE SEMINAR

- #1** Take into account the territory's specificities
- #2** ... but don't pretend to know the territory better than local actors
- #3** Get information from all the actors from the quadruple helix (public, private, research and civil society) to ensure a systemic approach
- #4** Keep in mind that mobility is only the top of the iceberg

THANK YOU!
QUESTIONS?

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