ITS.be memorandum

- ITS.be, a public-private partnership in support of governments
  - » Our vision
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- In practice, ITS is about people, data & access rights
  - » Via 4 priorities
  - » We help implement public policies
- Solutions and winning combinations
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    - › Digital road operators
    - › Optimal use of public charging infrastructure
  - » Innovate
    - › Commercial licenses for autonomous driving
    - › Advances in intelligent road charging
    - › P+R and fully-digital ticketing.

ITS.be

ITS.be, a public-private partnership in support of governments

We are an open, light-weight not-for-profit association working on sustainable mobility.

We work across all policy levels (local - regional - federal) and across all modes and industries.

We propose and help develop innovative solutions that require public-private co-creation.

In this memorandum, 3 + 3 of such solutions - and winning combinations - are described as proposed action points for future governments.

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lantis · Liège Une ville, un esprit. · LIEGE AIRPORT · leuven · LOGISTICS IN WALLONIA · L'OCALYSE. PUT YOUR LOCATION DATA TO WORK · Macq traffic & automation · mastercard · monotch SMART MOBILITY PLATFORMS

Vlaanderen is mobiliteit & openbare werken · MOVIAS smart mobility · VILLE DE NAMUR · B · OLYMPUS MOBILITY · optimile · orange · paradigm .brussels · proximus

PTV GROUP · Pulsar consulting · pwc · Q2C Genetec · Q8 · QPARK · RAUWERS · renta · Satellic

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Our vision

We believe in a user-centric approach in which digital transformation and co-operation allow new user experiences and a maximum of choice.

Smart Regulator

Access to data
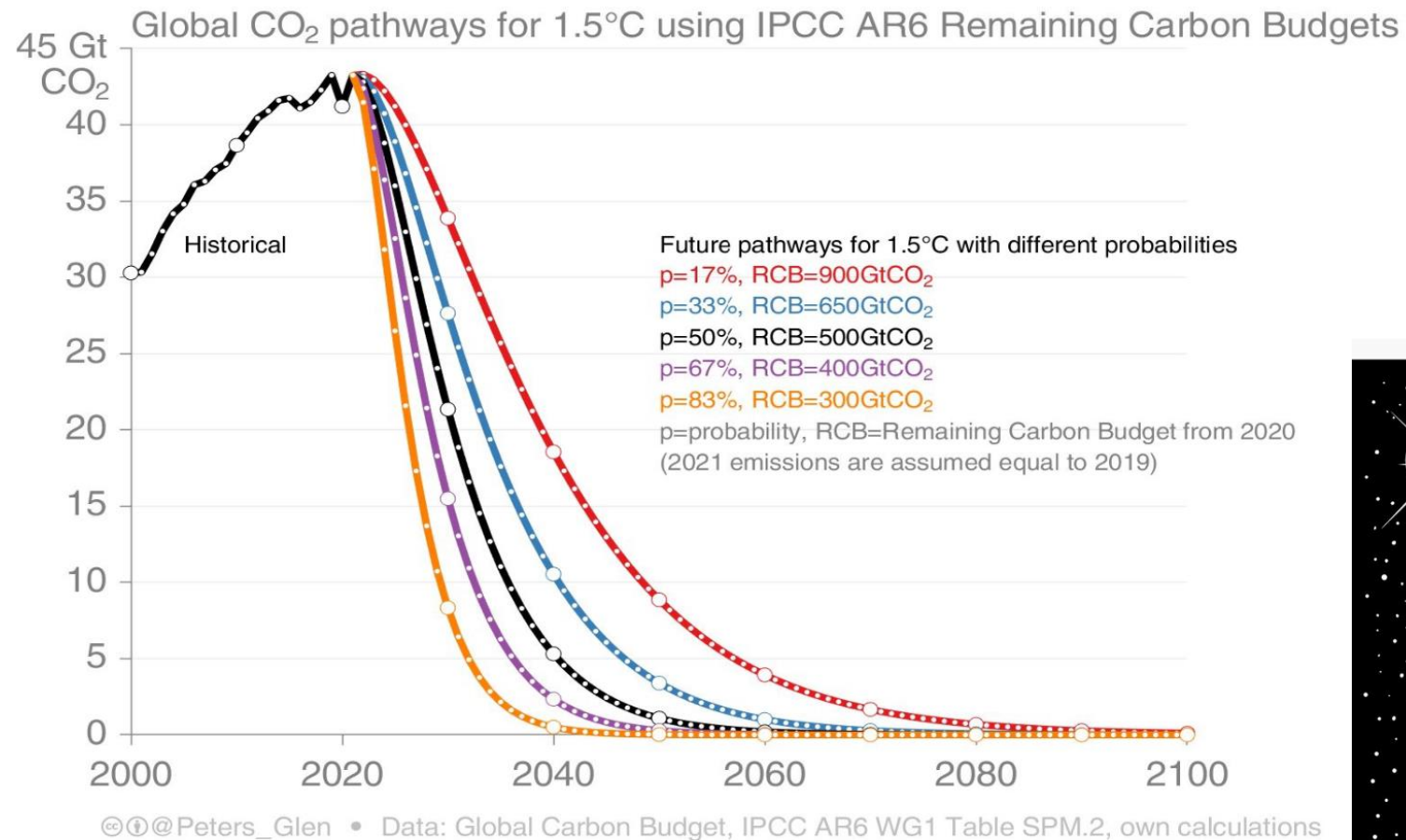## Access to services
(ticketing, payment)

Autonomous, cooperative and electrical driving

Mobility as a Service (MaaS)

- Bikesharing
- Carsharing
- Public transport
- Electromobility
- Microtransit
- Micromobility
- Ridesharing (carpooling)
- Ridesourcing/TNC and taxis
- Shuttle services
- Scooter sharing
- (on- and off-street) Parking
- Short-term rental

A

Mobility hubs
City entries

Mobility hubs
Stations

MOBI PUNT

Mobility hubs
Your local neighbourhood

Sustainability

We see sustainability widely:
- environment
- fluidity
- safety
- affordability & inclusion
- economy & innovation.

The proposed action points are presented accordingly.

Why climate change needs to be put first
Without additional measures, the mobility domain is not getting there

Global CO₂ pathways for 1.5°C using IPCC AR6 Remaining Carbon Budgets

Historical

Future pathways for 1.5°C with different probabilities
p=17%, RCB=900GtCO₂
p=33%, RCB=650GtCO₂
p=50%, RCB=500GtCO₂
p=67%, RCB=400GtCO₂
p=83%, RCB=300GtCO₂
p=probability, RCB=Remaining Carbon Budget from 2020
(2021 emissions are assumed equal to 2019)

©①@Peters_Glen • Data: Global Carbon Budget, IPCC AR6 WG1 Table SPM.2, own calculations

Houston, we have a Problem

Source: prof. Johan Albrecht, UGent & Itinera institute at Renta 12.10.23 happening

In practice

ITS is about

1. People
    » We bring **people** together in the mobility world, that are experts in different domains
2. Data
    » They collaborate on **data** (ultimately available via standardised data spaces) enabling new mobility **services** that are building blocks for sustainable mobility
3. Access rights
    » Ultimately, we help to agree on how to handle **access rights** to limited space and resources so that they can be shared in a sustainable way.

How can we enable that travellers and commuters as well as logistics actors
can handle their access rights across Belgium and Europe in the same, user-friendly way?

Via our 4 priority domains

- Multimodality
  - » 1. Mobility as a Service (MaaS)
  - » 2. Multimodal Mobility Management (MMM *) - digital transformation
- Automotive
  - » 3. Autonomous, Co-operative and Electrical vehicles (ACE)
  - » 4. Road User Charging (RUC).

(*) includes active modes, multimodality, shared and collective mobility

We are helping to implement public policies

	MMM	MaaS	Autono-mous	Co-operative	Electrical	RUC
Avoid						x
Shift	x	x				x
Improve	x	x	x	x	x	x
Share	x	x	x			x

Proposed solutions

3 + 3 solutions

		Fluid	Safe	Sustainable	Economy-friendly / innovative	Affordable
	Accelerate					
MMM	Digital access rights to cities	x		x		
ACE	Digital road operators	x	x	x		
ACE	Optimal use of public charging infrastructure			x		
	Innovate					
ACE	Commercial licenses for autonomous driving	x	x	x	x	
RUC	Advances in intelligent road charging			x	x	
MaaS	P+R			x		x
MMM	Fully-digital ticketing			x		x

Winning combinations

Often, combinations of solutions will have to be made to arrive at consistent policy packages. Government formations are an ideal moment to do so.

As an example, an expanded mobility budget could be combined with the goal of a national network of P+R and facilitating universal and open ticketing.

Accelerate

1. Digital access rights to cities
Prioritise that access rights to cities for citizens and mobility actors can be handled efficiently and in the same, user-friendly way

Responsible level: cities + regions B, FL,W

Cities are increasingly restricting the type of vehicles that can enter urban cores, or the time that they can enter. They do so for many reasons, including air pollution reduction and better safety for all road users. **These restrictions are collectively known as UVAR (or Urban Vehicle Access Rights)**. As they have proven to be effective (*), **they are here to stay**. But the growing number of low- and zero-emission zones, congestion charging zones and other access regulation schemes (car-free & pedestrian zones, low-traffic neighbourhoods, pollution emergencies ...) is also creating some **confusion for citizens** and **headaches for businesses**. Roadside assistance companies, for instance, that increasingly need to enter cities with heavy equipment because of the transition to **electromobility**, have difficulties to do so without regularly incurring fines.

(*) www.eurocities.eu/latest/low-emission-zones-challenges-and-solutions "the example from Brussels shows that one year after the LEZ was set up, the city experienced an 11% reduction in NOx and a reduction of 11.5% of Particulate Matter (PM2.5)"

Today, access to a city often has to be requested on a "one-by-one" basis via a separate website for each city, and in processes that are labour-intensive. Also, they are often not awarded in real-time, eg:

- https://parkeerverbod.antwerpen.be
- https://lez.antwerpen.be
- https://lez.stad.gent
- https://mobiliteitsvergunningen.stad.gent
- https://toegang-leuven.spotbooking.be, …

The City of Antwerp has recently taken the lead to develop a region-wide solution via the Citerra project ("City Environmental Regulations and Rights for Access").

ITS applauds this development and makes the following recommendations:

- work should be **accelerated**
- a **single access point** should be provided (for instance at the regional level) and the approach should be **shared with the other regions** (data should also be made available via the NAP (the national access point, www.transportdata.be)
- a **public-private co-operation platform** should be set-up to ensure that future access restrictions are included, and that other access rights such as for parking and other mobility services can ultimately be covered in the **same universal and harmonised approach**.

2. Digital road operators
C-ITS across the entire network (also prioritising public transport, active and shared mobility) + TN-ITS/DATEX for road safety

Responsible level: **regions B, FL,W**
Ask: **cities**

This priority focuses on **two important digitalisation programmes** of road operators:

- **C-ITS** (co-operative ITS) or real-time communication between vehicles and the infrastructure - the current focus is on **intelligent traffic lights**
- **TN-ITS/DATEX** (transport network-related ITS) or the exchange of safety-related data between road operators and mapmakers - its current focus is on **static and dynamic speed limit data**.

C-ITS and TN-ITS are part of a European vision and they are based on European standards. They are key instruments for road operators to actively manage traffic and to communicate with end users - thereby impacting on safety, fluidity and allowing to prioritising specific users.

Through regional initiatives such as the Mobilidata programme, C-ITS deployment has made tremendous progress in Belgium making the vision on connected smart intersections a reality and enabling greater traffic fluidity (B: 50/500, FL: 250/1200, W: 100/700 intersections).

TN-ITS has mainly been rolled-out in Flanders: the region, as well as many cities, now provide first speed limit information to the industry.
Current C-ITS and TN-ITS efforts are not yet ambitious enough: speed limits shown at the roadside and in navigation systems are, for instance, not yet always the same.

In the next 5 years, **C-ITS and TN-ITS should be expanded as complete datasets stand out**. Use cases prioritising public transport as well as active and shared mobility should be added, and it should be explored how C-ITS technology can be expanded from intersections to the entire road network. Operational costs could be reduced by greater co-operation between the regions.

More specifically, ITS.be urges the regions in the next legislature:

- To be bold and **to fully deploy** across the entire network:
  - » (C-ITS) - ultimately all intersections should be connected (B: 500, FL: 1200, W: 700)
  - » (TN-ITS) - ultimately all static and dynamic speed limits should be published at the required quality level
- **To collaborate** to enlarge the market and lower operational costs
  - » (C-ITS) Strive to use common components and protocols on the Belgian market
  - » (TN-ITS) Invite the Brussels and Walloon region to actively join the programme.

3. Optimal use of public charging infrastructure
Help avoid charging station "overstays" while supporting universal access and price transparency

Responsible level: cities + regions B, FL,W

The roll-out of electromobility is gaining momentum. 30% of sales of new company cars - that represent 60% of the market of new vehicles in Belgium - is now battery-electric. Citizens and companies are rolling out charging infrastructure, and so are cities: ambitious targets have been set (Brussels: 3 500 CPE or charge point equivalents, Flanders: 35 000 CPE, Wallonia: 13 000 CPE) and important tenders have been awarded. The roll-out of public charging infrastructure in cities is critical to ensure that the transition to electromobility is a success.

The 'achilles' heel' of public charging infrastructure is enforcement of charge point overstays. And cities are not yet clear on how they will manage the high number of cars that will be wanting to charge and the limited number of charging stations. Charging station "overstays" need to be avoided while supporting universal access and price transparency.

Vehicle owners may need to change their behaviour and move their vehicle twice: once toward a spot to charge and then toward a spot to park it. Cities are experimenting with different means to achieve this, for instance by using rotation tariffs. Drivers are likely to be confused.

To enforce overstays in an effective way, **different functional domains in a city need to be integrated (parking enforcement, electromobility enforcement, restrictions of the public domain …)** in a process that is **driven by** (far more) **qualitative and real-time data** (than is currently used). Importantly, the data currently foreseen in regional and urban tenders for public and semi-public charge point infrastructure is insufficient for this.

ITS.be is calling on cities and regions to:
- address the imminent problem of handling charge station overstays as a priority, and to harmonise their enforcement strategies - while also supporting universal access and price transparency
- facilitate, via a PPS-initiative involving the leading charge point operators
  » that the **necessary real-time data is made available** (data should also be made available via the NAP (the national access point, www.transportdata.be)
  » **that an evolving vademecum describing the emerging best practice is published**.

Innovate

1. Commercial licenses for autonomous driving
Get prepared for a development that will revolutionise mobility (and that is already here)

Responsible level: regions B, FL,W + federal level

Ask: cities

Autonomous or driverless driving stands for vehicles, (robot)taxis or (robot)shuttles that do not require human intervention for driving. 5 levels of autonomy are distinguished:

1. *Longitudinal OR lateral control during some parts of the driving*
2. *Longitudinal AND lateral control during some parts of the driving*
3. *Automated but not autonomous (primary = autonomous, fallback system = manual, with the driver ready to take over all times) during some parts of the driving*
4. Full autonomy (primary = autonomous, fallback system = autonomous) but not always/everywhere (eg in a city or on some parts of the road network)
5. Full autonomy always/everywhere.

Tele-driving, also known as remote control, is seen as a stepstone towards autonomous driving. It allows a human driver to control a vehicle that is out of his line of sight, via 4G or 5G data network. Instead of sitting inside the vehicle, the driver is in an office, sitting in a remote station that controls the car manually using a camera and live streaming.

Through the use of AI, full-autonomous driving is now a commercial reality. Since August 2023, level 4 autonomous driving is commercially deployed in the US as well as in China. European companies are expected to catch up by 2026. AI-based autonomous driving can be seen as a new means of transport with an unprecedented impact on safety, congestion and the environment - **depending on how it is deployed**. Public and private actors are interested to take-up the operator role.
Today, several companies in Belgium are also ready to deploy tele-driving and are urgently requesting a license to do so.

ITS.be calls on the regions and the federal authorities to allow tele-driving to be commercialised by the end of 2024 as this requires limited changes in the law. By the end of 2025, both levels should be ready with a license for commercial roll-out of level 4 autonomous robot-taxis and -shuttles allowing Belgian cities to prepare for deployment. At the same time, the mobility ecosystem should be prepared.

More specifically, ITS.be urges the regions and the federal authorities to **commit to Q4 2025** at the start of the next legislature, and to work together in an **inter-federal and public-private context** via an **autonomous vehicle transition program** addressing:
- the required **legal framework** (focus: **license model for commercial roll-out of level 4 robot-taxis**)
- campaigns to **prepare the Belgian industry and the public at large**
- the required **digital infrastructure** (such as for handling access rights to curbside pick-ups)
- **data interfaces** to comply with open markets and for reporting.

2. Advances in intelligent road charging
Allow various initiatives enabling the transition to 'multimodal as the new normal'

Responsible level: regions B, FL,W + cities

Intelligent road charging allows to differentiate what users pay in function of time, place and vehicle characteristics such as emissions.

Though current governments have committed to fiscally support the transition to electromobility with programmes that run up to 2029, it is clear that closing the large fiscal hole that will have opened up by then (in 2023, this fiscal hole already reached the 1 billion euro threshold in Germany) will be inevitable.

As is shown in Singapore (where the same smart card as the one used for tolling also gives access to high-quality public transport), by SmartMove, London, Stockholm or Milan, the key is to show to end users that this **it is not about yet another tax but about enabling a new and better user experiences.**

Viapass - the cooperation of the three regions focusing on charging for trucks - is working well. The operation is robust and is bringing in 850 million euro for the regions each year. It is an example showing that the technology for intelligent road charging is mature (and fully interoperable in a European legal and technical context). Smartmove, the app developed by Brussels Fiscality shows the same.

It is clear that different avenues for progress are available: expanding Viapass, preparing end users via company cars, allowing well-designed local or regional experiments are examples.
ITS.be therefore **advocates incoming governments to consider the following options:**

- **Expand the current Viapass scheme to vehicles < 3.5 tonnes and to urban areas** as a logical and timely next step
- Introduce a **kilometre-based VAA/ATN (benefits in kind contribution) for company cars** that allows to sensitise beneficiaries to the environmental impact of their travel
- Allow **well-designed regional and urban experiments** (meaning: with clear objectives, a clear target group, a clear location, and clear tariffs)
- Establish **inter-federal and public-private co-operation** architecting the charging system needed in 2030 allowing the steps above as part of a **common roadmap and communication plan.**

Oosterweel, Smartmove and Viapass show the need to defragment current approaches. Viapass could play a key role in architecting the way forward.

3a. Park & Rides

Establish a national network of park & rides / multimodal transfer points
by providing "access to data" and "access to services"

Responsible level: cities + regions B, FL,W
+ federal level

On a Dutch ring road, for instance the one around Utrecht, large signs can be seen that communicate: "P+R", "free", and "24/7". The signs lead drivers to a clean and safe car park as well as a timely tram connection that drives them past cars that are waiting in congestion to the city centre, allowing to exit right in front of the city hall. Inspite of promising realisations such as Antwerpen Linkeroever, Brussels Ceria or Ghent Ledeberg, P+Rs are not yet a success in Brussels, in Flanders and in the Walloon Region.

For it to work, parking operators need to work with public transport companies as well as with cities (and as a next step, shared mobility providers). And the offer to drivers, that is ideally free both for the parking and the public transport part at the start (while the parking operator and public transport operator will need to get paid) is financed by increased parking fees in the city centre.

As critical mass is needed, existing P+R infrastructure is best made visible in a coordinated way for the whole of Belgium.

Without regional and national networks of multimodal transfer points, there can be no functioning multimodal ecosystem. Current efforts are fragmented and need to be converted in a common approach and network (that is, in turn, part of a European network).

ITS.be therefore calls on key cities, parking operators and the public transport operators.bors - as well as the regions and the federal level - to join it in a platform and use a common technical approach (based on well-known European standards)

- **allowing to publish all park and ride information on the Belgian NAP** (www.transportdata.be), so that it can be used by map makers and navigation systems (i.e. a Belgian profile using the European DATEX/APDS standards)
- **allowing a combined 'park & ride and public transport' service (i.e. combined ticketing and payment) in a user-friendly way** (as well as other shared mobility options)

The key is to facilitate access to data, and access to services in a standardised way.

3b. Fully-digital ticketing
A new account-based ticketing solution for mobility in Belgium

Responsible level: federal level + regions B, FL,W
Ask: cities

Open, fully-digital, unified (nation-wide) systems for ticketing and payment have been or are being introduced in many countries. Some leading examples are:

• Germany's 'Deutschlandticket'
• Denmark's 'Rejsekort', and
• Netherlands' OVpay'.

For the public transport network to be the backbone of interoperability and multimodality, this is essential, especially now that public transport operators are branching out to also support third-party (public and private) shared mobility offers via MaaS apps such as the promising Floya app.

Some state-of-the-art building blocks for seamless ticketing and payment are:

• ABT - account-based ticketing - allowing easier access to interoperable and multimodal product offerings and allowing real-time data to be provided to riders, such as account balances and recent trip histories

- EMV - contactless payment with bank cards, credit cards, Google Wallet or Apple Pay
- MaaS-ready architectures
- New user experiences, e.g. allowing 'one swipe-nationwide' approaches …

Belgian citizens are used to visiting any doctor and getting their prescriptions delivered via any pharmacy using their identity card (based on a common architecture enabling public and private services of common interest via a cross-roads database - 'kruispuntdatabank' or 'banque-carrefour'). A similar approach may be needed in the mobility sector. Unified tickets and tariffs are also needed by cities and by the newly-created mobility regions that are all actively promoting multimodality.

ITS.be recommends to
- study and architect this future-proof backbone for public and private mobility services
- develop a roadmap to implement it in a stepwise way
- foresee a significant budget to finance the transition
- set-up a structural governance model that ensures regular and structural interaction between PTOs, competent authorities and the private sector.

Conclusion

For sustainable mobility, cross-sector and public-private co-operation and co-creation are essential.

ITS.be is offering a neutral but pro-active and supportive environment to facilitate this.

We are keen to listen to the policy needs and objectives formulated in the different government agreements and we look forward to work with the different governments to help meet these objectives.

The ITS collaboration network and ITS technology are uniquely placed to help make the difference.