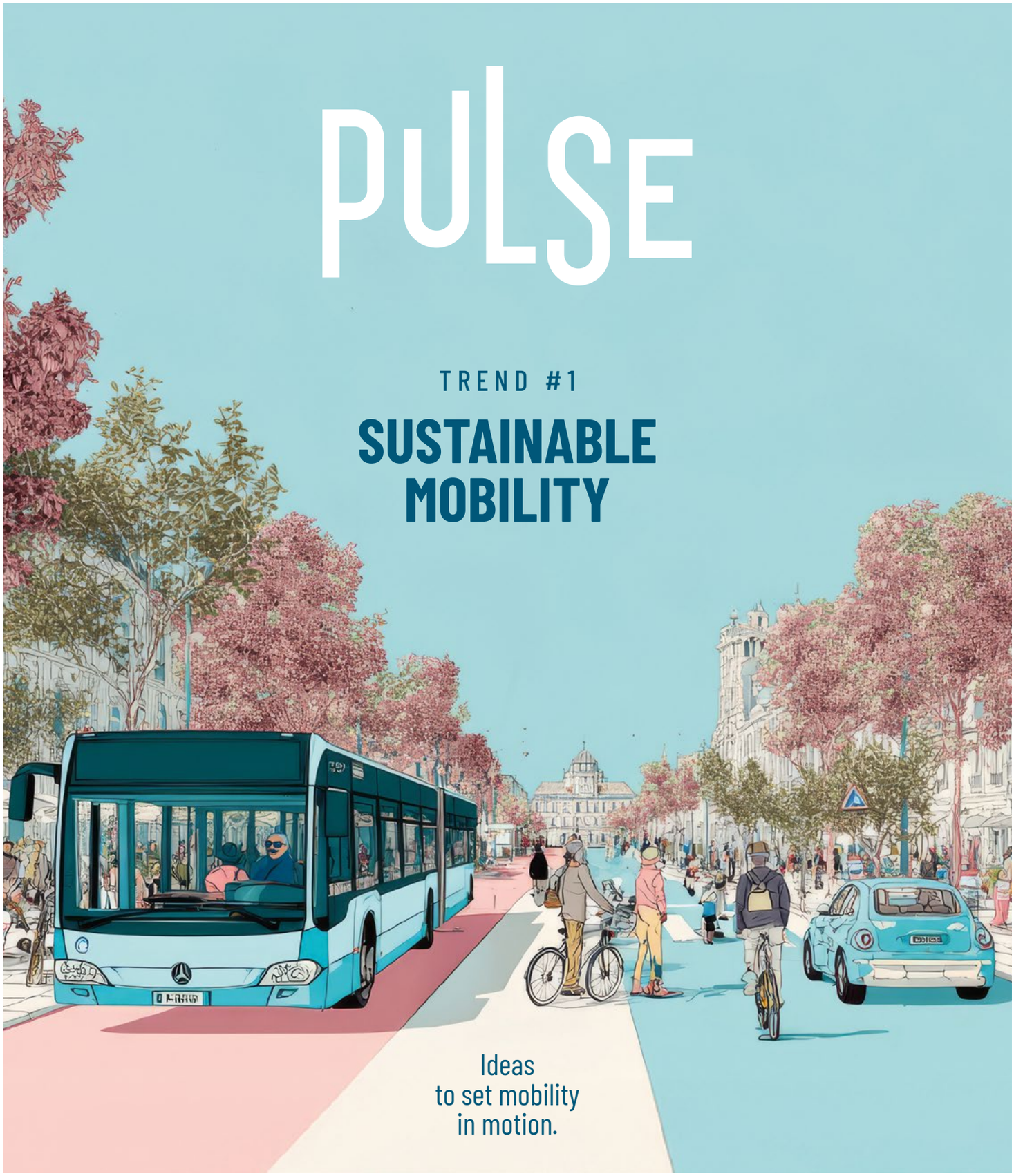
PULSE



TREND #1

SUSTAINABLE MOBILITY

Ideas
to set mobility
in motion.

TREND #2

VALUE MOBILITY

TREND #3

CARE MOBILITY

TREND #4

SMART MOBILITY

IDEAS TO SET MOBILITY IN MOTION.

Mobility is in a perpetual state of flux. It evolves in step with transitions, innovations, new habits and expectations from society. It shapes communities, connects individuals, and influences how we live and how we design our cities and public services.

Pulse was born out of this conviction: for any action to be appropriate, time must first be set aside for understanding. Understanding the major trends in play, whether they be weak signals or veritable sea changes. And understanding the lived experience of communities, operators and passengers, both here and elsewhere.

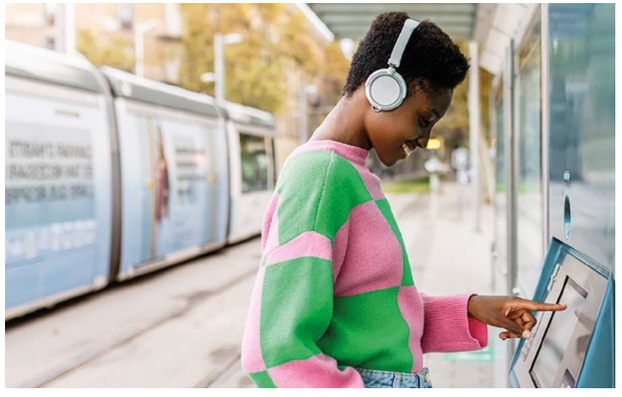
More than a just a magazine, ***Pulse* is a space for thought and dialogue**. It offers breathing space to take a higher view, compare perspectives, challenge the obvious and contribute to an informed vision of shared mobility both now and in the future.

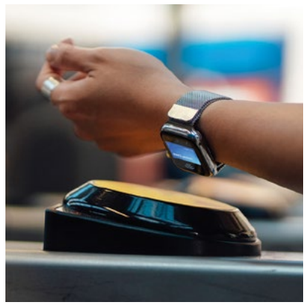
This new issue revolves around **four structural trends** that are shaping how today's mobility is changing.

Through analyses, expert insights, feedback and word from the ground, ***Pulse* brings together complementary viewpoints:** those of international figures, inspirational thinkers, and those of Keolis teams with their close-up daily experience of local reality.

Because mobility isn't just about technical solutions.
Because it is primarily about meaningfulness, impact and connection.

PULSE STARTS HERE.
HAPPY READING.





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We would like to thank all the contributors who have provided *Pulse* with their insights, their experiences as passengers, or shared their commitment to fairer, more people-centric, more innovative mobility.

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Through the diversity of your points of view, you give *Pulse* its full value and purpose: ideas to set mobility in motion.

TREND #1

SUSTAINABLE MOBILITY

At a time when the climate crisis and environmental responsibility are at the top of everyone's agenda, changing the way people get around is becoming desirable, and perhaps even a necessity. After the mad rush towards urbanisation and car-centric living, the time has come to travel differently. Not as far, not as fast. Better. On foot, by bike, by e-scooter. These modes of transport are beneficial to both physical and mental health, inviting us to rethink the city and... why not life in general?

FACTS & FIGURES

74.5%

of global carbon emissions generated by transport are attributable to road transport – including cars, trucks, buses and two-wheelers[1].

58%

of Europeans use public transport, compared with only 41% of French people[1].

33%

of French working people who live 500 metres away from a metro station or tram stop nevertheless drive to work[2].

‘SLOW’ MOVEMENT

It is said that the movement was born in 1986 when a handful of wine specialists, sociologists and historians hit the headlines when they campaigned against the opening of the first McDonald’s in Rome. They advocated for good, locally sourced ‘slow food’ and adopted the snail as their mascot. The ‘slow’ movement has since gained traction in the worlds of work, tourism, education, finance and mobility.

95%

of Europeans (and 91% of French people) adopt walking as a form of mobility, making it the most popular transport mode in Europe (and in France)[3].

QUARTER-HOUR CITY

The expression refers to an urban planning concept according to which all essential services can be reached by a 15-minute walk or bike ride. While a human-scale city is not a new concept, it was rekindled in the 2010s by Franco-Colombian urban planner Carlos Moreno with the stated aim of reducing pollution and improving quality of life. Moreno identifies six essential necessities to which to cater within this radius: living, working, education, healthcare, entertainment and commerce. The so called ‘zone-based’ urban models assigning the satisfaction of these needs to various geographical zones today appear outdated.

(1) Our World in Data (H. Ritchie). Cars, planes, trains: where do CO_2 emissions from transport come from? 6 October 2020.
(2) Data from INSEE (2021) cited in *Pour une mobilité décarbonée et multimodale*, Usbek & Rica.
(3) Ipsos - *Mobilité : les Français continuent de privilégier leur voiture personnelle pour leurs trajets quotidiens*, published 11 April 2025.

STARTING POINT

Jeff Speck

Urban sprawl – and the residential suburbs it has engendered – have long been criticised.

You can find novels from the 1950s on the boom in consumerism and people comparing themselves to their neighbours in those suburbs, or you can think back to folk songs from the 1960s about those poorly built shacks that all looked the same. Everywhere in our culture, people would call out these suburbs for the sheer boredom they inspired and the way they isolated women. When I first met Andrés Duany, my future co-author on *Suburban Nation* (a critique of urban sprawl published in 2000 that subsequently became a best seller – *Ed.*), it was like an awakening. I had always liked some places and hated others, but now I understood why: because zoning had separated people’s living patterns, because the streets were no longer fit for pedestrians, because we had organised our cityscapes around cars.

And that, I believe, was America’s fundamental mistake. Choosing the car is harmful to us economically, but also epidemiologically, environmentally and socially. Why do cities exist, actually? They exist because bringing people and their ideas together is a powerful economic driver. The denser the city, the more patents there are per inhabitant. That’s *per inhabitant* – not per square mile! And that’s the magic of proximity: we become more efficient the closer we are to one another. Cars are vectors of dispersion. With cars, everything on the map is on the same level, since anywhere you can lay a strip of tarmac becomes as easy to get to as anywhere else. We often think of exhaust fumes when we talk about the environmental impact of cars, but that’s just the tip of the iceberg: you’ve got to extend water, wastewater and power networks, you’ve got to lay roads, and the houses just keep getting bigger.

“Don’t ask yourself if there’s going to be traffic jams at rush hour, because you’ll get traffic jams. The main question is: how many lanes of traffic jams do you want to have?”

City planner and the author of *Suburban Nation: The Rise of Sprawl and the Decline of the American Dream* (2000, with Andrés Duany and Elizabeth Plater-Zyberk) and of *Walkable City: How Downtown Can Save America, One Step at a Time* (2012). Founder and partner at Speck Dempsey, an urban design firm based near Boston.

When I was a kid, I was a big car fan, and I always wanted to drive a Ferrari… but I’ve been spending the last 30 years telling people that the problem today is actually cars, or rather the way we’ve let them dictate how we’ve planned our cities. Jan Gehl, the famous Danish city planner, says that cars behave like water: they take up all the space you give them. I often tell the city halls that come to us: “Don’t ask yourself if there’s going to be traffic jams at rush hour, because you’ll get traffic jams. The main question is: how many lanes of traffic jams do you want to have?”

Soft mobility (bikes, scooters, e-scooters) is complementary to public transport: they support one another, whereas the car combats them both. So that’s why you’ve only got those two choices at the end of the day. With a public transport system, especially if it’s a railway, where the stops are fixed and they are spread a distance apart, you’ll find concentrated hubs around these stops. In the olden days, before there were cars, the areas around these stops were urban, and people would get around on foot or by bike. The same thing goes for streetcar routes, which would produce straight lines on maps. If you look at the history of cities in the US or around the world, it’s the transport modes they choose that determine their physical shape. And also, in my view, their social cohesion.

HERE

Arras railway station was opened by the *Compagnie de chemins de fer du Nord* in 1846, long before the widespread use of motor cars revolutionised urban planning in the region, all over France and throughout Europe.

For decades, as increasing numbers of passengers took the train to Lille, Paris or Belgium, occasional or regular travellers continued their journey around Arras on horseback or by carriage, for the fortunate few, but more often on foot, then by bicycle at the beginning of the 20th century. In 2023, the city celebrated the 30th anniversary of the arrival of the TGV high-speed train, which provides the people of Arras with a solution to commute to Lille or Paris. When you arrive at Arras station today, you can choose from regional express train (TER) connections to all parts of the Hauts-de-France region, the 18 bus routes of the Artis network, along with two car-sharing stations and large secure bike parks. To the right as you leave the station is a building with curved lines and large bay windows: the Artis sales office, where people can hire electric bikes for short, medium and long-term use. This is the nerve centre of Arras's return to a gentler, more active and more local form of mobility, without turning its back on technical progress. Quite the contrary, in fact.

Tracy Bougé and Yoann Pasquier welcome all the tourists and pass holders who come through the automatic glass doors of the Artis sales office. Anyone wishing to be a cyclist for a day can drop by the office in the hope that at least one of the ten or so bicycles reserved for these short-term rentals hasn't already been taken. For long-term rentals, you need to sign up in person, by phone or online, although there is currently a 3-month waiting list. When a bike becomes available, Tracy, Yoann or their colleagues sign a rental contract with the customer before checking the bike and giving advice on how to get the most out of it. Yoann recalls an elderly lady who hadn't ridden a bike in decades but was won back over to cycling because of the electric assistance, and a basketball player who confessed that she had never learned to ride a bike. Raphaëlle Gabard is the marketing and sales manager at Keolis Arras. "We make sure that within half an hour, you know how to use your bike, the electric assistance, and how to lock it up when you're out and about," she explains. "We offer the same kind of advice for car sharing, because we've realised that it helps to remove the barriers." 'Back on your bike' workshops are organised with a local society. 'We've come to realise that the adage is true," says Raphaëlle Gabard, "that you never forget how to ride a bike." It's simply a matter of confidence, adds Yoann Pasquier.

Raphaelle, Tracy, Yoann and all the Artis teams are converting increasing numbers of motorists to soft or shared mobility. It often starts with occasional leisure outings at the weekend, before people gradually adopt the bus, cycling or the most old-fashioned form of transport, walking.

Why is Arras such a trailblazer on this issue? Raphaëlle Gabard believes that it is largely due to the fact that the Greater Arras Authority's first Vice-President, with responsibility for mobility, transport and major projects, is Françoise Rossignol. Also mayor of Dainville, a commune west of Arras, she is the third vice-president of GART (the *Groupement des Autorités Responsables de Transport,* or Public Transport Authority Alliance) and chairwoman of the *Club des villes et territoires cyclables et marchables* (Club of Cycling and Walkable Cities and Territories). "Mobility is really her thing," concludes Gabard, adding that most of the town's councillors use electric bikes rented from Artis to get around. The bike scheme, launched in 2016, has done much to give Arras its status as a role model, at least for medium-sized towns (109,776 inhabitants in the Greater Arras area in 2021). It now boasts a fleet of just over 550 V'electric bikes, including some longtails and cargo bikes. In December 2024, Artis was the first network in France to offer accessible bicycles for people with reduced mobility, capable of accommodating a wheelchair, with hand pedalling and a reversible access ramp. Tracy Bougé points out that nine out of ten rentals are for 12 months, at a cost of €99 for Artis pass holders and €125 for others. There are formulas for quarterly,

HERE

A bus user who starts cycling is not going to stop taking the bus. The change is more along the lines of 'I just want to drive as little as possible'.

weekly or day-long rentals to suit individual needs or to let people change their habits at their own pace – short-term rentals are naturally popular with temporary workers, for example. Half a dozen local companies rent bicycles for their employees, accounting for around 100 of the 550 bicycles in the fleet. In almost ten years, only seven bicycles have been stolen or damaged beyond repair.

How can Arras stay ahead of the curve and continue to innovate? By supporting change, on the one hand, and communicating its benefits, on the other. In 2025, as in previous years, Artis is inviting residents of the Arras metropolitan area to take part in the 'no car challenge'. "We recruited a dozen volunteers who left their car keys with us for a fortnight... They could, of course, have them back when they really needed their car, but in the meantime we offered them a range of alternative mobility solutions," recalls Raphaëlle Gabard. The latest major communication campaign, which aimed to rejuvenate the target audience for V'électric, featured Florent, an Arras-based influencer with 50,000 followers on Instagram. "Since he appeared on the poster campaign and on the bikes, some people have been disappointed not to see him behind the sales office counter," smiles Yoann Pasquier. But even electric bikes sometimes require alternatives, depending on the route and the different users. Artis therefore provides a fleet of six Citiz car-sharing vehicles, parked around Arras town centre and reserved for more occasional use than bicycles, or for motorists who need another stepping stone before adopting a more public form of transport. It should not be forgotten that Artis also operates 18 bus routes serving the 46 municipalities in the conurbation. By offering other solutions to users, is Keolis Arras running the risk of undermining its bus network, which is its core business? "We haven't observed a cannibalisation effect between modes," replies Raphaëlle Gabard. "A bus user who starts cycling is not going to stop taking the bus. The change is more along the lines of 'I just want to drive as little as possible'. At that point, walking can be a competitive alternative." Another 'not real' competitor for Artis, which will soon be promoting walking through signage, route marking, walking times specified on maps, etc.

In 2026, already the tenth anniversary of the bike rental scheme, Artis is to launch a bike sharing service on its own scale: a single station - *En Gare* - and ten bicycles, to complement the long-term rental service.

Taking their cue from Françoise Rossignol, decision-makers in the Arras conurbation are showing an interest in what is happening elsewhere, travelling, comparing and finding ideas. Raphaëlle Gabard is delighted: "Today, political leaders don't choose an operator, or even the concession model, just to ask them to sell bus tickets. We provide research, advice and support, helping them to change their habits so that we can offer the best possible service." To maintain this momentum, Arras can count on thriving business parks where companies continue to hire, and on the synergies established throughout the region. For example, more than ten years ago, the Hauts-de-France region launched the Pass Pass card, an interoperable and nominative smart card entitling holders to travel on the region's TER trains and on the 14 public transport networks that now make up Hauts-de-France Mobilités, in places like Lens, Douai and Lille. 180 years after the Arras station opened, it has never been easier or simpler to travel around Arras and its surroundings. What if the future lay in flexibility?

ELSEWHERE

Copenhagen, Denmark

The 5-minute neighbourhood

While the concept of the '15-minute city' is starting to spread, from Paris and Seattle to Milan and Edinburgh, the Nordhavn district in Copenhagen goes even further: its residents have access to almost everything they need within a five-minute walk! Around the two metro stations that serve the neighbourhood, urban planners have drawn circles with a 400-metre radius, corresponding to the average distance an individual can walk in 300 seconds. Housing, offices, schools, nurseries, cafés and pre-selected shops – it's got everything covered, or almost everything. The brains behind the project candidly admit that cars are 'not welcome'. Instead, they emphasise 'human contact'. While Copenhagen has cut its emissions by 75% since 2005, the Nordhavn neighbourhood is already carbon neutral.

Hefei, China

Swap time for peak time

In tourism, home exchange is booming. Many analysts even see it disrupting the tourist rental market and knocking the wind out of Airbnb's sails, just as Airbnb had done to the hotel industry a few years earlier. In China, home swapping is being applied to urban planning and urban mobility, offering new perspectives that are gentler, slower and more pragmatic. At the end of 2022, the municipality of Hefei, a city in the eastern inland plains with a population of nearly 8 million, launched a platform where individuals can swap homes to be closer to their workplace or the most convenient public transport.

Saint-Brieuc, France

A metro map... without a metro

One can only imagine the astonishment of the first tourists to discover the Metrominuto maps in the streets of Saint-Brieuc: is that a metro, with its colourful lines and white dots, in the heart of this medium-sized town of 50,000 inhabitants? Well, not exactly. Although these maps use the same design conventions as a metro map, they actually show the estimated walking time between different points of interest, such as Saint-Étienne Cathedral, the shops in the town centre, the tourist office and the Douvenant viaduct. Journey times range from 3 to 20 minutes, and for longer distances, the travel time by bicycle is indicated.

Barcelona, Spain

Shared autonomy

In March 2025, electric minibuses began operating in Barcelona city centre. Apart from being free, what was different about them? They had no driver or driver's seat. Deployed by Renault in partnership with WeRide, a company specialising in autonomous vehicles, these prototypes travel a 2.2-kilometre loop with four stops, travelling at a maximum speed of 40 kilometres per hour. Equipped with 10 cameras and 8 LiDARs (a system that uses lasers to measure distance and movement), these autonomous minibuses can travel 120 kilometres on a single charge. Despite the apprehension of some passengers, no incidents occurred during the trial, which employed WeRide technology that has already seen wide-scale deployment in China.

CONNECTIONS

Annelise Avril,
CEO France,
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Gaspard Jaboulay,
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"Interestingly, commuting time has changed little since the 1960s, with people travelling an average of one hour per day, but the distance travelled has more than tripled!"

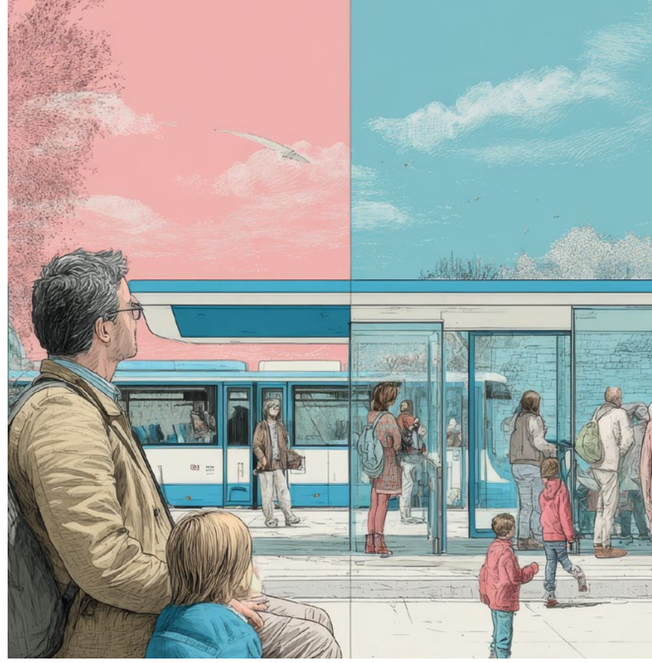
Annelise Avril

Is there an aspiration today for gentler, smoother and less car-reliant mobility? And if so, why ?

Annelise Avril: Let me quote from a report, 'Effects of transport on mental health,' conducted jointly by Institut Terram and the French Alliance for Mental Health, in collaboration with Keolis. We surveyed 3,300 French people about their travel habits and found that different modes of transport have different impacts on mental health: walking, for example, has a positive impact on 86% of people. And the same effect is observed when combined with public transport or other active forms of mobility, such as cycling.

Gaspard Jaboulay: To tie this in with mental health issues, in our study for *Keoscopie Municipales* we were surprised by how intense rush-hour road rage between motorists has become, as well as how far it has spread, since it's not just a matter for city centres but now extends to the suburbs. In our focus group sessions, everyone had a story about a dispute or a clash. So we can well understand why one in two French people want to reduce the role of cars in the city of the future, and why this aspiration is shared throughout the country, even by those who live a long way from large cities! The data from our study clearly shows that the car is no longer the symbol of freedom it once was in France. It has come to represent fatigue, congestion and hypervigilance, and is increasingly seen as a constraint. We might add that the question of cost is becoming central at a time when people are starting to feel the pinch. Very often, people rely on their cars because they have no choice, but they are prepared to change their habits if alternatives exist.

AA: What is most tiring, and even exhausting for people, is the distance. The study I was referring to showed that 67% of respondents who travel more than 50 kilometres a day see this as having a negative impact on their mental health, compared with only 19% of those who travel less than five kilometres. Interestingly, commuting time has changed little since the 1960s, with people travelling an average of one hour per day, but the distance travelled has more than tripled! This can be explained by urban sprawl, metropolitan development and the way our communities are planned, divided into different functional areas. Mechanically, this creates distance. To restore proximity, we will need to introduce functional diversity, combining housing, leisure, economic activities and shops within the same perimeter.



Are you therefore suggesting that the big divides between city dwellers and rural inhabitants, between young and old people, and between productive and inactive profiles, are not insurmountable, and that on the contrary there is a path to consensus?

GJ: There is a lot of talk in the media about divisions, here in France about 'French divides', but when it comes to mobility and transport, the aspirations are ultimately quite similar. In our working groups, we do resource allocation exercises: we give our citizens a fictitious budget to allocate. When you compare the results of a group of right-wing voters, who tend to live in the suburbs and are heavy users of private cars, with a group of city-centre environmentalists who cycle around... you'd actually be surprised! To all intents and purposes, both groups allocate resources in exactly the same way. Not only do they share similar aspirations, but there is also much more empathy than one might think: city dwellers want their cities to remain accessible to those living in the suburbs, for both moral and self-serving reasons, so that city centres remain attractive, lively and prosperous; while suburban residents, who are fed up with traffic problems, are perfectly understanding of policies to limit motor traffic in large urban centres.

AA: The aspirations may be shared, but then again, depending on whether you are in an urban centre where there are a lot of alternatives to the car or in a rural area, the realities are very different. Reducing the space given to cars in cities, calming city centres through soft mobility or public transport, that's fine, but on the condition that no one is excluded. That's why we don't treat cars as the enemy. On the contrary, if the best solution is to suggest that you drive part of your journey in your own vehicle, or even carpool, then park in a park-and-ride facility and continue your journey by public transport, so much the better!

How do you explain the success of the quarter-hour city concept?

GJ: I think what makes it so popular is that it gives people back some control. If I'm walking somewhere and take a street I know well, I won't get caught up in roadworks, traffic jams, road closures, and so on. In our focus groups, we clearly see a desire among residents to create mobility 'routines' to limit the mental strain of getting around. People want to think about it as little as possible, relieve themselves of the pressure to be alert at all times, and save their energy for other things. This is a common complaint among residents of large cities: the difficulty of creating and maintaining routines in a constantly changing urban environment.

AA: It is also a contentious concept because, as things stand, it tends to exclude some members of society. The 15-minute city is possible for city centres or large cities where neighbourhoods can be redeveloped with greater functional diversity, but what about the suburbs where large tower block estates have been built or there are detached houses sprawled over several square miles? I prefer the 'half-hour community', which is both more inclusive and more realistic.

GJ: I would add that in a study we recently conducted for Keolis, we found that certain bus routes, which pass through several fairly spread-out towns, can play a structural role in the community. They bring unity, consistency, and even a sense of identity – things that we know are often lacking in large suburbs. In the Paris suburbs of Argenteuil and Bezons, people identify with bus route 272, known as the "two-seven-two". The half-hour community concept works if it is a place where I feel I belong, with shared experiences and modes of transport.

"In our focus groups, we clearly see a desire among residents to create mobility 'routines' to limit the mental strain of getting around."

Gaspard Jaboulay

1 IN 2 FRENCH PEOPLE

wish to see less space for cars in tomorrow's cities.

86%

of people say that walking positively impacts their mental health.

Is there room for everyone in the 15-minute city?

The '15-minute city' consists of designing and laying out urban spaces within which inhabitants can meet all their needs – work, eat or shop, get healthcare, study and enjoy leisure activities – without having to travel more than a quarter of an hour.

Behind this clear and easily understandable idea lies **a radical approach to reducing dependence on the car, encouraging physical activity starting with walking,** and shaping cities that are more liveable, more environmentally friendly and more sustainable. But the critical voices that any disruptive theory is bound to attract warn against neglecting those who could be left on the wayside by this utopian vision: residents of towns and villages far from city centres, with poor public transport services and less favourable socio-economic conditions. Doesn't the 15-minute city risk marginalising those who, on the contrary, need to be better integrated?

In many cities, including Paris, which has long been a proponent of this concept, the neighbourhoods where the main principles of the 15-minute city would be easiest to apply are among the most expensive, both to rent and to buy. They are close to where people work, study, shop and relax. With the gradual gentrification of city centres, high rents and barriers to home ownership are pushing the poorest and most vulnerable to the outskirts, further away from job opportunities and the means to meet their needs. If proximity is to increasingly become a privilege, the 15-minute city must consider inclusion upstream to promote diversity, for example by building social housing. Especially since, while it promises to put ecology and sustainability at the heart of its programme, these already centrally located neighbourhoods often benefit from more trees, public gardens and cycle paths than the average. **To establish itself as a model, the 15-minute city can only be seriously considered if it is accompanied by massive investment in infrastructure on the outskirts, as well as greater social diversity in the city centre.**

In the same vein, what does the 15-minute city offer to those who are physically or practically unable to walk or cycle for 15 minutes, such as elderly people or parents with young children? This urban revolution therefore requires major (and costly) redevelopment of public spaces: the installation of ramps or lifts, wider pavements, etc. For this appealing theory to be applied, or at least to be able to consider certain developments differently, cities must not overestimate the homogeneity of their inhabitants. Not everyone works from home or wants to shop locally. Some people may want to enjoy leisure activities a long way outside their neighbourhood. **What about people who work irregular hours, at a time when the standard working week appears to be increasingly outdated?**

Like many good ideas, the 15-minute city can be poorly implemented, even caricatured, to the point of shifting from a desirable utopia to a model deemed unrealistic, or even perceived as elitist. The challenge, then, is not to abandon the principle, but to square it with real life, considering the needs of those who live, work and study there. **So that the city of tomorrow is as fair and sustainable as possible for everyone.**

VALUE MOBILITY

TREND #2

The cost of living is a topic of discussion, a source of concern, and sometimes both. Our attention and visual space are saturated with special offers, prize draws, special bargains. As such, the cost of getting around has also become a central issue. Public transport must therefore adapt to the constraints of its users and sponsors, but also (and especially) demonstrate its value, win people over by its use and... create more wealth than the costs it generates.

FACTS & FIGURES

62%

of French people between 18 and 24 years of age cited rising fuel prices in 2023 as a reason to take public transport in the future.[4]

TRANSPORT INSECURITY

This refers in its most general definition to a person not being able to reach a destination in a safe or timely manner due to lack of resources. This insecurity can therefore limit their access to work, education healthcare or any form of social activity. For many years it has been measured in terms of journey times but, by definition, these exclude everyone obliged to abandon the idea of travel for lack of simple or cheap solutions.

PURCHASING POWER

While the term is much used, the concept is harder to define than at first sight. Most often employed in relation to households or individuals, it remains to be seen what it refers to: the quantity of goods or services that a given income can buy on the market? Or disposable income once essential needs have been fulfilled? And is mobility a service, or need among others? One thing is for sure: purchasing power is always a decisive factor in mobility choices.

19%

of American adults in 2022 said they had experienced transport insecurity at least once in the past month. This makes transport the leading source of material hardship, ahead of food, healthcare and housing[1]

41%

of French people and 32% of Europeans in 2025 said they would turn to soft mobility modes for economic reasons. Environmental awareness is only a secondary motive and is less cited than previously: 23% of French and European people give it as a reason (down by 7 points compared with 2024).[2]

+39%

the increase in labour market participation observed in neighbourhoods within a 0.5 mile radius of a station following investment in light rail in 12 American cities, according to a 2021 report in the United States.[3]

(1) Murphy, A.K., Pilkauskas, N.V., Kovski, N. et al. How Does Transportation Insecurity Compare and Relate to Other Indicators of Material Hardship in the U.S.?. Soc Indic Res 178, 435–463 (2025).
(2) Ipsos - *Mobilité : les Français continuent de privilégier leur voiture personnelle pour leurs trajets quotidiens*, published 11 April 2025.
(3) "Public transport investments as generators of economic and social activity", Jacob Albin Korem Alhassan,Paulo Anciaes, Journal of Transport & Health, Elsevier, March 2025.
(4) Mobility barometer, Media Transports, *La place des transports en commun dans la vie des Français*, 2024.

Transportation economists have a concept called the generalized cost of travel.

From the perspective of the traveller, the purely monetary out-of-pocket expense, such as the fare paid, is only a part of the cost of a trip. Importantly, passengers must devote some of their most precious resource to the trip - a fraction of their waking hours. The old adage that 'time is money' is never truer than in the choice between travel modes. Fast modes at high fares such as taxis compete with slower modes with lower fares such as buses. Because people vary in terms of their budgets and how busy their day is, both taxis and buses attract customers.

Transportation professionals have modelled how travellers make choices between modes for decades. Sophisticated models compare the generalized cost of different modes for a particular trip. Inherent in such models is the 'value of travel time saving' which allows analysts to convert minutes saved into its monetary equivalent. For example, official guidance by the governments of the United States, France and the United Kingdom recommend generic values of travel time saved of $0.37, €0.42 and £0.27 per minute in 2025 prices, respectively.

Transportation economists also have insights that not all minutes during a trip are valued equally. When seated on the vehicle many passengers can use their time quite productively, especially since the advent of the smartphone. In contrast, riders find the walking time to and from the stop to be quite disagreeable, as is the time taken while waiting at the stop or transferring between routes. If the bus does not arrive when it is expected to, riders react very badly to the unexpected additional waiting time. Empirical evidence is that riders value these minutes at double the value of a minute spent in their seat, or even more.

Public transport authorities can influence the generalized cost of travel in many ways. Certainly, they can set the fare. They can also influence the length and nature of the travel time. Exclusive bus lanes reduce what is referred to as 'in vehicle' time. But this may be the least irksome part of the trip. Users find access, egress, waiting and transfer times to be more bothersome. Even if we know where the bus is by looking at the bus tracking app and time our arrival at the stop to coincide with the bus approaching, we still dislike having to reorganize our day to fit in with the timetable. Increasing service frequency reduces the average time spent at the stop and makes it easier to organize our day. Routing choices affect how close the bus runs to our homes and our intended destinations. Improvements in on-time performance reduce the very negative value that we attach to unreliability.

The implication is that public transport authorities interested in expanding their market share have more levers at their disposal than just reducing the fare. In fact, shortening journey times may have a greater impact than reducing fares substantially. Improving the parts of the journey we find to be the most disagreeable is even more effective.

Ian Savage

An Anglo-American economist with British degrees from the Universities of Sheffield (BA) and Leeds (Ph.D), Ian Savage has been a professor in Northwestern University's Department of Economics and the Transportation Center (Evanston, Illinois – USA) since 1986.

"INHERENT IN SUCH MODELS IS THE 'VALUE OF TRAVEL TIME SAVING' WHICH ALLOWS ANALYSTS TO CONVERT MINUTES SAVED INTO ITS MONETARY EQUIVALENT."

HERE

BOSTON

HERE

In Boston, Massachusetts, the entire public transit system is in the midst of a transformative period. Under the leadership of Governor Maura Healey, the Massachusetts Bay Transportation Authority's (MBTA) bus, subway, ferry, and rail networks are seeing unprecedented investment and renewed public trust.

In the day-to-day of operating and maintaining the MBTA's regional rail network, Keolis Commuter Services (KCS) has played an important role in both restoring and building new ridership in the years since the COVID-19 pandemic, helping to deliver the strongest return across all commuter rail systems in the United States. "I'm glad to come to work and try to be part of the solution," says Lizzie Baker, Director of Marketing for Commuter Rail at KCS, where her mission is to use marketing solutions to convert sceptics to public transport.

Lizzie Baker and her team advise the MBTA on adjusting fare prices and running temporary marketing campaigns or long-term special offers to attract more riders. And getting one message across: "Using public transportation is a good thing, it's more fun than being stuck in traffic." Before finding her calling and joining KCS, Lizzie Baker worked in marketing in the fashion industry. At the time, she was an infrequent public transit user and was often overwhelmed by commuter rail, having no idea how reliable and enjoyable a service it was. Although she started working at Keolis eight years ago, she already was a long-time resident of the Boston area, which, as we shall discover, is one not quite like any other.

Jeff Kessler is also a public transport enthusiast, more accustomed to working behind the scenes than in bright daylight beneath the grand neoclassical ceilings of Boston's South Station. As a high school student he was the youngest intern at Amtrak, America's main passenger rail provider. And before he even graduated from university, he interned or worked for transit agencies in Philadelphia, Washington and New York. Jeff Kessler chose to settle in Boston at KCS, where he is Director of Innovation, because there are "not a whole lot of opportunities like this in North America."

The MBTA Commuter Rail network serves 173 towns in Massachusetts and Rhode Island, covering 480 route-miles (624 km), with more than 150 stations, and carrying 500,000 passengers per week, making it the fifth-busiest commuter rail system in the United States. Jeff Kessler and Lizzie Baker are prompt to point out that it is one of the rare public transport networks in the United States where most riders have returned following the COVID-19 pandemic.

While there are many reasons for this recovery, a new approach to service provision appears to have played a decisive role. In particular, shifting from a differentiated peak/off peak timetable to a more regular timetable throughout the day contributed to this passenger influx.

In partnership with the MBTA, KCS introduced a promotional programme that produced significant results and has inspired other agencies in the United States to invest in marketing programmes. The aim was to identify opportunities for growth outside office hours and commuter journeys. These included weekends: "We had trains running but few passengers on them, perhaps because they didn't even know we ran weekend service, and that was a good story to tell," explains Lizzie Baker. "As we developed the concept, the team became aware of genuine public demand for leisure travel." In June 2018, the MBTA offered residents and tourists in the Greater Boston region the chance to travel anywhere on its 480-mile network all weekend for just ten dollars. So successful was the scheme that it was repeated, then extended to public holidays, and ultimately became a permanent fixture in 2019. This recreational travel has continued to thrive, even returning to its pre-pandemic levels faster than commuter travel, fuelling the much-vaunted ridership recovery in addition to demonstrating demand for the extra services provided. "Our transit agency is supportive of promoting service over and beyond commuting to and from Boston," says Lizzie Baker. "We work closely with them to encourage travellers to try the train, enjoy riding it, and give them much more than just a trip from A to B." Thanks to smart marketing campaigns like these, regional rail wins over and retains new users, and demonstrates that there are more pleasant, and even fun, alternatives to road congestion, at weekends as well as during the working week.

While some cities are experimenting with free transport, Lizzie Baker and the teams at KCS make a clear distinction with their promotional programmes. "I'd love to look at all this through rose-tinted glasses," says Lizzie Baker, "but my experience and studies show that when a service is free, it is not always appreciated as much. People don't seem to measure its value. Initiatives such as $10 weekends, on the other hand, bring riders back into the system who wouldn't use it to go to work, giving them the opportunity to try it out without having to navigate what ticket to buy." To further streamline and modernise passenger experience, KCS is optimising fare collection by installing fare gates at Boston's main transit stations. "Nearly 90% of our users' journeys begin or end at South Station, North Station or Back Bay," observes Jeff Kessler. "So instead of needing a major systemwide capital investment, we're able to strategically target resources where they're going to have the biggest ROI." Jeff Kessler points out that South Station is the busiest railway terminal in North America outside of New York, Chicago and Toronto. North Station is located right underneath TD Garden, home to the Boston Celtics basketball team, the

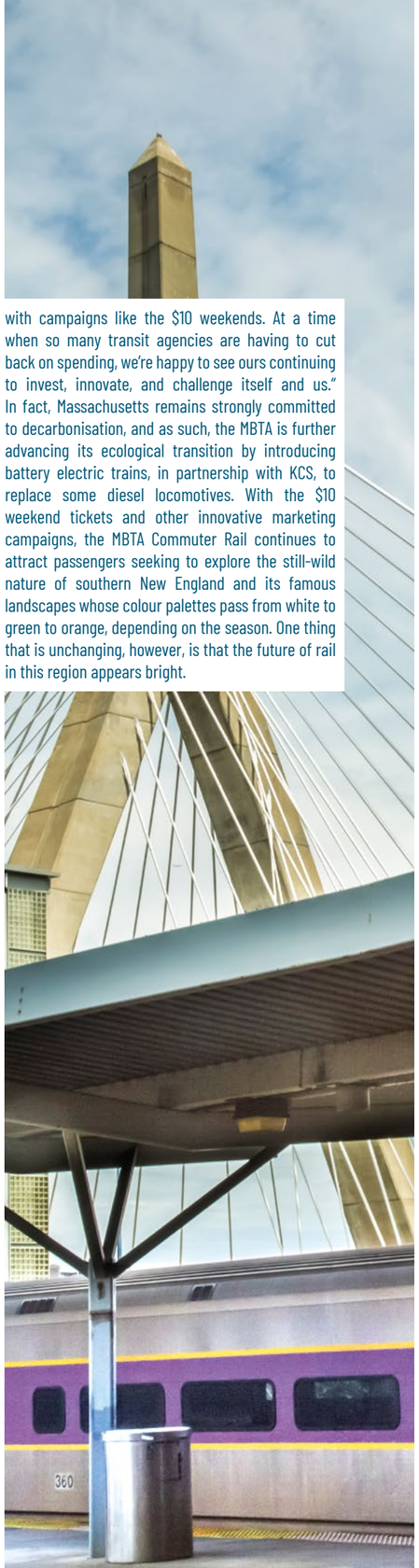
HERE

Boston Bruins ice hockey team, and a venue for concerts by leading artists. "We used a first-of-its-kind technology to allow flexible ticketing integrations. Our gates are the first to place Amtrak's mainline trains behind a gate array, the first to interface with dozens of separate providers, and the first to accept military IDs, which authorize free travel on the network." Jeff Kessler adds that the technology will soon enable attendees of sporting events or concerts to be able to pass through the fare gates with just their event ticket.

Bolstered by the significant increase in leisure riders, the MBTA's Commuter Rail ridership return has led the nation also due to the fact that its clockface timetables better serve new, post-pandemic work patterns. With the widespread adoption of teleworking, rush hours are no longer the norm for everyone, every day. After an extensive market analysis of travel both on and off the railways, timetables were changed to meet demand and provide more consistent service throughout the day. For greater flexibility, trains run at consistent intervals throughout the day from morning through to evening, with at least one train an hour on most lines. Meanwhile the KCS Innovation Office is continually focused on improving the network, developing models and proposing how the MBTA could make strategic capital investments to iteratively unlock enhanced service on each line.

Why does everything run so effectively in Boston? As one of the oldest cities in the country, founded in 1630, it forms part of what is known as the Northeast Corridor: a railway route from Boston in the north to Washington, DC in the south – geographers also say 'BosWash' - via New York, Philadelphia and Baltimore. "Many of these cities began to develop even before the United States gained independence," points out Jeff Kessler, "which explains why they are much more suited to public transport, and why you can get around on foot or by bike." Unlike many American cities, which were shaped or designed for cars, the cities of the north-east were originally European-styled cities. Boston has kept some cobblestone streets, and its compact city centre is reminiscent of a European capital. Is that what persuaded Jeff to stay there? Not only for that reason, he says. "What makes Boston so unique today is the Healey-Driscoll Administration's willingness to invest in public transport. If you look at large or medium-sized cities, they are all facing a major funding crisis." In contrast, over the past two years, Boston has seen investment in a redesign of its bus network, major track improvements for its subway system, and expanded ferry service, as well as enhanced cycle paths and walkability, in addition to launching an extension of the Commuter Rail network to the south coast of Massachusetts in the largest expansion in decades. "I don't own a car," says Jeff Kessler, "and Boston is one of the few places in the United States where it's possible to do without." It's a place where the urban planner Jeff Speck, a critic of the 'car-centric' society (see Jeff Speck's *Starting Point* in trend 1), feels at home.

Lizzie Baker adds another perspective: "I think that where the MBTA really stands out is in its relationship with passengers. They've worked to rebuild a more trustworthy and reciprocal relationship with passengers and communities. And we're part of that story with campaigns like the $10 weekends. At a time when so many transit agencies are having to cut back on spending, we're happy to see ours continuing to invest, innovate, and challenge itself and us." In fact, Massachusetts remains strongly committed to decarbonisation, and as such, the MBTA is further advancing its ecological transition by introducing battery electric trains, in partnership with KCS, to replace some diesel locomotives. With the $10 weekend tickets and other innovative marketing campaigns, the MBTA Commuter Rail continues to attract passengers seeking to explore the still-wild nature of southern New England and its famous landscapes whose colour palettes pass from white to green to orange, depending on the season. One thing that is unchanging, however, is that the future of rail in this region appears bright.



ELSEWHERE

Île-de-France, France

Liberté+, Égalité, Fraternité

Between 2015 and 2022, transport ticketing in Île-de-France saw some big changes. The zone system applied to the Navigo travelcard was scrapped, meaning all Paris region residents pay the same monthly rate. New travel passes, *Easy* and *Liberté+*, were launched to provide more flexible, tailored solutions. Tickets and travelcards could now be bought and stored on a smartphone. But a new milestone was reached in 2025 when Île-de-France Mobilités, the Paris region public transport authority, announced its 'revolution,' launched on 1 January. From now on, only two single ticket fares apply for occasional travellers (compared to 50,000 fare combinations previously): €2.50 for a journey by train, RER or metro, regardless of the destination in Île-de-France (excluding airports), and €2 for a bus or tram trip. This 'ticketing revolution' is motivated by a desire for greater social and territorial cohesion throughout the Paris region, environmental protection and a desire for simplification.

Agra, India

10% better

On 6 May 2025, with the arrival of the national common mobility card (NCMC) on its metro network, Agra took a simple gamble: if you want to change habits, you should start by reducing the fare. For every journey paid for with this contactless card, users now benefit from an immediate 10% discount. No cashback to collect, no points to accumulate, no app to download: the savings are automatic. The idea is clear: to encourage repeated use, including for short journeys, by making public transport more advantageous than its private alternatives. This local initiative is part of a national ambition: to make the NCMC a single pass valid on all urban networks across the country, and a gateway to more accessible mobility everywhere.

Seoul, South Korea

Less carbon, more won

In early 2024, Seoul City Hall launched the Climate Companion Card, a transport card offering free and unlimited travel on the South Korean capital's metro and bus networks. What connection with the climate, you might ask? By offering users a preferential rate of 60,000 won per month (approximately €37, and a saving of 30,000 won per month on their transport budget), the Climate Companion Card makes public transport cheaper than its individual, carbon-heavy alternatives, and is thus designed to encourage Seoulites to leave their cars at home. Acting for the climate while saving thousands of won. One year after the card's launch, the Seoul Institute had already estimated that annual greenhouse gas emissions had been reduced by 30,000 tonnes.

Montgomery County, USA

Forever free

Montgomery County, Maryland encompasses some of the suburbs of the US capital, Washington D.C. Echoing a flagship proposal by Zohran Mamdani, the successful mayoral candidate in New York, the county introduced free travel on its bus network in June 2025. Local officials argue that the measure is socially beneficial in a county where the majority of bus users struggle to make ends meet, but also environmentally friendly in a Washington, D.C. metropolitan area that has been suffocating under traffic problems for several decades. The challenge now is to focus on service quality, with local authorities promising to invest in express bus lanes and facilitate connections with other modes of transport, starting with the Washington Metro. The choice to switch to free travel was also a pragmatic one: the county was faced with cost of around $19 million to equip its fleet with contactless card payment terminals to bring it in line with the capital's metro system. Except that at one dollar per journey, the county was only collecting $2-3 million per year...

3 QUESTIONS TO

CONNECTIONS

LAURENCE BROSETA,
CEO International,
Keolis

SYLVAIN HAON,
Senior Director, Strategy and Transformation, UITP (International Association of Public Transport)

How important is the price factor, or value for money, in mobility choices?

Laurence Broseta: For the consumer, public transport is indisputably more advantageous pricewise. Depending on the country considered, car travel costs between five and ten times more than public transport. And in terms of value for money, there are several important quality criteria that give public transport the edge: firstly journey time, which is just as important as price for many travellers, because you only have so much time in a day; then there's reliability, which can be defined as the guarantee of arriving at your destination on time. Public transport is generally more reliable than cars in urban areas as long as it is grade-separated, or has priority at junctions, and is therefore unaffected, or less impacted, by road congestion.

Sylvain Haon: The decisive factor in mobility choices, when there is a public transport service available, is quality. Of course, price plays a role, especially in regions of the world where the mobility budget can account for a sizeable portion of a household's expenditure, but in many cases, it is quality that counts. And quality also means the accessibility provided by the transport service - the solutions it provides for getting from point A to point B. What is interesting is that demand is often driven by the quality of service provision.

LB: In less densely populated areas, transport demand is more scattered, and public transport cannot provide the same regular, frequent services as in cities. That is why we need to design transport services that optimise coverage in these areas to make them more attractive places to live and contribute to sustainable and equitable mobility. For example, we operate on-demand transport services, which are more flexible and capable of adapting to inhabitants' mobility needs. These services connect efficiently with transport hubs at a price aligned with the fares charged on regular lines.

SH: All of this is true for Europe, but I wouldn't go so far as to say it's true for the Western world, because in North America, for example, there are many areas that cannot be reached by public transport at all.

LB: Another criterion influencing the choice of transport mode is environmental impact, which is a growing concern for citizens in many countries. It also influences mobility choices, but the quality and reliability of the service remain the crucial factors for users.

If quality is so important, is there not a risk of sacrificing quality by offering more affordable fares?

LB: Our role as an operator is to provide cost-optimised services while maintaining a high quality of service. Increasingly, our clients are asking us to provide 'more for less', i.e. better performance, with ever-higher punctuality and customer satisfaction rates, at optimised costs. As a service operator, we must take into account the budgetary constraints of public transport authorities and pursue our continuous improvement efforts, working on optimisation levers such as the suitability of the services provided, energy efficiency and predictive maintenance. Today, thanks to the use of digital technology, IoT and AI, we collect real-time data on the condition of infrastructure and vehicles. Through this, we improve asset reliability by intervening before incidents occur and we extend the service life of equipment by improving maintenance quality. For example, we are now able to extend the lifespan of rolling stock, such as trams from 30 to 40 years. In this way, we optimise maintenance costs and rolling stock replacement, while improving vehicle availability and therefore service quality. Improving cost and quality are not necessarily mutually exclusive!

SH: We have seen that quality fluctuations have a much greater impact on demand than price fluctuations. If we lower the price and reduce quality, we will, in principle, see a drop in ridership and lose out on all fronts. If we improve the quality of the services provided, even if this has a slight impact on ticket prices, we are likely to see an increase in ridership. We cannot ignore the issue of purchasing power, particularly for certain sections of the population who could be offered concessionary fares.

LB: Indeed, we recommend not cutting fares across the board, but rather offering fair pricing that includes reduced fares for those on the lowest incomes, such as young people, senior citizens and job seekers. An overall reduction in fares would lower the contribution made by passengers towards covering the cost of transport and reduce the local authority's capacity to provide the level of service that makes public transport attractive.

Ultimately, isn't it a question of presenting public transport as a lever for value creation, rather than simply a cost to the community?

LB: Absolutely. Transport creates value by facilitating access to employment, boosting local communities and reducing the carbon footprint. Every euro invested in public transport generates sustainable economic, social and environmental benefits. For example, in the Ile-de-France region, the extension of the RER E line has led to the construction of 2,500 new homes in Nanterre and improved access to 2 million jobs.

SH: One euro invested in public transport creates five euros of long-term wealth[1] – and that's only a very conservative estimate. Research has shown that public transport encourages walking, which has a positive impact on people's health. We need to be able to point out all these indirect benefits. We also observe that where public transport use is highest, there are fewer road accidents, and this is particularly true in large cities.

(1) According to Industry Footprint report from APTA - American Public Transportation Association.

"Increasingly, our clients are asking us to provide 'more for less', i.e. better performance, with ever-higher punctuality and customer satisfaction rates, at optimised costs."

Laurence Broseta

"We cannot ignore the issue of purchasing power, particularly for certain sections of the population who could be offered concessionary fares."

Sylvain Haon

HOW LOW CAN FARES GO?

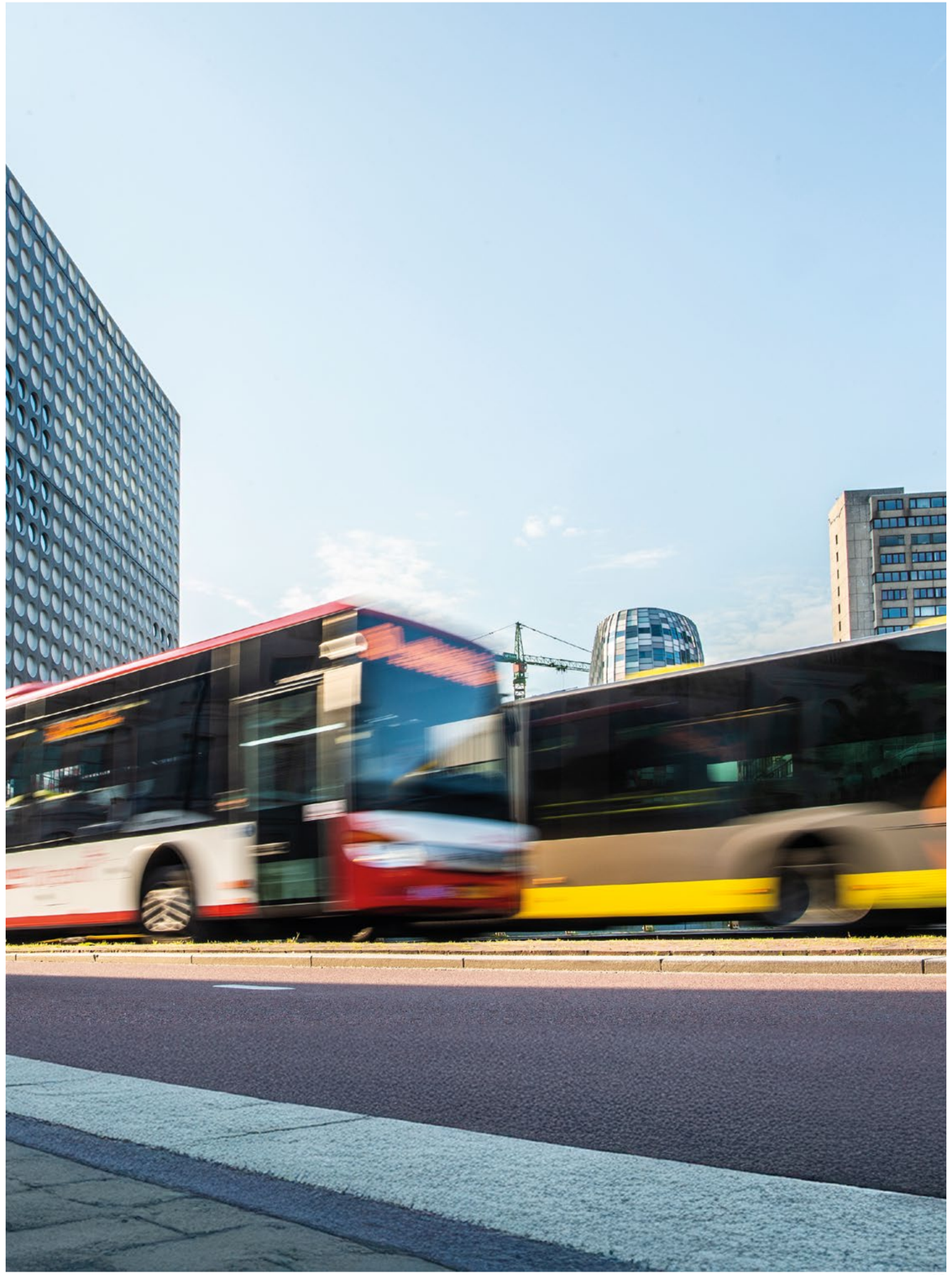
At a time when consumer-citizens are considering the environmental impact of their mobility choices, and when all large cities and many medium-sized towns are suffering from traffic congestion, price remains a factor that clearly influences how individuals get around. Perhaps simply lowering fares could be enough to convert them across to public transport… Several cities and a few regions have bought into this assumption and decided to go further by offering transport completely free of charge to their citizens: for example, Belgrade in Serbia (on 1 January 2025), Tallinn in Estonia (in 2013), Albuquerque in the United States (in 2023) and Montpellier in France (at the end of 2023). This therefore begs the question: is free transport really the silver bullet?

The first objection to free travel is theoretical, almost metaphysical: in capitalist and consumerist societies where almost everything is for sale, it is often difficult to place the correct value on something that is free. It is not that everything that is free is devoid of value – take state education or road infrastructure as examples – but rather, that not giving something a price tag may at times obscure what the service truly costs and what it brings to society. At a time when using public transport and leaving the car in the garage are not yet a natural choice and can be considered a civic duty at best or a rational economic choice at worst, free transport creates a bias. Public transport becomes a default choice imposed by the government, and anyone wishing henceforth to exercise their individual liberty will be free to do so sitting in traffic jams. Public transport creates value, but this value most often goes unrecognised. **Proclaiming a service to be free of charge is not always the guarantee that people will become enamoured with it, nor realise how much effort goes into maintaining and improving it.**

By definition, public transport generates substantial operating costs. To be efficient, reliable, on time and capable of transporting everyone who wants to use them, rail, metro, tram and bus networks must be supervised, repaired, improved and extended – if only to adapt themselves to the cities they serve. All these operations, to maintain what already exists and improve it enough to stake a claim to being the most practical mobility solution, cost money. In 2026, with pressure on public finances escalating almost everywhere and for a variety of reasons, free transport is a risky gamble. **How can you justify financing infrastructure that, day by day and from a purse's-eye view, does not 'cost' its users anything? Moreover, although price is one of the factors that shape mobility choices, it is never more than a secondary or additional driver. What primarily attract users (back) are frequency, speed, comfort, operating hours and a sense of security.**

The other theoretical limitation to free transport for all is precisely that not everyone needs help paying for bus, metro or tram tickets. Particularly since public transport fares are still cheaper than the cost of using a car, from its purchase and insurance to its fuel. With free transport, the worst-off households will not have to pay, but nor will the people who are most able to contribute, and the community will miss out on this potential revenue that might help it increase service provision, improve quality or pay for the energy transition of its networks.

The findings of qualitative research conducted among passengers by Keolis and others, all over the world, point to **the quality of the transport services provided as the primary criterion that drives the adoption of public transport.** The ticket price then plays the role of a regulator or filter and becomes a symbol of people's attachment and contribution to quality of service. **Paying for your trip also means becoming a stakeholder in a shared good and contributing to its long-term viability.**
And that, in itself, is a good way of showing your support!



TREND #3

Care MOBILITY

Nearly everyone has a story to tell about a bad experience they have had on public transport: overcrowding, a sense of insecurity, insufficient accessibility for some people. By making it more accessible, safer and more attentive to needs, this transport could however become a truly shared space that cares for everyone, whatever their differences, fears or vulnerabilities. Far from being a distant prospect, it is an endeavour that has already begun, even if some journeys remind us that there is still some way to go.

FACTS & FIGURES

CARE

Beyond the notion of looking after someone, this word has come to refer to an ethic of consideration and attentiveness, encompassing all activities that we can undertake to maintain, perpetuate or repair the world around us. The challenge behind applying this concept more broadly is to no longer consider purely its moral purpose of caring for individual people and instead adapting it to a social purpose – and by extension, to public transport.

NEARLY 60%

of French senior citizens prefer to drive to their destination to avoid crowding and potentially uncomfortable travelling conditions on public transport (Keolis – Invisible Fragilities).[1]

60%

of French people consider a vehicle overcrowded above the threshold of 55 passengers for a regular bus and 100 for a metro carriage.[2]

45%

of people with complex disabilities think that their needs are not supported on public transport (Europe).[3]

29%

of Latin Americans would choose public transport if it were guaranteed to be 25% safer than it is now.[4]

16.5%

the drop in women's workforce participation caused by limited access to transport services.[5]

ACCESSIBILITY

The term of accessibility first became part of common vocabulary in reference to people with disabilities wishing to gain access to the same places and services as non-disabled people. Over time, the scope has evolved to include pregnant women, elderly people, children or overweight people. Anyone whose condition, be it temporary or permanent, restricts their access to an ordinary life. And since mobility, everywhere, is an unavoidable part of life in society, substantial efforts have been made to guarantee accessibility on public transport… even if much still remains to be done.

(1) "7 contradictions and myths of aspirations to mobility", Beyond Appearances, Keolis, April 2025.
(2) "Neolis: building an inclusive, economical and efficient network", Keoscopie Flash, Study conducted by Keolis, May 2025.
(3) Potential and Possibility 2024: Improving experiences of public transport, Sense.
(4) The Impact of Crime on Public Transportation Demand: Evidence from Six Latin American Capitals, Santiago De Martini Juan B. González Santiago M. Perez-Vincent, Inter-American Development Bank Institutions for Development Sector Citizen Security Division, June 2025.
(5) Ankita Sil, Subeh Chowdhury, "Do they hear us? A practical framework for designing gender inclusive transport polHEREes in south and southeast Asian countries", Journal of Transport Geography, Volume 127, 2025.

STARTING POINT

Ann Frye,
Independent Consultant, Accessibility and Inclusive Mobility expert

"The key point is that for disabled people it is not a separate or specialist service, it is every vehicle so there is much greater choice and opportunity for spontaneous travel."

As with so much in life, I came to specialise in making public transport accessible by… accident. This was the early eighties, and I was working in the UK Government's Department of Transport while, in parallel, I had got involved in a youth club that was integrating children with and without disabilities.

It occurred to me that those children had no opportunity to travel, apart from getting on a special school bus taking them to a special school. So I went back to the Department of Transport and told my boss at the time how terrible this was, and how we should do something. He asked me to set up a unit and see what we could do. Over the years, we had engineers, therapists, policy people who would look at all forms of public transport, the pedestrian environment as well as cars, trying to bring together everything that affected the lives of people with disabilities. We created the unit in 1981 and when I left the government, in 2006, there was a team of about 40 in total.

When we started, you couldn't get on a normal bus or a train if you were disabled, and transport manufacturers or operators had never even thought about it. The first thing we did was to set up a meeting with a group of disabled people, and a group of manufacturers and operators. It was a first! The transport industry listened, and realised that it wasn't quite as scary as they thought. That with a little cooperation, they could move towards some solutions. For example, disabled people said what they really wanted first was access to taxis, which offered door to door transport. As you probably know, the traditional London taxi has a flat floor and a high roof, which was a good starting point, even if the floor was too high off the ground. Well, we started working with the manufacturer of London taxis, developed prototypes and so on, and every London taxi has now been accessible for 20, 30 years now. Almost all city taxis across the UK are also accessible. The key point is that for disabled people it is not a separate or specialist service, it is every vehicle so there is much greater choice and opportunity for spontaneous travel.

The nineties were the beginnings of international work, and I joined the European Conference of Ministers of Transport, which is now the International Transport Forum. We looked at legislation in Europe, then globally. I've worked in the US, Canada, Australia, and many other areas. I also did some work with the UN, looking at how to deal with very large numbers of disabled people in parts of Africa or Southeast Asia, where you're starting from an absolutely zero base. We drew up simple guidance on where to start: paint the edge of the kerb yellow and help a person with low vision to move safely, put a simple ramp at a bus stop and enable someone to get on a bus. It doesn't need to be high tech.

The main priority across the board is training. For engineers, architects and executives as well as for bus drivers and ticket inspectors. They all have to understand what the law says and why it is important, otherwise things will go wrong.

We've got a lot of opportunities with new infrastructure, new technology, but we need to keep chipping away across the world, factoring in the pot of yellow paint that makes things a little bit better. Don't let the best be the enemy of the good, let's just do something.

HERE

Spread over 14 islands dotted between the freshwater Lake Mälar and the Baltic Sea, all connected together by 57 bridges, Stockholm is a labyrinthine city blessed with rich and varied architecture, while its relative proximity to the Arctic Circle makes for long days in the summer (more than 18 hours of daylight) and short ones in the winter (barely six).

To navigate the Swedish capital, often cited as the model for a green city, its inhabitants can rely on seven metro lines (an underground sometimes nicknamed the 'longest art gallery in the world' featuring more than 150 artists), 11 suburban railway lines, four tram lines, a ferry and more than 500 bus routes. When the days get shorter and the nights close in, some passengers, particularly women, can feel unsafe as they wait for a bus or emerge from a metro station. While light naturally plays a more important role in Stockholm than elsewhere, guaranteeing a safe environment for everyone is an essential prerequisite for a public transport network.

Established in Sweden since 2003, the Keolis Group operates bus routes in the country's main cities including Stockholm, where the group is responsible for more than a hundred lines in Greater Stockholm and the city centre. Kenny Bungss is security director at Keolis Sverige. This 49-year-old father of three spends some of his spare time singing and playing the guitar in a rock group - more precisely, grunge: "Nirvana, Alice in Chains, that kind of stuff," he specifies when asked. An original choice of music for such a calm, composed, cheerful and reflective character. Before he started working in security and transport, Kenny Bungss spent ten years in the Stockholm police force. Like all the other young recruits, he was on the beat night and day, adopting proactivity as the best approach, dealing with small misdemeanours as early as possible to avoid them snowballing out of control. "I realised that public transport is really the blood system of society," he observes. "There are the people who work, people who have drunk too much or do drugs, there are happy and unhappy passengers, people who are angry. You have to be prepared to play the psychologist or step in physically at any given time." Today, Kenny offers his experience and perspective of Swedish society's 'blood system' for the benefit of Keolis's Swedish employees and, in Stockholm, that of Storstockholms Lokaltrafik (SL), the public transport authority. In the capital, SL is the direct employer of security staff. Kenny Bungss readily admits that it is not the job of a bus driver to look after the safety of their passengers, but adds that it is his own job to make sure that the people Keolis hires and trains are able to deal with and resolve any potentially conflictual situations.

Kenny Bungss also agrees that the Swedish and Scandinavian reputation for compromise is well deserved. "I'd say that we are good at collaborating," says the former police officer. "We like sitting down and coming to shared decisions, but I think the real problem is that it would be better if we were more active." With a keen eye for detail, Kenny can list all the initiatives introduced by SL in recent years. The PTA has installed CCTV in most buses and in the areas with the highest crime rates. In Kista, a district in the north of Stockholm, at a transportation hub comprising metro and bus routes, the installation of cameras helped put an end to trafficking that created an insecure environment for passengers. Teams of security staff coordinated by the control centre and real-time CCTV patrol the capital's transport in their blue uniforms and red or yellow hi-vis jackets. They take care of anyone who is aggressive, inebriated or both, and only call out the police for cases that cannot be resolved calmly with a little common sense, an attentive ear or a firm attitude. They perform their duties in the metro, trams, trains and buses and can be called up directly through a phone number which in recent years has taken the form of a discreet SMS or even a chat. Consequently, any passengers experiencing a distressing situation can ask for help from a red jacket, and several thousand reports are received every month. "To set all that up, you need the organisation and the financial resources to recruit security staff, and our PTA has them," says Kenny. SL also works with several universities in the city to solicit feedback on its practices, with data differentiated by gender, an essential method for taking a detailed approach to the problems on public transport. From a personal point of view, Kenny Bungss regrets that despite the fact that women make up much more than half of passengers, not many women work in public transport. Keolis Sverige would like to take on more women bus drivers, but applications are few and far between.

Sofie Nyman, 44 and a mother of two teenagers, has been working in transport security in Stockholm since 2007. "It was initially meant to be a part time job," she explains, "before I started going to university, or doing something else... but here I am, nineteen years later!" What does she like about this essentially male-dominated line of work? "Well, I'm not very tall, even for a woman – I'm only 1 metre 57," she concedes. "But I like meeting other people, helping them, and so that's why I'm still here." She spent many years working night shifts of 11 to 12 hours per day for five days, followed by five days off. And, like Kenny Bungss, she

HERE

Stockholm

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spontaneously cites alcohol, drugs and mental health as the key causes of insecurity on public transport. She gives an example: "If we come across someone who's too drunk to use public transport, we ask them to leave, and most times it'll work. But if they start arguing or they don't appear to realise where they are, then we have to call the police." The same logic applies to people in a state of psychological distress: the staff members try to calm them down, make sure that the person is not intending to harm themselves, and call an ambulance or the police once the situation has returned to normal. Today, Sofie Nyman only works daytimes, five days a week. In the winter, she spends all her daylight hours at work. Her job at the moment is escorting revenue protection teams, in particular on the bus routes operated by Keolis. "We stay in the background," she says, "and we step in if someone refuses to show their ticket or pass, or pay their fine. We are here to guarantee everyone's safety." Sofie Nyman hopes that the PTA will provide even more human resources and hire more hi-vis jacket security staff like her. But don't talk to her about the perceived benefits of automation and AI: "A machine can't have feelings, and you need feelings to understand someone who's in distress, or someone with mental health problems." Thinking of her 12-year-old daughter, Sofie would like her to be able to take public transport with peace of mind, thanks to bright lighting in stations and the distinctive jackets of security staff who are always ready to intervene.

Kenny Bungss offers a closing argument. "You know, public transport is first and foremost… public! Far too often, something can happen in a tram or a bus, and people just look out of the window or stay glued to their phone screens. But when all of that happens in public, we should all take responsibility and do what we can to make sure everyone feels safe." Judging by the words of the former police officer and current security director, security isn't just a matter for the professionals deployed on Stockholm's transport. The response to insecurity problems can only be collective, even cultural, meaning that everyone using public transport should feel responsible for what happens around them. Only in Sweden, perhaps, will you find a grunge rocker extolling the virtues of collective responsibility and shared decisions.

ELSEWHERE

Manchester, United Kingdom

Lines of trust

In Manchester in the north of England, the Keolis Amey Metrolink (KAM) joint venture operates Metrolink and its eight tram lines serving 99 stops and providing 34 million journeys a year. As transport safety and security are priorities for Keolis, KAM launched the Safer Streets programme at the end of 2021 to address women's safety on the network through a multi-dimensional approach. Among the actions taken are the rollout of a poster campaign on inappropriate behaviour, a Trusted People scheme to reassure the public and record reports, an upgraded video surveillance system, investment in a police-operated surveillance drone, and the training of 570 KAM employees in best practices in the event of an incident. Within the first few months, the number of reported cases of sexual harassment fell, and the feeling of security rose from 75% to 93% in the daytime and from 61% to 66% in the evening.

Orleans, France

An app to keep track

The capital of the Centre-Val de Loire region, the Orleans conurbation is served by Keolis Orléans Métropole Mobilités, known to its users under the TAO brand. In October 2025, customers discovered a new website and a new app for planning and organising their journeys. To keep them safe at all times, the app offers two new features. The first is an 'SOS' button to contact the police directly from the app in an emergency, equivalent to dialling the police emergency number. The second feature allows users to report instances of anti-social behaviour on public transport, even if they do not warrant an immediate response. The aim is to collect data on both insecurity and antisocial behaviour so that targeted measures can be implemented at a later stage.

Detroit, USA

Onboard assistance

Detroit launched its autonomous, on-demand, driverless shuttles in June 2024. However, the Accessibili-D service is unique in that it is only available to residents with disabilities or those over the age of 62. Consequently, it can be accessed using an app, but also by telephone, which is more convenient for older people. The free service covers an area of nearly 30 km^2 in the south-east of the city and serves 68 stops according to user requests. Although the three vehicles in operation drive themselves, there is an onboard attendant in each one to help users get on and off, and to deal with any problems.

Nantes, France

Small trips, continuous care

In Nantes, paramedics from JUSSIEU Secours | Keolis Santé Nord Loire transport more than fifty children to medical and psychological clinics on prescription. These regular journeys are the link between home, school and healthcare. Medical and psychological clinics are local public mental health facilities providing medical, psychological and educational support close to home.
The organisation mirrors the school calendar: September is a time to reset routes and liaise closely with schools and families to ensure continuity of care. At the helm are state-certified paramedics trained to care for all ages, including mental health. Here, prescribed transport is part of the care process: it's safe, scheduled and coordinated, both for children and for their families.

Phoenix, United States

Licence to learn

Simple, basic, effective. Valley Metro, the public transport authority for the Phoenix metropolitan area in Arizona, in southwest of the United States, has been providing Travel Training courses to its disabled and elderly users for several years. Held every month, these sessions are conducted in person to help participants plan their journeys, recognise stops and understand fare structures. Several years after its introduction, Travel Training continues to enjoy overwhelming popularity.

Loïc Latour,

Commercial Marketing Manager, Keolis Tours.

Kathryn Jones,

Customer Experience Lead, specialising in accessibility and inclusion at Transport for London (TfL).

Caroline Jelfs,

Customer Experience Lead, specialising in accessibility and inclusion at TfL.

What does 'taking care' means in practical terms for a public transport network?

Caroline Jelfs: In my view, it means being open to other people and making sure that everyone in London, which is a big city with a diverse population, feels welcome on our network. If you can go down into a Tube station, get on a bus or use any of the modes of transport we have in London, and you can feel at home, then that means you're being taken care of.

Loïc Latour: For us, it's primarily a matter of conducting in-house training and awareness sessions with our drivers and all our frontline staff, so they can be watchful and look after the most vulnerable people. We encourage our drivers to look out for an elderly person when they get on, make sure they are holding on tight, or if they can sit down, or if they need a ramp for wheelchair users. The most important thing is not to ignore them or look away. We also engage with the public because you also have to raise our customers' awareness to get them to look after their neighbour. It could be an ordinary gesture like giving up your seat to someone who has problems standing, but passengers could also help by pulling out the ramps we have on our buses, instead of the driver having to leave their cab. It's obviously much quicker if a passenger lends a hand!

CJ: We remind our passengers to show consideration for one another, and we encourage them to be aware of what's happening around them, and to give up their seat if to someone who needs it more. In some research we conducted, Kathryn and I observed that people have started looking out for each other a bit more since the Covid-19 epidemic. There's also a greater expectation that transport (and public services in general) should be more accessible, even if an individual themselves doesn't have accessibility needs.

In Tours or London, what populations have you identified as encountering the most difficulties on public transport?

LL: In Tours, we target two groups in particular. Firstly, there's the cognitive, mental disability, which is a big obstacle to the use of public transport. The aim is to help these users get accustomed to a journey so that they can use transport on a trip that they have got used to doing. We work with Tours University Hospital which provides helpers who can accompany these passengers first for the full journey, then gradually reducing their presence to just sections of it, before one day leaving them to travel on their own. The other population we focus on is senior citizens, since all sectors, and not just transport, are going to have to cater to an ageing population. In our city region, 15% of the population is between 60 and 84, meaning there are more of them than there are young people. Except that we see lots of young people on our transport, and not many elderly. They explain that they don't use public transport for fear of tripping and falling, or because the tram doors close too quickly. This is what led us to start up *Mon guide fil bleu* (My 'fil bleu' guide, after the name of the network – *Ed.*) which is a free-to-use scheme to start using public transport (again) on your own, where a staff member will go and pick up the person on their doorstep and accompany them on public transport all the way to their destination.

Kathryn Jones: At Transport for London, we run surveys to find out how satisfied or dissatisfied different categories of customers are with our services. The least satisfied category is disabled customers, and that's true whatever the type of disability, which can be one or more of a wide range. Another group we identified was young women and girls.. These are very different groups who could in just as many ways get the impression that the transport system hasn't been designed for them, and it's our job to break down the barriers for them to travel with confidence. I could also add that our research also showed us that low-income populations also experience obstacles, starting with the straightforward issue of the cost of travel. It's our responsibility to understand what barriers the transport system has put in place over time, particularly when it has such a long history as ours, and then reduce those barriers one by one.

At a time when some organisations rely on technology to solve every problem, you appear to put human contact first...

CJ: We know that what makes people more confident is speaking to other people. Especially if there's a problem. That's why in our stations we have signposted places where you can ask for help – you just press a button to speak to a staff member - and we're looking into an equivalent solution that you can use over the phone if there's an incident, service delays or diversions. Having technology in your pocket is great, but it will never reassure you the same way as another human being.

LL: You can always conduct big studies and big surveys, but the principal method of finding out what the obstacles are to using public transport, since they can be very difficult from one person to another, is dialogue. It's about talking to people, listening to their needs, and it's absolutely essential to understanding the difficulties each person experiences.

What if the next breakthrough in mobility wasn't technological - but human?

In recent years, debate surrounding the future of transport has focused on the role of technology: from electric propulsion to autonomous cars and buses, facial recognition and the harnessing of data that could not previously be compiled. Technology will continue to transform, accelerate and simplify everything. However, in public transport perhaps more than anywhere else, progress cannot be measured solely in terms of efficiency. This is because it is precisely a question of community, of collectiveness, of what made homo sapiens unique even before it invented the wheel to travel further and faster: its ability to move forward together. What if it were by emphasising its human dimension, a world away from all the media hype, that public transport could really change the way we travel?

One key promise made by all public transport services is the safety and security of all passengers. For reasons linked to gender, origin, disability, age, or personal history, travelling can become a source of legitimate anxiety. Some people may feel uncomfortable or unsafe on a crowded bus or train owing to instances of harassment or assault. In such cases, technology can help to detect inappropriate behaviour and make it easier to identify and prosecute perpetrators, through solutions such as video surveillance, facial recognition, emergency numbers that can be reached without a phone call and better-lit stations. But what all travellers need, especially those who are most anxious or vulnerable, is a helping hand, a sympathetic glance, and clear answers to vague questions. No technology will be able to completely replace human intervention in the foreseeable future. So of course we need to design more inclusive buses, stations and trains, and rethink signage and lighting, but nothing can replace staff who are trained to look after all passengers and can cater to their different requests and needs. Nothing can replace the human touch.

To put people back at the forefront, public transport must also adapt to its passengers and everything that defines them as human beings, so as not to treat them simply as numbers or objects to be transported from point A to point B - even if it does so directly and rapidly. If public transport is still seen in many areas as a mere fallback for people who cannot or do not want to drive, it is because the car previously embodied the freedom, technological progress and individualism of the 20th century. Now that we are in the following century, when people can work, play or even meditate thanks to their smartphones, and when their attention has become a precious commodity, are they still 'free' when they drive? In any case, public transport must tailor its proposition to accommodate all incomes, schedules, travel preferences and disabilities. Will public transport impose its values on the century we live in? In the meantime, it has a responsibility to allow everyone to project their own values onto it.

While technology already promises mobility free from human contact, whether in the back of a robot taxi or at the front of an autonomous bus, public transport must swim against the tide and stand up for human contact. This is also what many people are seeking when they step out of their homes to get on a bus. That is, provided that we train drivers and station staff, encourage good passenger behaviour and promote kindness, empathy and mutual respect on all sides. Public transport has everything it needs to change the way we get around, but for that to happen, the next big disruption must be human instead of technological, and we need to start seeing travel time as a chance for sharing, connecting, and even belonging, rather than as minutes of lost productivity.

TREND #4

SMART MOBILITY

Digital technology has profoundly changed public transport, the ways it is used and what passengers expect from it. While there can be no question of halting technological progress, it is essential to understand its short- and long-term consequences, along with the threats and opportunities it presents. In an age of smartphones, smart cities and smartcards, is this new world, where everything is destined to be easier, more instantaneous and unencumbered by physical constraints, really a smarter world?

FACTS & FIGURES

77%

of French people used digital technology in 2025 to plan a trip on public transport.[1]

70%

of French people in 2025 said that it would be very difficult to do without digital technology to organiser their travel.[1]

68.4%

of Europeans accepted the use of video surveillance in 2024.[2]

Attention economy

According to this approach whose origins can be found in information theory, human attention is a scarce resource like any other, and economic theories can therefore be applied to it in the aim of allocating or distributing it more effectively. In an ultra-connected world where information is everywhere, all the time, this approach has spilled over far beyond its early adopters in the advertising industry to permeate all aspects of life in our societies – including mobility.

Mobility as a Service

Often shortened to MaaS, mobility as a service is a concept that emerged in Europe in the middle of the 2010s. It refers to a service that offers users the opportunity to plan, book and pay for a journey using multiple modes of transport on a single digital platform. Many services make this claim today, and several levels of integration have been defined to distinguish between them: one where information is collated on a single platform to help users find the best route; one where booking and payment are available directly in the trip planner; one where a single pass provides access to the entire range of mobility options; and finally, one where public policy objectives are taken into account within the service itself.

70%

of the global population in 2025 were mobile phone users.[3]

$2,000 billion:

the potential size of the global Mobility as a Service (MaaS) market between now and 2035, compared with $475 billion in 2024.[4]

(1) "French people and digital technology: between adoption and reluctance", Keoscopie Flash, study by Keolis, April 2025.
(2) Školnik, M., Haman, M. Drawing the line: public attitudes towards warranted and unwarranted government surveillance in European countries. Secur J 37, 1447–1462, 2024.
(3) Digital Around the World, Data Reportal, 2025.
(4) Mobility as a Service Market - Demand & Growth Forecast 2025 to 2035, Future Market Insights Org, 2025.

STARTING POINT

Gaël Allain

Docteur in cognitive psychology and Consultant in cognitive load management, Founder of Mentaleco.

When you're on the move, for example when you're just stepping out of the station to catch your bus, you need to watch out to avoid being run over by a tram, a scooter or a bicycle. If we add the digital layer, which could be listening to a podcast or scrolling through an app to check whether our bus has already left, we all find ourselves, quite understandably, struggling to cope with the outside world.

And that's not as far-fetched as it sounds: in such a situation we are confronted with the true limits of the *homo sapiens* brain, an organ that is over 200,000 years old, trying to cope with the environment and overstimulation of the 21st century. There is a huge gap between what travellers are asked to do and their intrinsic abilities. Having a 'cognitive load' is certainly a good sign, because if you no longer have one, you are in a coma or brain dead. The problem is cognitive overload, which means asking your brain to manipulate or mobilise more information than it is able to deal with. The brain can only process three or four pieces of information at a time – which is very little!

An adult *homo sapiens* brain weighs about one and a half kilograms but consumes nearly 20% of metabolic energy – which is a huge proportion compared to its mass. But what's interesting is that most of this energy consumption occurs at times when we are not focusing our attention, that is, when we are not specifically concentrating on anything. These are moments that are frowned upon in the societies in which we live, because they are moments of non-productivity, moments when we allow our minds to wander. The advantage of public transport is that you don't have to concentrate on the driving, so it can also be a good time for daydreaming and mind wandering, as long as you are sitting comfortably enough. These moments can be relatively short, a few dozen seconds of dreaming may suffice. Why does our brain consume so much energy when we leave it to its own devices? Because it uses these moments of relaxation to do lots of things: digest emotions, structure knowledge, and potentially come up with a good idea. The proverbial good idea that comes to us in the shower! One of the many virtues of public transport is that it offers us these moments.

But how do passengers actually pass their time on public transport? They browse their social media. And when I write 'passengers', I include myself. I am supposed to be an expert in these matters, but I get dragged into it like everyone else. Social media, like Mobility as a Service transport apps, is just a tool. Although I confess to finding it much more agreeable buying my train tickets with the SNCF Connect app rather than standing in a queue at the ticket office. It all depends on how you use these tools - or apps in this case - and how much control you have over them. As long as you 're mindful of what you're doing, you have every right to waste your time on Facebook; I have no moral problem with that. The problem comes when that's not the only thing you're doing!

HERE

BORDEAUX

Visitors to Bordeaux Saint-Jean station will marvel at its resplendent glass roof: 300 metres in length and spanning a total of 17,400 square metres, the result of a restoration job that lasted from 2014 to 2017.

But the main reason for the station's annual throughput of 25 million people is its role as the city's main mobility hub. Here is the point of convergence for high speed railway services to Paris and Toulouse, regional train lines branching out across all of Nouvelle-Aquitaine, four 'TransGironde' passenger coach lines, three tram lines and six bus routes. It is so multimodal that there are also three Le Vélo bike share stations and a 250-space bike park. It's here, in the evening rush hour, that we encounter the cheerful Stéphane Ramirez, 37, his summer tan still in evidence, just as he is about to connect from tram line C to bus route 31. He is one of the newcomers to Bordeaux from the Paris region, a population that the whole city has been talking about since the Sud Europe Atlantique high speed line opened in 2017. With academic training as an actor, Stéphane settled down in the Bordeaux region in 2024 and is self-employed as an art therapy workshop moderator. From his home in the southern suburb of Villeneuve d'Ornon, he takes tram line C to the railway station almost every day. From there, he then takes another tram, a bus or a train to the day's workshop venue, which could be anywhere in the greater Bordeaux area. With the TBM app, Stéphane can search and plan his journeys by tram, bus or bike directly on his phone, and also buy tickets or a travel pass. In so doing, the TBM app qualifies the transport network as what transport and new technology experts call Mobility as a Service, or MaaS for short. A service that offers the opportunity to plan, buy and make the trip from A to B without using a private form of locomotion.

The TBM app is easy for Stéphane to use largely because the teams at Keolis Bordeaux Métropole Mobilités, appointed by the Bordeaux Métropole authority to run the TBM network, have invested in digital transformation. To support this major project, a digital team was set up headed by Thierry Arrouvel and his colleagues. He joined Keolis in 2012 after beginning his career elsewhere in the transport sector. Having worked in product marketing at Keolis Métropole Orléans, it was only when he arrived in Bordeaux in 2015 that he changed roles. "I didn't know much about digital technology," the Digital and Customer Knowledge Manager freely admits from behind his desk. "But I'm quite a driven, dynamic and curious person and, above all, I knew transport networks and the 'transport product.'" Before he arrived, digital technology was still considered part of passenger information and was therefore managed by the communications department. Thierry was tasked with setting up a task force of specialists, and over the years his team grew from two to six people: some just finishing university, one with experience at a social housing provider, another at Center Parcs. The only prerequisite was to have worked in services, or at least to understand the service aspect of the mission. "And the social aspect," adds Thierry. "We provide a service to thousands, even hundreds of thousands of people every day, and that has to be in our DNA from the moment the product is designed."

At the end of 2017, a team was set up to compile and analyse data. With the digital team structured around Thierry, he secured the recruitment of an information systems specialist in 2020, tasked with integrating TBM's digital tools into the various operating systems and liaising with the various technical service providers. As in countless other sectors, the Covid-19 pandemic gave a decisive boost to digital transformation. In a world where physical interactions were suddenly prohibited, the app, which was still dedicated solely to the purchase of transport tickets, saw its usage explode. The physical proximity between the information systems specialists and the product marketing team, working together in the same glass fronted offices, enabled better communication. The small team soldiered on through the difficulties, trying, testing and constantly adapting. The offices in question are located in the west of the city, on Boulevard Antoine Gautier, not far from the Chaban-Delmas Stadium. Previously occupied by the Girondins de Bordeaux footballers, the stadium is now home to the Union Bordeaux-Bègles rugby team: a detail not lost on Thierry Arrouvel: "It's all about playing as a team, whether you're on the pitch or at Keolis!"

There are three domains in which digital technology is deployed at Keolis Bordeaux Métropole Mobilités: searching timetables, routes and traffic information; purchasing tickets; and customer relations. For each area, Thierry Arrouvel's team designs the digitalisation of the passenger experience at the same time as the digitalisation of the business. "Take the example of the mobility solutions we display on the website," explains the manager. "We also created a back office so that network operators can escalate information in the event of disruption." At the beginning, there was an application for buses and trams, another for the bike share scheme, and yet another for on-demand transport services. There were also several websites, although some of them were bundled together on the same umbrella site. The digital team argued that this was confusing

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for customers, and for TBM teams too. In 2022, when the concession contract was retendered, Keolis anticipated the demands of the local authority and proposed the creation of a new application combining all digital functionalities. On paper, the requirement was simple: everything had to be clear, transparent and effortless for the customer. "It's important to remember that behind a new application, there is a new ecosystem of around thirty functions," explains Thierry. "The application is just the front end, the visible part." As the video call continues, Thierry Arrouvel points to a diagram behind him, showing rectangles connected by arrows. "This is our architecture, the MaaS architecture," he explains. "Behind each box you can see, there's a service provider, which gives you an idea of the complexity."

Back at Bordeaux-Saint-Jean station, many travellers, including Stéphane, use another app that helps them search for and book journeys: Modalis, launched in 2024 by the Nouvelle-Aquitaine regional authority, a few months after the TBM app. The two apps are complementary, as Modalis offers journeys to and from Bordeaux from other towns in the region, while TBM focuses on urban transport within the metropolitan area. The TBM app also faces competition from GPS and mobility apps such as Google Maps, Moovit and Citymapper, which could one day offer ticket purchases. Thierry Arrouvel is not overly concerned: "They don't have our knowledge of the business, the geographical area or the passengers. The app provided by the network itself will always be a trustworthy option, and the local authorities trust us on how we use their data." Today, the teams at Keolis Bordeaux Métropole Mobilités take pride in the TBM app's ratings (4.6 on the AppStore for iPhone, 4.3 on Google Play), but also of the fact that 41% of single tickets are already purchased through it. Are the new, MaaS-adopting public transport users ultimately savvier than their elders, who would sooner rely on timetable leaflets and information desks? "Our aim is precisely to make travellers as self-sufficient as possible, including those who are not comfortable with digital technology," replies Thierry Arrouvel. "Our research shows that it is important to reassure people throughout their journey, to reach people from 5 to 100. How did the song go again?" Henri Salvador sang "from 7 to 77", but Thierry Arrouvel is used to pushing the boundaries.

ELSEWHERE

Dubai, United Arab Emirates

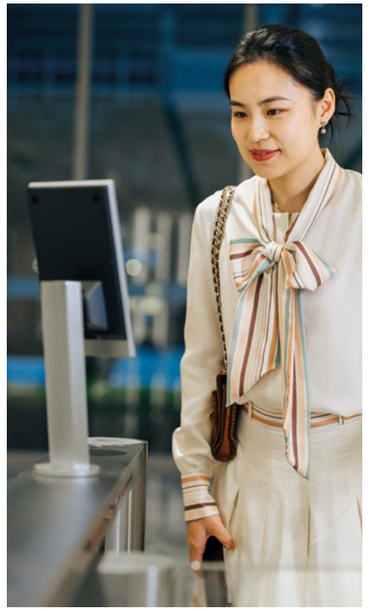
Inspection robots on track

One of the hottest topics of discussion in 2025 has been artificial intelligence (AI), but with no certainty yet as to whether this boom in interest has signalled a true change of paradigm. One instance of its deployment nonetheless came in June, when the Dubai Roads and Transport Authority (RTA), in collaboration with Future Maintenance Technologies and Keolis MHI, launched its Automated Rail Infrastructure Inspection System (ARIIS), a smart robot that inspects metro tracks without interrupting rail operations. The platform uses LiDAR sensors, lasers and 3D cameras to get around autonomously without disrupting train movements, inspecting tracks and critical infrastructure more quickly than a team of technicians would. Much more quickly in fact: initial estimates indicate that ARIIS decreases inspection durations by 75%, allowing for more frequent inspections. Thanks to the robot, 2,400 man-hours can be brought down to a mere 700. Maintenance teams can thus focus their efforts on higher priority and more strategic tasks, in particular in hard-to-reach zones, thereby reinforcing both network safety and network performance.

Edinburgh, UK

Rail travel made easy

In 2022, twenty-five years after the privatisation of Britain's railways, its Scottish franchise ScotRail returned to public ownership funded by the Scottish Government. At a time when half of the British population does not travel by train, ScotRail has come up with an argument to win over the sceptics: smart kiosks. At first glance, these large blocks painted in the blue of the Scottish flag look very similar to the ticket machines that have been around since the early 20th century. But where the old ticket machines only offer pre-programmed purchasing journeys, their new versions allow passengers to plan their journey, choose a seat, take advantage of the latest special offers and best prices, and print paper tickets with QR codes. ScotRail's management sees its new ticket machines as a simple and effective way to make rail travel more inclusive and accessible to all passengers, without penalising those who are less tech-savvy. In addition to transforming the user experience, ScotRail uses these kiosks to collect data on user behaviour, ticket purchases and peak times.



Tokyo, Japan

Look up to tap in

It's a regular turnstile for getting into the underground, but without a ticket to punch or a card to swipe against the terminal. All you have to do to get through the gate is show your face, provided you have paid upfront. This type of system is in use in several cities in Japan: all over the Osaka underground; on an automated shuttle line in the medium-sized eastern city of Sakura; and on the train running between Tokyo's Ueno station and Narita airport. The Osaka metro system was the real trailblazer: it launched the first trials in 2019 with its own employees, before extending the tests to wheelchair users. To allay any concerns around privacy and personal data, the camera simply authenticates when it 'recognises' a face, even one wearing a mask, and the few seconds of video captured are immediately deleted. The advantage of facial recognition over other biometric authentication methods such as fingerprints is that there is no need to even reach out your hand - just look into a lens. The benefit for users is a stress-free, effortless experience, while transport operators hope to eliminate queues at ticket machines and speed up turnstile traffic, especially at rush hour.

CONNECTIONS

6 QUESTIONS TO

Abdellah Chajai,
Executive Director of Marketing, Innovation, Sustainable Development and Engagement at Keolis

Anne-Sophie Gamblin,
Director of Mobility at Dijon Métropole

"The proportion of French people using digital resources to plan their journeys has more than doubled in 15 years, rising from 35% in 2010 to 75% in 2025."

Abdellah Chajai

To what extent has digital technology changed the way people use public transport?
Abdellah Chajai: For more than 20 years, Keolis has been conducting surveys through its mobility observatory Keoscopie to provide insights to our public transport authority partners. In terms of digital technology, three points are worth noting: the proportion of French people using digital resources to plan their journeys has more than doubled in 15 years, rising from 35% in 2010 to 75% in 2025; the most widely used apps for route planning in France today are Google Maps (well ahead of the rest), SNCF Connect, and finally transport network apps (particularly urban networks such as Bordeaux, Rennes and Dijon); and finally, there is a clear generational digital divide, with only 16% of 18-24 year olds being non-users, compared to 45% of over-60s.

Anne-Sophie Gamblin: Without any figures to back this up but based on my 30 years of experience in mobility, I would say that digital technology has changed the way users 'consume' transport. They no longer just make a journey, they have an experience, with access to other services throughout their journey. Real-time information, e-ticketing and predictive tools have transformed journey planning and how people perceive travel.

Has digital tech also changed user behaviour?
ASG: Passengers are focusing on much more immediate needs, now that they can organise their journey five minutes beforehand, even in a city with which they are unfamiliar. They are much more connected, and I believe they are also more objective, as they can compare and optimise their journey according to their needs, desires and vulnerabilities.

AC: In providing a wealth of information that allows passengers to plan their journeys more precisely, digital tools have made them smarter and more discerning. Passengers are now more inclined to choose a route that closely meets their expectations. They need stability, so they can stick with a familiar, well-known app, and they need simplicity, meaning that all services are accessible within the same app for a seamless customer experience. This is known as MaaS, or Mobility as a Service, which has developed in many cities and their regions (Dijon, Lille, Tours, Orléans and Bourg-en-Bresse, to name but a few).

ASG: In Dijon, we have something unique: our concession contract encompasses buses, light rail, bikes, parking, car parks, vehicle impound services, and more. Our app is a step ahead of other MaaS apps because we have real-time information for all modes of transport. On my app, I can see if there are any bikes left at the Vélodi station or spaces available at the nearest car park. It's important to remember that users are accustomed to other apps and expect the same quality of service. You can't expect them to click 25 times to buy a ticket: on an e-commerce platform, it only takes two clicks to complete your purchase.

What are your preliminary conclusions about the digital revolution in transport?
AC: We have moved on from promises of 'everything digital' to a more pragmatic roll-out. There are the Mobility as a Service tools we mentioned earlier, but also the emergence of new channels for purchasing tickets: from the widespread deployment of TVMs to e-stores, m-tickets, SMS tickets and open payment. Keolis was the first operator in France to support the implementation of open payment, starting in 2017 in Dijon and subsequently rolling it out across nearly 20 networks in France. Here I would say one thing: when open payment is deployed, it is adopted very quickly, with direct card payment rapidly rising to between 30% and 40% of all casual transport fares.

ASG: We had started by introducing open payment on trams, before extending it to buses, and it was a revolution, that's for sure. Provided you're connected, it's much easier to use public transport today: it's easier to find information, you're accompanied during your journey, it's easier to buy a ticket. We are also more responsive to unforeseen events or disruptions. However, digital tools will never be a substitute for efficient and reliable service; their role is to make the network more appealing to use.

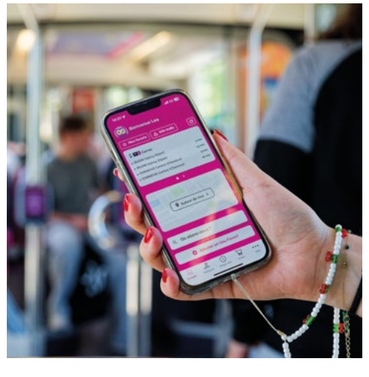
What has digital tech changed for operators?
AC: Digital technology has enabled us to improve transparency towards public transport authorities by providing them with tools to monitor the smooth day-to-day running of their networks, including data and visualisations covering passenger numbers, on-time performance, ticket purchases, etc. Digital technology has also enabled us to improve customer relations by being more responsive to our passengers' requests and building loyalty to public transport.
To do all this, we have had to overcome the challenges of upskilling our teams and recruiting new profiles to build expertise in areas such as data management and analysis and cybersecurity.

What do you see as the next technological leap forward?
AC: Let's leave aside artificial intelligence, which will revolutionise the passenger experience with extreme personalisation and a tailor-made customer journey. In the United States and China, robot taxis are booming. The technology is now available and mature. This autonomous mobility is a paradigm shift that we must anticipate if we do not want to let individual mobility take precedence over public transport, because it is also an opportunity!

Will autonomous mobility complement or replace what exists today?
ASG: Autonomous vehicles will offer flexible solutions that complement existing networks and fill in the gaps: what are known as the last miles, serving industrial zones or rural communities where it is too expensive to provide rail or bus services. One thing is for sure: there's plenty of room left for new ideas!

"You can't expect them to click 25 times to buy a ticket: on an e-commerce platform, it only takes two clicks to complete your purchase."

Anne-Sophie Gamblin



AGAINST THE FLOW

Does less cognitive load mean a happier life?

In transport, automation is depicted as a revolution, a turning point, a crowning achievement. Cars that drive themselves, both in the city and on the motorway, autonomous buses that run without a driver's cab, turnstiles that scan passengers' faces without them having to produce a card or ticket. They travel faster, with little or no effort, while such systems are also less prone to human error. Automation could even cost less for passengers and for local authorities.

Is this the key to happiness: that machines are finally freeing us from this 'cognitive load' that weighs on our consciences and conversations?

While the transport systems of the future promise to reduce instances of human error, are automated systems and artificial intelligence as infallible as their devotees claim? In the United States, where the technology has already been in use for several years, it is estimated that autonomous cars are involved in 9.1 accidents per million miles travelled, compared to 4.1 accidents for vehicles driven by humans.

The sense of unease experienced by many early adopters is not entirely unfounded: how can you - indeed, why should you? - feel safe when there is no one behind the wheel?

We can take however comfort in the fact that the technology has progressed at an impressive rate since road testing began some fifteen years ago. When pessimists or alarmists envision cyberattacks or accidents triggered from afar, it is difficult not to point out that many sensitive sectors of our hyperconnected economies pose risks that are at least as serious.

Another problem that automation can throw up in transport, as in other sectors, is its potential to threaten countless jobs.

Who will need drivers if buses and taxis are autonomous? Who will need ticket inspectors or maintenance workers if tickets are read by smart turnstiles, and robots repair vehicles or inspect tracks?

In these areas, many millions of jobs are at stake around the world. Here, though, we can note that the media have spent the last decade worrying about the 3.5 million lorry drivers who stand to lose their jobs in the United States alone. And for now, at least, the technology is not yet reliable, efficient or popular enough for mass redundancies to be an immediate concern. Moreover, automation also creates jobs, not only because of the need to design robots and the software to operate them, but also because it will remain advantageous or necessary to have people performing or overseeing maintenance operations and redirecting vehicles in the event of an unforeseen incident.

The question raised by automation is perhaps more profound than that. By automating, simplifying, streamlining and accelerating everything, we risk systematically neglecting a fundamental, perhaps indispensable, aspect of any human society: social interaction.

It is precisely because here people will say hello to the driver, help a fellow passenger alight, put the world to rights or complain about the weather, that public transport is also an experience of community.

In a world where technology connects individuals thousands of miles apart but distances them from their neighbours, human contact should be cherished and protected more than ever. Studies continue to show that many users, not just the elderly, need someone to turn to for help to be able to use public transport with confidence and travel with peace of mind. For the time being, nobody has invented a chatbot that can offer a sympathetic glance.

While the courts are weighing up the liability of robots, we can already safely say that automation, a long-standing dream of science fiction, seems set to become part of our lives.

Its potentially harmful consequences for travellers need to be addressed in advance, with a people-centred approach, to build a future that is as convenient, effortless and intelligent as our best machines are already promising.

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Changes in society inspire new forms of mobility, which in turn transform our ways of life.
This space captures and deciphers these influences, exploring the to-and-fro movement between living patterns and transformations.

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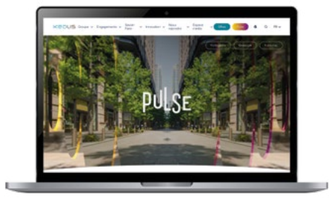

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