



Rebel without a car

When a generation stops learning to drive

A slow but now visible rift

In 2024, 912,601 category B driving licences were issued in France (ONISR, 2025), a figure that has remained stable for a decade. But behind this aggregate volume lies a structural transformation: the generation of new drivers is getting older. The proportion of 18–19-year-olds holding a licence has fallen from around 50% in the early 2000s to under 40% today, and only 80% of 24–26-year-olds now hold one, compared with nearly 90% 25 years ago (Statista / Harris Interactive, 2022). The average age at which people pass their driving test has risen by approximately two years in a single generation. More profoundly, it is the very relationship with driving itself that is changing.

The phenomenon has been documented by sociologists. Yoann Demoli (CNRS, University of Lille) and the Forum Vies Mobiles have shown, drawing on national mobility surveys, that licence ownership fell by nine percentage points among 18–30-year-olds between 1993 and 2008, and that the rift is more acute among young inhabitants of towns and cities. In Grenoble between 2002 and 2010, the proportion of licence holders fell by 14 percentage points among women and by 10 among men aged 18 to 25. In Lyon, the proportion of households aged 25–29 without a car increased by 67% over 11 years. This rift is not specific to France: in the United States, the proportion of 16–19-year-olds holding a driving licence fell from 64% in 1995 to around 40% in 2021; among 20–24-year-olds, from 87% to 81% (Sivak & Schoettle, University of Michigan Transportation Research Institute; National Household Travel Survey). The trend has been observed in most OECD countries: the United Kingdom, Germany, Sweden, Japan, Canada, Australia. The symbol of James Dean, the absolute icon of the rebellious young driver who met his untimely death aged 24 in a Porsche Spyder in 1955, means very little today to a French 16-year-old, except perhaps as an object of historical study.

Three categories of causes

Researchers continue to disagree on the relative weight of the factors behind this trend, but three broad categories feature in the consensus. The first is economic. Obtaining a category B driving licence in France costs an average of €3,213 for a manual vehicle (Roole, 2024) - the equivalent of several months' salary for a student or a young worker. Car insurance for a newly qualified driver costs several hundred more euros per year. In the United States, the rapid increase in insurance premiums is cited as a major barrier to vehicle ownership (Bankrate, 2024). The cost of running a new car nowadays also far exceeds the median purchasing power of the under-30s: the average gross income of a French person under 30 is €22,800, compared with €41,592 for the population as a whole (Observatoire Roole, 2024).

The second family is about alternatives. Whereas a driving licence once represented emancipation, smartphones and shared mobility platforms now partially replace it as a symbol of autonomy (Forum Vies Mobiles, 2016). Young urban dwellers have access to a combinatorial array of options: public transport, cycling, free-floating scooters, carsharing, private hire vehicles, trains. Vincent Kaufmann (EPFL) uses the term *motility*, or the capacity to get around, which has become dissociated from vehicle ownership. For many urban under-30s, a driving licence is no longer a prerequisite for daily mobility; it has become an option.

The third family is cultural and health related. Environmental sensitivity plays a role: a 2024 Deloitte survey of Gen Zs and Millennials found that 62% of Gen Zs said they had experienced environmental anxiety in the previous month. Furthermore, sustained remote working is reducing the need to commute. Urbanisation is concentrating populations in areas where the car is less indispensable. And there is another, less widely discussed phenomenon: the increase in general anxiety among young adults includes a rise in driving anxiety, which manifests itself in more driving lesson hours being required and more candidates dropping out midway through their driving courses.



The paradoxical effect of a driving age of 17

Added to these factors is the effect of a recent change in French law. On 1 January 2024, the minimum age for holding a category B driving licence dropped from 18 to 17. The measure has proven popular: 290,050 17-year-olds took the driving exam in 2024, representing 33.7% of their age group, and 211,471 passed, representing a pass rate of nearly 73% – well above the national average of 58.2% (Ministry of the Interior, 2025). This quantitative success nevertheless deserves a more nuanced reading: it accelerates the process for each individual, but will not reverse the generational trend. Many of these newly qualified young drivers will never own a car of their own.

The mirage of autonomy: an enduring excuse

Added to these factors is a mechanism that is less easy to quantify but probably decisive among adolescents and young adults of the 2020s: the anticipated effect of autonomous vehicles. The promise, repeated year after year by Elon Musk since 2015, that human driving would become obsolete within a short space of time, has led many young people to consider that learning to drive is a worthless investment. What is the point of paying €3,213 and spending some thirty hours learning a skill that the machine will soon take over? While the argument appears rational, it does not hold up against the facts.

The reality of autonomous vehicle deployment falls far short of the promises made. The Tesla pattern is now well documented: full autonomy promised for 2017, an autonomous transcontinental Los Angeles–New York journey announced for the end of 2017, one million robotaxis promised for 2020, a ‘feature complete’ software promised for the end of 2020, full autonomy promised again ‘this year’ in 2023, 2024, 2025, and again in May 2026. In reality, in May 2026, Tesla operates fewer than thirty unsupervised robotaxis, spread across three cities in Texas, compared with several hundred for Waymo in a handful of American cities; the Tesla Robotaxi app is downloaded approximately nine times less than Waymo’s (CNBC, December 2025; Electrek, May 2026). Only Mercedes has obtained a Level 3 type approval in Germany with Drive Pilot; no manufacturer has reached Level 5 (full autonomy without geographical restriction).

Several serious forecasts confirm that rollout will continue to be sluggish. In McKinsey’s ‘delayed’ scenario (2023), only 4% of new cars sold worldwide in 2030 would be equipped with Level 3 technologies and above, rising to 17% in 2035. In the ‘base’ scenario, these percentages are 12% in 2030 and 37% in 2035. The ‘accelerated’ scenario rises to barely 20% in 2030 and 57% in 2035 – and naturally covers new vehicle sales only, not the existing fleet.



The Boston Consulting Group, in its work with the World Economic Forum, estimates that robotaxis will be deployed at scale in 40 to 80 cities worldwide by 2035, predominantly in China and the United States; Europe will proceed with caution at least until 2030 and will prioritise controlled pilots working alongside public transport. In other words: even under McKinsey’s most optimistic scenario, more than four in ten new cars sold in 2035 will still require a human driver, and virtually the entire existing fleet will consist of older vehicles with no significant autonomy.

The trap, therefore, is as follows: an entire generation has put off or abandoned learning to drive, relying on an autonomy that is only arriving slowly, partially, and unevenly depending on where they live. When that generation realises, around the age of 35–40, that driving remains predominantly a human task – in rural areas, on motorways outside dedicated corridors, in regions where the public transport network is inadequate, and for virtually all professional transport – it will be too late to easily make up for lost time. Learning to drive at 35 costs more than at 18, takes more hours, and carries substantially higher test failure rates. The mirage of autonomy will have produced a very real and asymmetrical effect: the promise will have demotivated an entire cohort within a matter of years, while its practical effects will unfold over several decades. The gap leads to a skills divide that will last over time.

The dual impact for operators

For transport operators, two cascading consequences ensue. First, an opportunity: cohorts that no longer learn to drive become long-term customers of public transport, provided the latter is up to the task. Second, a threat: recruiting bus, coach and train drivers is becoming increasingly difficult, because the pool of people who can drive heavy vehicles is shrinking.



The UTP estimated in 2022 the France suffered from a shortfall of 3,000 to 4,000 drivers in urban and rail transport, in a sector that employs around 100,000 workers, 60 to 75% of whom are bus drivers. At the start of the 2019 academic year, the country lacked 6,000 school bus drivers compared with its requirements. After the pandemic, the shortfall worsened, with resignations rising by more than 70% in 2022 compared with the pre-Covid period (Les Échos, January 2023). In 2023, SNCF Transilien alone was aiming to recruit 400 new drivers; major urban operators collectively announced targets of several thousand drivers per year. The IRU put the proportion of vacant bus and coach driver positions in Europe at 17%.

Several responses are being mobilised: lowering the minimum age for the category D licence (passenger transport) to 18 (decree 2021), active recruitment of older workers and women (who currently make up only 10.5% of the profession), paid training schemes, permanent contracts from day one, loyalty bonuses. The profession is being transformed under pressure rather than by strategic choice.

Looking to 2044: the driving divide

By 2044, if these trends continue, the French situation could converge towards that observed today in certain very dense metropolitan areas in Northern Europe or Asia, where fewer than half of under-30s hold a category B licence, and a significant proportion of young adults will never learn to drive a motor vehicle.

The cascading consequences sketch a new landscape. The pool from which professional drivers are recruited is structurally shrinking: category D licence candidates are fewer in number, older, and arrive in training with fewer previous hours behind the wheel. Training becomes longer, more costly, more difficult. Several networks have already extended their pre-training programmes to 250 hours by 2030 for candidates without a prior category B licence. Partial automation of driving mitigates but does not solve the problem: in 2044, according to projections by the World Economic Forum and the Boston Consulting Group, autonomous vehicles will represent less than 4% of the new private car fleet sold in the European Union, and professional driving will remain predominantly human for inter-urban buses and school buses.

On the passenger side, two effects combine. Loyalty to public transport is increasing mechanically among young urban dwellers: they have never had any other option. That is good news for operators in terms of ridership. But their relationship with movement changes: a young adult who has never driven does not know how to gauge a distance in terms of journey time, loses the autonomy of mobility in rural areas, and perceives driving as a rare, almost artisanal skill. The divide between French people who can drive and those who cannot is added to the geographical divide.

The Story

Judy has never driven

Rennes, may 2044

Judy Daniels was twenty-three years old, she had been living in Rennes for five years, and she had never been behind a steering wheel. And yet, in two hours' time, she was going to be sitting behind the wheel of a sixteen-metre articulated bus.

The Keolis Rennes Métropole training centre was based in a former SNCF depot near the western ring road. Judy had been going there for eight weeks, five days a week. She had been accepted onto the latest cohort of the 'Driver with No Prior Qualifications' programme — the official acronym was DNPQ, but everyone in the building called them 'the zeroes', because they arrived with zero documented hours behind the wheel. Of the twenty-four trainees in her cohort, twenty-one had never taken a driving test. Nor had she.

She was the second in the family to have signed up for the programme. Her elder brother Jim had done it two years earlier; he now drove the C4 line in the mornings and studied at Sciences Po Rennes in the afternoons. It was he who had told her about it, over a coffee near Place Sainte-Anne: "Judy, seriously, it pays well, it's secure, and you learn to drive in the process. You do realise none of your friends can drive?"

She had laughed because it was true. Her flatmate Inès, twenty-six, an engineer at a pollen analysis start-up, could not drive. Her ex-boyfriend Romain, twenty-eight, a history teacher at a secondary school in Le Blosne, could not drive. Her younger brother Plato, twenty-one, doing a master's degree at university, could not drive. Her parents, of course, could drive: her father Frank, fifty-six, a TER train driver on the Rennes–Saint-Malo line for twenty-four years; her mother Carol, a GP in private practice in Cesson-Sévigné, who used her personal car on the 30 km/h roads imposed by the traffic-calmed city. A generational rift.



Once, at seventeen, Judy had asked Frank why James Dean had died so young. Frank had looked at her with a mixture of tenderness and disbelief before explaining what a film actor was, what a Porsche Spyder was, and what it meant to drive at a hundred and eighty kilometres per hour on a Californian road in September 1955. He had told her about the film, *Rebel Without a Cause*, released a few weeks after Dean's death: a teenager on the edge, races of stolen cars on a cliff-top, one of the two drivers who could not jump out in time. Judy had listened as if it were a fairy tale. The word 'rebellion' associated with a car seemed to her as exotic as the word 'duel' associated with a sword.

Frank and Judy had had another conversation, earlier, at dinner, when Judy was fourteen. She had asked him why her mother Carol had insisted she take the bus on her own between Cesson and secondary school, when her classmates were being dropped off by car. Frank had replied: 'You know, Judy, when you were little, I used to tell you that you might never need to learn to drive, because cars were going to become autonomous. That's what we read everywhere. We're almost there, except that this 'almost' has been going on for thirty years. When I retire, the number 76 bus between Saint-Malo and Rennes will probably still be driven by a human.' Judy had rephrased it in her fourteen-year-old way: "So basically, there will never be a self-driving car?" Frank had smiled: "Not quite. Let's say there will be many of them, but probably when you're my age. And in the meantime, life will have had to be lived."

On the morning of the twelfth day, the lead instructor Ray Wamba stood in front of the group: "Today, you are all going to get into the simulator. Tomorrow, those I select will have a go on the real bus." Judy felt her stomach clench. She had done two weeks in a static simulator, two weeks in a dynamic simulator on a virtual urban network, two weeks of theory on mechanics, hydraulics and electric traction. She had passed the Highway Code test — first time, unlike the national statistics — but driving a real bus was something else entirely.

Ray was 38; he had arrived at Keolis in 2032 after five years as a school bus driver in the region. It was he who had designed the 'spatial-motor cognition' section of the course — a strange name that in fact referred to the skills that children of the 1980s learned for free when they rode their bikes or observed their parents as they drove: a sense of distances, anticipating trajectories, an intuition for the forces of inertia. Some of Judy's fellow trainees had grown up in large traffic-calmed cities with 30 km/h limits, on foot, on electric bikes, on public transport. They had never physically experienced the sensation of mass in motion at 50 km/h. The course compensated for this.

Judy's simulator session that day covered a real route: line C2, Bois Perrin depot — Chantepie, twelve kilometres, eighteen stops, driving past a school at 11:15 a.m. Judy sat in the cab, adjusted the pneumatic seat, placed her hands on the steering wheel. Smooth start. First stop, braking too late — the front of the bus stopped two metres short of the platform. Virtual passengers: grumbling. Second stop, too sharp an acceleration — a virtual elderly woman lost her balance. Penalty.

At the third stop, Judy felt something click into place inside her. She began to anticipate. She could 'see' the trajectory before it happened. The fourth stop was perfect. So was the fifth. At stop eight, in the middle of the school zone, two virtual children ran across the road between two parked cars. Judy braked without thinking, smoothly, keeping her eye on the interior mirror so as not to throw the passengers forward. Ray, behind her, said nothing.

At the end of the session, he put his hand on her shoulder: "Tomorrow, you'll be on the number 14. It's a real one. You're going to drive for real on the ring road."

That evening, Judy phoned her father. Frank had finished his shift at 7:30 p.m. at Rennes station. He listened to her recount the simulator, the test, the approval. There was a silence. Then he said: "Judy, you know, when I was your age, I had roughly fifty thousand kilometres under my belt as a passenger in my mother's car. I had done four years of accompanied driving. I had hours and hours of experience. You're going to drive your first real bus tomorrow, having never driven before. I don't know whether to call that admirable or alarming." Judy replied: "Maybe it's both, Dad. Do you know what Ray said to us yesterday? He said that the rebellion of today isn't taking the wheel at sixteen in secret. It's getting in behind it at twenty-three to earn your living."

The following day at 9:12 a.m., Judy pulled out of the Bois Perrin depot at the wheel of the number 14 bus, with Ray beside her and a road safety coordinator on board. The bus carried no real passengers. She took the western ring road at 12 km/h leaving the junction, then 30, then 50. Next to her, her phone vibrated. It was a message from Jim: "Good luck, sis. I'm on the C4 line this morning. You might cross my path at Beauregard." At Beauregard, she did. Passing Jim's bus, she reflected that no young person of their age was chasing after cars to run away at the age of sixteen anymore. And that both of them were now driving a sixteen-metre bus, in a city where the rebels without a cause were very different to those of bygone decades.





Three forward-looking scenarios

WHITE SCENARIO

The transmitted skill

In the optimistic scenario, the end of the driving licence as a rite of passage is accompanied by an active policy of rebuilding the driving skills chain. Central and regional government and operators jointly fund mobility schools from secondary school age onwards: introducing cycling, map reading, and how to judge distances and speeds. Operators such as Keolis invest heavily in 'Driver with No Prior Qualifications' programmes, which become a recognised professional pathway, equivalent to a vocational qualification. Women, historically under-represented, are actively recruited and account for 40% of the workforce by 2044. The shortage is resolved. The public transport network becomes an employer for those who have never driven. And the relationship with driving, now a professional skill rather than an attribute of adulthood, gains in collective safety: accidents involving young drivers fall significantly compared with 2020.

GRAY SCENARIO

The chronic shortfall

In the middle-ground trajectory, the decline in young people obtaining licences continues without a co-ordinated industrial response. Operators continue to recruit, but with increasing difficulty: 12 to 18% of driver posts remain persistently vacant. Services are regularly cut or reduced. Quality of service deteriorates in the least dense areas, where operational profitability no longer justifies the additional recruitment costs. Public transport authorities experiment with various solutions — partial automation, recruitment of foreign drivers, loyalty bonuses — without any overarching policy. The urban network holds together; the inter-urban and school network falters. Young urban dwellers cannot drive; young rural dwellers continue to learn, because they have no choice. The territorial divide in licence-holding is superimposed upon all other divides.



BLACK SCENARIO

The operational impasse

In the pessimistic scenario, the decline reaches a critical threshold. By 2044, 25 to 30% of bus routes in France are unable to maintain their daily service for lack of drivers. Operators lose their margins; some terminate contracts. Public transport authorities find themselves operating the service themselves, but with insufficient resources. Younger generations, who have never driven, cannot compensate for the collapse of public transport by switching to private cars. Daily mobility deteriorates for everyone: forced walking, cycling in difficult weather conditions, premium autonomous pods for those who can afford them.

The promise of universal autonomous mobility, which was supposed to bridge the gap according to the techno-prophetic discourse of the 2020s, has not materialised at the expected scale. In 2044, autonomous systems equip a significant but still minority share of the vehicle fleet in France, principally on logistics flows, certain inter-urban corridors, and a few dense urban areas under geofencing. The inter-urban bus, the school bus, the majority of TER rail services, transport in rural and suburban areas, and virtually all professional transport remain driven by human beings, whose recruitment pool has dried up. The driver shortage, long presented as a human resources problem, becomes a political problem: everyday mobility is no longer guaranteed. Mass replacement recruitment from abroad meets with resistance. The profession of driver, long undervalued, is no longer attractive enough to be rebuilt in a single generation. The trap is sprung: those who bet on the autonomous promise when they were young have neither the skill to drive themselves nor access to a technology that would relieve them of the need.



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