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Towards a new formulation of mobility transition? A contribution to the debate on just transition in rural areas through the case of France

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Abstract

The study purpose is to contribute to the ongoing debate on just transition through an overview of the historical development of mobility transitions in rural France and the changes introduced following the introduction of the Mobility Orientation Law in 2019. The authors examine the reception and management of the change introduced in public policies by elected officials and mid-level bureaucrats responsible for mobility issues, and by members of associations. This allows for an understanding of the nature and consequences of the changes in terms of mobility justice. Interviews were conducted with key actors in the local and regional mobility subsystem. Three main findings emerge from the analysis of the narratives and dissonance surrounding the implementation of the mobility transition in rural: the belief in the development of cheap technology that would allow the pursuit of a car-centred society, the lack of space to allocate to other modes of transport, and a lack of consensus on how to implement the transition. Those findings lead to a call for action for a just transition through the social dimension of mobility and the materiality of the transition and the potential for the first steps towards “communing mobility”.

Introduction

In the context of increasing socio-spatial inequalities due to climate change and the energy transition (Sherriff et al. 2022), a rethinking of mobility at the European level necessitates reflecting on sustainable low-carbon modes of transport accessible to all (Mullen & Marsden 2016; Nikolaeva et al. 2019; Vitale Brovarone & Cotella 2020; Flipo et al. 2023). Rural areas are particularly affected by socio-spatial inequalities. They suffer from accessibility problems, depopulation, and impoverishment. Rural communities also suffer from mobility problems and scarcity of opportunities and services (Vitale Brovarone 2022). Moreover, low density of population results in inefficient (or inexistant) public transport and car dependency (Farrington & Farrington 2005; Mattioli 2016). This situation reinforces the isolation of those who are most vulnerable, namely the young, the elderly, and those without access to motorised transport (Vitale Brovarone et al. 2022; Flipo et al. 2023; Martiskainen et al. 2023). Furthermore, in most EU countries, policy on daily rural mobility is non-existent and the policies regarding mobility transition are urban-centred (Holden et al. 2020), thereby excluding large sections of the population.

Mobility transition is a set of social, technological, and political processes aimed at changing practices, energy resources, and modes of transport. It encompasses the substitution of the internal combustion engine (ICE) by batteries in electric car, the increase in modal shift to, for example, public transport, car-sharing, carpooling, bicycles, scooters, and walking, the reduction in distances through the promotion of urban organisation regarding proximity, and reduction in the number of trips. Due to telecommuting, online commerce, and similar developments the transition implies social and technological change (Ryghaug et al. 2023). The notion of mobility transition, promoted in particular by policymakers (Nikolaeva et al. 2019), invites consideration of the narratives of socio-technical processes and of the visions of the promoted future.

Mobility transition also questions the political power of the infrastructure (Nolte 2016; Knox 2017; Cox 2020). Infrastructure is a socio-technical system (Amin 2014) that

organises and governs the actions it makes possible (Dalakoglou & Harvey 2014; Koglin 2017). Infrastructure is bounded by existing governance structures, histories, power relations, and embodied experiences (Knox 2014; Anand et al. 2018; Ortar & Rérat 2024b). As such, it opens up some paths of action and close other possibilities, and therefore affects the very possibilities and nature of sociocultural change.

A number of authors, including Martens & Lucas (2018) and Mattioli et al. (2016), have demonstrated how issues of transport inequality and social justice affect citizens' access to education, employment, leisure activities, and territorial development. Furthermore, researchers have highlighted the unequal nature of the energy and mobility transition, pointing the social impact of this transition in cities, with a risk of increasing segregation due to unequal access to new resources that hamper mobility and access to energy (Sheller, 2023) even in the Global North (Carnino & Marquet 2018). Indeed, in rural areas, the cost of electrifying the car fleet is felt by a larger proportion of the population than in urban areas, due to the lack of alternatives to the car (Ortar & Ryghaug 2019). Moreover, the development of sufficient electrical infrastructure to support the transformation of the vehicle fleet is slower in rural areas due to its high cost (Lis-Plesińska et al. 2024). Thus, in these areas, mobility transition based on individual change tends to reproduce the high-carbon system's inequalities of access, while the complexity of local mobility governance reduces local citizens' ability to take part in the decision-making process (Flipo et al. 2023).

This article examines, through the narrative frameworks of mobility transition, how change in France is embraced and managed by elected representatives and mid-level bureaucrats in charge of mobility issues of *communautés de communes* (federation of municipalities), local authorities, regions or state transport organising bodies, as well as by members of associations dealing with mobility issues. The power of narrative lies in the fact that it 'shape[s] perception and the nature of actions undertaken by individuals and organisations' (Brömmelstroet et al. 2022). Hence, Crow & Jones (2018, p. 223) state: 'policy actors wield narratives to help achieve their goals, communicate problems and solutions, and citizens use them to communicate their preferences to policy elites'. Using rural France as a case study, the article contributes to the debate on just transition. We examine the conflicting narratives of the mobility transition and the weight of infrastructure in decision-making in the wake of the enforcement of the Mobility Orientation Law (LOM) passed in 2019, and their consequences in terms of mobility justice.

Following an outlining the history of mobility transition in rural France in order to identify the evolution of the consideration of car dependency in rural areas, we present the methodology we used in a research project on the enforcement of the LOM in Drôme and Ardèche, both of which are administrative departments (*départements*) in the Auvergne-Rhône-Alpes Region. The results of the research are then analysed through the narratives relating to the mobility transition, the assumption of responsibility for its implementation, and how local authorities could be empowered. In the discussion section, we question the overlooked social dimension of mobility and of the materiality of the transition, and whether and how the first steps towards communing mobility could be put into action for a just transition. Thereafter, we present our conclusions.

Mobility transition in rural France

In France, one-third of the population lives in rural areas (D'Alessandro et al. 2021). While poorer than the rest of the population (Couleaud et al. 2021), rural populations are more car-dependent (Ministère de la Transition Ecologique 2021) and have longer commutes in terms of distance and time that have increased more than elsewhere: between 1999 and 2019, the median distance travelled by employed workers residing in rural areas increased by 4.4 km, compared to 2.3 km for all other active workers in the same areas (Chaumeron & Lécroart

2023). Teleworking, which could be a way to reduce car dependency, faces a territorial divide, with more urban dwellers working from home compared with rural dwellers (Chaumeron & Lécroart 2023). The potential of sustainable transition policies to exacerbate social and territorial inequalities has been a central topic of public debate, particularly since 2018 in the context of the social movement *Mouvement des gilets jaunes*¹. The debate has focused on the promotion of a uniform treatment of all spaces as a prerequisite for spatial justice and the advancement of a social justice framework capable of addressing spatial inequality. Since the mid-1990s, rural areas have been compelled to devise strategies for sustainable development, including a reduction in car dependency. The terms of this challenge have undergone two significant shifts in recent decades, and the current context, which is marked by the ongoing ecological, energy, digital, and territorial transitions, opens the way for a third formulation.

The initial formulation of the issues associated with car dependency in rural areas was linked to the introduction of the concept of ‘sustainability’ at the end of the 1980s (Newman & Kenworthy 1999). The concept emphasises the necessity to reduce the negative impact of human activities on the environment through modest changes in production and consumption patterns. Sustainability encourages densification and the ‘fight’ against urban sprawl (Morel-Brochet & Charmes 2014), without fundamentally opposing the logic of residential and economic development (Theys & Emelianoff 2001). In the absence of alternative mobility solutions in rural areas, such as public transport services and the development of active mobility, the use of the car is perceived as unavoidable, and this is the main reason why the issue of mobility transition was first addressed in urban areas. Sustainability is thus understood in terms of efficiency, either through actions at the micro-level (households, businesses, local authorities) or at the macro-level through more systemic changes (Fuchs & Lorek 2005). The subsequent focus is either on environmental concerns or on human well-being and equity (Sahakian et al. 2022).

Since the 2010s, a second formulation of the issue of car dependency in rural areas has emerged in the context of the rise of the notion of energy transition (Lejoux & Ortar 2014). The notion reflects a growing awareness of the need to change energy consumption practises, including mobility practises (Abram et al. 2022). It calls into question the adaptive capacity of stakeholders (households, businesses, local authorities) and highlights the need to identify potential vulnerabilities (Belton Chevallier et al. 2018).

Since the mid-2020s, a third formulation emerged. The current context is characterised by a generalised awareness of the need for an ecological transition by all components of the French population (Coulangeon et al. 2023). However, it is not yet supported by significant changes in production and consumption patterns. Moreover, the energy transition that it implies is currently hampered by the rise in energy prices and commodities (Lis-Plesińska et al. 2024). Households living outside urban areas are the most affected, as they are more dependent on cars and more often rely on oil-fired heating; they have had an average loss of disposable income of EUR 720 compared to in 2020, despite the introduction of state support such as ‘shielding’ the price of energy, discounts on pump prices, and energy vouchers (Cornuet 2022). The situation is increasingly weakening the position of households, especially the lower middle-class households; despite their daily efforts to reduce their expenses (travelling and heating less, paying attention to the food budget) (Ortar 2018), they have strong feelings of fragility (Berhuet & HoiBian 2022). The concepts of territorial vulnerability (Roth 2017) and energy vulnerability (Meillerand et al.

¹ Initially formed to protest against a fuel tax increase, the spontaneous and popular movement, named after the yellow safety vests worn by its protagonists highlighted the precarious daily lives of inhabitants in rural and peri-urban areas.

2023) gradually emerged, taking into account not only travel costs (such as fuel) but also housing costs (such as heating) (Ortar 2018). Areas previously characterised as ‘unsustainable’ (Lévy 2010) due to their car dependency, are now being viewed as ‘vulnerable’.

It is in the above-described social context that rural areas in France have had to undergo a mobility transition marked by the implementation of the Mobility Orientation Law (LOM). The LOM is a comprehensive plan with three main objectives. The first is to guide and facilitate the actions of the public authorities in the field of transport in rural areas. The second objective is to create and strengthen alternatives to car use, while working to facilitate access to driving licences. The third objective is to reduce carbon emissions by increasing the number of electric vehicles, carpooling, and cycling. The LOM also has the objective of clarifying the competences of local mobility and specifying its governance (Flipo et al. 2021), which to date has been dispersed across several administrative levels. For rural areas, the LOM aims to establish the pairing of the local authority and the region by enabling local authorities that wish to do so to become mobility organising authorities (*autorités organisatrices de mobilité*, AOMs), while strengthening the region’s interurban and coordinating powers.

The State is responsible for financing and maintenance of road infrastructure for the main free roads that cross the country. The *départements* are responsible for financing and maintenance of the intra-regional networks. Local authorities are responsible for roads that serve only local areas. The State is responsible for the financing and maintenance of the railway infrastructure, while the regions, *départements*, local authorities, and *communautés de communes* are essentially responsible for cycling infrastructure. Regarding infrastructure, the aim of the LOM is to maintain existing railway networks, to fund new mobility infrastructure, in particular for cycling, and, for regions that request it, to transfer the management of local railway infrastructure.

Methodology

This article is based on an action-research project financed by the French Agency for Ecological Transition (ADEME) and carried out between 2019 and 2021 in the Drôme Valley and in the southern part of the Ardèche, in partnership with two local associations (Dromolib and Alec07²) and six *communautés de communes*. The *communauté de communes* is a public intermunicipal cooperation body that brings together several local authorities in order to draw up a joint development and regional planning project. The objective of the research project was to examine how the *communautés de communes* could implement the LOM.

The study areas are characterised by low population density, the absence of an agglomeration and therefore of a transport authority. Both the Drôme and the Ardèche *départements* are geographically constrained areas due to their mountainous nature, which implies that they have a busy but limited secondary road network and very limited access to the national road infrastructure (Fig.1). The car is the preferred mode of transport for 80% of the people living in the two *départements* (Flipo et al. 2022), and trips from home to work are mainly made on secondary roads (86%). The existence of a relatively high level of local activism on mobility issues explains the choice of the two areas within the *départements*. Between half and two-thirds of the ecomobility³ initiatives identified in the territories studied

² L'Agence Locale de l'Énergie et du Climat de l'Ardèche.

³ Ecomobility refers to the implementation and management of clean and/or environmentally friendly transport modes, such as cycling, carpooling or public transport.

are carried out by associative actors, demonstrating citizen's real interest in the issue (Table 1).

A total of 50 semi-structured interviews were conducted with local policymakers and mid-level bureaucrats in charge of implementing mobility policies, as well as all the associative, private, and informal actors involved in defending alternatives to car dependency in the territories under study. Additionally, participant observation was conducted during local councils and steering committee meetings discussing the issues of mobility planning at the local and regional levels. The semi-structured interviews were conducted with the objective of analysing how the interviewees framed mobility issues. The recorded interviews have been transcribed and coded using MAXQDA software (VERBI, Berlin), and a thematic analysis was performed. In this article we analyse the narratives produced during the interviews. The interviews were in French and the translation has been made by the authors.

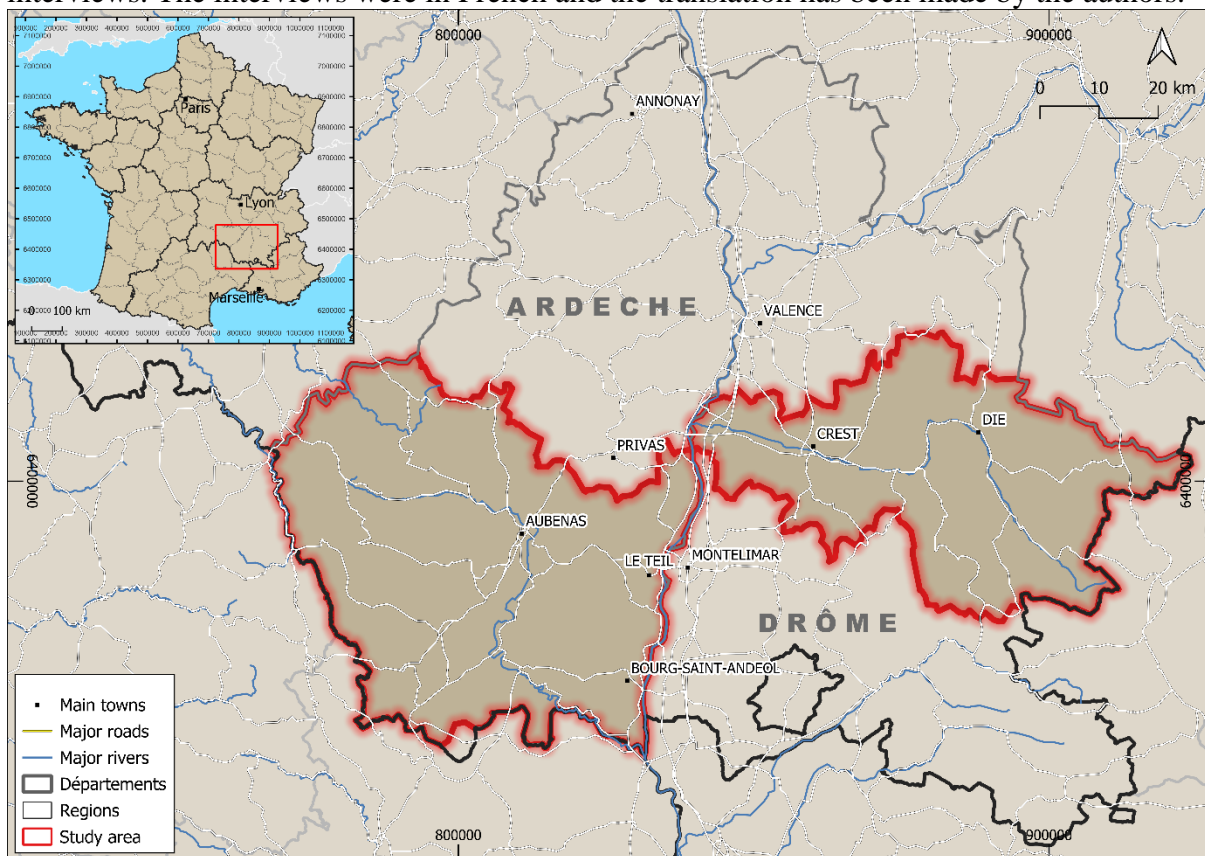


Fig. 1. The research areas in France: Drôme and Ardèche (map prepared by Nicolas Robinet based on maps and data from the websites IGN ROUTE 120 and OpenStreetMap)

Results

Mobility transition narratives: a fragmented consensus

Mobility transition as implemented under the LOM implies a profound change in the values relating to everyday life, in which the car is both a bridge between different aspirations and a mark of social status, as explained by one interviewee who managed an inclusive mobility association in Ardèche:

Society is pushing us to have an individual car that satisfies all our ... [laughing] all our fantasies! [...] Everyone wants to have their own car, and so, in our audience, whom we call 'prisoners' basically have no choice. They have to adapt to

something else. However, it remains heartbreaking for them! They are not going to achieve the ideal ... the ideal, that is. The ideal is to have your own house, your own home, your own car. So that's more what I'm questioning, and I say to myself until we move on to something else, 'this is it'.

This representation was shared by elected representatives, as shown by the following quotations from elected officials in a *communauté de communes* and a municipality in Drôme:

Nobody is going to say, 'I don't care about mobility.' That is not possible. Mobility is not a green problem anymore. (elected official in a *communauté de communes*)

I think that today, I want to say, it's a fashionable issue. In a good way, this time! That is to say, today there are a lot of subsidies and aid, we think, including in the recovery plan. So, it's true that there are a lot of things that can be done in certain areas at the moment. [...] I think there's a real ... 'niche,' I would say. It's a turning point. We're at a turning point, or we're taking the right turn, but you have to be brave. (elected official in a municipality)

The historic turning point, meaning the imperative to think about alternative mobility in rural areas, is recognised by all categories of actors interviewed and met during fieldwork and leads to a relatively optimistic relationship with social change. The need for a change in mobility is presented as unanimous and either would not be or would no longer be the subject of political activism. However, the consensus on the inevitability of the mobility transition does not apply to how to make it happen:

For the part of the public that [comprises] technophiles, the problems of ecology and government will be solved by technology. For the remaining part, it will be solved by more 'degrowth' and 'sufficiency.' However, the fact is that both [parts] are talking about it! Ten to fifteen years ago they weren't talking about it. We didn't talk much about the Greens, and today even Marine Le Pen talks a little about ecology! Even her! I don't know what she says about it, but I know she talks about it, because it's something that is rooted in society and that people are becoming more and more interested in. (founder of a bicycle repair workshop, Drôme)

The narratives behind the 'moment' of transition are far from uniform, and range from for example an increase and diversification of related subsidies, new technologies, public demand, number of bicycle shops and repair workshops, to political consensus in the consultation on the development of bicycle infrastructure. Moreover, the timing of the change is controversial: associations, especially those fighting for the growth of cycling and the preservation of the railway, defend the need for more radical action and, above all, faster action. In this respect we see a recurring conflict between the temporalities of public action, which belong to the long term and the urgency promoted by the associations:

We had a work meeting that fell through because it was either too early, too complicated, or we had to 'reinvent the wheel'. The president of roads, I think, ... he wanted to create itineraries with signs so that people could easily find their way by saying 'well, to go from X to Y here it's so many kilometres, so much time', but then he wanted to differentiate between time for the athlete, time for the family, and then making a difference between whether there was a difference in altitude or not, ... well, something really interesting. So the idea was good, laudable, but it's not the priority. The priority is already to have places where we can ride safer more quickly. (president of a cycling association, Drôme)

The weight of infrastructure

The weight of the existing infrastructure is presented in the narratives of the interviewees as a difficulty or even an impossibility in the transition away from automobility. Firstly, the omnipresence of the use of roads by cars and trucks was presented as an impossibility to change the mobility system:

You have to be extremely careful about how you approach things. Cycling, where things are going to get tricky, [the question] is, ‘What if we shared the spaces to ride?’ I told her [in a discussion with a mid-level bureaucrat on a village development project aimed at reducing car traffic] ‘propose a single direction of traffic [...] If you find that for the good of everyone, that a road must be made one-way ... Propose it in your overall plan.’ That’s where things start to grind, and if you do that on the eve of the elections, you lose the elections because of a one-way road! (intermunicipality-elected official Ardèche)

The difficulty evident from the above quotation was present in the discourse of associations, mid-level bureaucrats, and elected representatives alike. Promoting other uses, such as cycling, on the same infrastructure is a challenge that seems impossible in the context of narrow, busy roads. Secondly, the omnipresence of the materiality of the car is reinforced by the political omnipresence of automobility. Several mayors have declared that they are concerned about the reactions of motorists and therefore refuse to pedestrianise village centres or reduce speeds in certain areas.; this is evident from the following quotation:

They [elected officials] are convinced that if we ever interfere with the car, we will endanger all village centre commerce. They are convinced that the little business that remains [...] they can have it because cars can access their business as close as possible. (mid-level bureaucrat, Drôme)

The influence of motorists is a powerful electoral factor, and it is further strengthened by the absence of measures to alter the distribution of public space. Thirdly, the belief in a techno-solutionism and in cheaper electric cars was a prominent feature of the discourse of certain elected officials and mid-level bureaucrats, as well as among citizens who did not envisage that the materiality of their world could evolve.

Taking responsibility for the mobility transition

The question of who will take the responsibility of the transition is more controversial than when the transition will occur. Regardless of their status, all actors tended to believe that the responsibility to change the mobility system lay in the hands of other actors. Associative actors tended to overestimate the responsibility of local elected representatives, mentioning their lack of commitment to explain the inertia. Faced with the impossibility of responding financially to all the requests, elected representatives and mid-level bureaucrats stressed the role of citizens, and the injunction to develop local solidarity was used to compensate for a lack of public funding:

There is an economic model that has to be built. [...] As long as we see the offer as the preparation of a market, with an offer to be designed, a public market, a vehicle that runs, a driver, a thing, it will be very expensive and we will be a little limited. If we manage to put together offers with the territories [*départements* and *communautés de communes*], there we [will] fall into modes where someone will agree to share his vehicle and his time to enable the mobility of his neighbour. It doesn’t cost much, and the territories like that. [...] The associative world is

complicated, because we would be subsidising something that already exists in part, that could potentially work without us. (mid-level bureaucrat, regional level)

From the above quotation we observe a dual discourse that, on the one hand, recognises the political dimension of the mobility transition and, on the other hand, transfers its potential for conflict to other levels of administration and the citizens.

Linked to the representations of who has the responsibility for change, the equal access to alternative mobility solutions is also the subject of debate between the various associations. Associations aiming to develop access to mobility for everyone consider that such responsibility is political. They emphasise the need for public services and territorial equality, as illustrated by the comments of one association manager (Drôme):

Yes, I think that they [the region] just stop at statistics, without taking into account the human dimension and without having a visionary policy of what rural development can be! This is particularly interesting after having lived in a large urban area where public services are close by and transport is more than efficient. [...] When we find ourselves here, for the smallest thing you have to take your car. [...] So, [...] I think that we are really the forgotten ones ... it would really suit the regions and the State, I think, ... if our territories were just tourist territories, sort of large natural reserves, where the urban people could come and breathe!

By contrast, associations that emphasise environmental mobility tend to perceive change as being contingent upon individual practices and initiatives. They posit that it is the responsibility of each citizen to 'do their part', and are less inclined to acknowledge the fact that the potential for transition at the individual level is also contingent upon an unequal social context.

Empowering local authorities

To achieve a unified, more informed approach to mobility issues, some associations are working to improve the expertise of elected representatives and mid-level bureaucrats. In these rural communities, both parties have to deal with a wide range of demands and they rarely have the time to devote their attention solely to mobility issues. For the associations, the increased mobility competences of local authorities allow them to establish their position as experts in their territory and to increase their capacity to act in favour of mobility transition, as is evident from the following quotation:

For us, it is extremely important to ensure that elected officials are aware of the challenges of this work on mobility. [...] If it is done at the regional level, it risks not going much beyond what is currently done. [...] The federation of municipalities could organise transport on demand so that elderly people could go to the market, a bicycle school project, hitchhiking, bike sharing, [and] that kind of thing. The Region [Auvergne-Rhône-Alpes] will not be able to listen to this kind of need which is quite specific, quite punctual. I don't think the Region would organise this kind of thing at such a small level. (employee Alec07, Ardèche)

Developing the know-how of those involved in the mobility ecosystem, and in particular local elected representatives and mid-level bureaucrats, will enable them to encourage local initiatives. The organisation of shared governance and intermediation work between public and associative partners constitutes the heart of the work of these associations dedicated to mobility issues:

It creates informal spaces, and I like to create connections with people. I had a big responsibility when I arrived at Dromolib [an association promoting eco-mobility in rural Drôme], it was to give people confidence, to show them that we are interested in them and that we are not exploiting them: ‘We are going to create a relationship of trust, we, Dromolib, we need you, and you need us.’ With the *communautés de communes* too. So it’s true that it’s very engaging, especially at the start, but then we build on this relationship. [...] often associations feel [the risk of being taken advantage of] in relation to institutions. Dromolib is still institutionalised, because we were financed by ADEME, [and] we have a strong link with the communities. We don’t know where to put ourselves, anyway. Because we are an association, we are therefore a private structure, but sometimes I find myself with elected officials and I am the only one. There is this side where you are still associated with politics, and it’s nice, but it’s interesting because it shows that we are creating a new space. (Dromolib employee, Drôme)

Thus, the employee described how Dromolib aimed to create informal, trusting spaces, fostering genuine connections with people. Although, as an association, Dromolib is technically a private entity, its institutional links (e.g. through funding from public agencies such as ADEME and interactions with local governments) blur the line between private and public. This blending of roles highlights Dromolib’s unique position in creating a new kind of community space.

Discussion

Since the mid-1990s, rural mobility in France has undergone a significant transformation, evolving from being perceived as an intractable problem to becoming a matter of concern addressed through legislative action, namely the LOM. The implementation of this legislation should also facilitate a transition in mobility patterns in these areas. Nevertheless, our analysis of the narratives and dissonance relating to the implementation of the mobility transition in rural areas reveals three key issues. First, there is a belief in the development of cheap technology that would allow the pursuit of a car-centred society. Second, there is a lack of space to allocate to other modes of transport. Third, there is a lack of consensus on how to implement the mobility transition. In a context of strong constraints on existing infrastructure and limited possibilities to create new ones due to the mountainous context, the allocation of existing financial resources presents a significant challenge. This is further compounded by the need to consider the recognition of an unequal social context. The lack of consensus increases when it comes to deciding who should implement the transition, with the responsibility being passed back to the political authorities or to the citizens, depending on the understanding of the mobility transition and of mobility justice.

Three elements are pivotal in the realisation of a just mobility transition. The first is the social dimension of mobility, and the second element is the significance of the material dimension of infrastructure in the production of practices. Both dimensions have been overlooked by the two study *départements* in their implementation of the transition. The third element is the necessity for cooperation processes between associations, technicians, and elected representatives and for their capacity to implement a commoning logic.

The overlooked social dimension of mobility

For Cresswell (2006), meaningful consideration of the mobility transition must also involve looking at the politics of mobility transition. In this respect, it is essential to question the relationship between an individualised ‘right to move’ and the way in which collective social needs are mediated by mobility. In rural areas, although decreasing the greenhouse gas (GHG) emissions of mobility is crucial, mobility in itself is an increasing source of social

exclusion. The change in perception of the mobility issue by researchers from ‘unsustainable’ (Lévy 2010) due to car dependency to ‘vulnerable’ because of that same car dependency (Meillerand et al. 2023) does not translate into mobility policies. Moreover, due to the rising costs of energy as well as other products, this vulnerability will affect new fringes of the population is unacknowledged, as is the recognition that private car ownership is set to decline for economic reasons rather than solely environmental ones. The solutions to be found are as much institutional as they are individual, since they depend both on a reallocation of resources (the change of economic model mentioned in “Taking responsibility for the mobility transition”) and on forms of solidarity, which implies new forms of collaboration within state, regional, and local authorities, as well as between citizens themselves and between associations and local authorities.

With regard to the collaborations between authorities, our analysis reveals not only the question of who assumes responsibility for the transition but also the absence of a cross-sectoral approach to public policies within the same institution. Indeed, although the LOM acknowledges the necessity to develop mobility services that consider the various disabilities in rural areas, these services remain sectoral (Douillet et al. 2019). It is an obstacle to combating fuel poverty (Meillerand et al. 2023), but also to taking into account the multidimensionality of the mobility transition.

Furthermore, the inability to move away from car dependency is due to the fact that the various actors do not consider mobility as part of a system of practices. The failure to embrace the diversity of practices and therefore of mobility options narrows the field of possibilities and, in so doing, weakens the ability of policies to address the needs of the most vulnerable. Indeed, transitioning implies not only a new way of thinking (Holden et al. 2020; Levels 2020; Ortar & Rérat 2024a) but also a change in the values that sustain lifestyles, in particular those attributed to home and car ownership as expressions of social status (Ortar 2015; Gateau & Marchal 2020). Even after the LOM was introduced, despite the call to give practices their place and the usefulness of the transition pathway concept for understanding the complexity of sustainability transformations (Rosenbloom 2017; Kiviluoto et al. 2022), practices and lifestyles are still not fully considered. Social discontent and rejection of urban-centred policies are fuelled by the lack of recognition of the diversity of lifestyles and the anxiety that accompanies change in a context where there are no alternatives to the car.

The overlooked materialities of the mobility transition

Practices are produced by material arrangements, which require reorganisation or modification to meet the various challenges of the mobility transitions underway. Thus, in addition to the arguments pertaining to the differing political and environmental sensitivities inherent in the understanding of the mobility transition, the materiality of the world – as manifested in artefacts, the geography of places, and infrastructure – encompasses also a political dimension that is instrumental for the various actors in the rural upland areas of France where roads are scarce.

Mid-level bureaucrats, elected representatives, and associations alike do not have a full assessment of the design of infrastructure and the topography of services relating to social inequalities. The potential anger of motorists in the wake of any change in space sharing was identified as a significant concern by the elected representatives of municipalities and *communautés de communes*, who pointed to potential emerging road-use conflicts. From this perspective, the timing of a mobility transition in rural areas is still emerging.

Moreover, technical issues are overlooked. The fact that, with the global transition from hydrocarbons to electricity, electricity grids will be exposed to significant new global loads that may overload them or destabilise their operation was rarely mentioned by the mid-level bureaucrats, elected representatives, and associations alike. The location and timing of

electric vehicle charging, as well as the specific charging patterns that will emerge in different contexts, are yet to be determined (Ortar & Ryghaug 2019; Walker 2021). This feeds into the same socio-technical systems that are constituted and maintained by the continuous performance of the practices that constitute them. Consequently, it prevents the various actors from thinking differently about the use of existing infrastructure and services. The question of modal shift and its modalities has thus been absent from almost all discussions. This illustrates the axiom that systems persist due to the routine actions of actors in the system as a whole, as they perform the practices that reproduce the institutions and relationships that make up that system (Temenos et al. 2017). This axiom does not consider the emergence of two new realities: the growing awareness of the challenges of climate change and the equally growing vulnerability to energy, and therefore mobility, of populations living in rural areas.

Cooperation between associations, technicians, and elected representatives: a first step towards commoning mobility?

The different temporalities of public action are highlighted by the elapsed time between the formulation of the mobility transition by central government bodies, the awakening of the awareness of mid-level bureaucrats and elected representatives in rural areas, and the implementation of the transition through legal instruments such as the LOM (Flipo et al. 2022; 2023). Furthermore, our research findings indicate that the capacity to enact legislation is contingent upon the vitality of local citizen actors, which could be conceptualised as the associative fabric. In the southern part of Ardèche, where the network of associations involved in mobility is much less developed than in Drôme, there are half as many initiatives as in the Drôme valley. The result is that in Drôme more than in the Ardèche, new forms of collaboration have emerged on mobility issues, albeit with a concomitant transfer of responsibility for action to the citizens.

In an article on commoning mobility, Nikolaeva et al. (2019) identify two responses to the logic of scarcity at the heart of the mobility transition: austerity logic and commoning logic. The former would lead to injustice and exclusion in low-carbon transitions. Commoning logic argues that it is possible to reassess mobility not only as an individual freedom but also as a collective good, paving the way for more equitable mobility transitions and a collaborative approach to the challenges of sustainable mobility. The collaboration between associations and policymakers can be identified as a first step of commoning rural mobility if the associations involved are representative of the diversity of aspirations and needs.

Conclusions

In accordance with the guiding principles of the LOM, an assessment of the European Green Deal (European Commission, 2019) indicates a shift in perspective, with a heightened focus on the role of users in propelling change. It is crucial to ascertain which users are being considered. Furthermore, it is essential to determine whether the target audience is comprised of individuals who are aware of the necessity for a mobility transition but wish to continue to move in the same way due to new technological solutions, essentially the transition from ICE to electric motorisation, or whether it is comprised of those who will have to face the energy transition and for whom it is important to develop alternatives to the car, which implies rethinking the services offered and the use of roads.

According to Urueña (forthcoming), ‘anticipation calls for an examination of the futures that influence the governance and metamorphosis of such systems: how they exert this influence, the rationale for their prominence over alternative futures, and the resultant sociotechnical orders they support’. However, even if the purpose of the LOM is to

encompass these dimensions to a certain extent, this is not the case in the context of law enforcement, as several temporalities are intertwined and linked to different narratives and understandings of the mobility transition. It is the capacity to integrate the different social regimes and changes in the use of existing infrastructure that is questioned, as well as the anticipation of the future mobility of these areas with their specificities.

Despite the existence of a legal framework, the failure of local-level policymakers and mid-level bureaucrats to foster alternative narratives and technical skills for the implementation of the mobility transition will result in the perpetuation of car dependency and the continued reliance on technical solutions. Furthermore, it will prevent the consideration of the full scope of social vulnerabilities. This will be particularly the case if the policy stance on individual responsibility for achieving a mobility transition persists. Due to its cost effectiveness, this proposal has been made by a number of elected representatives and mid-levels bureaucrats in rural areas. It shifts the question of responsibility without addressing the difficulties faced by the most vulnerable in any other way than on an ad hoc basis (Flipo et al. 2021). From this perspective, the interest expressed by associations working to advance alternative mobility in collaboration with elected officials and technical professionals in building skills and fostering a shared culture is a notable finding. For rural areas with limited administrative services, which encounter difficulties in training for the full range of required skills, such collaboration offers the potential to adopt alternative visions of mobility and implement the mobility transition. From this perspective, the comparison between the two study *départements* reveals the vulnerability of this ecosystem in the absence of a network of associations. Furthermore, it highlights the necessity to transcend the siloed approach to public policy in order to address the multifaceted dimensions of a just transition, particularly in contexts where human and financial resources are scarce. It is through these dimensions that the commoning of mobility can be effectively implemented in rural areas of France.

Future research should continue the investigation of the conditions for implementing the mobility transition in other geographies, which implies investigating beyond political contexts, the effects of territorial contexts, and the infrastructure present there. Transformations in mobility are inextricably linked to the dynamics and persistence of numerous other aspects of people's lives, collective social rhythms, norms and goals, and broader socio-technical systems. In our research, the voices of citizens and their vision of the mobility transition were elucidated through the speeches made by associations and elected representatives. It is imperative to collect their vision of future mobility in order to document the diversity of lifestyles envisaged and expressed needs, thereby enriching the knowledge base on the diversity of rural areas.

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Figure caption

Fig. 1. The research areas in France: Drôme and Ardèche (sources: IGN ROUTE 120; OpenStreetMap 2021) (Credit: Nicolas Robinet)