



Pitfalls in a quick decarbonization path for personal mobility

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Moving Together: Getting to know TRA2022

Webinar – 18 October 2021

Outline

1. Political context
2. Main challenges for decarbonizing Personal Mobility
3. Some pitfalls and how to be prepared

UN SDG's (2015) and SuM4All (2017)



4 SuM4All objectives

GLOBAL OBJECTIVES

UNIVERSAL ACCESS

Ensure for all equitable access to economic and social opportunities by 2030

EFFICIENCY

Increase the efficiency of transport systems by 2030

SAFETY

Improve safety of mobility across transport modes

GREEN

Shift transport systems to low polluting (GHG/air/noise) and climate resilient path

Paris Agreement (2015), Green Deal (2019) and Fit for 55 (2021)

While all of the SuM4All objectives are equally important, the current “Climate Emergency” forces an inevitable priority to “**Transport Decarbonization**”, as part of the “Clean and Green Mobility”



Check point: How are we doing?



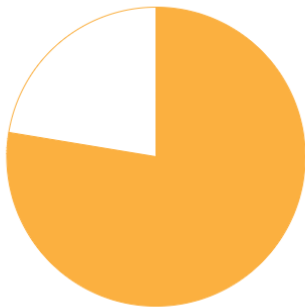
How serious are countries about decarbonising transport?

Our Transport NDC Tracker monitors how transport appears in countries' decarbonisation commitments. Do countries mention transport in their "Nationally Determined Contributions" (NDCs)? Have they included transport decarbonisation measures? And how many have set concrete CO₂-reduction targets for transport? The Transport NDC Tracker is updated every Monday.



94%

of NDCs mention transport



78%

of NDCs include transport measures



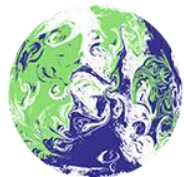
15%

of NDCs set transport CO₂-reduction targets

As of 12 Oct.2021

- Every data point showing the speed of change in energy can be countered by another showing the stubbornness of the status quo
- For all the advances being made by renewables and electric mobility, 2021 is seeing a large rebound in coal and oil use.
- *The direction of travel is a long way from alignment with the IEA's landmark Net Zero Emissions by 2050 Scenario (NZE₁), published in May 2021*

Preparedness of countries still quite low !



UN CLIMATE CHANGE CONFERENCE UK 2021

IN PARTNERSHIP WITH ITALY

Absentee list at COP26 lowers expectations for bold agreements

Source: <http://www.symbols-n-emoticons.com/2015/11/worry-smiley.html>



Main challenges for Personal Mobility

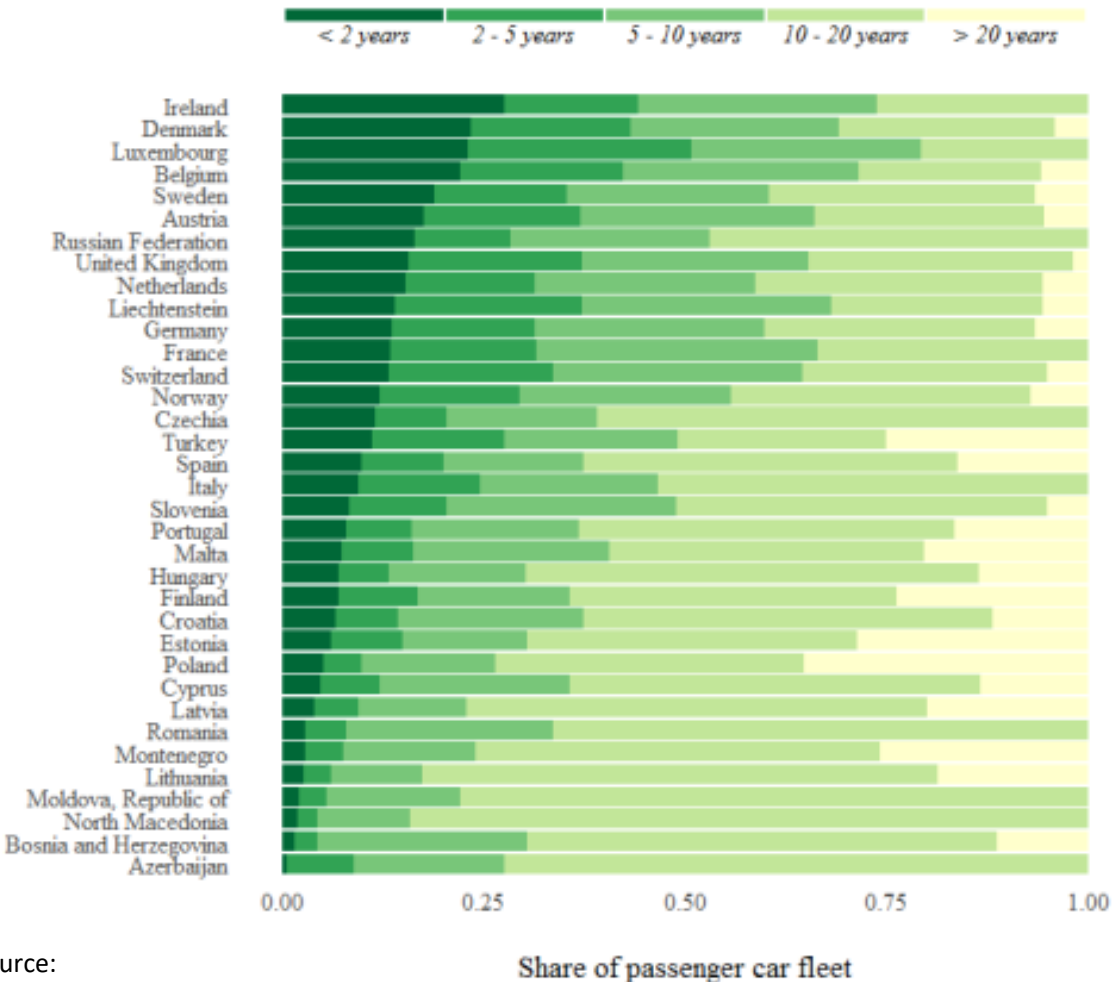
- Mainstream of politicians looking at reduction of GHG emissions via:
 - Electric vehicles & (fast) Charging points / stations
 - High hopes on new battery technologies
 - Modal shift to scheduled public transport
 - In some countries, also e-bikes
- But apparently focusing on mainstream and ***failing to fully take into account*** that
 - Great diversity of personal situations in society, many of which with a difficult fit in the “new mobility”, for reasons of
 - Affordability of shift to EV
 - Flexibility / Spatial coverage of alternative options to private car
 - Mobility options are a key factor of many people’s professional and personal frameworks

 Risk of ***low acceptance / resistance / social fracture***



Pitfall I – Dealing with the “senior” car fleet

Share of passenger car fleet by vehicle age category and country, 2017 or most recent year



- Many countries with 40% - 60% vehicles above 10 years
- Many of these cars **critical** for daily life, especially in peri-urban and rural areas, owned by people with low disposable income
 - Access to jobs and professional routes, often with high daily distance driven
 - Modal shift virtually impossible
- Trade-in values very low, replacement by EV unaffordable with current subsidy levels
 - But these old vehicles are high emitters (especially of toxic pollutants)!
- **Low level of tolerance** to behaviour-change “sticks”, high capacity of mobilization for protest



Source: <https://www.bbc.com/news/world-europe-46424267>



Pitfall II – EVs, what else ?



- **EVs with much lower operating cost than ICE**
 - efficiency and current tax regime of fossil fuels
 - Incentive to drive longer distances (even to home relocation), inducing **congestion**
- **Urgency of decarbonization justifies incentives to shift from ICE to EV, but preferably not only**
 - Stimulating a usage model instead of ownership
 - Congestion can also be fought (besides PT and e-bikes) via shared mobility (shared rides & carpooling)
 - Preserving coverage and flexibility of private car
 - But it must be part of a ***new, wider concept of public transport*** → requires policy action
- **Fuel duties make an important part of state revenues** (typically between 4% and 7%)
 - Must be replaced relatively soon, preferably by a smart distance-based charge (differentiated tariffs)
 - While many ICEs still active
 - Communication challenge: double taxation of ICE's (if also charged on top of fuel duty) vs. “stab in the back” for EVs (and apparent recall of fast electrification)
 - ***Risk of strong protest*** for apparently incoherent decisions
- **Difficult choices regarding policy mix and timing of the various instruments,**

Sources:

<https://ec.europa.eu/jrc/en/news/fiscal-incentives-how-do-they-impact-electric-vehicle-sales>

<https://memegenerator.net/instance/74365918/nESPRESSO-whatelse-george-clooney-what-else>



Navigating the transition

- **Great difficulties lie ahead for the transition:**

- Societies are complex: big diversity of situations and interactions between the different segments
- Many jobs (and interests in general) in industries and services connected to “mobility as usual”
- Many lifestyles with very difficult fit to scheduled public transport
- Poor transition management may create big tension and compromise effectiveness



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- **Significant research is needed** in support of policy decisions on this very complex problem

- Systems dynamics approach with fine agent segmentation seems indispensable
- Core of the problem is very similar all over the EU, but with some diversity of parameters and even some different features associated with land-use, social habits and purchasing power
- Low value for a long term forecasting model structure, preferable to adopt an ***interactive gamified structure***
 - Identify tensions, possible strategies of different players and test nudges that could reduce tensions, lead to better social value responses
 - Good value from having available a small number of “accredited” competing such models, not very different from what has been done for climate change
 - With a very strong representation of social diversity and interactions



Conclusions

- Decarbonization is the priority and seems technologically feasible in personal mobility
 - But the other objectives of Sustainable Mobility must not be forgotten
 - In particular, universal equitable access may be at risk for some segments
- Solutions excessively focused on technological progress and aiming at “maximum utility” or “best option on average” will face serious acceptance issues and may lead to (further) loss of social cohesion, and slow-down of transition
- Transition will be turbulent and difficult
 - Large diversity of situations and complexity of the social system require careful preparation and analysis of situations as they evolve (avoid navigating by sight)
 - A range of solutions must be available to each citizen
 - Some solutions may require incentives / nudges to increase and accelerate their acceptance
 - Integration of solutions in a coherent policy package is necessary for acceptance at large
- Systems Dynamics models can be quite useful to navigate the transition
 - Formulated as games
 - Given the complexity of the study object, multiple competing games (models) should be available / “accredited”





Thanks for your
attention !

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