ITS Deployment: Vehicle Automation and Emerging Mobility Business Models

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Dr. Tom Vöge

Transport Policy Expert

tom.voge@gmail.com

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Introduction and Background

Vehicle automation has been a clear trend, both from a technology as well as a a policy point of view, but the expert opinions on future developments vary widely in terms of e.g.:

- Speed of technology and service implementation
- Extend of the disruption on OEMs and legacy carriers
- Enabling new and innovative mobility business models
- Development driven by which industry or sector
- Transport policy and regulatory impact of new services

Transport Policy Implications

From a transport policy point of view both positive and negative scenarios are possible for vehicle automation and the related emerging mobility business models, e.g.:

- Automated status-quo
- Mobility revolution
- Co-Existence of old and new

It is thus necessary for decision makers on all levels to actively manage the transition period to new mobility services, combining regulatory oversight and flexibility for innovation

Positive Scenario for AVs

Many potential benefits of vehicle automation are being quoted by experts in this field, including:

- Improved road safety levels
- Decreased vehicle emissions
- Increased network capacity

But the emergence of related mobility services also holds the promise for even larger benefits, for:

- Society as a whole
- On the city level

Negative Scenario for AVs

But at the same time negative effects could also be envisaged:

- Network capacity gains leading to induced traffic and zero marginal cost leading to increased demand/ trip numbers
- Modal shift away from public transport and other green modes
- Ability of using travel time more productively leading to longer trips as people move away from urban centres (urban sprawl)
- Potentially huge fleets of empty vehicles running errands and thus generating much larger congestion levels
- Wider labour market effects (for freight and passenger transport)

Government Roles and Responses

- Policy makers need to manage the transition period
- Acknowledging that this period has started already
- But also to provide flexibility during uncertainty
- Lock-in benefits while avoiding potential risks
- Key tools here are legal and regulatory frameworks
- Often seen as a barrier to wider implementation
- Technology-led discussion often overly optimistic
- But technology mature for variety of use cases
- Leadership from policy makers is thus essential

Competing Players and Roles

Governments investing in R&D and demonstration of near market-ready systems, showcasing ambitions for leadership; also emerging companies with much stronger IT focus are aggressively pushing into the market, AVs thus part of:

- The sharing economy
- Disruptive innovation

But the "road ahead" for AVs is still far from certain, e.g.:

- OEMs: Slow/ evolutionary process + little change + full control
- Disruptors: Large change + fast implementation + less control

Current Regulatory Situation

- "Stretching" of the existing current rules and regulations
- This is an imperfect but comparably easy approach
- The approach has both advantages and disadvantages
- It is possible for lower automation level (assistance)
- Reaching "Breaking point" when nearing full autonomy
- Either risking regulatory difficulties and losing control
- Or risk hindering necessary technology/ service uptake
- Thus a need for more flexible regulatory approaches
- Consider here a move to more data-driven governance

Regulatory Response for Vehicles

Regulation in the context of AVs typically centre on the vehicles and work is ongoing here on various levels nationally and internationally, e.g.:

- Updates to the texts of the agreements under UNECE WP.29
- Concept of a "driving tests" for AVs
- Test tracks simulating various real-life scenarios
- Governments amending regulations for testing on public roads

A key future challenge will be how to deal with the regulatory impacts of vehicle functionalities changing through over-the-air software updates, e.g. self-certification

Regulatory Response for Services

- Regulating the automotive aspect of AVs (e.g. through type approval processes) of course is key
- But likely implementation of this technology as an enabler for different types of shared mobility concepts
- Therefore regulation of mobility services needs to be considered in parallel with more vehicle-centric regulations
- There is direct competition with legacy transport services, which are often heavily regulated and protected
- Here the disruptive potential is most directly experienced, thus new more flexible frameworks need to be found

Avoiding undesired Outcomes

- Avoid modal shift from green modes (walking, cycling, PT)
- Ensure appropriate minimum mobility levels for all citizens
- Guarantee high levels of road safety and personal security
- Need to monitor e.g. overall person-miles-travelled
- AVs need to be seen as part of overall multi-modal system
- Consider livelihood, training, pension of sector employees
- Flexible regulatory environment to try out innovation
- Access to data sets for analytics and enforcement purposes
- An element of pricing might be necessary to provide nudge

Thank you for your Attention!

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