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Liikenteen automaation lainsäädäntö- ja avaintoimenpidesuunnitelma

Lausunnonantajan lausunto

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This document is a relatively extensive look at many aspects of transport automation. For example, it is good to see that there is a serious attempt to tackle policy problems with AI Ethics. However, the document still fails in addressing many aspects that are inseparable from the transport system automatization if it should be carried out responsibly and functionally. The document deals mostly with enabling transport automation, and there seems to be a lack of forethought about how transport automation could best benefit Finland, and more specifically different areas of Finland, which have very different needs. The policies in this document seem to be derived mostly from promises of car manufacturers and the dominant media/grey literature narrative, and the future vision they paint is very deterministic. In other words, the future these policies address is already fixed, and there is not much we can do about it. This is a dangerous approach.

This determinism is illustrated very clearly in several sections:

“Keskipitkän aikavälin (2025-2030) tavoitteena on, että kehittyneillä automaattisilla ajoneuvoilla voitaisiin ajaa koneen hoitaessa dynaamista ajotehtävää kaikilla Suomen moottoriteillä hyvissä olosuhteissa. Tietyillä reiteillä liikkuvien automaattisten pieninja-autojen osalta tavoitteena on, että niiden avulla voidaan toteuttaa laajamittaista palvelutuotantoa sekä kaupunkien syöttöliikenteessä että haja-asutusalueilla. Robottitaksien osalta tavoitteena on palvelutuotannon käynnistäminen. “

This is the first time that robot taxis are mentioned in the document. There is no clarification what a robot taxi is, where and how does it operate, who is responsible for the service etc. Why is this word thrown out here makes absolutely no sense. Possibly the writers have heard about robot taxis somewhere and decided that the service is so self-explanatory that it can be included in this policy document. In reality, no such thing exists, and the meaning of the term is not fixed. It is simply an engineering imaginary that is subject to flexible interpretation. Therefore, one cannot under any

circumstances form policies based on the prospect of robot taxis without first clarifying what they are.

Another clear indication of determinism is presented in the following paragraph.

“Tieliikenteen automaatioissa Suomi pyrkii muuttamaan ajattelua siten, että automaatiokehityksestä saataisiin irti ihmisten kannalta mahdollisimman suuri hyöty sen kulloisessakin kehitysvaiheessa. Ei siis aseteta tavoitteita kaikkialla itsestään liikkuviin ajoneuvoihin, vaan pyritään Suomen oloissa realistiseen tavoitteeseen mahdollistaa ajoneuvon automaattiajaminen laajenevasti kaikilla tieosuuksilla, joilla ajoneuvon automaatio-ominaisuudet ovat valmistajan mukaan käytettävissä.”

“The goal is not to enable automated driving everywhere, but the goal is to enable automated driving in all road sections where the manufacturer deems it possible.” So the premise seems to be that automated driving is beneficial where the manufacturer deems it beneficial – not for example where transport planners see it as an opportunity or where people see a need for it. To enable transport automation everywhere manufacturer deems it possible means to enable it even where it is not necessary, or it is even harmful. Why would Finland aim to serve manufacturers in this way is beyond me. Such statement closes the opportunity of deliberation about where do we actually need transport automation, which is even called for in the document itself:

“Toivottavat kehityskulut eivät tapahdu itsestään, vaan niiden aikaan saamiseksi on tehtävä määrätietoista politiikkaa muun muassa sääntelyn ja strategisen suunnittelun avulla. On pystyttävä muodostamaan kuva siitä, millaisia automaation vaikutuksia haluamme, ja miten niihin päästään”

Perhaps the biggest problem with this document is just that. There is a lack of solid rationale for the presented policies related to transport system planning. Human centrality is mentioned as the central goal, mostly due to many contributors calling for it in the previous phase of the work, but it is questionable whether the mentioned policies reflect a human-centric future. The lack of rationale is most likely due to insufficient groundwork. Scenarios should have been constructed to better understand different possible futures (or other inclusive anticipatory measures should have been taken) and to create a vision(s) that fit actual societal needs – not the prevailing narrative created by manufacturers, other stakeholders, and activists.

As far as I understand, no such work has been carried out. This has led to the paradigm, present in this document, that transport automation is a feature that can be just added to the transport system when it really is a phenomenon that can irreversibly change almost all components of our daily lives. Creating policies without extensive groundwork is to build on sand. And if I am mistaken and such work exists, it has not been visible to the public and definitely not inclusive.

The authors seem to have fallen for numerous fallacies and weak arguments, many of which have been turned over in scientific literature already. The document starts with the following paragraph which is already deceptive.

“Suunnitelman vision mukaan automaattinen liikenne on nykyistä liikennettä turvallisempaa, tehokkaampaa ja kestävämpää. Yleisesti odotetaan, että näin tulee tapahtumaan, mutta samalla on aktiivisin toimin varmistettava, että odotukset myös muuttuvat todellisuudeksi.”

This claim is very questionable. At least scholars seem to hold ambivalent views towards the phenomenon. The overwhelming optimism towards transport automation stems mostly from the before mentioned promises of car manufacturers, activists and other stakeholders. In general, automation-futures based on shared transport are expected to reap the benefits, whereas ones based on private transport are likely to cause externalities such as increased VKT, urban sprawl, etc. that could negate the possible benefits. However, there is virtually no guarantee that these positive futures will be realised, though there may be some (overinterpreted) signs – for example auto manufacturers stating that they are preparing for a disruption, namely a paradigm shift from private to shared transport. However, companies such as Tesla still market their cars as the ultimate private utility.

Consequently, the risks and uncertainties are outright neglected in this document. There is a list of measures that advance a desired future (according to the authors), but there is barely any mention about the risks of these policies. No countermeasures are mentioned. The technological development is highly uncertain and such lack of anticipation of negative outcomes is dangerous.

Related to previous points, it is implied in this document numerous times that transport automation is by itself able to ease externalities such as emissions and congestion. This is not true.

“Tiedon hyödyntämisen avulla voidaan muun muassa optimoida reittejä ja kapasiteetteja, ja vaikuttaa näin liikenteen ympäristölle haitallisten päästöjen vähenemiseen.”

The positive effects of transport automation can be realised only if numerous other factors are considered. These include transitioning to higher capacity transport (public transit, walking, cycling), transitioning to electric transport, transitioning to clean energy production. If transport automation is realised without considering these and other factors, the positive effects could be marginal, non-existent, or even severely negative. The underlying theme throughout this document seems to be that the transition to a sustainable future can be achieved without a system-level overhaul simply by adding automation. Such a narrative is dangerous and should not be advanced. It should be clearly stated in this document that the benefits of transport automation will likely not be realised if cities do not move towards sustainable, high capacity transport.

+ What does mean optimize capacities? Roads and vehicles have fixed capacities. If this relates to some sort of combining of vehicles to provide various sizes of fleets, then I am really confused because nothing about that is previously mentioned.

“Jaettujen automaattisten ajoneuvojen käyttö voi vähentää liikennemääriä ja vapauttaa muun muassa kaupunkitiloja pysäköintikäytöstä.”

This, again, is questionable. Numerous and numerous modelling studies have shown that even if the automated transport system is based on shared vehicles, if these vehicles are low capacity, the vehicle kilometres travelled will increase, perhaps even significantly. This could negate the positive effects from increased traffic safety to environmental benefits – without even mentioning the social aspects of our everyday lives. At this point, it is very unclear whether people will be even willing to use shared low-capacity vehicles. Furthermore, if these vehicles are not privately owned in the future, they will most likely be operated through a MaaS-platform, and it is questionable whether such a platform will even create an incentive for sharing. For example, it could be more beneficial for the service provider to sell private rides. Policy measures are needed to ensure that these services do not cause unwanted consequences.

The policies presented in this document are, as mentioned, rationalized very weakly. And where the policies are somehow rationalized, it seems that even the authors have had doubts about their weak claims and have added softening words as in the following paragraph.

"Suurin osa tapaturmista ja onnettomuuksista on seurausta inhimillisestä virheestä, tieliikenteessä jopa yli 90 % onnettomuuksista johtuu ainakin osittain tästä. Automaatio edistää merkittävästi tieliikenteen niin sanotun nollavision tavoittelua."

Implying that over 90 per cent of crashes are caused “at least partly” by human error is misleading. If this statement is softened with the expression “at least partly”, then one should clarify what is meant by it. What part does human play? 1% or 99,9%? Indeed, there is a human component in most traffic crashes but it is already acknowledged widely that such claim is false, misleading and can be considered mostly as a propaganda tool for auto-industry. The problem with traffic violence is far more complex, and most of the blame should not lie on humans but the car-based mobility system that is inherently dangerous. The second fallacy here is to claim that automation will significantly advance “vision zero” – in other words, automation makes an absolutely unrealistic imaginary possible when, in fact, there is no guarantee that automation will produce any safety benefits for a long time. The effect could even be the contrary. This is also widely acknowledged in the scientific literature. Replacing a human driver with a computer will not automatically make transport safe. It brings forth new challenges related to various aspects of safety: traffic, social, cyber, data-security and so on. It is expected that the safety benefits will be realised once a critical mass of automated vehicles is achieved. This is often thought to be somewhere around 90 %. Before

that point, the co-existence of automated and conventional vehicles is expected to be somewhat problematic, some scholars even expect worsened traffic safety.

It is presented tacitly in this document that automation will be advanced only in a safe way. This should be expressed more clearly, and there should be forethought about how this could be done.

The same fallacy is presented further on.

“Liikenteen automaatio- ja laajemmin digitalisaatioteknologiat tuottavat innovaatioita, jotka edistävät liikenteen turvallisuutta. Erityisesti inhimillisestä virheestä johtuvien onnettomuuksien voidaan olettaa vähenevän automaation edetessä.”

“Turvallisen automaation kehittämisessä ja käytössä on kolme keskeistä osa-aluetta:

- 1) automaatiojärjestelmän tavanomaisen toiminnan turvallisuuden varmistaminen,
- 2) automaatiojärjestelmän turvallinen toiminta yllättävissä vika- ja häiriötilanteissa (ns. ”fail safe” – toiminnot)
- ja 3) automaatiojärjestelmän kyberturvallisuuden varmistaminen”

Safety of the transport system, and therefore transport automation, is very much related to reducing car transport and increasing modal share of public transit, cycling and walking, and providing safe infrastructure and sufficient service level for these, which are not mentioned in this document. Traffic safety should be developed first and foremost on a system level, not only on a vehicle level, although both are needed.

“Muun muassa sääntelyn ja väylänpitoon liittyvin keinoin pyritään siihen, että ihmiset voisivat irtaantua ajoneuvon liikkumiseen liittyvästä tarkkailusta ja tehdä täysin muita asioita (kuten työskennellä tai käyttää viihdepalveluista) merkityksellisen ajanjakson ajan (tunnista ylöspäin).”

It is important that the “automated network” is continuous but why is this rationalized with the opportunity of making people work and enjoy themselves in cars? This is first and foremost a question of safety. The goal should never be to make people spend as much time in cars as possible, and according to several studies, people don’t necessarily want to watch movies or work en-route every day. Furthermore, too much time spent in cars is a severe national health issue. If anything, automation should reduce this time; therefore this reasoning is questionable.

“Automaatio lisäisi alueellista tasa-arvoa palvelujen saavutettavuudella, valinnan vapaudella ja kustannusten alenemisella. Automaattisten liikennevälineiden avulla tuotettavat palvelut voivat olla

kustannustehokkaita, ja siten parantaa liikkumisen palveluiden saatavuutta myös haja-asutusalueilla.”

Again, this is just wishful thinking. There is no guarantee that automation will advance equality of areas. Automation will not automatically advance equal mobility if it is not governed to do so. If the mobility system in the future is still based on private transport, the ones who will benefit from automation will still be those who can afford to pay. Furthermore, it is naïve to suggest that the required infrastructure for automated services could be provided throughout rural Finland – the truly disadvantaged areas.

Regarding urban areas, last kilometre services are mentioned in this document several times. Organising these services in the near future will be, without a doubt, expensive; they will require constant supervision, maintenance and a sufficient fleet of vehicles to provide an attractive service level. These services will operate on a range of 1 kilometre. Unlike many of the current bus services, they serve a very limited number of people, therefore creating an obvious pitfall for unequal mobility opportunities within cities.

Section 13.5.1. “Tieliikenteen mittarit” is quite incomprehensive. There are several studies about KPI:s and criteria. However, there should be a serious attempt to discover these criteria because they are not obvious or self-explanatory. This should be a policy goal. Furthermore, all indicators and criteria are not equally important. If human centricity is truly the core value of transport automation in Finland, then the public should have a say about this. After all, transport automation could change people’s daily lives in unimaginable ways, and therefore “the number of abrupt braking situations over a thousand kilometres” do not really tell much about how people are affected.

Overall, the tone of this document is in some sections gratuitously optimistic and enforces a dangerous narrative. The uncertainties of transport automation should be more thoroughly depicted. More neutral/critical language should be used to present the message of this policy document. In many sections, promises are made e.g. “automation would advance equality of areas”. This should be rewritten “automation could advance equality of areas if x,y, and z are considered; however, if these aspects are not taken into account the effects could be negative.”

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