Special Committee on Artificial Intelligence in a Digital Age

European Parliament

AIDA Working Paper on
AI and Transport

following the AIDA/TRAN joint hearing on 11 October 2021

December 2021 | WWW.EUROPARL.EUROPA.EU - @EP_ARTIFINTEL

Introduction

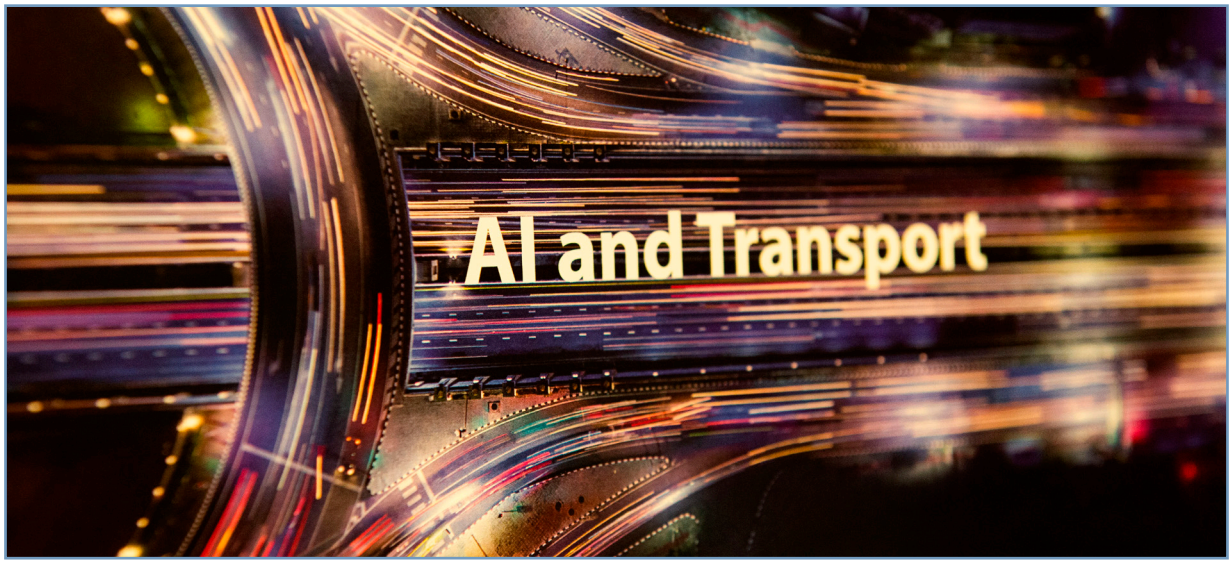
The special committee on Artificial Intelligence in a Digital Age (AIDA) in cooperation with the committee on Transport and Tourism (TRAN) organised a public hearing on "AI and Transport" on 11 October 2021. The hearing explored the current and future opportunities for AI in the transportation industry and outlined the potential challenges AI could present in the sector.

The hearing consisted of two panels representing various perspectives of experts from academia, civil society, and industry. The first panel of the event was entitled "The impact of AI on transport modes and mobility until 2030" and the second "EU transport policies: how to prepare for AI while minimising risk".

AIDA Committee Vice-Chair Miapetra Kumpula-Natri, who chaired the meeting on behalf of AIDA, stated in her opening remarks: "Transport is a crucial aspect of our lives, which artificial intelligence will change tremendously in the upcoming years. While fully autonomous cars might still be years away, optimising traffic flows, for example, is already a clear step towards a greener and more efficient society. These are tremendous opportunities in AI, but we must be active in working towards this transformation through innovation and funding."

Ms Kumpula-Natri concluded by stating: "At the same time, we must have a clear vision of the big picture. New ethical issues, unintended consequences and impacts on the current social arrangements brought by AI-powered transportation should not be side-lined in the debate."


K. DELLI
IACOB NADINA
DEPUTES
PARLEMENT EUROPEEN
UREÑA ALVARO
mobility
FALCK ROBERT
PRESENTATION (PRESENTATION)
Working at Eu Level
Thanks!
For Questions:
KUMPULAINATRI MIAPETRA


AI and Transport

Part I: The impact of AI on transport modes and mobility until 2030

Key Takeaways - Panel I:

The first panel featured four experts that discussed how AI will affect both different transport modes and forms of mobility in the next 10 years.

- **Ms Nadina Iacob**, Research Fellow, Centre for European Policy Studies (CEPS)
- **Mr Robert Falck**, CEO and Founder at Einride
- **Mr Alvaro Urech**, Innovation Director Spain & Portugal, Alstom
- **Professor Rita Cucchiara**, Director of the AImage Lab at UNIMORE

Ms Nadina Iacob of the Centre for European Policy Studies highlighted the substantial advantages AI can bring to the transport sector including better traffic management, smarter city infrastructure, and predictive maintenance. Noting that of the total venture capital investments in AI in 2020 80 % went to companies in the US and China with the EU attracting only 4 % of investment, Ms Iacob stated that most of the money invested in AI is going to the development of autonomous cars, even though, according to a recent MIT paper, fully autonomous vehicles (AV) are still at least 10 years away. **To realise the opportunities of AI in mobility, the EU needs a coherent approach on liability rules, data interoperability, including synergies between public and private transport data, analysis of strategic market barriers, and more investment into cybersecurity, Ms Iacob stated.**

Mr Robert Falck of Einride called attention to the lack of competitive markets in Europe compared to the US stating that the leading companies in AV and software remain in the US. Attracting businesses to the EU that produce competitive new technologies requires a more robust funding structure for innovation, Mr Falck said. Mr Falck also spoke about the potential of AVs in reducing CO^2 emissions and fatal road accidents. Additionally, according to Mr Falck, **the EU must level the playing field for competition of autonomous electric vehicles and end subsidies of existing carbon-based transportation systems which support outdated technology paradigms.**

Mr Alvaro Urech of Alstom explained that his company, which is focused on the rail transport sector, is trying to find patterns in past events to try to improve the processes of the future. This is especially useful in the field of maintenance. He stated that Alstom is working on autonomous trains, but as safety regulations of the sector are very strict, the development is currently proceeding quite slowly. In Mr Urech's opinion, **the most critical points of backing an AI environment are availability of high-quality data, transparency of the process in selecting algorithms, and the need to pay special attention to cyber security.** Furthermore, Mr Urech stressed the necessity for collaboration between industry and policy makers to provide the right regulatory context and to accelerate innovation in the transport sector. He also stressed that creating the right culture around these technologies and explaining to people what they really do will help with the implementation.

Professor Rita Cucchiara of UNIMORE made the point that AI, from the technology point of view, is already able to perform various tasks. There are many technologies, such as computer vision, machine learning, natural language processing and many deep learning models, that can help with developing the transport sector. Ms Cucchiara said that many things could be done with AI, like digitalising 2D and 3D road mapping, navigation services, road maintenance, and traffic maintenance and prediction. Furthermore, Ms Cucchiara found it challenging that Europe still does not have the capabilities to compete with the US in the AV market and may lose the ability to create its own AI services. **The biggest risk is that Europe does not develop AI services and data policies itself, but allows others to do it, which may create problems with topics such as transparency of decisions, privacy for mobility data, robustness of AI systems, and human oversight,** according to Ms Cucchiara. Now is the time to initiate projects at the EU level and invest in AI transport services.

Part II: EU transport policies - how to prepare for AI while minimising risk

Key Takeaways - Panel II:

The second panel featured four experts presenting views from academia, industry and civil society regarding EU transport policies and how to prepare for AI in the transport sector while minimising potential risks.

- **Professor Pete Thomas**, Emeritus Professor at Loughborough University, Technical Coordinator for the project Levitate
- **Ms Livia Spera**, General Secretary of the European Transport Workers' Federation (ETF)
- **Professor Dr. Patrick van der Smagt**, Director of AI Research at Volkswagen Group and Head of Machine Learning Research Lab at Volkswagen Group, Pilot of European Automobile Manufacturers' Association (ACEA) Task Force on AI
- **Ms Daniela Braga**, Founder and CEO at DefinedCrowd Corp

Professor Pete Thomas of Loughborough University presented the Horizon-2020-funded Levitate EU project which he coordinates, and explained that the project aims to forecast societal impacts, ranging from direct traffic impacts to safety and emissions of connected and automated vehicles. The early project results suggest that AVs and cooperative, connected and automated mobility (CCAM) services improve traffic and safety. Nevertheless, Mr Thomas raised the point that not all traffic issues will be immediately solved through the implementation of AVs. In fact, there will be many potential risks during the transition period from drivers to machines. Mr Thomas highlighted research showing that traffic and road congestion may even increase depending on AV driving performance which creates driver risk. **Mitigating these risks will require improving AV driver behaviour, new urban mobility and smart city policies, encouraging alternative transportation methods, and improving safety and trust in AVs.**

As transportation will likely be one of the work sectors most impacted by AI, Ms Livia Spera pointed out that the effect of AI on transport workers is still largely unexplored. AI imposes serious challenges for workers' rights when more algorithms are implemented to make workplace decisions and oversee performance, and for this reason, Ms Spera said that **all AI applications introduced at the workplace and impacting workers' rights and working conditions should be classified as high-risk.** Ms Spera's organisation, the ETF, is asking for **a standalone "AI Directive for Workers" which would establish a set of principles and guidelines** to ensure, for example, employer accountability in AI decisions and prohibition of algorithmic worker surveillance to boost worker autonomy, and to enable workers to become "AI literate".

The key message of Dr Patrick van der Smagt of Volkswagen and the ACEA Task Force on AI was that ethical

guidelines alone are not enough in the transition to AI, but they need to be made actionable, and building trust and public acceptance in transport automation is also crucial. **A successful transition to AVs is made possible by consistency with existing industry standards and certifications across Europe and harmonisation of AI requirements through the United Nations Economic Commission for Europe (UN-ECE).** An additional focus on state of the art standards, industry led initiatives and a proportionate risk-based approach was also recommended by Mr Van der Smagt.

Ms Daniela Braga of DefinedCrowd Corp stated that "data is the new code and AI is the new software", and in the next decade, all businesses will be using AI and they will have to have AI departments. Furthermore, Ms Braga elucidated that the global AV market is, according to estimates, going to reach 2 trillion dollars in 2030. In Ms Braga's view, there are many positive aspects of AVs, such as independent mobility of non-drivers, allowing more comfort and flexibility for travellers, reducing driver costs in commercial vehicles, improving road safety, reducing car crash risks, increasing road capacity and lowering CO^2 emissions. However, AI applications in transportation raise questions about liability, potential cyber-attacks, data-protection and transparency. To meet Europe's expectations on these risks, Ms Braga suggested **the creation of an EU task force working on the ethics of AI and a subcommittee dedicated to transportation.** Such a task force would consist of a diverse range of stakeholders from a cross-section of society and the goal of the task force would be to **provide deliverables such as guidelines for certification and standards, recommendations around data safety rules, and data sharing models.**

Contributions by Political Groups

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The European People's Party Group (EPP)

The EPP sees a potential to increase the efficiency of the transport system through the deployment of AI in vehicles, traffic management systems and optimised public transport planning, which may also reduce travel times, congestion, pollution and costs.

The deployment of AI safety features in conventional vehicles and the introduction of autonomous vehicles equipped with AI systems that scan their surroundings and react instantly could be powerful tools to reduce road fatalities, contributing to the 2050 Vision Zero goals.

To allow EU transport providers and vehicle manufacturers to fully reap the benefits of AI technology, we need to facilitate AI development and support the scale-up of new functions through streamlined and simplified data flow procedures and the removal of bureaucratic burdens. Legal uncertainty and complex regulations are among the biggest hurdles for companies to scale up or dare turning digital. Administrative burdens in the EU are considerably higher than in competing countries and this problem must be addressed if Europe is to reap the reward in terms of safe, efficient and priceworthy transport for all citizens.

The Progressive Alliance of Socialists and Democrats Group (S&D)

Artificial Intelligence will do to the transportation sector what the internet did to the globe, with autonomous vehicles, automated traffic control or even completely new modes of transport. Potential benefits of AI use in transport are evident, such as more efficiency and lower carbonisation, or increased security and safety to help reducing the death toll on our roads. However, many questions persist related to liability, ethical aspects, privacy or transparency, that must be addressed. The issue of cyber-security will also become of crucial importance to create public trust in these new technologies and in the infrastructures needed for AI implementation. The EU is a global leader in the transport sector and must be able to compete in a global world with markets such as China and the US. Europe should promote investment into technological development in the transport sector, striking the right balance between regulation and innovation while fostering consumers' trust and consumer protection. The application of AI will boost automation which will inevitably affect jobs in the future. Europe needs policies which will push for creation of new quality jobs in the transportation sector, with an adequately skilled and trained workforce, in full respect of fundamental rights and labour laws.

The Renew Europe Group

From enabling self-driving vehicles to optimising traffic flows, artificial intelligence has the potential to revolutionise the transport sector by making it safer, cleaner, and more efficient. The opportunities of AI are numerous, from identifying and easing congestions, to reducing greenhouse gas emissions or analysing travel demands. However, with these opportunities come serious challenges such as transparency and privacy concerns, safety issues and the need for qualified human oversight.

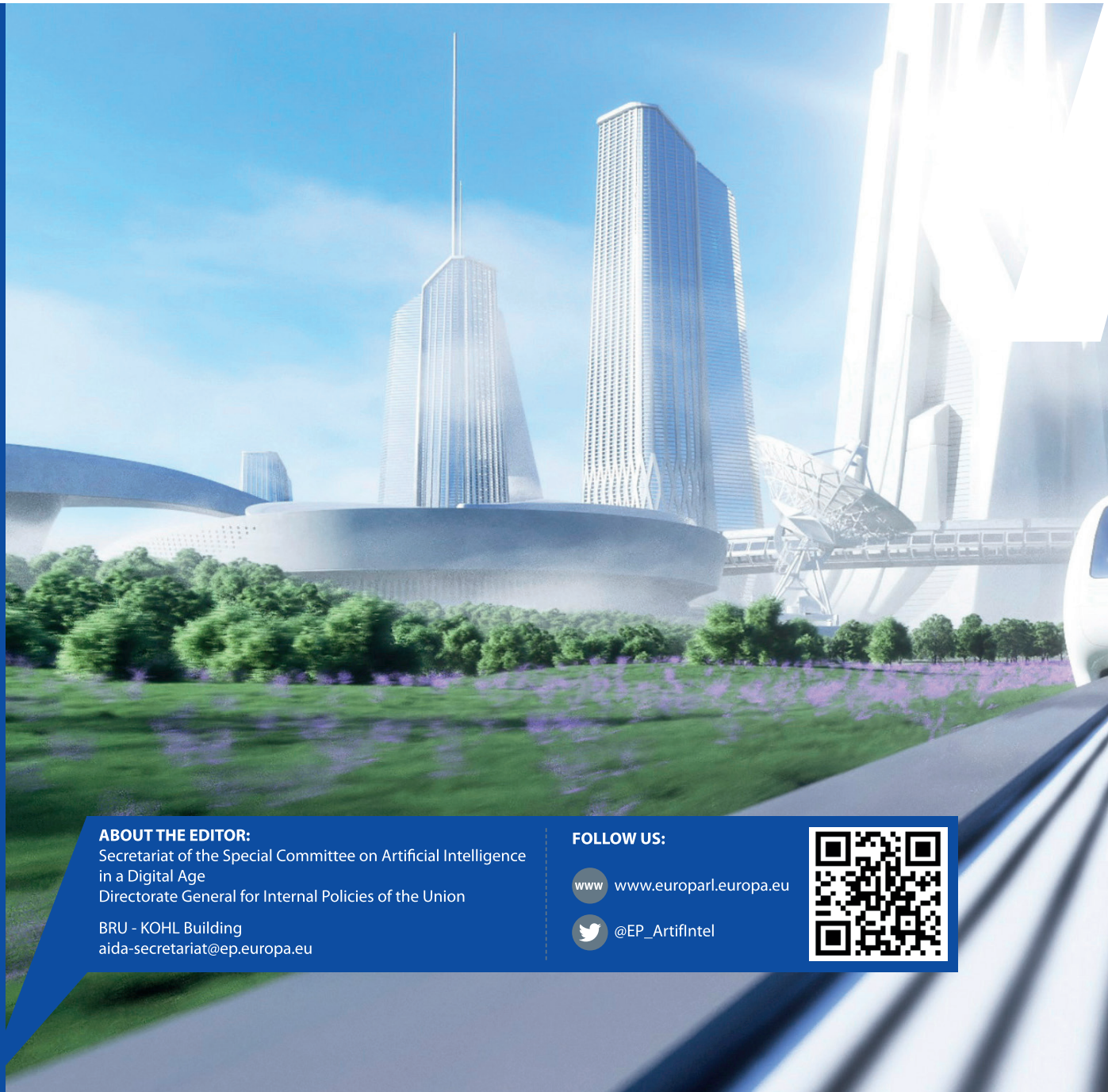
In order to reap the potential benefits of AI in the transportation sector, the European Union must establish a balanced legal framework, which enables companies to create innovative products while ensuring the protection of European values. To this end, further evaluation of the EUs rules for liability and data interoperability, especially between public and private data, are as necessary as further investments into key sectors such as cybersecurity.

Greens/European Free Alliance

While AI can be of huge benefit in both public and private transportation, there are some concerns we need to take into consideration to secure people's trust, serve the public interest, and strengthen shared social responsibility. In this regard we should strive to develop Union-wide trustworthy AI standards for all modes of transport, and for testing of AI-enabled vehicles and related products and services.

We also see a need to roll out publicly managed intelligent transport systems capable of prioritising and steering traffic to avoid congestion in our cities as a result of increased traffic due to affordable access to short term renting of autonomous cars.

Further, one key issue when it comes to smart cars is the question of access and control of data produced by the vehicles while in use. Users' access to their data is essential to help determine the cause of accidents but also for the purpose of their right of defence when their liability is engaged. As such, it is imperative that we have legislation in place to guarantee the user's full control of any data produced by their usage of a vehicle.



ABOUT THE EDITOR:
Secretariat of the Special Committee on Artificial Intelligence in a Digital Age
Directorate General for Internal Policies of the Union

BRU - KOHL Building
aida-secretariat@ep.europa.eu

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