Report

Automation in transport: how does it affect the labour force?

The European Commission organised a participatory conference on the impact of automation in transport on the labour force on 20 November 2018 in Brussels.

Automation in transport will affect both transport users and the transport workforce – and possibly other sectors of the workforce (e.g. insurance, manufacturing). As a first step, this conference focused on the most important trends in automated transport and how they affect the labour force in transport.

Participants: around 70 participant – workers, employers, experts/researchers, national and European institutions

Moderation: In-house participatory leadership team

Programme

09:00 ► Welcome coffee and registration

09:30 ► Opening and input from high-level panel

- Violeta BULC, Commissioner for Transport
- Karima DELLI, European Parliament, Chair of the TRAN Committee
- Madi SHARMA, Member of the EESC Employers' Group
- Mikki KOSKINEN, Managing Director, ESL Shipping Ltd
- Eduardo CHAGAS, General Secretary, European Transport Workers' Federation

10:30 ► Signature of the Blueprint for Sectoral Cooperation on Skills Maritime Shipping

11:00 ► What are the most important trends in automated transport and how do they affect the labour force?

- Discussion in small groups

13:00 ► Walking lunch and exhibition on

- Future transport and mobility scenarios presented by the Commission's Joint Research Centre
- Blueprint for Sectoral Cooperation on Skills
- Relevant projects under Horizon 2020 (Societal Challenges – Smart, Green And Integrated Transport)

14:30 ► What kind of action should be envisaged to accompany the transition?

- Brainstorming in small groups

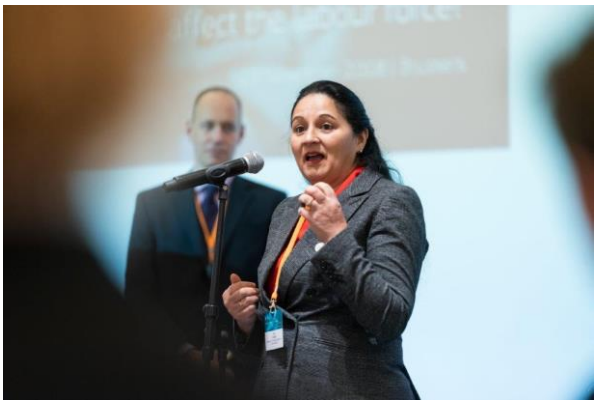
16:30 ► Closing remarks and next steps

17:00 ► End of the conference

Opening and input from high-level panel

The conference was opened by **Elisabeth KOTTHAUS** (European Commission, Directorate-General for Mobility and Transport, Head of Unit 'Social Aspects, Passenger Rights & Equal Opportunities') who warmly thanked the participants for bringing their specific expertise from the world of work, a specific sector or research. This is the first time that we look at the effect of automation in transport on the labour force, across all modes of transport. The objective of this participatory conference is to build collective knowledge on this aspect, and the Commission is grateful to the high-level participants to provide their input to the discussions.

Karima DELLI (European Parliament, Chair of the TRAN Committee) stated that there was no plan B for the planet. Transport is the second polluter. Other societal challenges include the reduction of the high number of fatalities and serious injuries on European roads. When it comes to digitalisation, it is important to keep in mind that not everyone has a smartphone; the shift from individual to shared mobility should not create inequalities.



Madi SHARMA (Member of the European Economic and Social Committee, Employers' Group) emphasised the importance of 'human capital'. It will be crucial to fill the skills gap and to create conditions for women and young people to enter the transport labour market. She encouraged the participants to actively participate in the conference; previous work on women in transport has shown that participants' ideas can be brought into concrete action.

Mikki KOSKINEN (Managing Director, ESL Shipping Ltd) shared his conviction that work will not disappear in the future, but change. Education will be important to accompany this change. It will be decisive to support individuals in getting/seizing training opportunities. There will be more shore-based labour. Automation, which is particularly advanced in shipping, will contribute to increased safety. Things will not happen overnight but change gradually.

Eduardo CHAGAS (General Secretary, European Transport Workers' Federation) pointed out that over the decades transport workers have adapted to new technologies. Automated technologies must bring advantages to people, economies and societies at large. The transition will not be easy for all workers. Automation means in general fewer jobs. Remotely controlled equipment/vehicles should not lead to new forms of social dumping or attack collective bargaining and representation. The introduction of technological changes should be done in consultation with the workers concerned or their representatives.

Violeta BULC (Commissioner for Transport) acknowledged that we cannot predict exactly how automation will affect the labour force. It is important not to scare people but to engage in equipping Europeans with the best possible skills. Those approaching middle age and finding their experience losing value will probably need to readjust seriously. We must lead this transformation, which should be an evolution rather than a revolution. Only with cooperation, collaboration and co-creation we can shape our Transport Union.

Future of Work *EMPL, EAC, GROW*

Initiatives, projects, studies:

- Skills Agenda for Europe (2016) - amongst others Blueprint for Sectoral Cooperation on Skills
- European Pillar of Social Rights (2017) - comprehensive policy framework to assist in labour market and social transitions
- European Social Fund, Erasmus+ programme - enhancement of skills and education levels of people, including digital skills
- Informal Interservice Group on the Future of Work (2018 onwards)

Conferences:

- Conference 'The Public Employment Services of tomorrow' (8 November 2018)
- High-level conference 'Shaping the future of work' (9 April 2019)

Digitalisation and Artificial Intelligence (AI) *CNECT, EMPL, GROW, JUST*

Initiatives, projects, studies:

- Digital Single Market Strategy (including the Digital Skills and Jobs Coalition tackling the lack of digital skills in Europe)
- European AI Alliance (horizontal approach on ethical issues for autonomous systems)
- Data protection
- Coordinated plan with Member States in order to maximise the impact of investment into AI - 5 December 2018
- High-Level Expert Group on Artificial Intelligence (recommendations on future-related policy development and on ethical, legal and societal issues related to AI)
- High-Level Expert Group on the Impact of the Digital Transformation on EU Labour Markets (policy recommendations by February 2019)

Automation in transport: how does it affect the labour force?

Conference 20 November 2018

Transport *MOVE*

Initiatives, projects, studies:

- Council conclusions on the digitalisation of transport (2017)
- Third Mobility Package (2018): communication on Connected and Automated Mobility
- Blueprint for Sectoral Cooperation on Skills - Maritime Shipping
- Study on social aspects in the maritime transport sector (including digitalisation)
- Study on digital tools in the inland navigation sector
- Revision of driver certificates and licences (e.g. road, rail) - ongoing
- Study to analyse various policy options to accompany the transition towards automated transport for workers in all modes, including training and reskilling (planned for 2019 as a follow-up to this conference)

Conferences:

- Digital Transport Days (2017)

Research *MOVE, RTD, JRC*

Initiatives, projects, studies:

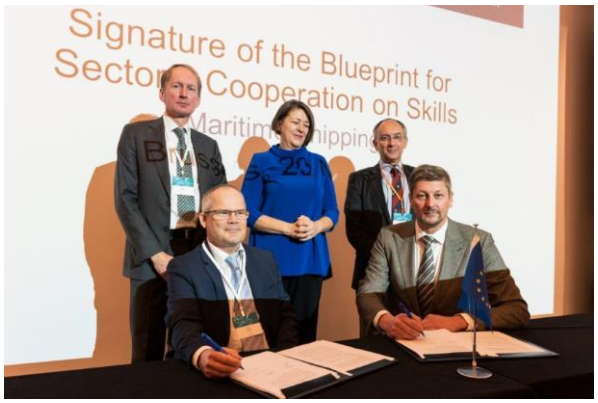
- TRIMIS (Transport Research and Innovation Monitoring and Information System) web-portal
- SKILLFUL (Skills and competences development of future transportation professionals at all levels) - ongoing H2020 project
- Shift2Rail Joint Undertaking research Work Area Human Capital - ensuring life-long development of new skills and change in job profiles
- SIMOD (Societal Implications of Mobility Disruption Scenarios)
- Study on Exploring the possible employment implications of connected and automated driving - soon under H2020

Conferences:

- EU-US Symposium on the Socio-Economic Effects of Connected and Automated Vehicles and Shared Mobility - 26-27 June 2018

Signature of the Blueprint for Sectoral Cooperation on Skills Maritime Shipping

At the conference on 20 November 2018, Commissioner BULC witnessed the signature of the Blueprint for Sectoral Cooperation on Skills – Maritime Shipping (2019-2023). The Blueprint for Sectoral Cooperation on Skills, launched as part of the Skills Agenda for Europe, is designed to address skills gaps that may prevent promising industries from growing.



'SkillSea' is being launched by a Europe-wide consortium established by the industry's recognised social partners, the European Community Shipowners' Associations (ECSA) and the European Transport Workers' Federation (ETF) and led by the Rotterdam-based STC Group. The consortium comprises 27 national maritime authorities, shipping companies, shipowners' associations, maritime trade unions and maritime education providers from 16 countries in Europe.

The SkillSea project will be co-financed under Erasmus+ with the goal of producing a sustainable skills strategy for the maritime sector and related activities both at sea and ashore. It aims to:

- increase the number of European maritime professionals
- map out technological developments in ship operation and their effect on the industry's skills requirements
- overcome barriers to the mobility of seafaring labour
- improve cooperation between education providers, competent authorities and industry.

Martin DORSMAN, Secretary General of ECSA said: 'ECSA is pleased that our application was successful and that the importance of developing a forward-looking skills strategy for our sector has been recognised. We are most grateful for the trust that has been placed in us and our social partners and other consortium members to bring it to fruition. ECSA looks forward to the commencement of work on this exciting project which will contribute to the competitiveness of European seafarers and European shipping.'

Eduardo CHAGAS, General Secretary of ETF, said: 'Europe's maritime sector is experiencing increased digitalisation and automation. We hope this project will contribute to a smooth transition, support high-quality employment and training for European maritime professionals, and guarantee the sustainability of maritime clusters in Europe. We also aim to attract greater numbers of Europeans into maritime employment and to equip them with the skills necessary to meet the changing needs of the sector. This will ensure that they enjoy long and rewarding maritime careers, not only onboard ships but also in the shore-side clusters that support the seagoing industry and are a significant source of jobs throughout Europe.'

Renee BOELAARS for STC Group said: 'STC Group is looking forward to lead and collaborate with the 27 project partners to develop both a strategy and concrete educational packages aimed at digital and 21st century skills in the maritime transport sector. This project enables through its research the development of tools to enhance and propose educational packages based on needed skills through a unique cooperation between maritime education and training providers, shipping companies, social partners and national maritime authorities in order to equip students with the necessary skills as well as increasing their horizontal and vertical mobility.'

(Source: ESCA/ETF/STC Group press release)

What are the most important trends in automated transport and how do they affect the labour force?

In a first participatory session, participants discussed in small groups what the most important trends are in automated transport and how they affect the labour force. This was done in three rounds.

The following points came out of the respective discussions:

What are the most important trends you see today in automation in transport?

- Push driven both by technological development and economic opportunity; transport industry is looking at automation to increase efficiency and safety; energy efficient platforming; better traffic control; increased service frequency possible; profit
- New players in the transport sector; entrepreneurial spirit/start-ups vs existing industry; new business models; competitiveness; smaller companies vs bigger corporations
- Trend from individual (single) user to mass/shared/collective transport; trend towards multimodality through mobility as a service
- Existing infrastructure not adapted for automation (need for new infrastructure)
- Real-life testing of new technologies (for instance platooning)
- Slow process; uneven deployment over different EU regions; different timelines across modes and occupations; not one size fits all (urban/rural, sector); easier to implement automation in long-distance delivery, while still a big need of human labour in urban delivery (frequent stops, no trust in thousands of small delivery robots)
- Lack of regulation for strategic deployment
- Unresolved ethical and safety issues (liability, data security, data ownership, cyber security, use of algorithms)
- Impact on society (social, economic, discrimination)
- Interoperability; connectivity (labour, assets)
- Changes in operation: more remote decisions; remote control of vessels/trucks/cars; driverless; robotics
- Social uncertainty; real-time monitoring of labour and equipment; outsourcing of jobs to low-wage countries
- Jobs: more IT skills needed; education; adaptability of training; loss of technical engineering skills; loss of human skills
- Human factor: impact of new technology on human performance; increased complexity
- Decision support → decision taking → loss of autonomy
- Importance to manage the transition

How do those trends impact on the labour force?

- Impact will depend on the speed of change; sense of urgency
- More attractive jobs
- Changing nature of jobs (from physical to IT; jobs are less attractive since less autonomy; routinisation may involve the risk of longer reaction time when a sudden reaction is required)
- Change management (including skills and competence management)
- Decrease of jobs in transport but increase in other sectors (for instance: automated metro leads to more staff in customer service); loss of functions (for instance ticket sellers, ticket controllers → do-it-yourself ticket inspection via smartphone app)
- Solving issues such as shortage issues
- Loss of jobs, unemployment; right to work (the society needs to be proactive)
- Job creation?
- More opportunities for digital experts?
- Need for supervisors (for instance for data reliability, emergency response)
- Focus on lower-skilled workers to include everyone; polarisation; digital divide; more inclusive jobs
- Human factors in customer service (managing system instead of serving the customer)?
- Increased gender balance; remote working enables other target groups (women, young people) to participate and save time and energy)
- Safety, legal responsibilities: impact on labour of sectors like insurance; increased worker exposure to liability
- Cybersecurity (increased vulnerability due to automation)
- Entrepreneurship
- MAAS (mobility as a service): workplaces, for instance drones
- Mental health issues due to 24/7 availability; level of attention/interaction
- On a macro level, it is an evolution – on a micro level (personal level), it is a revolution
- Coexistence between old vs new technology
- Robots may assist the work, not replace it; machines to accompany people, not fully replace them
- Changing employer-employee relationship (on demand?)
- Adapt fiscal policy (tax data?); basic income (change in social welfare system)
- Assess the impact of automation for the overall European society; is automation going too far sometimes?
- Shift of labour (regional/global); delocalisation of jobs
- We need a different education (starting from a young age) focused on the needs of the future; investment in the education system; lifelong education to accompany constant changes; need for updating and flexibility; retraining and requalification
- Skills shifting; emerging jobs bring new skills; risk of skills mismatch; different skills needed to match the technology; organising the workforce based on skills required; skills/education for future labour/gender balance
- Transition/disruption: new jobs not for old workforce.

What are the risks and/or opportunities – of taking no action to accompany the transition?

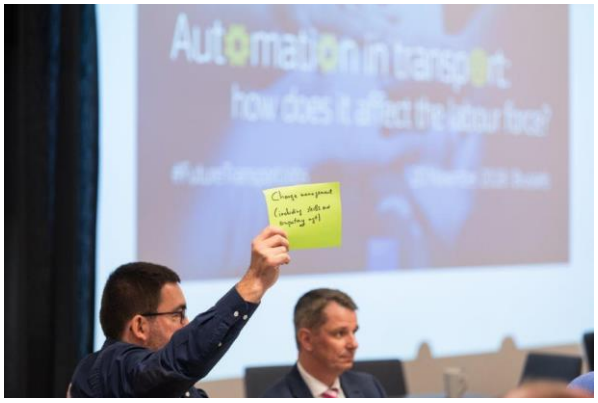
Risks

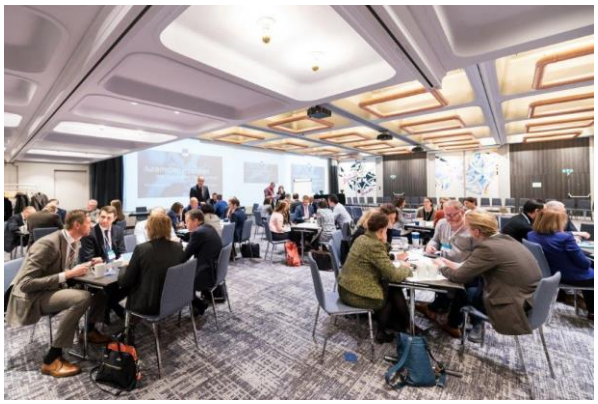
- Humans should still master the technology
- No vision, short-sighted, no preparation
- Implementation – short-term gains from dialogue vs risks with no dialogue
- Not the right people at the right place; disruption in labour markets (e.g. taxis); risk of career stalls/exclusion (workforce); fear among population? (Is there a realistic future for low-skilled workers?)
- Education: demand vs supply; lack of skill development plans; lack of skill adaptation (improved education system needed)
- Global picture before we address complex issues
- Lack of EU coordination (standards, technology); no standardisation/harmonisation → suboptimal fragmented developments; big divide between countries (social, economic)
- Without a clear framework for automated cars, big risks of no acceptance, disruption, chaotic evolution
- Restricting technological advance by too much regulation; inflexible regulations may hamper innovation and technological development
- Social tensions; industrial action; negative social impact
- Revolution, lack of democracy; lack of skilled/independent citizens; no inclusive, no diverse society (even less women)
- Tax erosion → no work → no income tax → bad for social security and society; do nothing is not an option (social/tax)
- Potential negative impacts on workers' rights (e.g. collective bargaining)
- If no action in favour of shared mobility, automated cars might bring more congestion
- Infrastructure has to be adapted, otherwise difficult transition
- Threat: allowing markets to freely and wildly decide is not an option
- (Negative) competitiveness between companies and workers; unfair competition; risk of unlevel playing field between new players vs established actors
- Businesses are forced to specialise/niche markets
- Uncertainty, ambiguity, liability; legal impacts, responsibilities
- User awareness

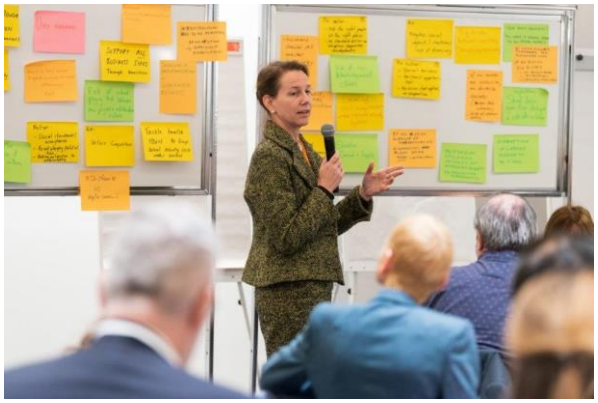
Opportunities

- Act through cooperation (including good communication)
- Bottom-up approach; bottom-up solutions for cities
- Early adoption → less disruption
- Act in favour of workers; if legislation raise awareness of workers on their rights
- Action: social standards/acceptance; level playing field (including tax)
- Tackle health issues to keep social security costs under control
- Assistance vs replacement
- Gender and generational balance: addresses labour shortage

- New types of jobs will be created, highly skilled and more inclusive
- Pioneering creating jobs
- Business opportunities; room for innovation
- Speed of uptake of innovation/solutions to meet needs
- Linking automation to sustainability; sustainable implementation = sustainable business
- Support all business sizes through the transition
- Not black or white → need to keep monitoring and assessment
- Exemptions while keeping in mind safety; cybersecurity (regulation to ensure safety)
- Infrastructure communicating with other modes of transport
- Trust in the technology



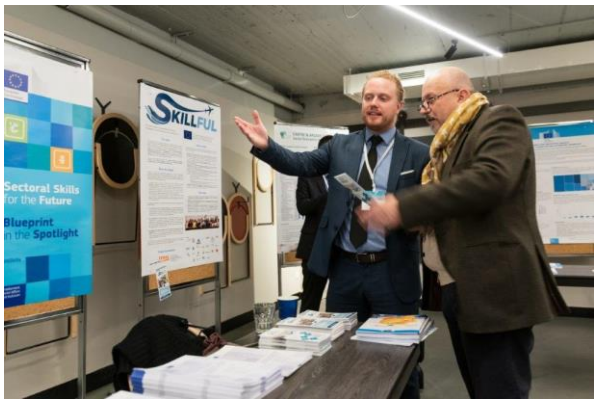


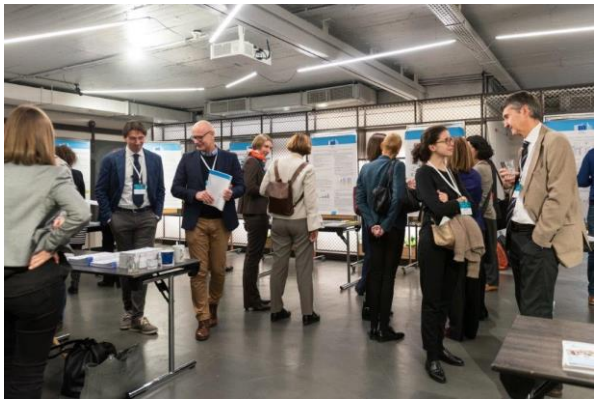


Exhibition

Piotr SZYMANSKI (European Commission, Joint Research Centre, Director - JRC.C, Energy, Transport and Climate) invited the audience to visit the poster exhibition during the lunch break. The exhibition contained the following initiatives and projects presented by different Commission departments (JRC, INEA, RTD, GROW and EMPL):

- Future mobility scenarios in an automated transport era
- Societal implications of mobility disruption scenarios (SIMOD)
- Exploring the economic effects of connected and automated vehicles in manufacturing
- Macroeconomic impacts of connected autonomous electric road vehicles
- What you do at work and how: a framework for measuring tasks across occupations
- TRIMIS – an integrated European platform for monitoring and analysing transport research and innovation
- Research and innovation capacity in cooperative, connected and automated transport – an assessment based on the Transport Research and Innovation Monitoring and Information System (TRIMIS)
- CARTRE & ARCADE CSA socio-economic assessment (connectedautomateddriving.eu) – projects under Horizon 2020 (Societal Challenges – Smart, Green And Integrated Transport)
- SKILLFUL – Skills and competences development of future transportation professionals at all levels (skillfulproject.eu)
- Blueprint DRIVES (project-drives.eu)
- Blueprint for Sectoral Cooperation on Skills





What kind of action should be envisaged to accompany the transition?

In the afternoon, the participants reflected on possible actions which should be envisaged to accompany the transition towards automated transport. These possible actions were proposed by the audience and brainstorming on them took place in small groups ('open space' methodology).

The following 8 possible actions were presented (by order of proposal):

<table>
<tr><td>Title of action

Early input on policy from industry stakeholders</td><td>Benefits

• Smooth transition
• Avoids conflicts/social tensions
• Employees engage early – more willing to participate</td></tr>
<tr><td colspan="2">Concrete proposals

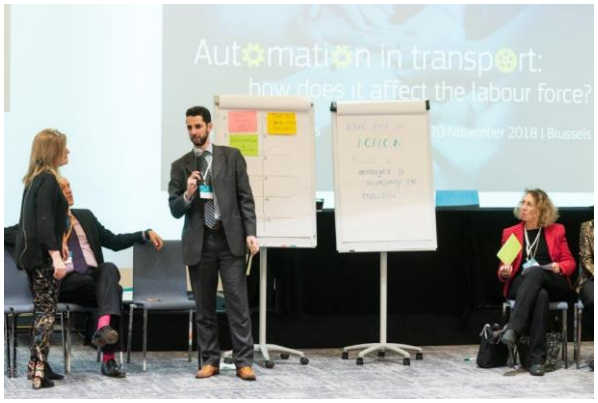
1. Social partners/companies raise need for action at EU level. Associations/unions make call for EU action
2. Assessment of impacts for each sector vs general
• Forums where each sector presents impacts
• Companies/social groups/consumer groups gather input from employees/members to shape communication
3. Learn about long-term vision of each sector (trends etc.). Requirement: must include impact on employees/benefits/how to mitigate risk
4. Build roadmap with deliverable actions/dates/assessments. Check ins to assess progress/results/concerns, best practices</td></tr>
<tr><td colspan="2">Who will be implementing?

European Union, Member States, National/Regional/Local, Companies, Social partners, Others: Consumer/Citizen associations</td></tr>
<tr><td colspan="2">Main proposal presented in a Tweet format

'European Commission receives call from industry/social actors to set up framework for automation transition'</td></tr>
</table>

Title of action **Dialogue and evolution**	*Benefits* • Mutual sustainability
Concrete proposals 1. Talk, listen to each other 2. Cooperation on regular basis 3. Make sure new technology is used to push for attractiveness	
Who will be implementing? Companies, Social partners	
Main proposal presented in a Tweet format 'Moving forward together'	

Title of action **Training & Education**	*Benefits* • Increased employability
Concrete proposals E.g. maritime 1. Raise awareness (regionally)/EU 2. Pilots with funds/support 3. Share data & outputs with <u>all</u> stakeholders 4. Inclusive training contents, development (e.g. language, software), technical 5. Language skills for operators	
Who will be implementing? European Union, Regional	
Main proposal presented in a Tweet format 'No automation without good education'	



Title of action **Monitor trends, develop candidate policies**	*Benefits* • Smooth transition to automated transport
Concrete proposals 1. Crisis and automated vehicles: postpone introduction 'no drivers' 2. Speed up with developments in other countries (e.g. USA); legislation 3. More travel/freight demand → more benefits of automated vehicles → proactive policies; more environmental pressure → less automated vehicles 4. Demography, education: postpone, speed up 5. Public acceptance/safety performance of automated vehicles: experiments; temporary policies with fall-back option 6. Privacy/data: adaptive standards → safety (in vehicles, others), ICT 7. Research & development	
Who will be implementing? European Union, Member States, National/Regional/Local, Companies, Social partners, Others: Customers	
Main proposal presented in a Tweet format 'Facilitate automated transport and jobs with adaptive policies'	

Title of action **Involving and supporting all business levels**	*Benefits* • Less monopolies • Less discrimination → fair competition • More diversity in solutions

Concrete proposals

1. EU framework for experimentation (data use, liability, traffic code) – EU
2. Providing resources for capacity building of all actors involved (money, training)
    - Social dialogue
    - Industrial relations
    - Information and training for workers
3. Specific measures to support and mitigate automation effects on all business levels (tax, facilities, cooperations) – EU, Member States
4. Stimulate associations and sectoral cooperation between small and medium-sized companies – Member States, Social partners
5. Monitor the development of automation on small companies – EU, Social partners

Who will be implementing?

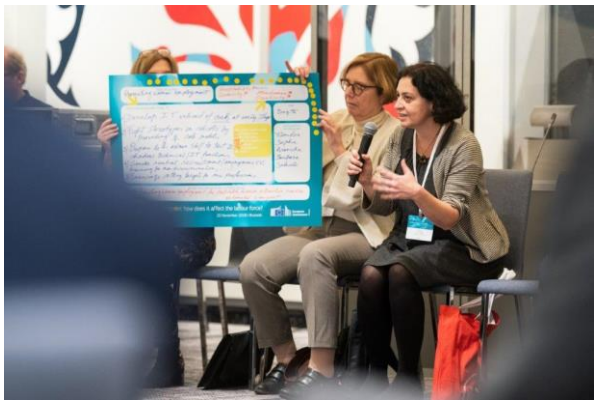
European Union, Member States, National/Regional/Local, Social partners

Main proposal presented in a Tweet format

'Fair competition for all business levels and their workers'

Title of action **Agreement at sectoral and company level to protect the workers**	*Benefits* • Equal rights for workers • Better opportunities for workers • Better motivated workforce
Concrete proposals 1. Protect working conditions against intense flexibility enabled by automation 2. Workers whose tasks are made obsolete by automation should be provided with proper training and/or a replacement job 3. Right to disconnect → no blurring between private and work right → privacy and personal autonomy (surveillance) 4. Negotiate the algorithm for the organisation of working shift of the staff 5. Trade unions should be more involved. 6. (Prevent digital gender gap)	
Who will be implementing? European Union, Member States, National/Regional/Local, Companies, Social partners	
Main proposal presented in a Tweet format 'Equal rights and better opportunities for a motivated workforce in transport'	

Title of action **Promoting women employment**	*Benefits* • Profitability • Diversity • Attractiveness • Creativity
Concrete proposals 1. Develop IT interest of girls at an early stage – National/Regional/Local 2. Fight stereotypes in schools by providing female role models – National/Regional/Local 3. Propose to female administrative staff to test & shadow technical/IT functions – Companies, Social partners 4. Gender neutral recruitment (anonymous CV, training for non-discrimination, etc.) – EU, Member States, Companies, social partners 5. Envisage setting targets for new professions - Companies	
Who will be implementing? European Union, Member States, National/Regional/Local, Companies, Social partners	
Main proposal presented in a Tweet format 'Promoting women employment for profitable, diverse, attractive, creative automated transport'	



Title of action **Data access and analytics**	*Benefits* • Allowing innovation • Regulatory oversight • Efficiency gains • Facilitating cooperation
Concrete proposals 1. Guidance for data ownership and liability (regulatory) – EU/Global 2. Definition of standards and architecture – EU/Global 3. Consider data-driven vs descriptive regulation – Local level vs national 4. Funded research into data sharing framework (e.g. partnerships and incentives) – National and EU	
Who will be implementing? European Union, Member States, National/Regional/Local, Others: Global	
Main proposal presented in a Tweet format 'Sharing and analysing data is key to unlocking innovation for sustainable mobility'	

Closing remarks and next steps

The conference was closed by **Elisabeth KOTTHAUS** (European Commission, Directorate-General for Mobility and Transport, Head of Unit 'Social Aspects, Passenger Rights & Equal Opportunities'). She wholeheartedly thanked the participants for their active participation, lively discussions and interesting ideas. We will have a close look at all post-its and harvest sheets. Together with studies and research carried out on the subject, these will be valuable input for a study the Commission intends to carry out next year. The objective will be to analyse various policy options to accompany the transition towards automated transport for workers in all modes, including training and reskilling. This study will serve as a basis for future work of the Commission.

At the end, participants were asked which new idea they take from today's discussions. The following issues were raised (non-exhaustive list): role of the regulator; share across sectors; do we really want automation everywhere in society? Is there a common challenge? Positive to share views; good to listen to real life before taking action; strong call for regulator; cooperation; digital divide and women; we share many things amongst transport modes; a lot of uncertainty and anxiety; automation can make jobs more attractive or less attractive; exchange with trade unions positive, there are common concerns; take this issue from the human side; automation is already happening; automation will cost more than cheap drivers (road); it must be inclusive; look forward to a follow-up event; widening of horizon, new insights; different from mode to mode; put people at the centre!

Further information can be found on https://ec.europa.eu/transport/themes/social/automation_en