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**Strategic Questions of a Horizontal and
Cross-Sectoral Policy or Regulatory Nature:
Information and Computerization Technologies,
and Intelligent Transport Systems**

Status of the Implementation of the Road Map on Intelligent Transport Systems

Revision

Note by the secretariat

Summary

This document provides an overview of activities in 2022 performed by the Inland Transport Committee and its working parties on promoting innovative technologies that impact the implementation of the road map 2021–2025 on Intelligent Transport Systems (ITS), that was launched at the seventy-fourth session of the Inland Transport Committee (ITC).

The Committee is invited to **encourage:**

- The Global Forum for Road Traffic Safety to continue its considerations and exchange of views on automated vehicles in traffic, and its Group of Experts to continue drafting a convention on the use of automated vehicles in traffic.
- The World Forum for Harmonization of Vehicle Regulations and its subsidiary bodies to continue their activities on automated and connected vehicles.
- The Working Party on Inland Water Transport to continue its activities on river information system, automation and smart shipping.
- The Working Party on the Transport of Dangerous Goods to continue its activities on telematics.
- The Working Party on Intermodal Transport and Logistics to address Action 12 of the ECE Road Map on ITS.



I. Background

1. This note presents activities and initiatives that promote innovative technologies to implement the ECE Road Map on ITS. The annex summarizes the 18 actions of the road map.

II. Activities in 2022

A. Intelligent Transport Systems: Related Conclusions of the Committee's eighty-third session

2. The eighty-fourth session of ITC (hybrid, 22–25 February 2022) marked its seventy-fifth anniversary and was opened with the Anniversary Ministerial on “Seventy-five years of ITC: connecting countries and driving sustainable mobility”. This ministerial segment was opened by H.E. Mr. Georges Gilkinet, Deputy Prime Minister and Minister of Mobility of Belgium (ITC Chairing country) and saw the participation of Transport ministers from Africa, Asia, Europe, Latin America and the Middle East. Keynote speeches by H.E. Ms. Simonetta Sommaruga, former President of the Swiss Confederation and Head (Minister), Federal Department of the Environment, Transport, Energy and Communication of Switzerland (hosting country); H.E. Mr. Mohammed Abdeljalil, Minister of Transport and Logistics of Morocco; and H.E. Mr. Juan Edghill, Minister of Public Infrastructure of the Republic of Guyana. There were 550 participants from more 92 countries, including 49 non-ECE member States, and the heads and high-level representatives of intergovernmental and non-governmental organizations as well as key inland transport stakeholders.

3. At the end of the meeting ministers and heads of delegations of contracting parties from Africa, Asia, Europe, Latin America and the Middle East adopted a Ministerial Resolution, “Ushering in a decade of delivery for sustainable inland transport and sustainable development.” that was subsequently endorsed by the Committee (ECE/TRANS/316, annexes I and II).

4. Several high-profile events were also organized, including the high-level side event on Automation, Connectivity and E-mobility organized on 23 February 2022 by ECE together with Austria (ECE/TRANS/316/Add.1, annex VII).

Road Map Actions addressed (areas of primary focus are indicated in **bold**): *all*

B. Working Parties

1. Global Forum for Road Traffic Safety

5. The Global Forum for Road Traffic Safety (WP.1) remains the only permanent body in the United Nations system that focuses on improving road safety. Its primary function is to serve as guardian of the United Nations legal instruments aimed at harmonizing traffic rules. The Conventions on Road Traffic and on Roads Signs and Signals of 1968, and other ECE legal instruments that address the main factors of road accidents are tangible contributors to improved road safety. Consequently, many countries across the world have become contracting parties to these legal instruments and thus benefit from their implementation. These contracting parties are also the key driving forces keeping these international road safety conventions up to date by participating in WP.1 sessions. Given this background, the Global Forum has continued playing an important role in facilitating and forging international cooperation to improve road safety.

6. In 2022, WP.1 continued its work in ensuring that new in-vehicle technology is – when deemed necessary – accompanied by new traffic rules. For example, WP.1 exchanged information with World Forum on the Harmonization of Vehicle Regulations (WP.29) and its subsidiary bodies by – among others – inviting the Working Party on Automated/Autonomous and Connected Vehicles (GRVA) Chair to its sessions, by planning and proposing joint events to share views and experiences on the recent rapid technological

advancements, and by offering timely and appropriate guidelines for the road environment of the future. WP.1 has always stressed the importance of close cooperation with vehicle regulations subsidiary bodies.

7. In addition, WP.1 is close to finalizing the amendment proposals to incorporate technical progress in the area of lighting and light-signalling devices; is exploring digital driving permits; has adopted “Global Forum for Road Traffic Safety (WP.1) resolution on safety considerations for activities other than driving undertaken by drivers when Automated Driving Systems (ADS) issuing transition demands exercise dynamic control”; intends to continue considering policy challenges of remote driving; and will keep overseeing the work of its Group of Experts on drafting a new legal instrument on the use of automated vehicles in traffic.

8. Finally, WP.1 will continue exploring the definition and role of the driver, driver education and training, and the possibility contributing to developing a glossary of terminology for automated vehicles. Developing a framework of key principles for automated vehicle safety and human centred needs may become an important element of the WP.1 workplan in 2023. Also in 2023, in the context of ITS, the exchange of views will be continued with expected contributions from eminent academics and experts on many pertinent issues.

9. The WP.1 Group of Experts (GoE) on the drafting of a new Legal Instrument on the use of Automated Vehicles in traffic (LIAV), which started its activities in September 2021, held five sessions (in total six days). The Group benefited from the involvement of the WP.1 leadership and the active stakeholders of the Global Forum for Road Traffic Safety. It also involved new experts nominated by the contracting parties. The group (a) developed and adopted its programme of work, (b) reviewed the concerns expressed by some contracting parties with these activities, (c) decided on the kind of the legal instrument to be drafted (a Convention) and (d) drafted a skeleton for the first draft of a new Convention. WP.1 noted that the Group of Expert would still convene under its current mandate on 12 December 2022 and on 4 and 5 May 2023. Given how the schedule of sessions fall, WP.1 discussed and decided, at its September 2022 session, to recommend to ITC to extend the mandate of the Group of Experts for another two years.

10. The secretariat supported the Group by distributing a survey to the experts and by providing a summary of the outcome of the survey. The secretariat informed the Group on the activities performed by the Working Party on Automated/Autonomous and Connected Vehicles. It provided an overview and information regarding the development of previous conventions on road traffic.

11. A group of volunteers worked between the sessions of September and December 2022 to draft a skeleton for a new Convention on the use of automated vehicles in traffic, which was presented at the December 2022 session of GoE on LIAV.

Road Map Actions addressed (areas of primary focus are indicated in **bold**): *Actions 2, 3, 8.*

2. World Forum for Harmonization of Vehicle Regulations and its Informal Working Group on Intelligent Transport Systems / Automated Driving

(a) Coordination activities of the World Forum

12. The World Forum for Harmonization of Vehicle Regulations managed the activities of its subsidiary bodies on ADS using the Framework Document on Automated Vehicles (FDAV), an important programme management tool to coordinate activities.

13. The World Forum WP.29 adopted deliverables from the subsidiary bodies. It endorsed the second iteration of the “Master Document on the New Assessment / Test Method for Automated Driving”, the guidelines derived from the master document, and the initial draft of the recommendations concerning the safety of ADS, (see unece.org/reference-documents-0). The Administrative Committee to the 1958 Agreement adopted the amendment proposals to UN Regulation No. 157.

14. Following the proposal of GRVA WP.29 recommended that the Working Party on Lighting and Light-Signalling (GRE) conducts analysis of research and establishes high level

principles related to light-signalling for ADS operational status, a subject debated by the contracting parties, being of interest for GRVA, GRE and WP.1. WP.29 endorsed the amendment proposal to the table in FDAV to plan activities and request deliverables until end of 2024. WP.29 noted the coordination of work between the different Working Parties, GRs, regarding the screening of UN Regulations and UN Global Technical Regulations (UN GTRs) as requested by WP.29 in March 2022 (ECE/TRANS/WP.29/1164, paragraph 30). WP.29 requested the Informal Working Group (IWG) on Intelligent Transport Systems (ITS) to perform preparatory activities and to explore the potential role of WP.29 regarding to related to on Vehicle-to-Vehicle (V2V) communication and WP.29 invited The Working Party on General Safety provisions (GRSG) and GRVA to collaborate on developing new vehicle categories (or subcategories) dedicated to ADS.

15. The World Forum relied in IWG on ITS, the only working group of ECE fully dedicated to ITS, to monitor external developments and activities regarding traffic laws, intelligent and connected transportation systems (including intermodal transport), telecommunications, infrastructure planning, Mobility as a Service (MaaS) and similar fields adjacent to the deployment of vehicles equipped with ADS. IWG on ITS met four times under its current terms of reference (since November 2019). It met with relevant stakeholders (keynote speakers) from adjacent sectors and from diverse regions of the world. In November 2021, WP.29 agreed with IWG on ITS on the value of accelerating the pace of its activities and to organize webinars during the winter 2022 in order to increase the frequency of the IWG on ITS activities.

(b) *Activities of the Informal Working Group on Intelligent Transport System*

16. IWG on ITS met in June 2022. It reviewed the progress made in the implementation of the revised ECE Road map on ITS, adopted in February 2021. The Group discussed ways to materialize the outcomes of these activities, e.g. by including relevant sections in the ITC annual document on Status of the implementation of the Road Map on Intelligent Transport Systems and also by updating the ECE publication on ITS (2012), with support by IWG.

17. The Group discussed its involvement in the organization (together with the International Telecommunication Union) of the annual symposium on the Future Networked Car (FNC) in March 2022 and its session one highlighting the work of ECE, WP.29 and authorities' activities on ITS. The group noted that FNC took place online, in March 2022, with one session per day, the second session discussed the current performance of Advanced Driver Assistance Systems (ADAS), the third session focused on commercial opportunities related to (ADS and the fourth session focused on wireless communications applied to vehicle safety, services and transport management. The symposium gathered between 140 and 160 participants each day.

18. The Group recommended to WP.29 that a further programme of webinars organized by the Group's leadership and the secretariat would be scheduled after winter 2023 given the significant activities at GRVA. The Group's leadership would represent WP.29 at the 2023 session of the ECE/ITU symposium.

19. The Group was expected to meet on 17 January 2023 in order to discuss the potential role of WP.29 in the field of Vehicle-to-Vehicle communications.

(c) *Summary of the Outcome of the Three Webinars of the Informal Working Group on Intelligent Transport Systems*

20. The secretariat along with IWG on ITS hosted three webinars in the first quarter of 2022. The dates of the webinars were 21 January 2022, 3 February 2022 and 28 February 2022. There were approximately 120 participants attending each of the webinars. The aim of the webinars was to address some of the actions of the ITS Road map through information sharing events: (a) Action 1 "Reaching a common definition for ITS", (b) Action 5 "Ensuring Data Security", Action 6 "Promoting Vehicle infrastructure communications" and Action 7 "Vehicle to Vehicle communications".

21. Each of the webinars was moderated by one of the Co-Chairs of IWG, under the umbrella "Intelligent Transport Talks":

(i) Webinar 1

22. Webinar 1 focused on Action 1 of the road map, reaching a common definition for ITS. The speakers at this session explored and explained to the group how ITS was viewed within their organisations. The Chief Executive Officer of ERTICO¹ (ITS Europe) presented their activities on Data and Mobility & Traffic Management within the context of ITS. He highlighted in their presentation how defining the scope of ITS sets a clear direction for the development of ITS systems and infrastructure. Utilising the European Union directive of 2010 as their guiding definition for ITS, he presented areas where further work needs to be done. These include: affordability, investments in infrastructure and availability, and accessibility of data among others. The Director General of FIA Region 1 highlighted that end users' expectations would be better managed, providing clarity about benefits and optimising modes (Mobility as a Service). She mentioned that the data and analysis collected by FIA Region 1 illustrated the value harmonised definitions have to real world users. The Director of the Joint Programme Office on ITS of the United States of America provided their working definition of ITS including the connection to other systems as a part of a smart community. Utilising the current definitions of ITS, the Director of the Joint Programme Office on ITS shared with the participants their current strategic plan for ITS (2020-2025). The priority areas included, among others, available, reliable versatile ITS Data, Advancing Mobility and Accessibility for all and cultivating the next generation of ITS. The expert from OICA presented what ITS would look like for the future from their perspective, highlighting the scope of ITS with a detailed look into ITS and Artificial Intelligence (AI). He also underlined how the different stakeholders of the ITS ecosystem can work together with a harmonised definition to bring ITS systems to the end users effectively.

(ii) Webinar 2

23. Webinar 2 Addressed - Action 5 of the ITS Road map on Data Security. The expert from OICA highlighted the work done so far in cybersecurity, the positive impact of harmonization of data regulations and their benefits to the end user. These benefits include ensuring that the vehicle is protected from cybersecurity attacks and that software updates on a vehicle stays compliant with the vehicle homologation. UN Regulations Nos. 155 and 156 covered these aspects, however, the representative stated the importance of supporting efforts for a uniform application of regulations within the countries signed on to the 1958 Agreement. The representative of Germany from the Ministry for Digital and Transport, also presented the UN Regulations Nos. 155 and 156, and focused on how they can be integrated into the type approval framework in order to enhance the IT security of the vehicle. This can be done at the Original Equipment Manufacturer (OEM) level through Cyber Security Management System (CSMS), at the vehicle level through risk assessment and mitigation measures and at the fleet level through market surveillance. He also illustrated the links between data security and safe applications in road traffic of autonomous vehicles, secure Vehicle to Vehicle (V2V) communication and trustworthy vehicle data.

(iii) Webinar 3

24. Webinar 3 explored the road map actions 6 and 7, "Promoting Vehicle to Infrastructure communications (V2I)" and "V2V" respectively. ITS America provided case studies and examples of V2V and V2I currently in various phases of development and establishment in the United States of America. These case studies highlighted how V2V, V2I and Vehicle to Everything (V2X) can be leveraged to reduce emissions and fuel economy and how data exchanges platforms designated to V2X data can assist with predictions as well as actual data for vehicle manufactures, traffic operators and evaluators to name a few. The representative of OICA provided insights into the work of Alliance for Automotive Innovation (member of OICA in the United States of America), providing details on the work being done in the United States of America over the last 20 years. The representative also presented a case for how regulation can positively address development risks by highlighting the example of how the assignment of bandwidth and then subsequent reassignment has

¹ European Road Transport Telematics Implementation Coordination Organisation-Intelligent Transport Systems & Services Europe

negatively impacted the development of V2V, V2X and V2I. The representative from Japan provided highlights from the project of the Strategic Innovation Promotion Program, more commonly known as SIP and gave examples of the work that has been done in V2I, specifically related to the development of signal information. Through the dedicated frequencies in regional area, the study confirmed that there was a safe and smooth implementation of Automated Driving (AD) vehicles. He also highlighted that there is current work on using Vehicle to Network (V2N) systems putting into practical use the expansion of traffic environment management. In the long term, there is work on the development of a road map for communication technology. The Vice-Chair of the fifth-generation technology for broadband cellular networks automotive association (5GAA) highlighted the current V2X use cases in countries around the world, with use case examples of C-V2X enabled vehicles, a road safety initiative to create a Safety Related Traffic Information (SRTI) ecosystem and intelligent traffic with smart phone apps. The representative also presented a future view with an expected timeline for C-V2X use cases.

25. The series of webinar provided IWG on ITS with the positive impacts of ITS through the real-world examples. The diversity of presenters allowed the group to identify the similarities across countries both in the barriers faced in ITS advancement as well as the demonstrated positive impact ITS has in vehicle safety and traffic efficiency among other things. A common thread that arose from the webinars was the significant role that ECE could contribute by creating space for mutual discussions and harmonization.

26. The outcome of the webinars was presented to IWG on ITS at its June meeting. The group noted the wide cross section of case studies and information provided by the presenters and concluded that the Secretariat's initiative had been a great success. It was proposed to continue the series, possibly to once again host a webinar series in the first quarter of 2023 but over a wider timetable than the previous to allow for more participation.

Road Map Actions addressed (areas of primary focus are indicated in bold): Actions 1, 2, 3, 4, 5, 6, 7, 8, 16, 17, 18.

3. Working Party on Automated/Autonomous and Connected Vehicles

27. The Working Party on Automated/Autonomous and Connected Vehicles continued its activities on vehicles safety, ADAS, ADS and connected vehicles at a pace that required an additional session in May 2022.

28. GRVA continued its activities under the guidance provided by the FDAV. In 2022, GRVA drafted the second iteration of the "Master document on the New Assessment / Test Method for automated driving", the guidelines derived from the master document, and the initial draft of the recommendations concerning the safety of ADS.

29. GRVA finalized an amendment to UN Regulation No. 157, the first international regulation for the approval of a vehicle equipped with ADS, to extend the maximum speed for Automated Lane Keeping Systems (ALKS) for passenger cars and light duty vehicles up to 130 km/h on motorways, and allows automated lane changes, among other dispositions. It is expected to enter into force in January 2023. GRVA finalized an amendment to UN Regulation No. 157, the first international regulation for the approval of a vehicle equipped with

30. GRVA organized eleven workshops with the representatives of contracting parties, their authorities and technical service to support the uniform implementation of UN Regulation No. 155 (Cyber Security and Cyber Security Management System) adopted in 2020. GRVA drafted recommendations on uniform provisions concerning cybersecurity and software updates for the purpose of the 1958 and 1998 Agreements and also organized a workshop on Vehicle Cybersecurity, organized for the contracting parties of the 1958 and 1998 Agreements. GRVA noted with satisfaction that the group managed to address most of the open questions, as the experience gathered for one year solved many questions.

31. GRVA organized two technical workshops to look at Artificial Intelligence (AI) especially in the context of vehicles regulations. GRVA already clarified, with the adoption of UN Regulation No. 156, the rules applicable to software updates, impacting AI-enabled practices such as online learning. GRVA drafted relevant definitions and took over relevant

ones from internationally agreed standards, listed AI use cases in the automotive sector, and identified possible developments of the new assessment and test method for ADS developed by GRVA in order to address data used in the training of AI agents.

32. GRVA worked on the coordination with other Working Parties dealing directly or indirectly with Automated Driving. GRVA provided advice to WP.29 related to the coordination on the Working Party on Lighting and Light-Signalling (GRE) on provisions for light-signalling indicating the status of vehicles equipped with ADS. GRVA is expected to collaborate with GRSG in order to consider the development of a new vehicle category (and/or subcategories) related to ADS. GRVA worked with the WP.29 subsidiary bodies to uniformly review and perform the screening of UN Global Technical Regulations annexed to the 1998 Agreement and UN Regulations annexed to the 1958 Agreement to evaluate their fitness in the context of ADS. GRVA reported informally to WP.1 on the advancement of their activities. GRVA was invited by WP.1 to work together on the organization of a public joint side event of the Inland Transport Committee at its February 2023 session to inform the outside world on the developments at ECE on ADS. GRVA reacted positively to this invitation. Delegations at WP.1 and WP.29 felt that organizing such an event was premature and advised WP.1, WP.29 and GRVA to liaise and work on common definitions, lexicon and share information. Following this, a combined workshop of the WP.1 Informal Group of Experts on Automated Driving (IGEAD) and the GRVA Informal Working Group on Functional Requirements for Automated Vehicles (FRAV) took place in The Hague on 7 and 8 November 2022.

33. GRVA responded positively to the proposal of China to work on Vehicle-to-Vehicle communications and consulted WP.29 in November 2022 in order to coordinate activities. WP.29 invited the Informal Working Group on ITS to perform preparatory activities and to explore the potential role of WP.29 regarding Vehicle-to-Vehicle (V2V) communication.

Road Map Actions addressed (areas of primary focus are indicated in **bold**): *Actions 1, 2, 3, 4, 5, 6, 7, 8, 16, 17, 18.*

4. Working Party on Pollution and Energy

34. The Working Party on Pollution and Energy (GRPE) agreed to create a new IWG on Automotive Life Cycle Assessment (A-LCA) to develop a harmonized methodology to determine the carbon footprint of vehicles. This GRPE decision followed a dedicated workshop on the topic of LCA, where several initiatives on the digitalization of product information had been introduced. Such initiatives include the Global Battery Alliance and its Battery passport aiming at providing more accurate information regarding the GHG emissions of battery manufacturing, or the World Business Council for Sustainable Development (WBCSD) automotive Partnership for Carbon Transparency (A-PACT) working on delivering digital solutions for carbon transparency of automotive products and its supply chain. The Vice-Chair of GRPE called for GRPE and IWG on A-LCA (GRPE-86-41) to consider these activities when developing its harmonized methodology.

Road Map Actions addressed (areas of primary focus are indicated in **bold**): *Action 14*

5. Working Party on Inland Water Transport

(a) River Information Services

35. From 2019 to 2021, the Working Party on Inland Water Transport (SC.3) revised and updated four of six resolutions related to River Information Services (RIS). In 2022, work continued on resolution No. 58, Guidelines and Criteria for Vessel Traffic Services (VTS) on Inland Waterways. This resolution builds on the Recommendation for Vessel Traffic Services in Inland Waters of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA), completely revised in 2021 with the participation of SC.3 experts from the Russian Federation and Ukraine, and the secretariat on behalf of ECE. The new IALA Guideline G1166 “Vessel Traffic Services in Inland Waters”, adopted in December 2021, establishes a concept of Inland VTS, takes into account the existing practice on European inland waterways and contains definitions from SC.3 resolutions. The IALA Guideline became the basis for a substantial revision of resolution No. 58. In 2022, SC.3

agreed on the general approach, definitions and structure of the revised draft and asked the secretariat to finalize this work in 2023 in cooperation with interested member States.

36. In 2022, SC.3 and its subsidiary body, the Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation (SC.3/WP.3) stressed a desirability to keep resolutions of relevance to RIS as live instruments. To this end, SC.3 discussed (a) harmonizing resolutions Nos. 48, 63, 79 and 80 with the European Standard on River Information Services of the European Committee for Drawing up Standards in the Field of Inland Navigation and (b) a possibility of aligning the European Code for Signs and Signals on Inland Waterways (resolution No. 90) with the revised RIS resolutions. SC.3 provided guidance to the secretariat on further work in 2023.

37. In 2022, SC.3 and SC.3/WP.3 discussed the opportunities provided by RIS and the RIS enabled corridor management² for improving the traffic management, introducing the smart infrastructure and fostering the digital transition of inland waterways, based on the outcome of the recent and ongoing projects, such as the integrated web application ELIAS³ developed under the project EMMA,⁴ projects RIS COMEX,⁵ DIWA (Masterplan Digitalization of Inland Waterways),⁶ and the European RIS platform EuRIS.⁷ SC.3 stressed that the availability of data, in particular related to the voyage planning, and the availability of data on the inland waterway, road and rail network were of a key importance for the development of inland water transport and its integration into multimodal transport and logistics chains.

(b) *Automation and Smart Shipping*

38. Following the decision at its sixty-fifth session, SC.3 postponed discussing the terms and definitions for automation and smart shipping until the outcome of the work by the Central Commission for the Navigation of the Rhine on revising definitions of the automation levels. In 2022, SC.3/WP.3 addressed the various aspects of automation in the context of the development of the inland waterways infrastructure (the workshop “Towards a Modern, Sustainable and Resilient E Waterway Network” held on 29 June 2022 at the sixty-first session of SC.3/WP.3). The participants considered the development of automated and smart navigation concept and innovative types of automated and autonomous vessels as one of the most important developments in the field of digitalization for the upcoming decade, and stressed the importance of developing standards for automated navigation, safe and secure operation of autonomous ships for fostering digital transition in the sector.

39. At its sixty-sixth session, SC.3 noted with satisfaction progress by member States in the field of automation and smart shipping as a part of the strategic actions set forth in the Wroclaw Ministerial declaration “Inland Navigation in a Global Setting”, reported by the Governments of Belarus, Belgium, Croatia and Slovakia (ECE/TRANS/SC.3/2022/4 and ECE/TRANS/SC.3/2022/5). This included, in particular, the activities of De Vlaamse Waterweg nv on (a) creating a legal framework to facilitate innovation and tests of autonomous vessels in the Flemish Region, (b) the programme DigiWave for digitalization in inland navigation, built upon three pillars: “Smart Logistics”, “Smart Administration” and “Smart Shipping” and (c) pilot projects of automated and autonomous vessels.

40. Following the proposal of Belgium, SC.3 decided to begin working on provisions on automated and autonomous shipping in 2023 with a view to developing recommendations for the European Code for Inland Waterways (CEVNI).

Road Map Actions addressed: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18.

² See the Glossary for Inland Water Transport including River Information Services to be published in the beginning of 2023 (ECE/TRANS/SC.3/WP.3/2022/18, annex I).

³ See <https://elias.isl.org>.

⁴ Enhancing freight mobility and logistics in the Baltic Sea Region by strengthening inland waterway and river sea transport and promoting new international shipping services, see www.project-emma.eu.

⁵ River Information Services Corridor Management Execution, see www.riscomex.eu.

⁶ www.masterplandiwa.eu.

⁷ www.eurisportal.eu.

6. Working Party on the Transport of Dangerous Goods

41. In the context of Regulation 2020/1056 of the European Parliament and of the Council of 15 July 2020 on the use of the data model in the context of the electronic freight transport information (eFTI) regulation, the Joint Meeting of the RID Committee of Experts and the Working Party on the Transport of Dangerous Goods was informed at its September 2022 session on the progress of work and potential issues related to some developments of the current data model that do not take account of the specificities for the transports of dangerous goods in RID/ADR/ADN. Noted at the meeting were: the updated status of guidelines, data model and exchange mechanism developed by the informal working group on telematics, and the differences in the architecture principles of the eFTI proposal and of the transport of dangerous goods.

42. For the future discussions at the European Union level on the further development of the electronic dangerous goods document, it was recalled that this system could be developed in technically different ways, but that these should nevertheless respect some basic requirements as listed in paragraph 44 of the Joint Meetings report ECE/TRANS/WP.15/AC.1/166.

Road Map Actions addressed (areas of primary focus are indicated in **bold**): **Action 9**

7. Working Party on Intermodal Transport and Logistics

43. The Working Party on Intermodal Transport and Logistics (WP.24), further to the tasks assigned to it in the 2021 ITC resolution on strengthening intermodal transport, agreed⁸ to serve as a forum for regular exchanges on document and information digitalization for intermodal transport. WP.24 also agreed to work on automation in the sector, by supporting its development through the elaboration of guidance or a handbook on automation in freight transport and logistics.

44. In 2022, WP.24 held workshops on information and document digitalization in transport intermodal sector and on exchanges of good practice and innovative solutions as well as approaches taken to freight transport and logistics automation.

45. The information and document digitalization workshop stressed the following:

(a) Digitalization needs to be strategically planned and actively managed to be successful;

(b) Data standardization, consistent data structures, and interoperability are key to digitalization;

(c) Common and widely accepted data reference models such as The United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) or such resulting from negotiations and deliberations of conventions administrative committees or special intergovernmental should be applied;

(d) Data protocols or relevant ecosystems are needed so that not all but relevant information is shared with relevant stakeholders;

(e) Integrity of the digital systems must not be compromised – no data can be modified without the knowledge and certification/authentication by concerned actors;

(f) Legal obligations are necessary for public administration to accept digital documents to incentivize business to invest or speed up digitalization; and

(g) Exchange of digitalization projects and their consideration is important to promoting harmonized approaches. WP.24 should play a role in facilitating the exchanges.

46. The workshop on automation showed the following:

(a) Automation requires a business case, proper management approach and stakeholder dialogue including workers and/or unions. For terminals, specific size, cargo

⁸ ECE/TRANS/2021/22

volumes/turnover, functionality or capacity gains need to be achieved for investments in automation to pay off;

(b) Automation should be tailored-made to the needs. There are various levels at which automation can be introduced, for example: automation of vehicles/equipment at terminals, automated systems for entry and exit from terminals, digital twins, data and information exchange platforms, paperless train management, track and trace, digital seals, etc. Some of the automated solutions can be implemented independently of others. The companies or industry should, however, develop and follow a strategic business plan for automation;

(c) Not all automation solutions would lead to productivity gains compared to manual handling processes, for example in considering automated versus manually operated terminals. At the same time, automated processes result in more constant productivity over time. Savings can also be achieved in maintenance, as automated vehicles which operate at more constant speeds can have a longer lifespan;

(d) For some automation solutions to be successful, they require the alignment of the entire sector, for example with digital automated coupling, or digital rail platforms for the exchange of information. Interoperable solutions based on widely accepted industry standards need to be prioritized;

(e) Automation may bring more safety to the sector if it is appropriately managed. It can replace unsafe or hardship human activities. The interaction between technology and workers, especially at terminals, needs to be defined and controlled to avoid safety incidents. The separation between manual and automated container operation should therefore be applied at terminals;

(f) As technology is expected to develop and improve, the pace of automation uptake in the sector is expected to increase. Automation would thus become more accessible including for small- and medium-sized enterprises. As its role would increase, workforce and society at large need to be prepared to embrace it effectively;

(g) Cybersecurity is at the heart of automation. Proper approaches need to be taken towards securing Information Technology (IT) systems. The workforce needs to be trained against cyberattacks such as phishing;

(h) Humans should be in control of automation and manage it so that it benefits society at large; and

(i) Automation should be managed hand-in-hand with reskilling, retraining or upskilling the workforce. Job restructuring should be planned and managed to help workers requalify in time for new requirements in a more automated work environment.

*Road Map Actions addressed (areas of primary focus are indicated in **bold**): Action 12*

8. Working Party on Rail Transport

47. The Working Party on Rail Transport (SC.2) continued its work on ITS activities through the regular updating of the rail security observatory and through the creation of a new innovation platform identifying key areas where ITS could increase the competitiveness of the rail sector following the successful workshop on the issue at its seventy-second session. As part of this work, the Working Party also continued its activities related to the digitalization of documents in collaboration with the activities of WP.24 as identified above. The Working Party noted the work carried out in the Group of Experts on the Permanent Identification of Railway Rolling Stock which reviewed as part of its activities, solutions on the electronic tagging of wagons. Finally, as part of its activities to modernize and digitalize infrastructure agreements the Working Party noted the finalization of the European Agreement on Main International Railway Lines (AGC)- European Agreement on Important International Combined Transport Lines and Related Installations (AGTC) or AGC-AGTC online tool. The tool introduces a new innovative tool to rail activities, further facilitates the modernization of AGC and is aimed at assisting operators in identifying optimum routes for rail flows across the region and facilitating shift to rail.

Road Map Actions addressed (areas of primary focus are indicated in **bold**): *Actions* 2, 3, 4, 5, 6, **10, 13, 15**, 16, 17 and 18.

9. Working Party on Road Transport

48. Information related to this working party is provided in ECE/TRANS/2023/20.

10. Working Party on Transport Trends and Economics

49. Information related to this working party is provided in ECE/TRANS/2023/20.

11. Working Party on Customs Questions affecting Transport

50. Information related to this working party is provided in ECE/TRANS/2023/20.

Annex

The ECE Road Map on Intelligent Transport Systems 2021-2025

Action 1 Reaching a common definition for ITS	Action 10 Integrating with Rail Transport
Action 2 Harmonizing policies	Action 11 Integrating with Inland Water Transport
Action 3 Forging International cooperation	Action 12 Enhancing the modal integrator's role of ITS
Action 4 Facilitating interoperability and ITS architecture	Action 13 Developing cost-benefit assessment methodologies
Action 5 Ensuring data security	Action 14 Improving the long-term environmental sustainability of transport
Action 6 Promoting vehicle-to-infrastructure communication	Action 15 Promoting analytical work amongst Contracting Parties
Action 7 Vehicle - to - vehicle communication	Action 16 Contributing to capacity building, education and awareness raising, with special attention to emerging economies
Action 8 Improving road safety	Action 17 Organising the United Nations Annual Round Table on Intelligent Transport Systems
Action 9 Enabling safer Transport of Dangerous Goods	Action 18 Wheeled vehicle automation and emerging technologies
