



UNECE

WP.1: Remote Driving Discussion Paper

United Kingdom of Great Britain and Northern Ireland, Germany & Finland



Thursday, 16 March 2023

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Why discuss remote driving?

- Remote driving is not explicitly prohibited in the 1949 and 1968 conventions but does pose a range of safety concerns
- The prospect of remote driving where the driver can be in another jurisdiction justifies the need for international discussions
- The technology is being developed, adapted and tested now
- uses of remote driving systems:
 - Services
 - Flexible responses in safety critical situations
 - Supporting the development of ADS



What is the purpose of this paper?

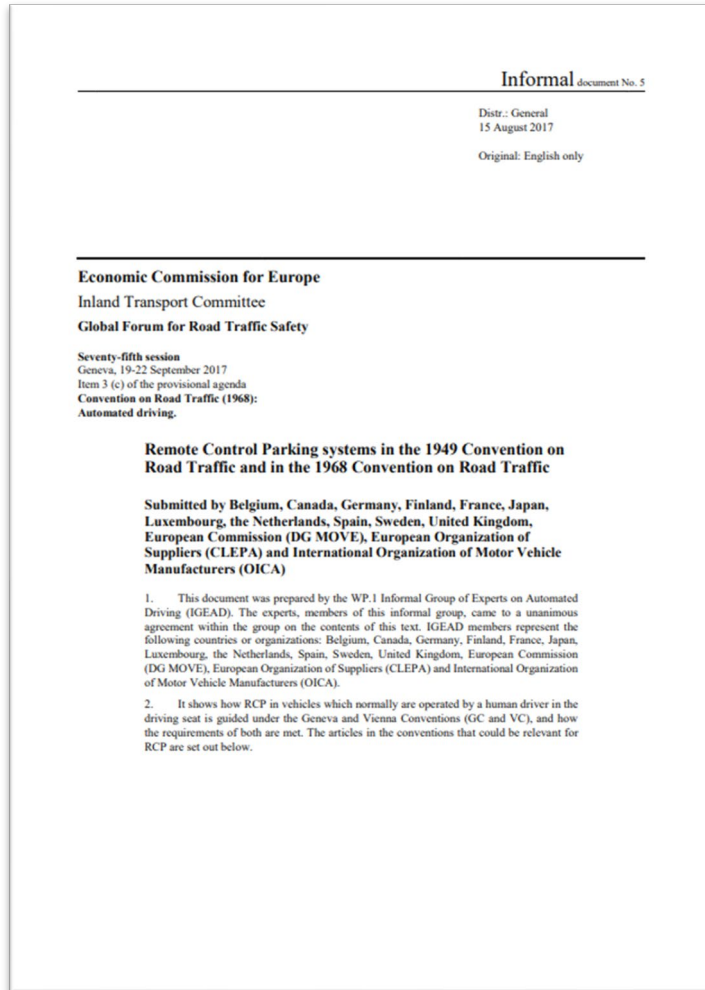
- The aim of this informal paper is to facilitate WP.1 discussion of how remote driving can be performed safely, and in compliance with the 1949 and 1968 Conventions
- This paper addresses a gap not covered by the 2018 and 2022 resolutions or the work of GE.3 LIAV on a future legal instrument
- We intend to improve the paper to facilitate discussion at WP.1 meetings and so welcome comments/ contributions.
- **Scope:** situation where a remote driver exerts full tactical control of a single vehicle



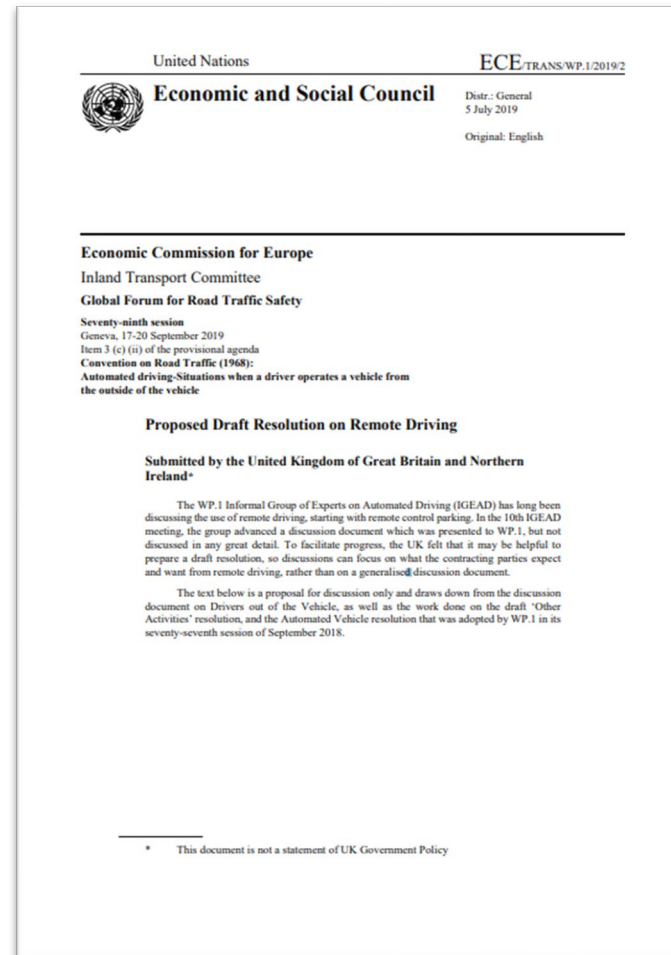
History and background of the paper

- Discussion on remote driving at WP.1 has been ongoing since September 2017 (75th session), kickstarting work on the topic.
- The UK submitted a formal paper with a draft resolution on remote driving at the 79th WP.1 session, September 2019 however it became clear the item required considerable discussion and scoping by WP.1 and this would be difficult to achieve with a draft resolution.
- Following consultation with IGEAD members both times, the UK tabled this informal discussion paper at the 83rd (September 2021) and 85th (September 2022) WP.1 sessions, where it was agreed that WP.1 will organise a dedicated panel at the next session in March 2023.
- At the 85th WP.1 session, several countries expressed interest in continuing to work on this topic, including Germany who have become co-authors of the paper to ensure the safe deployment of this emerging technology.
- Amended versions of the paper were discussed at the 23rd and 24th IGEAD meetings in November 2022 and January 2023, resulting in numerous changes.

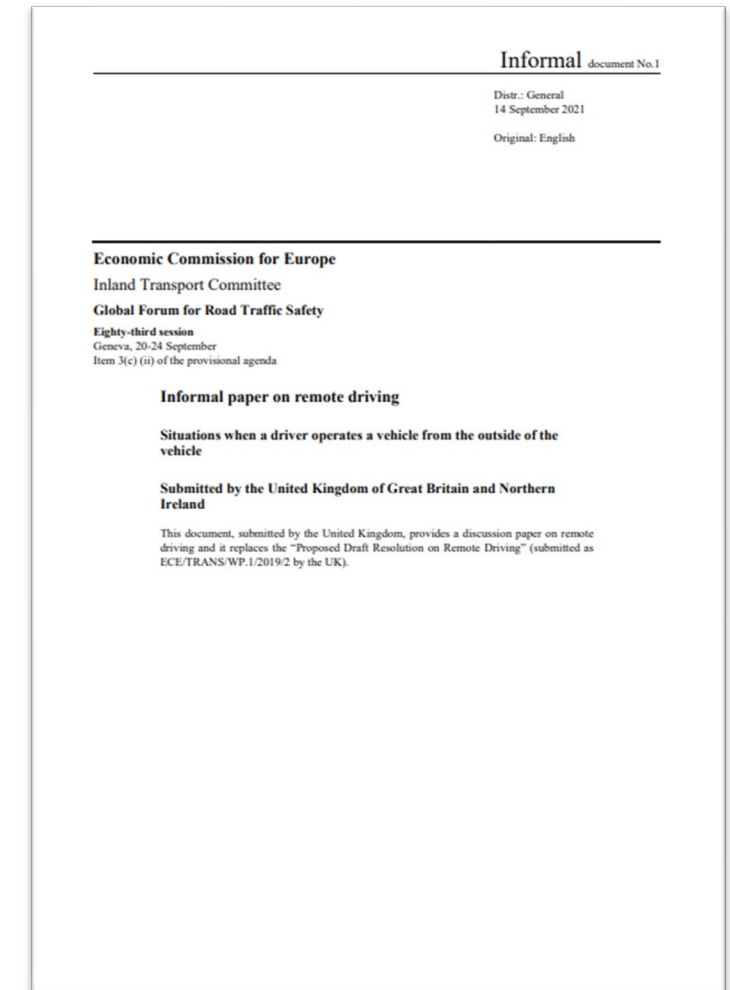
Overview of papers previously submitted to WP.1



Remote Control Parking informal paper by various, 75th WP.1 (September 2017)



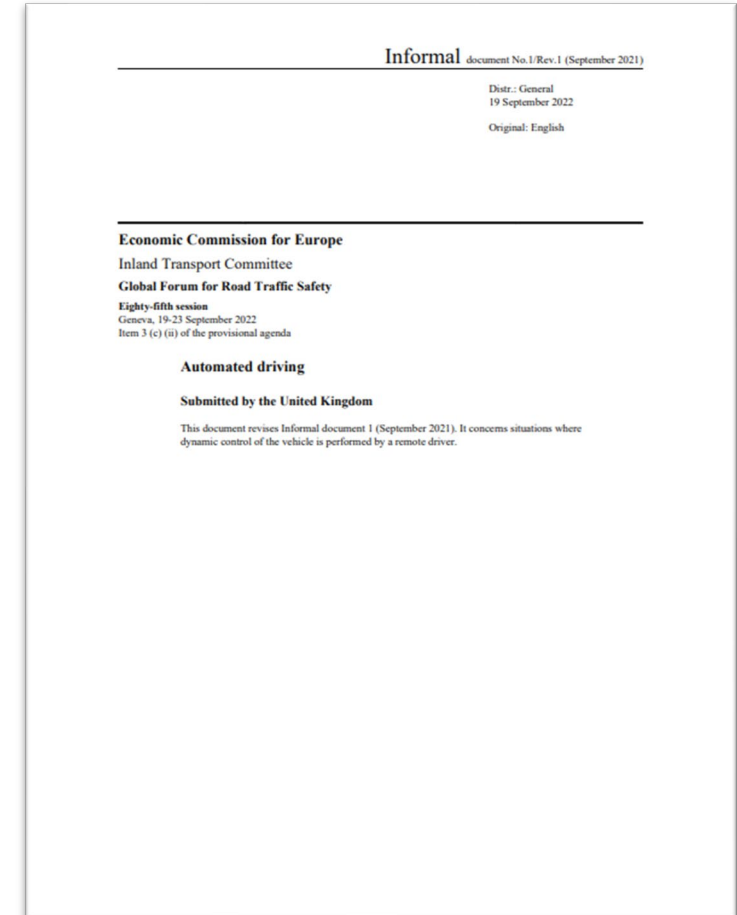
Draft resolution on remote driving submitted formally by the UK, 79th WP.1 (September 2019)



Discussion paper on remote driving submitted informally by the UK, 83rd WP.1 (September 2021)

German co-authorship and 23rd IGEAD

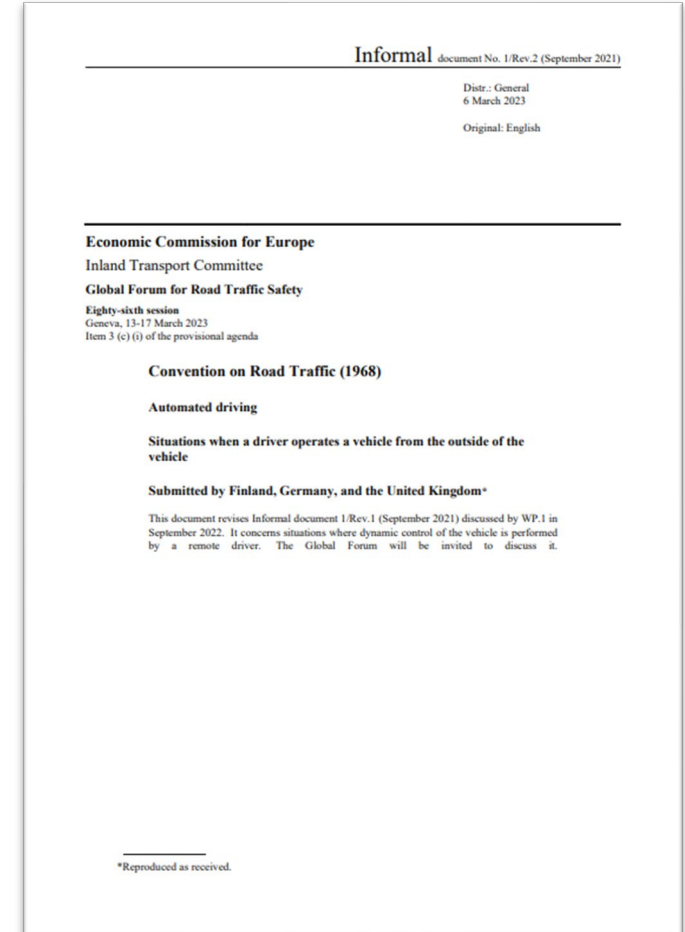
- Shortly after the 85th WP.1 session, Germany became a co-author to the paper.
- Their contribution resulted in a new structure, including additional sections entitled 'Introduction to the general concept' and 'motivation; which frames the paper against WP.1 competences.
- Technical considerations of WP.29 remit were removed.
- The paper was discussed at the 23rd IGEAD session, resulting in the below changes:
 - Explaining that training and licensing requirements assume the conventional driving concept
 - Moving wording on the limited evidence available to 'general considerations' section and adding that careful and controlled deployments could help collect evidence.
 - Considering the need for manufacturers to use state-of-the-art safety systems to support safe remote driving.



Revised version of the remote driving discussion paper submitted informally by the UK, 85th WP.1 (September 2022)

24th IGEAD and further changes

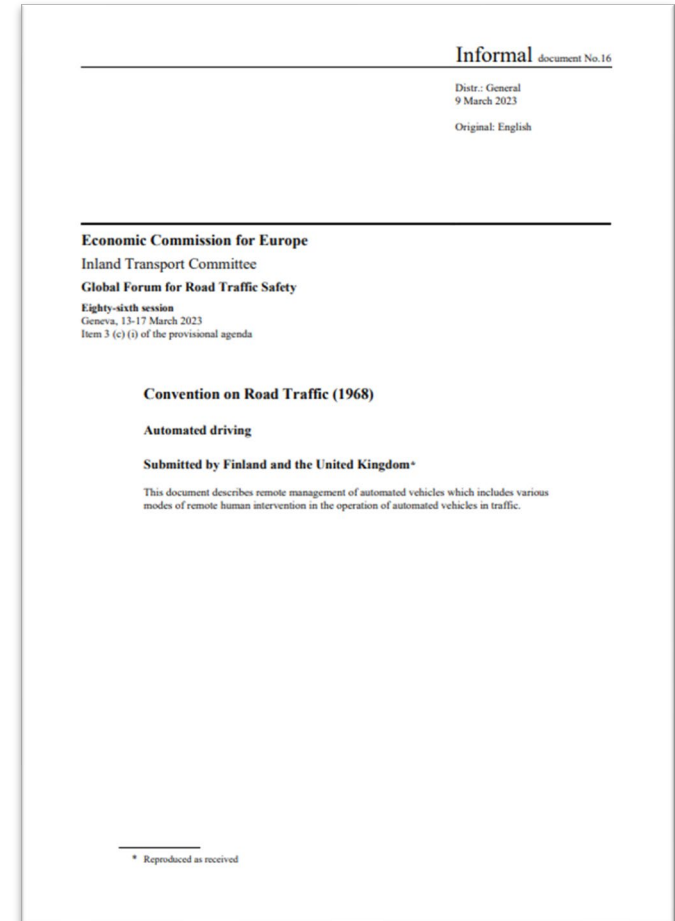
- The paper was reviewed section by section at the 24th IGEAD session. Verbal and written feedback resulted in the following changes:
 - New wording explaining the distinction between a remote driver and a fail-safe or back-up.
 - Wording clarifying that the remote driving system should ensure road safety at all times – either by MRX or having an ADS take over the DDT.
 - Drawing a clear distinction between remote driving and automated driving, which are distinct.
 - Wording on the outstanding safety concerns around the technologies, and amended wording on the value of trials to collect evidence and data.
 - Clarification that safety considerations of the operator refer to the company responsible, and a new structure dividing considerations into themes.



Latest version of the Remote Driving Discussion Paper, authored by UK, Germany and Finland, 86th WP.1 (March 2023)

Finnish co-authorship and remote management

- Collaboration between the UK, Germany and Finland on the role of humans located remotely which have responsibilities over a vehicle led to Finland drafting a new paper on remote management.
- The advent of this new paper, meant that the annex on remote management scenarios or roles was no longer required in the remote driving paper.
- The section entitled 'Situations where remote driving may occur' was moved into the main paper
- Since making these changes, Finland have become co-authors of the remote driving paper.
- The informal paper on remote management will be discussed this afternoon, as part of the IGEAD update under 'Other Business'.



Remote Management of Automated Vehicles
authored by Finland and the UK, 86th WP.1
(March 2023)

Call for contributions and co-authors

- To date, this paper has not been discussed in great depth, or line by line, either in IGEAD or WP.1.
- This WP.1 session presents an opportunity to review the latest version of the paper and discuss how WP.1 wishes to progress discussion on this topic.
- We welcome views on the paper from WP.1, and hope it may encourage wider engagement on the topic.
- The UK, Germany and Finland welcome members to become co-authors of the paper if they are interested.

