

SUMMARY

This study was designed to gain information about variable message signs and their appearance and use in the Viking countries (Denmark, Finland, Norway, Sweden and the five northernmost states in Germany), and to utilise this information to enhance the harmonised use of VMS in the Viking region. In the study, harmonisation needs were specified and prioritised. The focus was on harmonisation issues from the drivers' point of view, i.e. how the drivers perceive and comprehend VMSs. Harmonisation is motivated by the safety and efficiency demands in the EU countries. Efforts for the more harmonised use of traffic signs should be based on international commitments, the Vienna Convention (1968) being the most binding.

The three main sign categories - regulatory messages, danger warning signs and informative signs - are discussed. Several subissues are presented for each main topic. In addition, some general aspects of regulation and information are presented. The results of a survey and a workshop investigating the current practice and deployment of VMSs in the Viking countries are presented. The report summarises the relevant results of both research and more practical actions in the field of VMS harmonisation in Europe.

Conclusions summing up the harmonisation needs are presented for each subissue. The needs that should lead to harmonisation actions in the short or the long term are prioritised. In addition, the conclusions identify several VMS features and practices that have already been harmonised. Furthermore, the conclusions indicate differences, which initiate no harmonisation actions.

The usage areas and needs to use variable systems vary and may vary depending on the country. The most harmonised areas are the colours and the use of symbols and pictograms in regulatory and danger warning signs. More variation exists and is acceptable in informative messages. But also in this sign category, pictograms should be preferred to text messages, and information overflow should be avoided.

Common targets for both the short-term and long-term harmonisation actions are the development of the reliability of the systems, the amount of information presented, the use and development of pictograms and the use of flashers in VMSs.

Several more specific issues, which were regarded to be harmonised in the short term, were identified in the study. For example:

- Light-emitting signs with inverted colours should be preferred when planning new variable speed limit systems and developing old ones.
- The use of flashing lamps in speed limit signs has to be well-motivated and should be studied carefully, especially when developing new systems.

- Weather- and traffic-based control should be included in variable speed limits at sites, which experience both weather and traffic problems.
- The accident pictogram (suggested by FIVE) should be confirmed at the national level if an overall consensus can be reached (e.g. at the UNECE-level).
- The current definitions for the maximum length of text messages should be unified.
- International expressions should be preferred in text messages. It is suggested that a data bank of the messages used in the Viking language area should be created.
- More information on VMS qualities should be provided to the road users.

The long-term harmonisation needs identified in the study include: an increased level of automation in the weather-controlled systems, more uniform control principles for warning signs, a tested and commonly accepted re-routing arrow, and more harmonised message absence practices for lane signals and the more uniform use of amber lanterns in lane control.

Currently, the issues concerning variable signs are discussed in several international groups. The harmonisation process should be continued by the national road authorities of the Viking countries in co-operation with each other. Finally, as the use of VMS systems is probably increasing, it is recommended that this report should be updated in a couple of years' time.

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