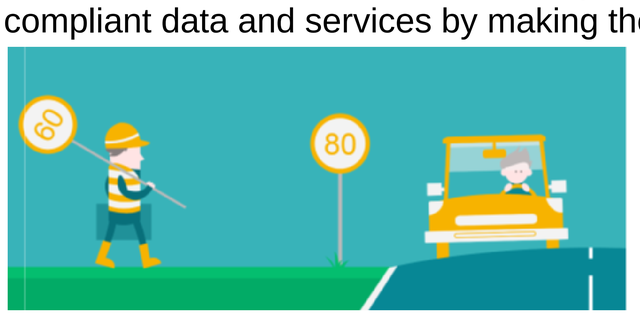
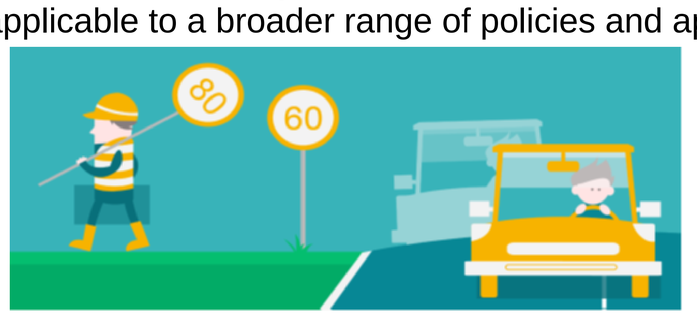
Improving accuracy in road safety data exchange for navigation systems

CONTEXT

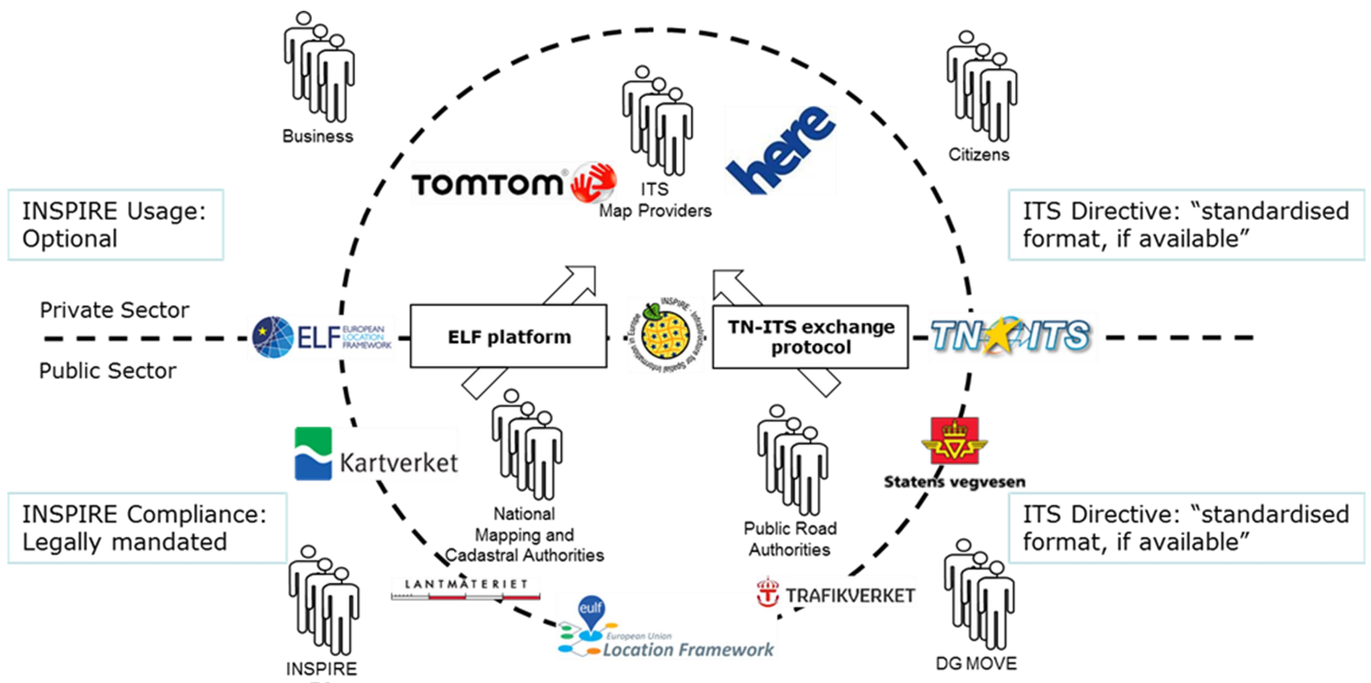
- ITS applications and in particular real-time traffic information services need maps that are highly up-to-date with consistent and relevant data based on the most accurate information available directly from public road authorities
- Public road authorities maintain information about traffic signs that relate to a specific location on the road network
- When information displayed on a sign changes, e. g. the height restriction is lowered, this is important safety information that needs to be shared reliably with ITS map providers so that the respective traffic sign attributes for that road segment are updated accurately
- Users of ITS applications need accurate and timely safety-related attribute data, while ITS map providers need a reliable and harmonised mechanism that is consistent in different countries and enables them to process updates on safety-related attribute data from public road authorities accurately and efficiently
- On the other hand, Member States' public authorities, including road authorities, want to leverage their investment in INSPIRE-compliant data and services by making them applicable to a broader range of policies and applications





AIMS

- The Transportation Pilot for the Intelligent Transport Systems (ITS) community is a collaborative initiative involving:
  - the European Commission-Joint Research Centre from its European Union Location Framework (EULF) project
  - the Transport Network ITS Platform (TN-ITS), including national road authorities and commercial map providers
  - the European Location Framework (ELF) project, including national mapping agencies
- The pilot aims to improve the communication of changes in road data such as speed limits and access restrictions. The data exchange standard from TN-ITS, helps to describe what attributes are changed on the road network, and the positioning of these changes along the road. On the other hand, the national mapping agencies can help map providers to position reference data like buildings and rivers, and deal with any cross-border discrepancies



OUTCOMES

This work has highlighted:

- the value of accurate road safety data for commercial map providers and users
- the need for public road authorities to make each step in their data processing as timely as possible, to minimise the time taken from making a physical change to disseminating the information about that change
- the need to put in place effective data sharing and collaboration agreements between public and private parties, complementing the tested technical solution
- the need to agree on a common location referencing method to facilitate road data exchange
- the importance of relying on INSPIRE transport network data when national road databases are not available

Website: *https://joinup.ec.europa.eu/community/eulf/og_page/eulf-transportation-pilot*

Authors: Borzacchiello*, M.T., Wikström+, L., Boguslawski*, R., Pignatelli*, F.
Francesco Pignatelli, EULF Action Leader, francesco.pignatelli@ec.europa.eu
*Joint Research Centre, European Commission, + Triona AB, Sweden

This activity has been developed with the support of ISA, a programme from the European Commission developing digital solutions that enable interoperable public services across borders and sectors for the benefit of public administrations, businesses and citizens in the EU. Find out more at: *http://ec.europa.eu/isa*

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THE ADDED VALUE

Policy and strategy alignment

- Technical and organisational alignment of INSPIRE and ITS Directive
- Promotion of a coordinated mechanism for the management and exchange of specific road data attributes
- Alignment with the objective of the EC Digital Single Market Strategy related to Free Flow of Data

e-Government integration

- Improvement of Government to Business (G2B)
  road safety data exchange in support of road navigation services to citizens and businesses
- Countries less advanced on their National Road Database can leverage the investment made
  with INSPIRE
- Road authorities upgrade from quarterly to daily updates to map providers

Standardisation and interoperability

- Coordinated data exchange mechanism based on relevant standards
- Commercial map providers which are international organisations are able to move from fragmented national processes to more standardised processes in different European countries.

Effective governance and partnerships

- Improved collaboration between geospatial and thematic communities based on meeting
  a defined need using geospatial standards and technology
- Effective precursor to implementations in other countries

Return on investment

- Tangible benefits to map providers and users in terms of reduced error rates (25% to 7% for speed limits), resulting in time savings
  for end users, while the cost has not changed
- Reduced effort in handling incremental updates compared to handling full datasets
- Minimal implementation costs for road authorities with mature road database

LESSONS LEARNED

- The implementations at the commercial map providers have highlighted the importance of having changes on the ground relayed to National Road Databases and to users as quickly and effectively as possible
- The investment done by commercial map providers to ensure a stable and fast data-chain all the way to end users could motivate road authorities across Europe to implement the TN-ITS standard, but to make this happen ~~a~~ coordination of the standardisation efforts and EU funding are essential
- The policy applied to the data from public authorities should be clarified, both for data deriving from road authorities and mapping agencies, to let the commercial map providers reuse and enrich public data. In return, commercial map providers could feed back to public road authorities added value data, thus maximising the social benefits of the whole chain
- INSPIRE can be valid framework for harmonising Transport Network spatial representations in digital maps across Europe, but it should be extended appropriately through dedicated standards, such as TN-ITS, and put in the context of wider ITS standardisation efforts

NEXT STEPS

- Exchange of incremental updates for other road attributes on top of those implemented in the Transportation Pilot, and for additional attributes as required by the Annexes of the delegated acts
- Take-up of the ITS Directive provisions in terms of digital maps in EU countries that have less mature national road databases: they can use the databases set up to comply with the INSPIRE Directive
- Clarification of the licensing conditions applied to the data needed for TN-ITS data exchange
- Test the possibility to change the linear referencing requirements in the INSPIRE Technical Specifications, including interpolative measures and map-based location referencing as an option
- Analysis of the possible improvement of data flows between a wider range of actors involved in road traffic management, considering both dynamic and static data and involving processes such as roadworks, accident management, traffic congestion etc.
- Analysis of opportunities related to the use of open mapping platforms, in coordination with the authoritative data from National Road Authorities and Mapping Agencies, thus promoting transparency and openness, and supporting potential growth opportunities

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