XVI WORLD WINTER SERVICE AND ROAD RESILIENCE CONGRESS
CALGARY, CANADA - 7-11 FEBRUARY 2022

Session Report

Date: 10/02/2022
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TECHNICAL SESSION SP1, TITLE: ROAD RELATED DATA AND HOW TO USE IT
THURSDAY FEBRUARY 10TH, 9.45 AM TO 11.15 AM

1. KEYWORDS

Data, infrastructure, road users, technology, road maintenance, road operations, digitalization, road administrations, special project, business model, case studies, recommendations.

2. PRESENTATION OF THE SESSION

The management of road infrastructure has been experiencing major changes over the past decade, mostly due to the increased demand from road users, the increased deterioration of road infrastructure and from the evolution of user expectations. In addition, new challenges such as climate change and emerging (and potentially disruptive) technologies and service models are changing supply and demand dimensions as well as offering data collection and analytics capability in their own right. This has led to a need for the use of emerging state-of-the-art technologies to collect and process relevant data in order to facilitate the maintenance and management of the road network while providing smooth and stress-free journeys to road users.

This PIARC Special Project has confirmed that the pressures on road administrations in terms of increasing demand and expectations continue to grow, and current international disruption following the emergence of Covid-19 means that there are likely to be more challenges to deal with in the short-to-medium term. It was clear from the findings that there is great interest and appetite in the potential for data to help with this, and there are already excellent examples of global good practice.

The session will provide recommendations with a clear framework for road administrations to systematically compare their current practices and develop tailored action plans. They will be completed with some national case studies about how to deliver better services through smarter use of data.

The relevant report is available here: https://www.piarc.org/en/order-library/34599-en-Road%20Related%20Data%20and%20How%20to%20Use%20it

3. PROGRAMME OF THE SESSION

Session Chair: Brian Brotsos, FHWA, USA
Session Organiser: Miguel Caso Flórez
Session Secretaries: Brian Brotsos, FHWA, USA & John Paterson, Atkins, UK

Person	Organisation, Position…	Title of the presentation
Brian Brotsos	FHWA, Chief Data Officer, Session Chair	Welcome and Session introduction
Miguel Caso Florez	PIARC, Technical Director	Introduction to PIARC Special Project "Road

		Related Data and how to use it"
John Paterson	Atkins, Technical Director	Major findings of the PIARC Special Project "Road Related Data and how to use it"
Brian Brotsos	FHWA, Chief Data Officer	Case study – US
Miguel Caso Florez	PIARC, Technical Director	Case study – Netherlands
John Paterson	Atkins, Technical Director	Case study – UK
Moderated by Brian Brotsos	FHWA, Chief Data Officer	Questions and Answers
Brian Brotsos	FHWA, Chief Data Officer	Conclusions

4. TECHNICAL FINDINGS AND DEBATE

The presentation on the Special Project outlined the background and objectives of the work, with a summary of the literature review and global survey, plus a more detailed review of the business model analysis and recommendations.

The US case study covered a data analytics initiative leveraging current employees within FHWA, that aimed to improve data automation to support decision making, upskill existing data specialists across the agency, support special data integration/assimilation projects and improve statistics and data analysis skills across the agency. The pilot of the initiative has been successful and built a greater culture around data as well as developing technical capability.

The Netherlands case study presented the findings from the "deep dive" with Rijkwaterstaat (responsible for maintaining and improving the Netherlands' trunk road network), RAI Association (representing the vehicle industry in the Netherlands with a strong focus on the mobility sector) and National Data Warehouse (NDW): the national access point for traffic data in the Netherlands – note in 2020, National Data Warehouse became National Road Traffic Data Portal (Nationaal Dataportaal Wegverkeer)).

The UK case study covered a project undertaken by Atkins and Accent on behalf of Connect Plus and Connect Plus Services, related to customer experience of different surface treatment on the M25 DBFO. The work utilised relatively inexpensive "consumer technology" plus innovative use of analytics and visualisation, and has been recognised through industry awards.

The Q&A session provided the following discussion:
- Did the study identify any examples of using data to help vulnerable users?
  - Yes, an example of Strava app in the Netherlands linking into "smart traffic signals" for cyclists.
  - Separately, the potential applications of using data should provide many opportunities for the second decade of action for road safety.

- What skills are required to engaged with 3rd parties around sharing data?
  - Collaboration is just as important as technical and commercial skills, to create a "win win" scenario. Road administrations can bring significant value to the table, rather than just in need of data from others.
  - US example of some Government funding for technology innovation including requirements to make data available and open.

- Is there a risk of pushback from staff, "not invented here syndrome"?
  - TC1.1 finding of private v public sector, different risk appetite and acceptance of making mistakes in the quest for innovation, more appetite in private sector.
  - Where innovation is being trialled, this should be done in a safe environment to control risks of knock-on effects and thus reduce potential resistance from staff.

- Reduce fears of negative impacts on job security by communicating the benefits to individuals, e.g. helping them do their jobs even better.
- US example of many datasets already exist within road administration, but also expectation that 3rd party datasets can offer even more.

- How applicable are the findings to LMICs?
    - This is embedded within the DNA of PIARC, all products are designed to be applicable to all road administrations regardless of national income level.
    - South African example of innovation and inventiveness related to informal transport, using mobile technology to provide data and journey planning value to the public.
    - Investment in data and applying it can produce very good returns on investment, with scope to continue growing benefits from small scale trials.

- Any particular lessons from HICs?
    - UK examples include widespread adoption of using Artificial Intelligence to automate road condition data collection, and complement traditional survey techniques. Related to this, the Department for Transport is reviewing national data standards, to support innovation and encourage competition, whilst maintaining assurance around quality and consistency.
    - National Highways also recently published their Digital Roads Strategy that covers workstreams for design and construction, operations and customer, which is freely available online.

- How should road administrations consider cyber security?
    - Not covered in detail within the report, as a whole topic in itself. There was a separate session at the Winter Congress covering the subject.

One key lesson from that was the need to design security into systems from the start, e.g. avoid collecting unnecessary personal data to avoid data leaks, or build in automatic protections to CAV systems in case of hacks.

5. RECOMMENDATIONS FOR DECISION MAKERS, FOR PIARC OR FOR INTERNATIONAL ORGANISATIONS

The report of the Special Project outlines 24 recommendations – 20 for road administrations, based around the findings of the study and the business model sections, plus 4 for PIARC to support adoption and development of opportunities related to road data.

The presentation also highlighted four key "next steps" for the audience:
- Read – review the Executive Summary as a minimum, plus area / topics of interest to their road administration.
- Share – identify leaders within the road administration and then review relevant content in more detail.
- Think – consider data as a fundamental aspect of road services, now and in the future.

Act – develop an action plan, implement the recommendations and collaborate.

The report is available for free at https://www.piarc.org/en/order-library/34599-en-Road%20Related%20Data%20and%20How%20to%20Use%20it

6. PREPARATION OF THE SESSION

This session was planned, designed and organised as follows.

All the members of the Project Oversight Team (POT) of the PIARC Special Project "Road related data and how to use it" where invited to join the session and support to define the program. The Chair of the Session, Brian Brotsos a member of the POT, the leader of the selected consultant, John Paterson, and PIARC Technical Advisor, Miguel Caso Florez, participated in the Congress and prepared the session.