International Society for Weigh-In-Motion

Workshop Weigh-In-Motion for Enforcement 2018

Time + Date: 13:30 – 17:30, 22 March 2018,

Location: Intertraffic, Amsterdam RAI, Room D407

Participants: 7 speakers representing several types of stakeholders and more than 50 participants such as European policy makers, enforcement agencies, road owners, transport telematics, legal metrology and vendors of WIM systems.

Presentations:

1. Bernard Jacob (Vice President Science ISWIM); "Welcome and introduction". As chair of the workshop, he welcomed all participants and gave a short introduction of the International Society for Weigh-In-Motion and the purpose of the workshop.
2. Bernardo Martinez (EC/ DG-MOVE); "EU Legislation on on-board weighing equipment". He explained the goals and content of the revised Directive (EU) 2015/719 on weights and dimensions. By 2021, Member States must take measures to identify and penalize commercial heavy vehicles exceeding the maximum authorized weight. The directive does not prescribe the technology: on-board weighing equipment or weigh-in-motion or both. He explained the data transmission between different parts of a vehicle configuration and the communication with the equipment used by enforcement agencies. The next revision of the Directive should specify some threshold and minimum amount of measurements and reporting by the Member States. A harmonization of the penalties is expected, at least the categories of fines. Certified on-board WIM (OBW) systems should be used for self-control in a circle of trust. The OBW data should be exchanged by V2I communication with roadside WIM systems used for direct enforcement.
3. Chris Koniditsiotis (CEO, TCA), "National telematics framework and levels of assurance and on-board mass applications". He started his video presentation with an explanation of the aims and structure of the Australian national telematics framework. Followed by the different levels of assurance used for different ways of heavy vehicle mass management. He gave two examples of the way on-board mass data is used in the Australian Intelligent Access Program (IAP).
4. Gerard Schipper (General Delegate, ECR). "Technical enforcement solutions, challenges and good practices". His presentation included an overview of the road transport enforcement in Europe and the role WIM systems and on board weighing systems can play in future enforcement practices, above all direct enforcement.
5. Róbert Mikulás (Ministry of Nat. Development), "Hungarian High Speed Weigh-In-Motion network". The purpose, requirements and design of the network of 89 WIM sites (TSM) in Hungary (among them 62 are designed for direct enforcement, the 27 remaining for pre-selection) were described,

including the connection to internal and external databases of the Transport Authority and various other authorities. He explained the procedures for verification of the WIM stations and the calculation of fines based on the WIM measurements. The COST323 accuracy class A(5) is required for direct enforcement and the class B(10) for pre-selection. R. Mikulás reported that a total of 100 M€ was invested in this programme.

6. Steve Phillips (Secretary General, CEDR); "The EU Road Owners perspective on overloading". His first reminded that the road authorities do not control the traffic and overloads. He encouraged debate about the impact and control of inappropriate loading for the infrastructure and asked to assess the right impacts of overloading on road safety, road maintenance, environment, fair transport competition and multi-modality. He made clear that there are many technical and political aspects on overloading, making impossible to accurately assess the costs of overloading in Europe. He described the new challenges and opportunities of cooperative and automated driving, and of PBS (Performance Based Standards) and SIAP (Smart Infrastructure Access Programme) for heavy vehicle weight and dimensions regulation.
7. Hans van Loo (Corner Stone Int.) representing Cock Oosterman (Head Certification, NMi); "NMi international WIM standard". He presented the development, scope and content of the new proposed international WIM Standard. The three elements required for a successful implementation of WIM systems for direct enforcement and the different steps in the type approval procedure.
8. Victor Dolcemascolo (French Ministry of Transport, DGITM)' "French National Project: WIM for Direct Enforcement of Overloading". He gave an overview of the current situation of overloading and weight enforcement in France. Next, he described the 2 phase on-going National WIM project on direct enforcement, phase 1: feasibility study for marketed HS-WIM systems and phase 2: preparation of a type approval procedure and blank test of direct enforcement. The objective is to implement direct enforcement in France by 2021 as far as possible.

Panel Discussion.

At the end of the workshop a discussion was held between the audience and a panel consisting of: Bernard Jacob (moderator, ISWIM), Bernardo Martinez (EC/DG-MOVE), Steve Phillips (CEDR), Gerard Schipper (ECR), Piotr Burnos (AGH), Victor Dolcemascolo (DGITM), Hans van Loo (NMi). The following questions were discussed.

1. **How to mitigate load effects on road assets using WIM systems?**
   a. *How much does overloading cost in Europe, and how to evaluate these costs using WIM data?* Neither a single figure nor one unique calculation method can be given to assess these costs. There are many differences in road and bridge construction, traffic and environmental conditions between EU Member States. Moreover, it is difficult to allocate a percentage of road infrastructure damage induced specifically by overloading, among other actions such as the climatic actions (temperature, water effects, etc.). Then the question arises: "What exactly is considered as overloading?". This often depends on legal or regulatory rather than technical

limits. A given axle load may be considered as an overload for some type of vehicles and be legal for another, while the damage to the infrastructure remains the same.

b. *Which are the effects of overloads on road infrastructure and what is the benefit of using WIM systems?*
   As said above, both road managers and vendors of WIM systems are unable to provide a cost-benefit assessment of the implementation of WIM systems. The implementation cost is generally the easiest to estimate, while the benefits is mostly difficult to prove because of the lack of available and relevant references. CEDR and ISWIM can perhaps work together to set up a literature study on the effects of overloading on road infrastructure, based on reports and papers available in the CEDR countries.

c. *Which business model could be developed and implemented to support installation and maintenance of WIM systems for a more efficient road asset management?*
   The use of WIM has two benefits for the management of road infrastructure: (1) the reduction of overloading results in less damages, less maintenance, lower maintenance costs and fewer traffic jams; (2) a more accurate knowledge of the current traffic loads allows the reduction of safety margins in the design and use of road infrastructure. E.g. lighter and cheaper bridges may be constructed, or and load limits and lifetime may be increased without any additional construction or reinforcement costs.

2. What is the impact of overloads on road freight transport, and how to ensure a fair competition in the single EU market?

a. *How does overloading bias the fair competition and how much does overloading cost considering the impact on unfair competition in road transport?*
   When overloading is detected for vehicles of a certain transport company, the experience has shown that this is often an indication for enforcement agencies that other regulations are also violated by this company. Thus, it leads to additional and closer inspections in this company. Moreover, the benefit margin of road transport companies is rather low in the EU, which makes overloads quite profitable if not fined.

b. *Which are the impacts of overloading on road transport business?*
   It is reported that an estimate was provided in France, showing that a 5-axle articulated (semi-trailer) lorry circulating with 20% overload all along the year may gain 25 to 30,000 € per year. With the current rate of legal checks (in static), a single truck is in average controlled once every 10 years, and an average (high) fine (for 20% overloading on the GVW) is in the range of 1,000 €. These figures prove the need to implement a more efficient enforcement system by WIM.

c. *How to mitigate these negative effects to ensure a fair competition and compliance in the EU market?*
   The directive2015/719 on weights and dimensions specifies the measures to be implemented by the EU member states by 2021 for enforcement. However it does neither state how this must be done, nor how much/often, nor what technology should be used. The measures may be implemented using on-board weighing, or roadside WIM, or both.

3. **What is the future of WIM for direct weight enforcement?**
   a. *How to ensure the implementation of the weight controls required by the Directive from the Member States?*
      It became clear that most consider on-board weighing and roadside WIM as complementary technologies. The combination of measurements from both types of weighing technology can be used to improve the accuracy and reliability of the measurements, e.g. by mutual calibration or use in data quality controls systems.
   b. *Are the enforcement agencies ready, the technology mature and the standardization strong enough to implement direct enforcement?*
      Direct enforcement using WIM will not be a 'magic' solution that will resolve all overloading problems. However, it will be able to control the large bulk of the road transport in an efficient way allowing the enforcement agencies to allocate their limited human resources to specific parts of the overloading problem, e.g. small delivery vans.
      The situation is not the same in each Member State. The Czech Republic already implemented direct enforcement by WIM. Hungary seems being ready to do the same. France is planning to do that but still working on the assessment of the accuracy and reliability of the whole system, and preparing the certification procedure of the WIM system by the Legal Metrology. Poland is interested, but does not believe that the technology is mature enough. In the Netherlands, issues were encountered with the pre-selection WIM network because of unstable soils and pavement foundations, therefore it is not planned to switch to direct enforcement.

Notes written by Hans van Loo and Bernard Jacob.