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Reaching the goal within (and despite of) the TSI environment

By using the example of a freight wagon

TSI stands for “Technical Specification of Interoperability”. The European Union (EU) wants to promote the cross-border rail traffic. For the realisation of this goal, requirements for part systems such as the product freight wagon must be set-up and checked. The goal is to replace the numerous national approval regulations by the TSIs so that a vehicle will be granted approval for the entire “trans-European network” (TEN network) after only one test. We are currently in a transitional stage where both legally binding TSIs and national approval regulations apply. For many types of freight wagons we have reached today again the state of the RIV-agreement (RIV: Regolamento Internazionale dei Veicoli), which enabled international traffic with only a single approval process. But this is not the case for all freight wagons and for sure not for other rolling stock types as coaches and locomotives.

TSI

A TSI is drawn up on the initiative of the EU to replace the national approval regulations. Such TSIs are legislative acts. Therefore, there are no tolerances whatsoever and formal requirements are more important than technical requirements in practice. Regulations valid so far such as the RIV will be replaced for political reasons since such regulations were agreements concluded between individual operators. Such Agreements date back to a time when approval of the vehicles was still done by such railway operators. Due to the change of the approval sovereignty from the railway operators to the states and due to the politically requested “free access” within the EU, it was found necessary by the union to create a European regulation for vehicle approvals.

The parallel existence of the “old world”, with the national approval authorities, and the “new world”, with the verification of compliance performed by so-called „Notified Bodies“, results in a multiplication of interfaces during the approval process.

For the approval of a freight wagon, today the requirements of the specifications TSI CR Wagon and TSI CR Noise must be met. CR stands for “conventional rail” and refers to all railway vehicles other than high-speed vehicles.

Modules

The approval process according to a TSI is modularised. Thus, approval can be done by passing through several modules while having certain options. As for freight wagons, mainly the modules SB and SD are used.

The module SB describes the design type test. After successful completion of this test, an EC design type certificate is issued for the vehicle type (design type) by the Notified Body .

Quality assurance during production is described by the SD module. It ensures that every vehicle of the series is identical to the vehicle submitted to the design type test. An EC certificate of conformity is issued to the vehicle manufacturer by the notified body for the wagon upon successful completion of the test. By means of these two certificates, the freight wagon manufacturer, can apply for an operating license at the approval office (typically a state office) by submitting a declaration of conformity issued by himself.

Objective

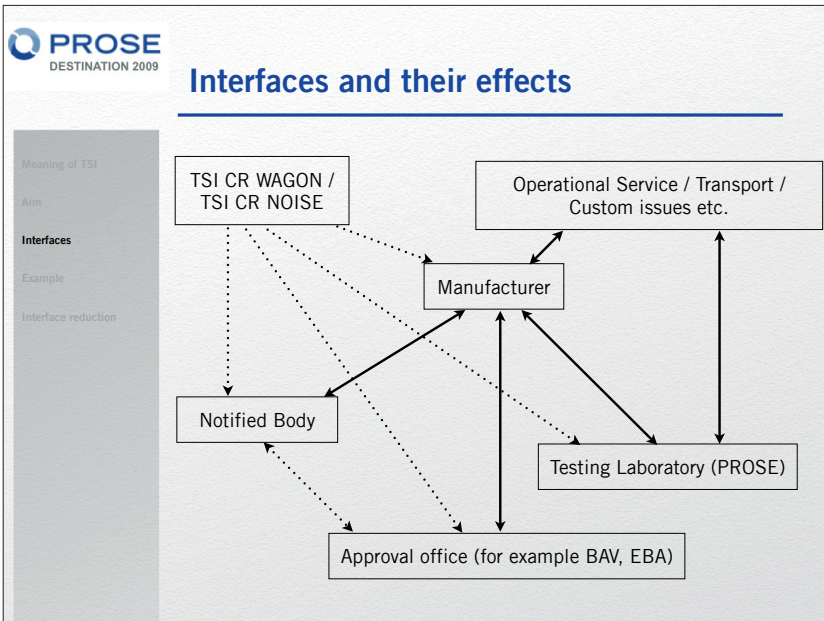
The original idea was that the notified bodies perform the tests on their own and issue the EC certificates. Thus, the manufacturer would be able to take all necessary steps with the help of a single contact person in order to obtain an operating license.

Interfaces and their impacts

Reality is more like in the picture on the following page.

The TSI, in this case TSI CR Wagon and TSI CR Noise, put requirements on the manufacturer who tries to meet these requirements already during design and production. Once the manufacturer wants to have its product approved, in this case the freight wagon, it contacts the test centre and the notified body. Together with the test centre, the manufacturer draws up a testing specification which meets the requirements of the TSI and possible national requirements.

Both the manufacturer and the test centre organise operation during the tests, required transports and, if need be, required customs handlings for the approval tests.



After the approval tests, the test reports are sent to the manufacturer who will forward them to the notified body. Following possible corrections which are communicated via the manufacturer to the test centre, the manufacturer will receive the certificate by means of which he can apply for an operating license at the approval office.

Course of action: approval at PROSE

In order to reduce the interfaces for our customers, it is possible at PROSE to have both the preparation of the test specification and the operation with transports and possible customs handlings carried out by PROSE. Therefore, the manufacturer is no longer required to check the test specification against the TSI and to organise the operation before, during and directly after the field tests.

Reference project

Ateliers d'Orval as a customer of PROSE wanted to have a Tanoos cement wagon tested according to TSI CR Noise regarding noise and TSI CR Wagon regarding braking power.

All work in relation to the performance of the test starting with the takeover of the vehicle until it's return to the client was organized completely by PROSE.

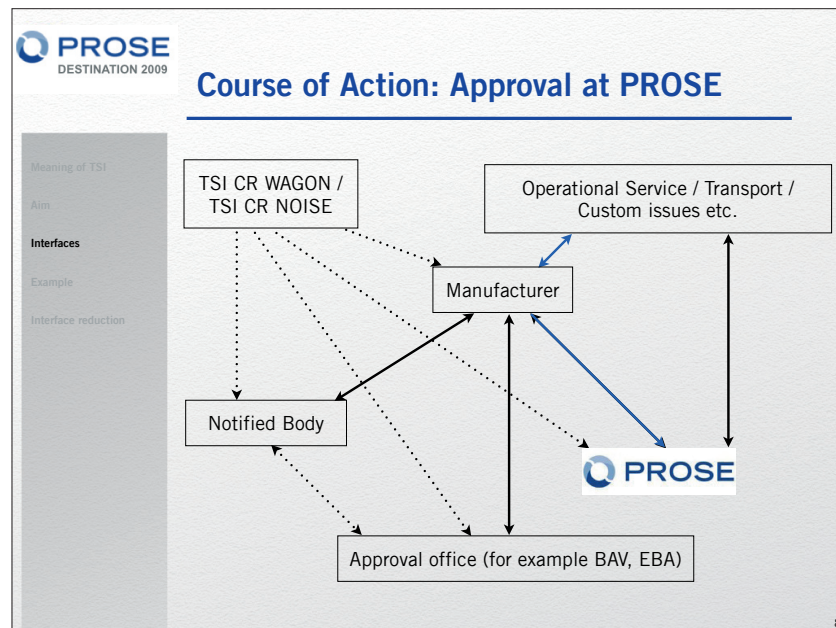
Requirements of TSI

The vehicle has met the requirements of TSI CR Noise and TSI CR Wagon. The respective reports could be handed over to our customer after completion of the tests.

In this case, the test reports have been reviewed by a French Notified Body.

Reduction of interfaces

Testing the freight wagon of the company Ateliers d'Orval has been performed according to the following scheme.



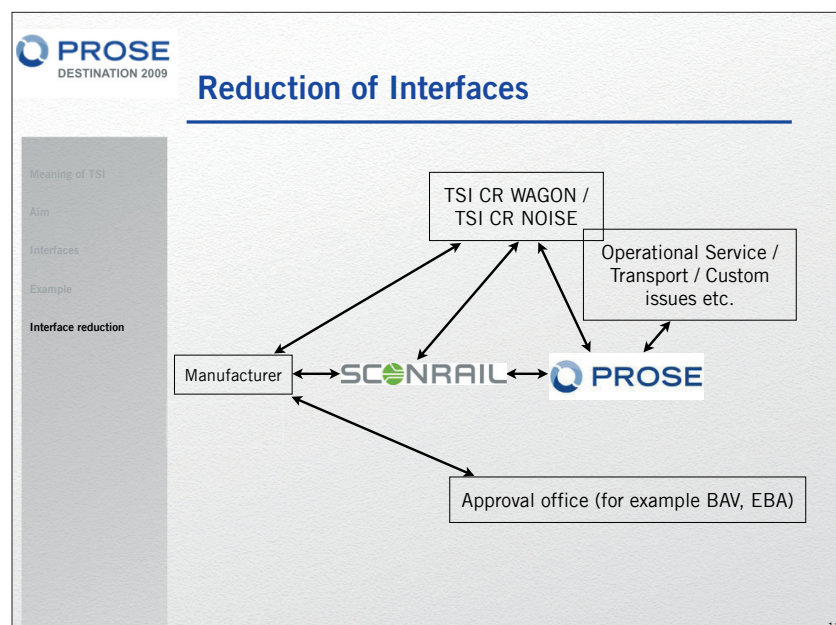
Questions and remarks of the Notified Body regarding the test reports were posed via the manufacturer to PROSE. Thus a review of a report took approximately 2 to 3 weeks, although only small things had to be changed.

Isn't it possible to further reduce the interfaces?

The original idea behind the directives was that the notified bodies perform tests on their own (see below).

With support of its partner SCORAIL, PROSE can offer you a solution which comes very close to this original idea.

The manufacturer directly contacts the Notified Body (SCORAIL) which commissions the accredited testing laboratory (PROSE). SCORAIL and PROSE jointly prepare a test specification while the operational aspects are organised by PROSE.



The test reports can directly be reviewed with SCORAIL and can, therefore, be completed as soon as possible. The manufacturer receives the EC certificates in due time and can apply for the operational approval at the approval office shortly after the tests.

Customer advantage

Due to the reduction of interfaces, unnecessary organisation efforts on the part of the manufacturer can straightaway be eliminated. Both the test specifications and the test reports meet the requirements of the notified body (SCORAIL) since all aspects can directly be agreed upon with the test centre (PROSE).

All this accelerates the approval process and, therefore, reduces the overall expenses for the approval for our customers.

Summary

Within the European Union, TSI is a legislative act. This is one of the reasons why the approval tests became quite complex. A technical considerations of the contents of the tests and test reports is not enough. Formal considerations became even dominant.

The TSI process have led to approval processes with a multitude of interfaces. PROSE and SCORAIL have established a collaboration following the initial idea of the TSI, which simplifies the process by largely reducing the number of interfaces. This leads to a much smaller throughput time and the risks of the homologation are being reduced. Last but not least this approach comes close to the initial idea of the European homologation process.