

Activity A1: “State of the art” of Control instruments for automotive eSecurity

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Why are control instruments needed?

In order to ensure a minimum standard of automotive security and reliability of the systems, it is necessary to integrate a control mechanism.

Should the security mechanism itself fail, it should secondarily be possible to prove that the system has been tapped. This can only be achieved over control mechanisms.

Consequently control is an important issue in terms of security.

Existing control instruments in transport:

- **Homologation**
- **Periodical technical inspection**
- **Service inspection**
- **Random survey (spot check e.g. by police)**
- **Indirect impact on security development e.g. consumer information**

Existing control instruments in transport

- **Homologation**

Vehicles must obtain a type approval before they are admitted to road traffic. However, so far security of electronic systems is not subject to the type approval. The type approval-procedure could be the basis for an uniform minimal standard of security and further control mechanisms in terms of automotive security.

Existing control instruments in transport

- **Periodical technical inspection**

In EU-countries a periodical inspection of vehicles is mandatory. In Germany this inspection is taken out by authorised vehicle inspection organisations (e.g. DEKRA, TÜV, ...).

Since the 1st April 2006 the inspection of electronic systems according to EG96/96 has been established within the periodical inspection. Currently in Germany a vehicle system database, called FSD ("Fahrzeugsystem-datenbank"), is being created that will assist the inspector with technical information of the specific vehicle.

Here security controlling might be located.

Existing control instruments in transport

- **Service inspection**

The service inspection is another opportunity to check eSecurity functions. Normally the service for a vehicle check and an oil change is necessary after a certain time or mileage. The inspection is offered by garages of the manufacturer as well as “free” non-brand garages. Today already, garages do not only examine the wear parts (e.g. brakes) but also electronic systems in terms (e.g. error memory). In future it should be possible to integrate further routines to survey the security mechanism of vehicles.

However, it must be considered that the service inspection is optional and not mandatory so it does not sufficiently cover all security aspects of all vehicles.

Existing control instruments in transport

- **Random survey (spot check)**

Spot checks are taken out by the police or customs. In Germany heavy duty vehicles, that are obliged to pay road charge are furthermore monitored by the "Bundesamt für Güterverkehr (BAG)". Some parts of heavy duty vehicles can even be controlled by the electronic infrastructure of the toll collect system.

In spite of these possibilities for surveillance, it is difficult to detect security problems. This is e.g. due to legal requirements for police controls and in case of controls the lack of technical equipment and knowledge which makes it complicated or even impossible to prove system-security.

Existing control instruments in transport

- **Indirect impact**

Apart from type approval, consumer information tests exist (e.g. Euro NCAP), which have strong indirect influence on vehicles development. Mostly the requirements here are far higher than corresponding legal demands. This is due to the influence of consumer tests on customer expectations and market competition. The manufacturers target will usually be to fulfil these (higher) demands.

Therefore consumer information tests can indirectly take positive influence on the security architecture of vehicles beyond possible future legal demands.

Anything to amend from your point of view?

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