

France views following GRVA workshop on scenarios – 1-3 July 2024

This paper proposes a contribution of French experts in order to clarify the potential objectives and needs for a “common scenario catalogue”. This paper refers, as a starting point, to relevant recommendations set in GRVA 18-50, related to the scenario approach (cf. below) and builds on exchanges during the GRVA workshops on scenarios held in Paris 6-7 May and London 1-3 July, 2024.

1. *Potential value-added of (international) scenario sharing*

The “scenario approach” covers methodologies, principles and practices in scenario generation (including feed-back from ISMR or other sources, e.g. accidents), scenario selection and use in different validation pillars (NATM). In UNECE-GRVA 18-50, main provisions on scenario approach can be summarized under the following main headlines:

- Assess coverage (of a scenario approach of a given ADS / ODD / manufacturer)
- Assess behavioral safety in a selection of scenarios within ODD description
- To do so, allocate scenarios to NATM pillars according to their features
- Feed catalogues by in-monitoring relevant feed-backs, and the whole ADS community of major ADS accident/incidents

From the point of view of a “regulator” (including type-approval authorities or independent assessors activities), potential value-added of sharing scenario approaches would be as follows:

- A. Help **assess coverage**: the underlying rationale is that national scenario approaches are very likely to benefit one from the others, especially in the early stages of validation, where systems / ODDs won't be diverse enough to generate sufficient coverage. Methodology for public authorities to assess coverage is still under development: it may later be based on metrics, but it is likely that the first applications will be based on a scenario generation process, producing a diversity of scenarios to challenge manufacturers' scenario space within the ODD, with external references.
- B. Help **manage transferability** of scenarios: transferability refers here to various related dimensions : how to use a scenario meant to be within an ODD in a different ODD ; how to use a scenario attached to given ADS competencies (responses) to a different ADS ; how to use a scenario in a different region / country (e.g. differ traffic rules or signage) ; without going to the strongest concept of “mutual recognition”, mutual understanding of what is specific or generic to various systems / ODDs / region is likely to help authorities find the right balance between generic scenarios, and more specific ones.
- C. Help manage **allocation of scenarios according to the relevant NATM pillars** (namely track tests, open road or simulation): considering how other authorities have balanced the use of different NATM pillars to assess a manufacturer's scenario approach, is likely to favor common practices, without imposing common rules (especially under self-certification and type-approval practices)
- D. Help **optimize the ISMR process**, to feed the scenario approach with new unknown scenarios (e.g. from accidents, in particular categorized according to their criticality i.e. death-rate): despite differences in systems / ODDs, it is likely that a scenario emerging from ISMR, would be of common interest, being new in a given part of the world reflecting a probability to be new for other regions.

Potential benefits to exchange on “approaches” (= methods, practices, catalogues or databases), seem much larger than setting a minimum common set of scenarios, at least at market uptake : differences among systems / ODDs are likely to be too large to easily identify intersections among systems and ODDs to extract a common list of parametrized scenarios, including pass / fail criteria.

2. *Thoughts for next steps*

Identified needs listed below advocate for benefiting from a diversity of national / regional scenario approaches / catalogues: this diversity of national scenario approaches would in particular (if

exchanges are fruitfully organized), help to better assess coverage of scenarios in a context of diversity of systems / ODDs, which is one of the most challenging task of regulators at least in the short-medium term (e.g. 2030). These exchanges of practices would in particular support generation of new scenarios, combining national / regional practices.

On the reverse, aiming at a unified catalogue or unique database of concrete scenarios might “freeze” the necessary expansion and documentation of scenario spaces during the first steps of regulation.

Searching for diversity and exchange of practices, at least in a first step, isn’t contradictory with GRVA 18-50, that underlines the need to “consolidate” scenarios in a catalogue. Consolidation would, in this respect, be an output of exchange of practices among national / regional regulators.

Exchanging on scenarios would probably start more efficiently if kept at functional levels, which is are likely to represent regulators’ “state-of-the-art” and to better match coverage needs in a first step. Exchanging on concrete scenarios is likely to be more and more useful and doable as scenario databases grow, allowing better distribution / exposure assessments and transferability of (parametrized) tests among regions / regulators

Searching for diversity and exchange of practices neither hinders the need for a common template to describe scenarios, with the main objective to aid authorities in determining which scenarios are appropriate for evaluating a particular ADS / ODD.

A step-by-step approach to share scenarios at international level could be articulated as follows:

- i. Refine public authorities’ needs, expectations and practices in scenario approaches
- ii. Harmonize scenarios description (including traceability and versioning)
- iii. Define criteriae for feeding a scenario catalogue (including from ISRM-detected events)
- iv. Define tools and governance to share scenarios at international level

In order to feed this phased approach follow-ups of the two GRVA scenario workshops could be :

- 1) **A regulators’ informal seminar on inception methods and practices** in the use of scenarios for validation: France is willing to convey this seminar in collaboration with EC/JRC
- 2) **A state of the art of existing scenario databases** produced by public and private organizations world-wide, with the main objective to identify commonalities, specificities and originalities between each piece of the state-of-the-art, including references, standards, catalogs, databases; France is proposing SystemX, which position has been set as “scientific neutral” in the French ecosystem, to participate to this “state-of-the-art”, which would in no way rank databases, but would, on the contrary, aim at benefiting from their diversity
- 3) **A continued work on descriptors**, based on GRVA 18-50 annex 4, in close link with the two previous tasks, in order to be aligned with regulators practices and public-private existing databases.

France would like to pursue these exchanges by organizing an informal discussion between interested public authorities, who are interested in continuing to share views on the needs of scenarios.

France takes advantage of this document to call for participants among public authorities to follow the discussion. The seminar is planned December 2nd (afternoon CET time, location to be defined).

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