



Commentary on Preparation Stage in the FESTA Methodology

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FOT-Net is a support action co-funded by the European Commission to network FOT activities at European, national and international level.

Research Questions

Address stakeholder issues

Examples:

- Is it good for:
 - Safety
 - Environment
 - Mobility
 - Traffic efficiency
- What is the usage of the system?
- How well is it accepted?

FESTA Handbook

Go from **function** description

to

Use cases

to

Research questions

to

Hypotheses

Definitions

Research question

A general question to be answered by compiling and testing related specific hypotheses

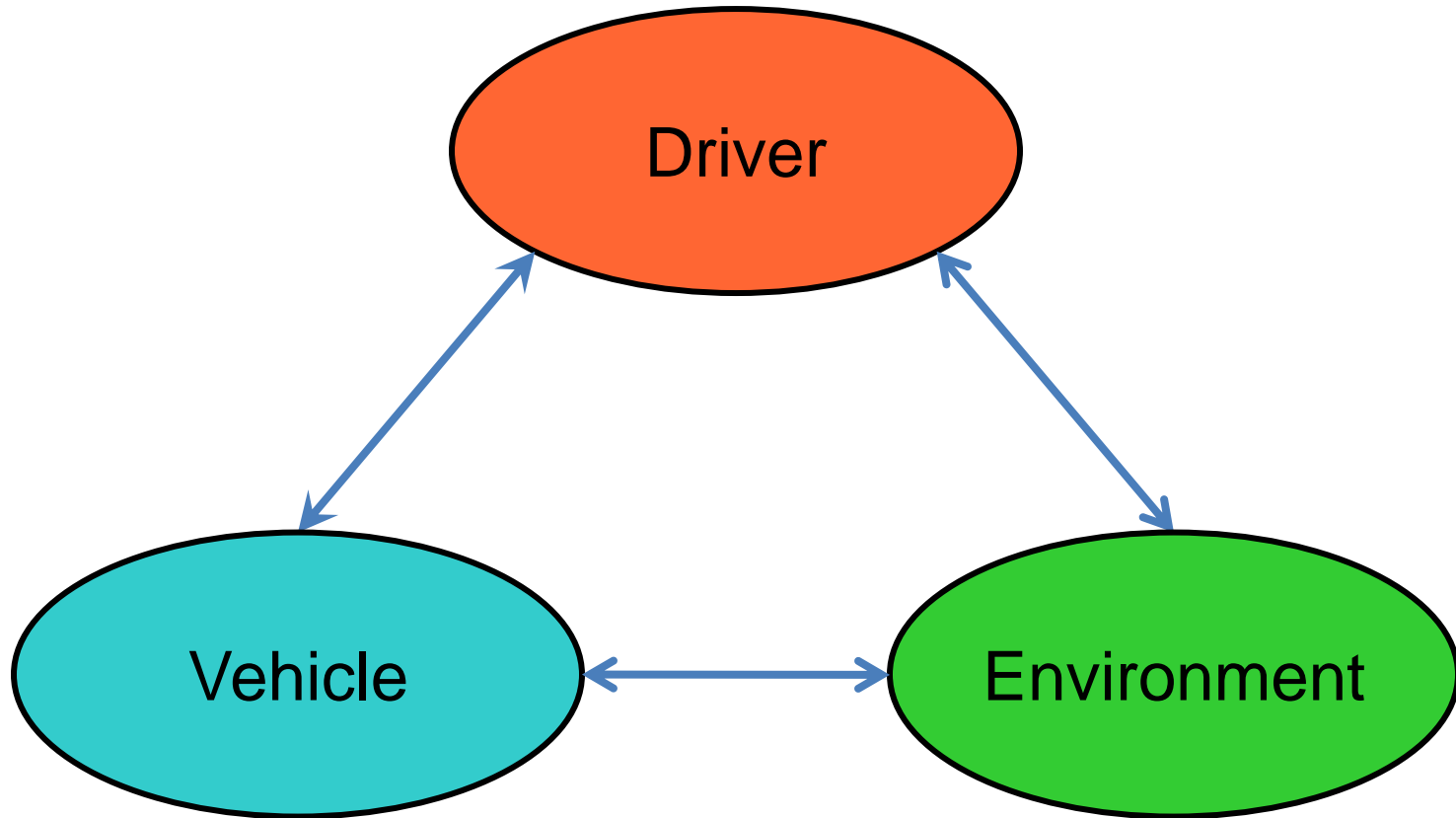
Hypothesis

A specific statement linking a cause to an effect and based on a mechanism linking the two. It is applied to one or more functions and can be tested with statistical means by analysing specific performance indicators in specific scenarios. A hypothesis is expected to predict the direction of the expected change.

FOTs: RQs and hypotheses?

- FOTs generally focus on changes in behaviour and hence safety, environment, and efficiency
- So we want to gain an understanding of **how** changes occur
- Hence the focus on FESTA on understanding the *mechanism*, i.e. the link between cause and effect

The focus of Naturalistic Driving Studies



NDSs: RQs and hypotheses?

- By contrast NDS focus more on broad understanding of safety and other relationships
- Thus on *why* problems occur (or do not occur) and how drivers manage in problematic situations
- So RQs (and sub-RQs) are the appropriate mechanism for study design

The generation of Research Questions on NDS

- The U.S. SHRP2 NDS has developed more than 400 high-priority RQs to be investigated (Boyle et al., 2012)

A typical RQ for NDS

- Why do young drivers have crash problems especially at night on sharp curves?
- Sub-questions:
 - Do they just drive too fast in general?
 - What is the role of passengers?
 - Do they brake too late?
 - Do they brake suddenly in the curve and hence lose control?
 - Do they have steering jerks?
 - Does it have something to do with curve visual layout, so that they fail to create the necessary safety margin?
 - What is the role of curve and nighttime driving experience?
 - Would ESC provide a solution?

RQs or hypotheses

- I would typify even the detailed questions that we are asking as sub-RQs rather than hypotheses
- In looking at influence of e.g.:
 - Age
 - Personality
 - Non-driving tasks

we are still more focussed on why problems occur and on how to maintain safe driving than on mechanisms

Performance indicators

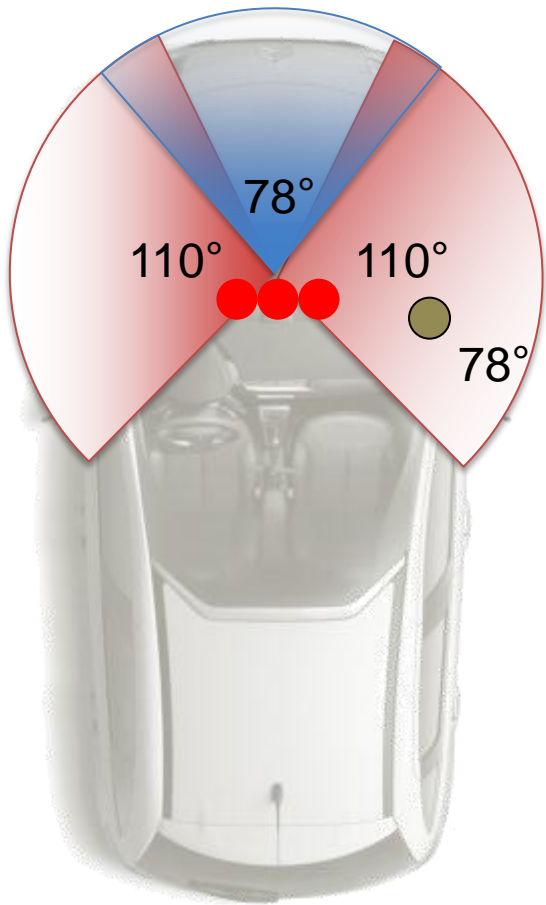
- Based on the chosen RQs and sub-RQs, we have to specify Performance Indicators and Measures, i.e. the data to be collected
- Then we have to use those Measures in designing the Data Acquisition System

DAS selection



- Finally we have to see what we can afford and decide which areas and RQs we have to cut back on
- That is one of the current UDRIVE problems

UDRIVE : One possible setup of forward cameras



Conclusions

- We need to revisit the definitions of RQs and hypotheses in the FESTA Handbook to make them appropriate for ND studies
- We almost certainly need extra text on developing and prioritising RQs and sub-RQs

Thank you for your attention!

More information or want to cooperate?

www.fot-net.eu

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