

Public Workshop “C-ITS Use Cases”

organised by CODECS

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Enabling a common understanding of use cases – a strategic issue in C-ITS deployment

Executive Summary

When it comes to the benefits road users will experience when cooperative Intelligent Transport Systems and Services will have entered European Roads, the term “Use Case” is frequently applied. What is a use case, and how does it differ from other terms often used in the same context, e. g. scenario, service or application? How can use cases be described systematically, and which actor is responsible for their definition?

The goal of the CODECS project is to enable a common understanding of Use Cases. For that reason the CODECS work package leaders organised a specific workshop on this topic on 26 September 2016 in Amsterdam. In the workshop, the project presented interim findings on use case definitions and descriptions. In the second part, the participants were invited to give insight into their understanding of use cases, and to contribute to comprehensive use case descriptions. In total more than 20 attendees participated in lively discussions during the workshop and gave their valuable input.

Introduction

The first part started with a general introduction of the CODECS project by Onno Tool (Rijkswaterstaat) and after that the stage was set by Paul Spaanderman (Paul's Consultancy B.V.) and Niels Andersen (Anemone Technology).



Paul Spaanderman gave an overview of the origin of the term "Use Case" and how it is used nowadays in ITS. He emphasized that with that many stakeholders in play, creating a common language is essential for the development of C-ITS. From the perspective of the road user, it should be a high priority to harmonise Use Cases to a certain level. A common language makes it also easier to discuss any differences with the stakeholders. Two definitions were introduced to the audience, applying the

term "Use Case" for generic aspects and "Scenario" for specific aspects.

- An "ITS Use Case" identifies a functional objective (goal) to reach. It clarifies the original situation, the objectives to achieve and the end situation and it recognises the general context in which this objective needs to be realised.
- For implementation a single "Use Case" may be supported by many different "Scenarios" (such as Business, Legal, Privacy, Implementation, Testing/Validation, Environmental, Operational and Life Cycle Scenarios).

An "ITS Scenario" is an implementation assuming a general context as may be provided by a "Use Case". It reveals a specific script, recipe, sequence of events or a process realising the aspect of the use case.



Niels Andersen introduced the Day 1 Use Cases, as published in the report of the EU C-ITS Deployment Platform early 2016. Several elements of these Use Cases were discussed with the participants and questions were answered. He continued with an overview of new possible Use Cases in the area of Public Transport, Vulnerable Road Users and Non Safety Issues.

The second part of the Workshop was dedicated to discuss general aspects of managing Use Cases as well to discuss specific Use Cases. For that reason Paul Spaanderman also introduced draft templates for Use Cases and Scenarios to start working on.

Several groups worked on different aspects:

Working with template on actual Use Cases



The intent for this group was to use the Use Case template and see whether it could be filled in this template based for the selected Use Case "Monitoring and Influencing Traffic Flow (Highway)". A fresh start was made which showed that it was not easy to write something as the proposed text opened up discussions about the definition of specific phrases of words and the template itself. It became very soon clear that the participants required more time to think about the specific Use Case. Work-

ing on an actual Use Case requires specific knowledge, experience and a certain level of knowledge about the ITS domain.

Besides these aspects it was also clear that some more clarification of the template itself was needed and time taken for this was appreciated. Feedback on the template provided at this workshop was gathered and resulted in an update of version 20160916 into version 20161101 after the meeting.

The breakout session was experienced as an interesting and learning opportunity by the participants.

It did not lead yet to a full description of the “Monitoring and Influencing Traffic Flow (Highway)” Use Case. And, as is the experience in specific other EU working groups, the description of a Use Case also requires extensive discussions amongst the involved stakeholders.

General elements in managing Use Cases



From the discussion it surfaced that the proposed distinction between Use Case and Scenario worked well, although it sometimes takes a good understanding.

It was suggested that instead of focussing on individual Use Case it was more applicable and workable to focus on bundles of Use Cases (e.g. Intersection Assistance Family of Use Cases: GLOSA, red light violation and others). Elements of several Scenarios might be the same for more than one Use Case and so do not need to be developed separately. Also, implementation might also benefit from constructing sensible bundles of Use Cases.

Looking forward to (partial) automation, it was seen as still very useful for all stakeholders to have a common understanding and definition of Use Cases and Scenarios.

Conclusion

The day was wrapped with an open discussion amongst the participants on managing Use Cases. The most interesting highlights:

- The presented distinction between Use Case and Scenario was recognised and acknowledged.
- The proposed template for Use Cases and Scenarios was appreciated and was of value during the discussions of the workshop.
- Good to actually work on a Use Case. Constructing a good Use Case and/or Scenario takes considerable time and needs the input and discussion from many stakeholders with respect to the goal of the Use Case and the boundaries set by the stakeholders. This should not be done overnight.
- Not all Use Cases do need to be worked on at the same time, priorities should be made. ITS is still a very young science, it takes years to mature although developments seem to go very fast around the world.
- A common understanding and managing of Use Case and Scenarios was considered to be necessary.

- Describing Use Cases and Scenarios goes from the strategic level, middle ground work to the level of standardisation. Although it is necessary to develop them on a national level, guidance and management from an EU level was mentioned.
- Continue the discussions on this strategic issue with all the stakeholders.

The CODECS team thanks all the participants for their cooperation and valuable thoughts during the day. It made clear that the governance and development of Use Cases and Scenarios will be a strategic issue in the upcoming years. The CODECS partners continue to work on this strategic issue and liaise with ongoing initiatives (Amsterdam Group, EU C-ITS Deployment Platform, CIMEC a.o.) and new initiatives like C-ROADS to make sure cooperation on Use Cases ensures a harmonised implementation of C-ITS.

Annexes:

- Presentations during the workshop
- Use Case Template CODECS 20160916
- Use Case Template CODECS 20161101