



Report on initial use case development

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Publishable Executive Summary

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1 Publishable Executive Summary

Cyber-Physical-Systems (CPS) provide the potential for vast economic and societal impact in domains such as automotive, health care and home automation. The open and cooperative nature of CPS poses a significant new challenge in assuring dependability. The DEIS project¹ addresses this important and unsolved challenge by developing technologies that enable a science of dependable system integration. A key innovation is the concept of the Digital Dependability Identity (DDI). A DDI contains all the information that uniquely describes the dependability characteristics of a CPS or CPS component. DDIs are used for the integration of components into systems during development as well as for the dynamic integration of systems into systems of systems in the field.

This deliverable provides a description of the different use cases and summarizes the enhancements and preliminary integration results performed during Year 1, considering the context of the four industrial use-cases. During the project, four use cases are considered: two for automotive, one for railway domain and one for healthcare.

From the automotive point of view, two separate use cases are analysed: (a) a stand-alone system for intelligent physiological parameter monitoring, focusing on the security aspects of the information generated, and (b) the driver simulator for automated driving functions, focusing on the impact of (cyber-) security threats impacting safety.

The railway use case focuses on the European Train Control System (ETCS): Today, the European railway domain has to cope with the challenging situation of heterogeneous systems of systems with different standards and system qualities (e.g. interoperability between train side and track side systems).

For the medical device domain, the primary goal is to demonstrate how the overall quality of the dependability assurance case will be improved by using the developed novel methods which will provide a better semantic integration of dependability information while allowing developers to work with heterogeneous tools.

¹ www.deis-project.eu