

<b>D.CVIS.6.1</b>	<b>Non-technical validation elements</b>
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<b>Abstract</b>	An exercise was carried out to identify issues related to non technical validation elements (NTVE's) expressing the deployability of CVIS. This work has been done using the intermediate results available from the various topics in the DEPN
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## Control sheet

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## Abbreviations and Definitions

<b>Abbreviation</b>	<b>Definition</b>
ADAS	Advanced Driver Assistance Systems
CVIS	Co-operative Vehicle Infrastructure Systems
DEPN	CVIS Deployment Enablers subproject
IP	Integrated Project
ITS	Intelligent Transport Systems
QoS	Quality of Service
TCO	Total Cost of Ownership
OEM	Original Equipment Manufacturer (meaning automotive manufacturers)
CAG	Core Architecture Group

## Executive Summary

The DEPN subproject of the CVIS integrated project (IP) is treating (in seven separate “topic groups”) some of the most significant non-technical issues for the development and deployment of cooperative vehicle-infrastructure systems. As part of the DEPN activities this early deliverable reports on an exercise to identify non-technical validation elements to be treated in the CVIS project validation process, mainly based on field trials at six test sites.

By their nature non-technical validation elements may not be evident or explicit. Besides, quite a few emerge from the environment (systems, organizations, regulations, policies, etc.) within which CVIS will operate in the future, and it is difficult to define them. The task for the various topic groups in DEPN was to envision the future CVIS world and identify the non-technical issues likely to arise in that world.

Validation of these requirements is likely to take the form inspection of meeting notes of interviews or discussion forums, with the validation elements as discussion topics.

This work is based on the interim results from the technical development activities in the various CVIS sub-projects.

# 1. Introduction

## 1.1. *Intended audience.*

As an early task of DEPN, an exercise was carried out to identify issues related to non technical validation elements expressing the deployability of CVIS. This work has been done using the intermediate results available from the various topics in the DEPN project.

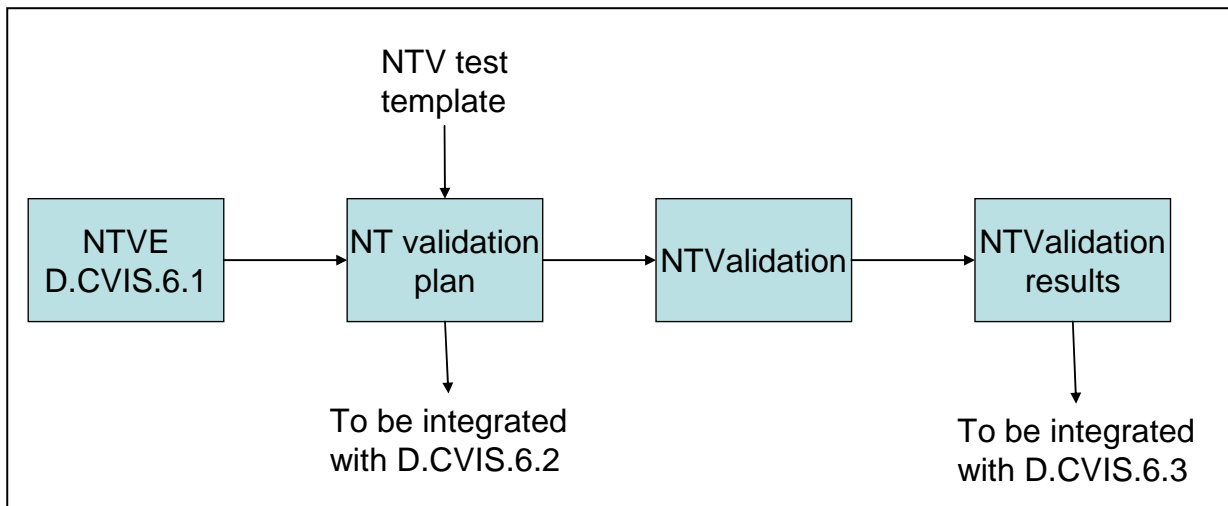
Its targeted audience are the DEPN topic leaders and all subproject leaders. Furthermore, the information is relevant for the core architecture group (CAG).

## 1.2. *Non technical validation process*

The CVIS project is developing a hardware and software reference platform to enable vehicle-to-vehicle and vehicle-to-infrastructure communication, and application software for a number of example test cases. The system design is based on user needs and system requirements already derived early in the project term. The hardware and software will be tested in six test sites across Europe.

The validation process is focused on the test site results. These will be mainly directed at the technical and functional evaluation of the system. However, for deploying the results of CVIS in the future, also non-technical constraints must be met. These constraints have been identified early in the DEPN project. This deliverable lists these identified non technical constraints for each topic. They serve as an input for the validation plan (D.CVIS.6.2) that defines the structure for the entire validation process.

The workflow of non technical validation is as follows:



Based on the NTVE, a validation plan for non technical activities will be specified. For this, a template is required. This template is already listed in paragraph 3. The consolidated non technical validation plan (for each topic) will be integrated with the overall validation plan: D.CVIS.6.2.

The test / inspections /questionnaires defined in the validation plan will be realized by DEPN.

The results will be handed to WP6 manager who will integrate it in the overall validation results document (D.CVIS.6.3).

### ***1.3. Objectives of this document.***

The intention of this deliverable (D.CVIS.6.1) is to specify a list of recommendations for all DEPN topics that will define enablers for smooth deployment (non-technical validation elements: NTVE). In the non-technical validation process, it will be identified how accurate these enablers were followed during the progress of the project.

The fact that an item is listed in D.CVIS.6.1 does not necessarily imply it should be implemented / organized during the CVIS project. Some elements can only be validated when the CVIS system reaches its full deployment, i.e. after the CVIS EU project. For matters of completeness, however, these elements are listed in the topic sections.

### ***1.4. Structure of this document.***

Chapter 2, describes the process for indentifying the non-technical validation plan. Chapter 3 lists all identified non-technical validation elements.

The conclusions and recommendations are given in chapter 4.

Although the intention of this document is not to supply a non technical validation PLAN (this will be included in D.CVIS.6.2, validation plan), the actual tests are also supplied in the ANNEX of this document, since it forms a logical unit with the non-technical validation elements.

## 2. The procedure followed in the compilation process

The compilation of non-technical issues into an inventory for validation has followed the individual topics of DEPN as follows:

- T2 – Openness and interoperability
- T3 – Safe, secure and fault-tolerant design
- T4 – Utility, usability and user acceptance
- T5 – Costs, benefits and business models
- T6 – Risk and liability
- T7 – CVIS and policy
- T8 – Deployment maps

Experts of the various topics have brought in issues according to their own expertise<sup>1</sup>. During this compilation process various perspectives were used, like End User, Authority and OEM. The issues that have been identified are expressed as a requirement. In this way they should input to and help guide the validation process, but are not intended as a rigorous addition to the validation methodology.

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<sup>1</sup> It is the intention to identify the most important issues for each topic. The overall result will never be a complete picture, but it is important that discussions around these issues are triggered. If later in the DEPN process it appears that important issues were missed, they will be included in a lessons-learned section in the validation results deliverable (D.CVIS.6.3).

### 3. CVIS Non-technical validation elements

This chapter lists the identified non-technical validation elements. Since this deliverable is meant to be a “short exercise” (see technical annex), it was decided to keep the descriptions of the issues short and simple (note that the output of the different DEPN topics will elaborate more on the different issues).

#### **3.1. T2 – Openness and interoperability**

The high and low level architectural design of CVIS must be such that:

- a. An end user can trust that CVIS will appear to be a performing system over the years, functioning as an extendable package of solutions for his ITS needs.
- b. An end user can expect CVIS to provide a service environment that allows the incorporation of extra services from any organisation that supports CVIS.
- c. An end user can use and access simultaneously multiple relevant services.
- d. An end user can add new services to the environment without disturbing the existing services.
- e. CVIS should be interoperable with legacy systems, safeguarding long-term investments.
- f. The overall CVIS infrastructure leaves an open and flexible way for information to be exchanged between stakeholders (typically being 'hosts')
- g. k. (new) There are open and published standards that enable oem and suppliers to enter CVIS supply chain
- h. m. An OEM will be capable of offering custom-made functions in addition to a CVIS compliant function.
- i. o. When developing CVIS components, an OEM will be free to use its own trusted field of development and the language it uses in that domain.
- j. p. When an OEM obtains CVIS components from other vendors, these will work directly (plug-and-play ).

#### **3.2. T3 – Safe, secure and fault-tolerant design**

The design must be deliberately and demonstrably such that an end-user can trust CVIS in safeguarding:

- a. the performance of the enabling technical platform in relation to the performance as required by the various services;
- b. the accuracy and precision of positioning data;
- c. the integrity of any measured data;
- d. its privacy;
- e. the integrity of the data as exchanged with other end-users;

- f. the trustworthiness of other end-users it is cooperating with by obliging any such end-user to identify, authenticate and authorize themselves appropriately (i.e according to the service requirements);
- g. the responsibilities of other end-users by making it hard not to say impossible to repudiate the outcome of a cooperation transaction, e.g. an emergency brake warning;
- h. that any cooperative activity not be disrupted by intruders;
- i. the continuity of both the enabling technical platform and the services by being able to withstand a complete service (application) interruption and invoke a subsequent recovery in the event of failure of physical components;
- j. the durability of both the enabling technical platform and the services by being able to withstand a partial or gradual degradation in service that would occur in the event of failure of some of the physical components of the distributed system;
- k. the recovery of both the enabling technical platform and the services by being able to recover from a complete service interruption with no additional manual effort;
- l. the consistency of both the enabling technical platform and the services by being able to realize the same results given the same data and processing criteria in any case.
- m. disrupting or distorting of the operation attraction by malign groups or individuals
- n. n.clarity about responsibility for system security
- o. o.the consequences of lapses in security
- p. An OEM will be capable of offering custom-made parts in addition to a CVIS compliant product.
- q. An OEM will not be obliged to obey requirements enforced by its competitors.
- r. When developing CVIS components, an OEM will be free to use its own trusted field of development and the language it uses in that domain.
- s. When an OEM obtains CVIS components from other vendors, these will work directly (plug-and-play ).

### ***3.3. T4 – Utility, usability and user acceptance***

- a. The end user can use all relevant information in an easy and logical way- No difficult instructions shall be needed. The interface should thereby not depend on the car type. (Clear human machine interface)
- b. the design must be such that when using CVIS the user will not be distracted from the main driving task in such way that dangerous situations might occur. (Situational awareness)
- c. the design must be such that when CVIS is not working properly or there is no information available users must be informed about this (high integrity of the system to improve trust in the system)
- d. it should have been taken care of in the architecture that during the transition phase towards a full scale CVIS system the end user should already see the benefits of the

system (Acceptance)

- e. an investigation must have been carried out whether CVIS systems will increase a driver's workload
- f. an investigation must have been made whether the stakeholders are prepared to pay for the CVIS equipment
- g. an investigation must have been made what price the driver is prepared to pay for CVIS services
- h. An OEM will be able to connect to the CVIS system easily and in a user-friendly way.

### ***3.4. T5 – Costs, benefits and business models***

- a. The CVIS system should produce benefits for congestion, throughput and emissions with respect to the present situation even in the case that people are stimulated to use their car more often. A reasoning and/or fact finding must have been done in this respect.
- b. an investigation must have been made what the current spending of stakeholders is on similar systems, e.g. road side equipment
- c. a discussion must have been held what could be the quick-wins with CVIS
- d. an investigation must have been made whether CVIS has the potential to become an environment in which commercial services are being operated
- e. an estimation must have been made what the total cost of CVIS would be if implemented in large scale across Europe
- f. an investigation must have been done as to what business models should be applied to put CVIS onto the market
- g. a discussion must have been held which tangible commercial benefits the stakeholders will have when implementing CVIS, and whether it will be measurable anyway
- h. an estimation must have been made what the pay-back period for CVIS will be
- i. an investigation must have been done what the initial cost for CVIS and the yearly maintenance cost will be. This should be measured according to the TCO (Total Cost of Ownership) model.
- j. an investigation must have been made what the (price) trends are in the technology and how CVIS can benefit from them
- k. a discussion must have been held what the additional commercial benefits are when CVIS is incorporated with other systems (tolling, navigation, eCall,...)
- l. contribution to a more open and competitive market
- m. CVIS gives an OEM better market opportunities
- n. influence on cost-effectiveness of delivering existing and future policy initiatives

### **3.5. T6 – Risk and liability**

- a. Have the external risks and threats to the safe deployment of the CVIS system and project Applications been researched and an inventory created, with mitigation strategies for the most significant risks?
- b. How were these risks monitored and by whom during the course of the project?
- c. Has the legal liability exposure of the Actors in the CVIS deployment and operational service chain been researched and mapped according to English law using selected Use Cases as scenarios?
- d. What has been the reaction of those Actors in relation to the liability exposure under a co-operative system, such as CVIS, as opposed to their current liability exposure - whether in respect of, for example, ADAS or as regards the way they normally conduct business.
- e. How has the legal liability mapping been structured during the project phase and have the results been taken into consideration by the technical sub-projects to ensure that each Actor only carries legal liability for what he can actually control technically?
- f. What measures might be put in place to limit the legal liabilities of Actors which have been identified as a consequence of this research?
- g. How could these measures be made applicable to and accessible by the range of different Actors involved in CVIS?
- h. What findings have been made in respect of the legal exposure of parties who certificate or otherwise attest to the compliance and efficacy of CVIS products/components and services and those who rely on their attestation?
- i. How has Topic 6 determined the insurability of the CVIS system and the Actors who are involved in its deployment?
- j. How would failure of the CVIS system, in whole or in part, be dealt with and what financial solutions could be put in place to effect such restoration?
- k. What legal issues have been considered?
- l. Have the results of the legal research provided any confidence that liability insurance for involvement in co-operative systems could be developed, if it is not currently available?
- m. What safeguards have been considered to prevent or minimise legal disputes as between different Actors within the CVIS system or if claims are made against the system by end users?
- n. What further work might need to be done on risks and liability before CVIS could be safely deployed?

### **3.6. T7 – CVIS and policy**

The following issues must have been discussed about effects of deploying CVIS:

- d. creation of additional hazards (e.g. driver distraction)
- e. undermining of existing policy initiatives
- f. influence on cost-effectiveness of delivering existing and future policy initiatives

- g. capacity to extend the performance/target of a policy initiative
- h. capacity to resolve a conflict between policies (e.g. safety and environment)

The following issues must have been discussed about viability of CVIS:

- k. sufficient support from other market sectors, e.g. communications, ICT
- m. The implementation of policies and regulations will be interoperable between different member states of the EU adhering to the CVIS concept.
- n. The CVIS system should be flexible enough to support policies of the various authorities in any country in Europe.

### **3.7. T8 – Deployment maps**

- a. The deployment of CVIS must likely be aligned with the apparent general changes in market perspectives for ICT. E.g. the following should have been considered:
  - Personal communication → new communication models
  - ICT services → ICT capabilities for the emerging needs and process innovation
  - Multimedia services → content through the broadband network
  - Universal service → Telephony over IP
  - IP interconnection between Operators for voice, data, video
  - Network Provider/ Service Provider separation
- b. CVIS has to support services responding to changes in transport market demand. E.g. topics should have been addressed like:
  - Evolution of the economical and regulatory framework
  - CO2 and global warming
  - Infrastructure charging
  - Oil prices
  - European competitiveness
- c. The availability of CVIS services should be sufficient and meeting the standards in the area of interest. In this respect discussions should have been taken place about e.g.:
  - Open interfaces
  - Third party applications

- Services provisioning
  - Service adaptation
  - Service design
- d. CVIS must take into account the evolution of opportunities of ICT. In this respect discussions should have been taken place about e.g.:
- Speed, Access, high/distributed storage capability
  - All IP network platforms with QoS guarantee
  - Adoption of IT technologies - Service Oriented Architecture
- e. The various deployment options must have been considered pertaining to local versus global aspects of CVIS, e.g.:
- Automotive industry addresses a global market but deployment will also include local perspectives tied to local infrastructure, actors and processes
- f. The balance of private and public CVIS services must be acceptable. Accordingly discussions should have been taken place about e.g.:
- Deployment of commercial services related to publicly operated services utilizing same service delivery architecture
- k. A discussion must have taken place about the viability of CVIS from the perspective of sufficient support from other market sectors, e.g. communications, ICT

## 4. Conclusions and recommendations

A compilation of non-technical validation issues have been given from a deployment perspective and from a viewpoint of various stakeholders in the CVIS world. How to validate that those issues risen have been properly addressed within CVIS will be part of D-CVIS-6.2, the CVIS Validation Plan (as an example, annex 1 contains the non-technical validation plan for topic 2).

By their nature non-technical validation elements (NTVE) may be difficult to relate to performance criteria, and even more to quantify those criteria. Consider for example the non-technical validation element “*An end user can trust CVIS in safeguarding the accuracy and precision of positioning data*”, formulated from the perspective of safe, secure and fault-tolerant design. Quantifying ‘end user trust’ in an objective way is not straightforward. Even more, different SPs will probably have different interpretations of ‘trust’. Having noticed that we recommend the following.

Non-technical validation elements listed may be conflicting with each other. This is not an error but is brought about by different interests of the various stakeholders, and reflects as such real life interest conflicts. To pass the validation well documented trade offs must have been made in case of such conflicts by the related CVIS subprojects.

During validation (in case of soft criteria) it must at least be clear and traceable in the documentation of the respective subprojects, be it meeting notes, architectural designs or any other (formal) document, how the relevant NTVE’s have been addressed, and whether this is sufficient according to the applicable validation criteria. In difficult cases it might be considered to be sufficient if a traceable, understandable rationale can be found in the subprojects documentation, proving that the NTVE has indeed been addressed.

## Annex: Non technical validation plan.

### TOPIC 2: Openness and interoperability non technical validation plan.

ID	Name	Description
NTVE_T2.a	Reliability	An end user can trust that CVIS will appear to be a performing system over the years, functioning as an extendable package of solutions for his ITS needs.
<b>Validation manner</b>	N.A.	Since this requirement can only be validated after the project has ended, it will not be validated during the CVIS project.

ID	Name	Description
NTVE_T2.b	Openness for organizations.	An end user can expect CVIS to provide a service environment that allows the incorporation of extra services from any organisation that supports CVIS.
<b>Validation manner</b>	o Test	This test will be implemented in FOAM technical validation, and is covered by test FOAM-OB2.
<b>Test description</b>	Service submission contest” for new CVIS applications in months 36. Application developers with best ideas will receive up to 25.000 funding from CVIS to develop within 3 months CVIS applications.	
<b>What to measure</b>	This application will be tested at least at one CVIS test sites using the CVIS reference platform.	
<b>Expected outcome</b>	Various innovative CVIS applications will be developed. Validation of FOAM SDK by application developers.	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NTVE_T2.c</b>	Interoperability for applications..	An end user can use and access simultaneously multiple relevant services.
<b>Validation manner</b>	○ Test	This test will be implemented in FOAM technical validation, and is covered by test FOAM-OB1.1 t.
<b>Test description</b>	CVIS applications and services can be developed, deployed and provisioned on an open end-to-end framework and run-time environment.	
<b>What to measure</b>	<p>Test of different applications (e.g. access control, dangerous goods in CF&amp;F) at one test site (e.g. Gothenburg).</p> <p>Tests of same application (access control) in different test sites (e.g. Gothenburg and Lyon) using core FOAM functionality.</p>	
<b>Expected outcome</b>	Deployment and provisioning of different application at one test site and of same applications in different test sites.	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NTVE_T2.d</b>	Openness	An end user can add new services to the environment without disturbing the existing services.
<b>Validation manner</b>	○ Test	Implement two applications, and assure that both applications are running in parallel.
<b>Test description</b>	A scenario will be developed where more than one application will run in parallel. The scenario will activate two major CINT applications (CTA and EDA).	
<b>What to measure</b>	The validation tests as described for CTA and EDA in parallel.	
<b>Expected outcome</b>	The outcome of the validation tests is identical with the outcome of the validation tests when run separately.	

ID	Name	Description
NTVE_T2.f	Interoperability with legacy systems.	CVIS should be interoperable with legacy systems, safeguarding long-term investments.
<b>Validation manner</b>	○ Test	Outside the scope of this project.

ID	Name	Description
NTVE_T2.g	Interoperability between stakeholders/hosts.	The overall CVIS infrastructure leaves an open and flexible way for information to be exchanged between stakeholders (typically being 'hosts')
<b>Validation manner</b>	○ Test	This test will be implemented in FOAM technical validation, and is covered by test FOAM OB1.2t.
<b>Test description</b>	<p>The DDS (Distributed Directory Service) provides a kind of yellow pages for the applications and services available in a geographic area.</p> <p>In an interurban scenario: a vehicle drives from Antwerp to Rotterdam. The DDS information will be provided from a gantry or on a rest area.</p> <p>In an urban scenario: A vehicle approaches an intersection, in four main phases: a) retrieval of services b) submission/registration to the service, c) notification of the service availability d) start of the service itself.</p>	
<b>What to measure</b>	Time for set-up connection, time for information exchange, data rate needed and other technical parameters.	
<b>Expected outcome</b>	CVIS infrastructure leaves an open and flexible way for information to be exchanged between stakeholders	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T2.k	Business accessibility.	There are open and published standards that enable oem and suppliers to enter CVIS supply chain.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	This test will be implemented in FOAM technical validation, and is covered by test D.CVIS3.2..
<b>Reference document</b>	D.CVIS3.2. (High Level Architecture)	
<b>What to look for</b>	A chapter containing mentioned standards.	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T2.m	Openness to custom made functions.	An OEM will be capable of offering custom-made functions in addition to a CVIS compliant function.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Test</li> </ul>	This test will be implemented in FOAM technical validation, and is covered by test FOAM-OB2.
<b>Test description</b>	Service submission contest” for new CVIS applications in months 36. Application developers with best ideas will receive up to 25.000 funding from CVIS to develop within 3 months CVIS applications.	
<b>What to measure</b>	This application will be tested at least at one CVIS test sites using the CVIS reference platform.	
<b>Expected outcome</b>	Various innovative CVIS applications will be developed. Validation of FOAM SDK by application developers.	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T2.o	Openness to development environment.	When developing CVIS components, an OEM will be free to use its own trusted field of development and the language it uses in that domain.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.3.3. Architecture and system specification.	
<b>What to look for</b>	Are interfaces properly specified, and is it specified how to use these interfaces for different languages.	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T2.p	Openness to hardware vendors	When an OEM obtains CVIS components from other vendors, these will work directly (plug-and-play ).
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Test</li> </ul>	Not in scope of the CVIS project.

**TOPIC 3: Safe secure and fault tolerant design non technical validation plan.**

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T3_a	Performance	The performance of the enabling technical platform in relation to the performance as required by the various services.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	

<b>Reference document</b>	D.CVIS.4.1 and D.CVIS.5.1
<b>What to look for</b>	<p>The performance requirements of the CVIS applications</p> <p>The performance characteristics of the CVIS Core technologies</p> <p>The match between the two (service and application requirements versus core technology characteristics).</p>

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T3_b	Accuracy & Precision	The accuracy and precision of positioning data.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.4.1 and D.CVIS.5.1	
<b>What to look for</b>	<p>The accuracy &amp; precision requirements of the CVIS applications</p> <p>The accuracy &amp; precision characteristics of the CVIS Core technologies</p> <p>The match between the two (service and application requirements versus core technology characteristics).</p>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T3_c	Accuracy & Precision	The integrity of any measured data.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.4.1 and D.CVIS.5.1	
<b>What to look for</b>	<p>The accuracy &amp; precision requirements of the CVIS applications</p> <p>The accuracy &amp; precision characteristics of the CVIS Core technologies</p> <p>The match between the two (service and application requirements versus core technology characteristics).</p>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T3_d	Privacy	The privacy protection while handling of personal and commercial data.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.3.4 and D.CVIS.4.1	
<b>What to look for</b>	<p>The accuracy &amp; precision requirements of the CVIS applications</p> <p>The accuracy &amp; precision characteristics of the CVIS Core technologies</p> <p>The match between the two (service and application requirements versus core technology characteristics).</p>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T3_e	Integrity	The integrity of the data as exchanged with other end-users
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.3.4 and D.CVIS.4.1	
<b>What to look for</b>	<p>The integrity requirements of the CVIS applications</p> <p>The integrity characteristics of the CVIS Core technologies</p> <p>The match between the two (service and application requirements versus core technology characteristics).</p>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T3_f	Trustworthiness	The trustworthiness of other end-users it is cooperating with by obliging any such end-user to identify, authenticate and authorize themselves appropriately (i.e according to the service requirements).
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.3.4 and D.CVIS.4.1	
<b>What to look for</b>	<p>The trustworthiness requirements of the CVIS applications</p> <p>The trustworthiness characteristics of the CVIS Core technologies</p> <p>The match between the two (service and application requirements versus core technology characteristics).</p>	

ID	Name	Description
NTVE_T3_g	Non- repudiation	The responsibilities of other end-users by making it hard not to say impossible to repudiate the outcome of a cooperation transaction, e.g. an emergency brake warning.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li style="padding-left: 20px;">○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.3.4 and D.CVIS.4.1	
<b>What to look for</b>	<p>The non-repudiation requirements of the CVIS applications</p> <p>The non-repudiation characteristics of the CVIS Core technologies</p> <p>The match between the two (service and application requirements versus core technology characteristics).</p>	

ID	Name	Description
NTVE_T3_h	Non-disruption of cooperation	The capability that none of the cooperative activity can be disrupted by intruders.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li style="padding-left: 20px;">○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.3.4 and D.CVIS.4.1	
<b>What to look for</b>	<p>The non-disruption of cooperation requirements of the CVIS applications</p> <p>The non-disruption of cooperation characteristics of the CVIS Core technologies</p> <p>The match between the two (service and application requirements versus core technology characteristics).</p>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T3_i	Continuity	The continuity of both the enabling technical platform and the services by being able to withstand a complete service (application) interruption and invoke a subsequent recovery in the event of failure of physical components.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.3.4 and D.CVIS.4.1	
<b>What to look for</b>	<p>The continuity requirements of the CVIS applications</p> <p>The continuity characteristics of the CVIS Core technologies</p> <p>The match between the two (service and application requirements versus core technology characteristics).</p>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T3_j	Durability	The durability of both the enabling technical platform and the services by being able to withstand a partial or gradual degradation in service that would occur in the event of failure of some of the physical components of the distributed system.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.3.4 and D.CVIS.4.1	
<b>What to look for</b>	<p>The durability requirements of the CVIS applications</p> <p>The durability characteristics of the CVIS Core technologies</p> <p>The match between the two (service and application requirements versus core technology characteristics).</p>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T3_k	Recovery	The recovery of both the enabling technical platform and the services by being able to recover from a complete service interruption with no additional manual effort.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li style="padding-left: 20px;">○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.3.4 and D.CVIS.4.1	
<b>What to look for</b>	<p>The recovery requirements of the CVIS applications</p> <p>The recovery characteristics of the CVIS Core technologies</p> <p>The match between the two (service and application requirements versus core technology characteristics).</p>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T3_1	Consistency	The consistency of both the enabling technical platform and the services by being able to realize the same results given the same data and processing criteria in any case.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li style="padding-left: 20px;">○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.3.4 and D.CVIS.4.1	
<b>What to look for</b>	<p>The consistency requirements of the CVIS applications</p> <p>The consistency characteristics of the CVIS Core technologies</p> <p>The match between the two (service and application requirements versus core technology characteristics).</p>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T3_m	Non-distortion of operations	The disrupting or distorting of the operation attraction by malign groups or individuals.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.3.4 and D.CVIS.4.1	
<b>What to look for</b>	<p>The non-distortion of operations requirements of the CVIS applications</p> <p>The non-distortion of operations characteristics of the CVIS Core technologies</p> <p>The match between the two (service and application requirements versus core technology characteristics).</p>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T3_n	Responsibility for system security.	The clarity about responsibility for system security.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.3.4 and D.CVIS.4.1	
<b>What to look for</b>	<p>The allocation of responsibilities for system security in the core technologies.</p> <p>The allocation of responsibilities for system security in the applications.</p> <p>Potential ambiguities and redundancies in allocation of these responsibilities.</p>	

ID	Name	Description
NTVE_T3_o	Security failure	The consequences of lapses in security.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.3.4 and D.CVIS.4.1	
<b>What to look for</b>	Lapses in security in CVIS. Potential consequences of these lapses.	

**TOPIC 4: Utility, usability and user acceptance non technical validation plan.**

ID	Name	Description
NTVE T4.a	Clear Human Machine Interface	The end user can use all relevant information in an easy and logical way. No difficult instructions shall be needed. The interface should thereby not depend on the car type.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.4.1	
<b>What to look for</b>	<p>It should be checked whether a HMI Requirement List for the design of CVIS applications was defined.</p> <p>This list should contain general HMI requirements, HMI requirements specified on the display use, display lay-out and audio.</p>	

ID	Name	Description
NTVE T4.b	Good Situational Awareness	The design must be such that when using CVIS the user will not be distracted from the main driving task in such

		way that dangerous situations might occur.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.4.1	
<b>What to look for</b>	The previous described HMI Requirement list should contain requirements that take good situational awareness into account. Furthermore, specific HMI design should be proposed for CVIS applications for good situational awareness.	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE T4.d	Acceptance of the system	The usability and the utility of the systems have to be examined. If the systems are not accepted, the driver will turn it off.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.4.1	
<b>What to look for</b>	The acceptance of the CVIS systems should have been investigated for a large group of potential users. Furthermore, the acceptance should have been investigated for a small group of potential users that have experienced a few of the CVIS systems in a driving simulator.	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<i>NTVE T4.e</i>	<i>Driver workload</i>	
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	The driver workload could affect the driving performance. A too high or too low workload might result in dangerous traffic situations.
<b>Reference document</b>	D.CVIS.4.1	

<b>What to look for</b>	An investigation must have been carried out whether CVIS systems will increase a driver's workload. During the previous described driving simulator acceptance study also the driver workload should have been considered.
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ID	Name	Description
NTVE T4.f	Prepare to pay for the system	An investigation must have been made whether the stakeholders are prepared to pay for the CVIS equipment.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.4.1	
<b>What to look for</b>	An investigation must have been made whether the stakeholders are prepared to pay for the CVIS equipment.	

ID	Name	Description
NTVE T4.g	Price of the system	To investigate what the CVIS applications are worth from the user perspective provides information about how much the applications are appreciated by the users and if the systems will be worth the effort with respect to return of investment.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	D.CVIS.4.1	
<b>What to look for</b>	An investigation must have been made how prepared the potential users are to pay for CVIS services.	

**TOPIC 5: Cost benefits and business models non technical validation plan.**

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T5a	Quick-Wins with CVIS	Overview of the quick-wins based on a discussion among the participants
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection               <ul style="list-style-type: none"> <li>○ Deliverable</li> </ul> </li> </ul>	
<b>Reference document</b>	End Report: CVIS Value Engineering, Business Models & Business cases	
<b>What to look for</b>	Listing of Quick Wins	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T5b	Potential environment for Commercial Services	An investigation whether CVIS has the potential to become an environment in which commercial services are being operated
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection               <ul style="list-style-type: none"> <li>○ Deliverable</li> </ul> </li> </ul>	Central question in the research is the commercial feasibility for services which can be deployed on the CVIS platform, and related to that if deploying the CVIS platform will trigger companies to deploy new services
<b>Reference document</b>	End Report: CVIS Value Engineering, Business Models & Business cases	
<b>What to look for</b>	Service profitability	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T5c	Business Model evaluation	What are applicable business models to put CVIS onto the market
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	Central question in the research is the find feasible business models for CVIS and the Services which can be deployed on the CVIS platform
<b>Reference document</b>	End Report: CVIS Value Engineering, Business Models & Business cases	
<b>What to look for</b>	Business Models	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T5d	Commercial benefits for stakeholders	What are the tangible commercial benefits for stakeholders after implementing CVIS, and whether it will be measurable anyway
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	End Report: CVIS Value Engineering, Business Models & Business cases	
<b>What to look for</b>	Commercial benefits for stakeholders	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T5e	Payback Period CVIS	An estimation of the pay-back period for the CVIS infrastructure
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	If possible on service level
<b>Reference document</b>	End Report: CVIS Value Engineering, Business Models & Business cases	
<b>What to look for</b>	Payback Period	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T5f	TCO CVIS	An investigation must have been done what the initial cost for CVIS and the yearly maintenance cost will be. This should be measured according to the TCO (Total Cost of Ownership) model.
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	End Report: CVIS Value Engineering, Business Models & Business cases	
<b>What to look for</b>	TCO	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T5g	Price trends	An investigation of the (price) trends in the technology and how CVIS can benefit from them
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	Price trends will be in the sensitivity analysis
<b>Reference document</b>	End Report: CVIS Value Engineering, Business Models & Business cases	
<b>What to look for</b>	Sensitivity analysis	

ID	Name	Description
NTVE_T5h	Additional commercial benefits	What are the additional commercial benefits when CVIS is incorporated with other systems (tolling, navigation, eCall,...)
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	So far they are come up in the research.
<b>Reference document</b>	End Report: CVIS Value Engineering, Business Models & Business cases	
<b>What to look for</b>	Commercial benefits / Benefits	

ID	Name	Description
NTVE_T5i	Business Model Definition	Definition of business models per service
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	End Report: CVIS Value Engineering, Business Models & Business cases	
<b>What to look for</b>	Business Models	

ID	Name	Description
NTVE_T5j	Stakeholders	Identification of stakeholders involved with the business models
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	End Report: CVIS Value Engineering, Business Models & Business cases	
<b>What to look for</b>	Stakeholders	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T5k	Business Model Flows	Identification and definition of flows within the business models
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	End Report: CVIS Value Engineering, Business Models & Business cases	
<b>What to look for</b>	Flows	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T5l	Business Model Modules	Definition of Business Model Modules, The building blocks of future business models
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	End Report: CVIS Value Engineering, Business Models & Business cases	
<b>What to look for</b>	Business Model Modules	

<b>ID</b>	<b>Name</b>	<b>Description</b>
NTVE_T5m	Profitability analysis	Financial validation on the level of an certain service and service module
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection</li> <li>○ Deliverable</li> </ul>	
<b>Reference document</b>	End Report: CVIS Value Engineering, Business Models & Business cases	
<b>What to look for</b>	Profitability analysis	

**TOPIC 6: Risk and liability non technical validation plan.**

ID	Name	Description
NTVE_T6.a	Research into the external risks and threats to the safe deployment of CVIS.	Have the external risks and threats to the safe deployment of the CVIS system and project Applications been researched and an inventory created, with mitigation strategies for the most significant risks?
<b>Validation manner</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> </ul>	
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• A methodology for creating the Inventory of External Risks and Threats</li> <li>• Definition of “a risk”</li> <li>• Rating tables used in the assessments</li> <li>• Inventory of External Risks and Threats</li> <li>• Inventory of Significant External Risks and Threats</li> </ul>	

ID	Name	Description
NTVE_T6.b	Monitoring methodology	How were these risks monitored and by whom during the course of the project?
<b>Validation manner</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> <li>• Input from ERTICO who is responsible for monitoring the risks</li> </ul>	It was felt important that, whilst the Technical Annex required only the creation of an Inventory of External Risks and Threats and mitigation strategies for the most significant risks, a programme to monitor the risks would also be beneficial to the project.
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• Changes in the risk profile of the significant risks identified in the Inventory of External Risks and Threats and/or the Inventory of Significant External Risks and Threats, as identified by the mitigation strategy owners within the CVIS project, as defined by ERTICO</li> <li>• Identification of additional significant risks to be added to the Inventory and/or the deletion of risks whose impact and severity on the project had reduced in significance.</li> <li>• A monitoring programme which requires regular updates of the risks contained in the Inventory and a regular reappraisal of the risk profile of the Inventory.</li> </ul>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NTVE_T6.c</b>	Mapping of legal liability exposure of CVIS Actors	Has the legal liability exposure of the Actors in the CVIS deployment and operational service chain been researched and mapped according to English law using selected Use Cases as scenarios?
<b>Validation manner</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> </ul>	
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• Methodology for analysing the legal liability of CVIS Actors based on chosen Use Case scenarios from each of the Application Sub-Projects.</li> </ul>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NTVE_T6.d</b>	Reaction of Actors related to their legal liability exposure associated with co-operative vehicle infrastructure systems	What has been the reaction of those Actors in relation to the liability exposure under a co-operative system, such as CVIS, as opposed to their current liability exposure – whether in respect of, for example, ADAS or as regards the way they normally conduct business?
<b>Validation manner</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> </ul>	
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• Evidence as to the gathering of information regarding the reaction of Actors to their legal liability exposure (for example, responses to questionnaires and outcomes of face-to-face interviews).</li> </ul>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NTVE_T6.e</b>	Structure of the legal liability mapping and consideration of the results by the technical sub-projects	How has the legal liability mapping been structured during the project phase and have the results been taken into consideration by the technical sub-projects to ensure that each Actor only carries legal liability for what he can actually control technically>
<b>Validation manner</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> </ul>	
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• Methodology used to structure the legal liability/responsibility mapping procedure, including examples using the Use Case scenarios</li> <li>• Contractual and non-contractual considerations</li> <li>• Contractual matrices</li> </ul>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NTVE_T6.f</b>	Liability management tools	What measures might be put in place to limit the legal liabilities of Actors which have been identified as a consequence of this research?
<b>Validation method</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> </ul>	
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• Suggestions as to how Actors might reduce their liability exposure, using insurance, alternative dispute resolution, model contracts and other potential tools to manage liabilities.</li> </ul>	

ID	Name	Description
NTVE_T6.g	Applicability of and access to these tools by Actors	How could these measures be made applicable to and accessible by the range of different Actors involved in CVIS?
<b>Validation method</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> </ul>	
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• Suggestions of ways in which Actors might limit their liability exposure</li> <li>• Reaction of Actors to these suggestions as a result of face-to-face interviews</li> </ul>	

ID	Name	Description
NTVE_T6.h	Legal liability exposure of parties who certificate or otherwise attest to the compliance	What findings have been made in respect of the legal exposure of parties who certificate or otherwise attest to the compliance and efficacy of CVIS products/components and services and those who rely on their attestation?
<b>Validation method</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> </ul>	
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• An understanding of how the CVIS project is dealing with certification, standardisation and validation and what impact this will have on Actor liability exposure</li> <li>• An understanding of who will undertake certification, standardisation and validation and whether this will be done by internal or external parties and what impact this will have on Actor liability exposure</li> <li>• An understanding of who will rely of such attestations</li> </ul>	

ID	Name	Description
<b>NTVE_T6.i</b>	Insurability of the system and Actors involved in its deployment	How has Topic 6 determined the insurability of the CVIS system and the Actors who are involved in its deployment?
<b>Validation method</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> </ul>	
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• Relevance of insurance</li> <li>• The role of insurance in the context of the CVIS business model</li> <li>• How claims will be dealt with</li> <li>• Whether the development of the system has been aligned with insurers' expectations and requirements</li> <li>• Actors' views on the role of insurance</li> <li>• The need for clarity on all these issues</li> </ul>	

ID	Name	Description
<b>NTVE_T6.j</b>	Restoration of the system	How would failure of the CVIS system, in whole or in part, be dealt with and what financial solutions could be put in place to effect such restoration?
<b>Validation method</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> </ul>	
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• Financing/insurance options to cover system breakdown</li> <li>• Technical backup and transparency of technical development to determine which parties were responsible for the breakdown</li> <li>• How Actors will deal with loss of service and communicate this to drivers</li> </ul>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NTVE_T6.k</b>	Legal issues	What legal issues have been considered?
<b>Validation method</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> </ul>	
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• Overview of the applicable laws and conflicts of laws relating to the CVIS system</li> <li>• Clarity of the business model as to whether CVIS is a service or product which will impact legal aspects</li> </ul>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NTVE_T6.l</b>	Availability of liability insurance for co-operative systems and Actors involved in their deployment	Have the results of the legal research provided any confidence that liability insurance for involvement in co-operative systems could be developed, if it is not currently available?
<b>Validation method</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> </ul>	
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• Discussions with insurance brokers and insurance/reinsurance companies on these issues to gain a market view</li> <li>• Research into the current insurance market</li> </ul>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NTVE_T6.m</b>	Prevention and minimisation of legal disputes	What safeguards have been considered to prevent or minimise legal disputes as between different Actors within the CVIS system or if claims are made against the system by end users?
<b>Validation method</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> </ul>	
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• Clarity as to the business model to be adopted by CVIS</li> <li>• Suggestions as to how claims might be dealt with</li> <li>• Commentary on how legal disputes might be prevented or minimised without going to court</li> </ul>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NTVE_T6.n</b>	Further work on risks and liability	What further work might need to be done on risks and liability before CVIS could be safely deployed?
<b>Validation method</b>	Inspection: <ul style="list-style-type: none"> <li>• Deliverable</li> </ul>	
<b>Reference document</b>	D.DEPN.6.1 Risks and Liability	
<b>What to look for</b>	<ul style="list-style-type: none"> <li>• Necessary limitations of the current scope of work within the Technical Annex</li> <li>• Extending the legal analysis to embrace the laws of all EU member states</li> </ul>	

### **TOPIC 7: Policy non technical validation plan.**

CVIS test trials focus on technical validation of the implications using small numbers of vehicles in geographically defined and limited areas. Therefore it is not possible to measure directly any policy impacts. However, practical demonstrations of the technology delivering a test version of an application or service will provide insights for the test site owners and the validation partners that can be used to explore policy issues more fully.

ID	Name	Description
NTVE_T7.d	Creation of additional hazards (e.g. driver distraction)	<i>This element is intended to look for “unintended” consequences that might create safety hazards, both for users and non users.</i>
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection               <ul style="list-style-type: none"> <li>○ Deliverable</li> <li>○ Others</li> </ul> </li> <li>○ Interview</li> </ul>	All NTVE elements shall be included in a single interview with test site owner. The interview approach is outlined in the final section of this table.
<b>Reference document</b>	Analyse the validation reports and outcomes from those pre-selected test site applications to identify additional insights gained from the demonstration.	
<b>What to look for</b>	<p>Pre-select from the test site applications using the validation descriptions and test site plans those demonstrations that have the greatest policy implications either because they cut across a wide range of issues or because they may have a significant impact in a small number of areas.</p> <p>Within the validation reports look for any evidence that the user had concerns or issues with the HMI, or that they failed to use the application properly, or that a user was distracted from a more critical activity.</p>	

NTVE_T7.e	Undermining of existing policy initiatives	<i>Identify if there is a potential barrier to implementation because, although technically viable, implementing the service would contradict an existing policy.</i>
<b>Validation manner</b>	○ Interview	The interview approach is outlined in the final section of this table.
NTVE_T7.f	Influence on cost-effectiveness of delivering existing and future	<i>Consider whether there is any evidence that a viable</i>

	policy initiatives	<i>technical option also improves the ratio of costs against benefits for public sector policy.</i>
<b>Validation manner</b>	○ Interview	The interview approach is outlined in the final section of this table
<b>NTVE_T7.g</b>	Capacity to extend the performance/target of a policy initiative	<i>Consider whether there is any evidence that CVIS would deliver greater benefits, even though costs might also rise.</i>
<b>Validation manner</b>	○ Interview	The interview approach is outlined in the final section of this table
<b>NTVE_T7.h</b>	Capacity to resolve a conflict between policies (e.g. safety and environment)	<i>Consider whether a demonstrated service would enable the balance between different policy objectives to be better managed.</i>
<b>Validation manner</b>	○ Interview	The interview approach is outlined in the final section of this table
<b>NTVE_T7.k</b>	Sufficient support from other market sectors, e.g. communications, ICT	<i>Consider the reliance on non-transport markets and how critical the state of such markets are to viable delivery of CVIS services.</i>
<b>Validation manner</b>	○ Interview	The interview approach is outlined in the final section of this table
<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NTVE_T7.m</b>	The implementation of policies and regulations will be interoperable between different member states of the EU adhering to the CVIS concept.	
<b>Validation manner</b>	○ Inspection ○ Deliverable ○	The interview approach is outlined in the final section of this table
<b>Reference document</b>	Analyse the validation reports	

	<p>and outcomes from those pre-selected test site applications to identify additional insights gained from the demonstration.</p> <p>○</p>	
<b>What to look for</b>	<p>Pre-select from the test site applications using the validation descriptions and test site plans those demonstrations that have the greatest policy implications either because they cut across a wide range of issues or because they may have a significant impact in a small number of areas.</p> <p>Within the validation reports consider how the application has been implemented and identify where they may be factors that would vary with jurisdiction and hence have issues of interoperability.</p>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NTVE_T7.n</b>	The CVIS system should be flexible enough to support policies of the various authorities in any country in Europe.	
<b>Validation manner</b>	<ul style="list-style-type: none"> <li>○ Inspection               <ul style="list-style-type: none"> <li>○ Deliverable</li> </ul> </li> <li>○</li> </ul>	The interview approach is outlined in the final section of this table
<b>Reference document</b>	<p>Analyse the validation reports and outcomes from those pre-selected test site applications to identify additional insights gained from the demonstration.</p> <p>○</p>	
<b>What to look for</b>	<p>Pre-select from the test site applications using the validation descriptions and test site plans those demonstrations that have the greatest policy implications either because they cut across a wide range of issues or because they may have a significant impact in a small number of areas.</p> <p>Within the validation reports consider how the application</p>	

	has been implemented and identify where they may be factors that would vary with authority and country and hence have issues of flexibility.
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<b>Interview description</b>	To explore the issues and insights with test site owners who have policy responsibilities and the views of the technical validation partners (where different) and obtain their professional views on the implications.
<b>Interviewed person/organsation</b>	Key individuals from testsite leaders including application leaders of those applications that will be demonstrated at these test sites.
<b>Outline of the interview</b>	<p><i>To be designed to suit the selected test sites and the nature of the partners or organizations available for interview. Below is the general structure that will be followed.</i></p> <p><b>d. creation of additional hazards (e.g. driver distraction)</b></p> <p><i>Analyse validation report to identify potential hazards. For each hazard, Hi, identified interview to ask the following question:</i></p> <p><i>d.1 Do you agree that hazard Hi represents a genuine risk to safety? Answer on a integer scale of 1 (strongly disagree) to 4 (Strongly agree).</i></p> <p><i>d.2 Do you think that Hazard Hi represents a barrier to deployment? Answer on an integer scale of 1 (strongly disagree) to 4 strongly agree.</i></p> <p><b>e. undermining of existing policy initiatives</b></p> <p><i>e.1 Which policy areas does application tested affect? Generate tick list</i></p> <p><i>e.2 For each policy area does the application as demonstrated reinforce the direction of policy? Answer on an integer scale of 1 (Goes against policy) to 4 (reinforces policy)</i></p> <p><b>f. influence on cost-effectiveness of delivering existing and future policy initiatives</b></p> <p><i>f.1 For each policy area identified in ( e.1) does the application as demonstrated increase or decrease the cost of delivery? Answer on an integer scale of 1 (increases cost) to</i></p>

	<p>4 (decreases cost)</p> <p><b>g. capacity to extend the performance/target of a policy initiative</b></p> <p><i>g.1 For each policy area where costs are increased how do benefits change? Answer on an integer scale of 1 (benefits decrease significantly) to 4 (benefits increase significantly), ask and record reasons for answer.</i></p> <p><b>h. capacity to resolve a conflict between policies (e.g. safety and environment)</b></p> <p><i>h.1 For each policy in e.2 that has been marked as 3 or 4 does CVIS represent a solution that has fewer or no adverse effects on other policy initiatives. Try to identify potential policy conflicts and discuss with interviewee and record key points of discussion</i></p> <p><b>k. sufficient support from other market sectors, e.g. communications, ICT</b></p> <p><i>k.1 Which market sectors are essential for the application demonstrated to be deployed? Ask and record reasons for answer</i></p> <p><i>k.2 Which market sectors involvement would be desirable for deployment? Ask and record reasons for answer</i></p>
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**TOPIC 8: Deployment maps non technical validation plan.**

ID	Name	Description
NVTE T8.a	<b>The deployment of CVIS must likely be aligned with the apparent general changes in market perspectives for ICT</b>	
<b>Validation manner</b>	<b>Deliverable</b>	
<b>Reference document</b>	D.CVIS.8.1	
<b>What to look for</b>	Sections; - Market communication - Communication infrastructure	

ID	Name	Description
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<b>NVTE T8.b</b>	<b>CVIS has to support services responding to changes in transport market demand</b>	
<b>Validation manner</b>	<b>Deliverable</b>	
<b>Reference document</b>	D.CVIS.8.1	
<b>What to look for</b>	Sections; - Market communication - Deployment of services - Deployment of infrastructure and equipment	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NVTE T8.c</b>	<b>The availability of CVIS services should be sufficient and meeting the standards in the area of interest.</b>	
<b>Validation manner</b>	<b>Deliverable</b>	
<b>Reference document</b>	D.CVIS.8.1	
<b>What to look for</b>	Sections; - Deployment of services - Deployment of infrastructure and equipment - Functional architecture	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NVTE T8.d</b>	<b>CVIS must take into account the evolution of opportunities of ICT</b>	
<b>Validation manner</b>	<b>Deliverable</b>	
<b>Reference document</b>	D.CVIS.8.1	
<b>What to look for</b>	Sections; - Communication infrastructure	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NVTE T8.e</b>	<b>The various deployment options must have been considered pertaining to</b>	

	<b>local versus global aspects of CVIS</b>	
<b>Validation manner</b>	<b>Deliverable, Memorandum</b>	
<b>Reference document</b>	D.CVIS.8.1, Workshop 080917 discussions DCVIS_DEPN_Deployment_Issues	
<b>What to look for</b>	Sections; <ul style="list-style-type: none"> <li>- Deployment of infrastructure and equipment</li> <li>- Organizational model</li> <li>- Functional architecture</li> <li>- Pan-European pilots</li> </ul>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NVTE T8.f</b>	<b>The balance of private and public CVIS services must be acceptable</b>	
<b>Validation manner</b>	<b>Memorandum</b>	
<b>Reference document</b>	DCVIS_DEPN_Deployment_Issues	
<b>What to look for</b>	Deployment model with separated public, private and commercial services and requirements	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NVTE T8.g</b>	<b>Sufficient support from other market sectors</b>	
<b>Validation manner</b>	<b>Deliverable, Memorandum</b>	
<b>Reference document</b>	D.CVIS.8.1, DCVIS_DEPN_Deployment_Issues	
<b>What to look for</b>	Sections; <ul style="list-style-type: none"> <li>- Communication infrastructure</li> </ul> Deployment model; <ul style="list-style-type: none"> <li>- Communication networks</li> </ul>	

<b>ID</b>	<b>Name</b>	<b>Description</b>
<b>NVTE T8.h</b>	<b>Clarifying the importance of a co-operational vision and establishment of a neutral deployment forum</b>	

<b>Validation manner</b>	<b>Deliverable</b>	
<b>Reference document</b>	D.CVIS.8.1	
<b>What to look for</b>	Sections; <ul style="list-style-type: none"><li>- Co-operational vision</li><li>- CS Deployment Forum</li></ul>	