Inter System Interoperability
D7.2.2 DEMONSTRATOR ACTIVITIES DESIGN

Document Manager:	Bram van den Ende	TNO	Responsible T7.2.2

Programme:	Inter System Interoperability for Tetra-TetraPol Networks
Project Acronym:	ISITEP
Contract Number:	312484
Project Coordinator:	Selex ES
SP Leader:	MOT

Document ID N°:	D7.2.2_19 April 2016_V1.0	Version:	V1.0
Deliverable:	D7.2.2	Date:	19 April 2016
		Status:	Final

Document classification	Unclassified

Approval Status	
Prepared by:	Bram van den Ende
Approved by: (WP Leader)	
Approved by: (SP Leader)	
Approved by: (Coordinator)	

CONTRIBUTING PARTNERS

Name	Company / Organization	Role / Title
Networked Organisations	TNO	Scenario development and evaluation
Networks	TNO	Technical set-up overview; editor
MDC	V&J	Experts / provider Tetra Network
Motorola	Industrial Partner	System specific contributions
FinMecchanica	Industrial Partner	System specific contributions
Airbus	Industrial Partner	System specific contributions

DISTRIBUTION LIST

Name	Company / Organization	Role / Title

REVISION TABLE

Version	Date	Modified Pages	Modified Sections	Comments
0.1	14-12-2015	All	All	Text added
0.2	23-12-2015	All	All	Text added
0.3	11-01-2015	All	All	Text added
0.4	18-02-2016	All	ToC	Text added
0.5	23-02-2016	All	All	Text added
0.9	22-03-2016	All	All	All sections updated
1.0	18-04-2016	8,9	2.2, 3.2	Text added; picture change

Publishable extended abstract

This document describes the scenario design, technical set-up and evaluation plan for the police hot pursuit scenario across the Germany-Belgium-Holland border. The evaluation comprises of interviews, questionnaires and observations. In total, the hot pursuit scenario will be run and evaluated three times, and all hot pursuit participants will take part in the evaluation process. Running three test runs in total allows for comparing the performance and usability of the currently used KTS-2 system with the newly developed ISITEP framework. By comparing the two systems, measures of merit can be effectively established.

CONTENTS

1. INTRODUCTION

1.1 Main objectives of ISITEP

Currently, first responders across Europe use different and incompatible communication systems, complicating cross-border. However, the need for international cooperation is growing and reliable communication lines between forces are vital. Inter System Interfaces for TETRA-TETRAPOL Networks (ISITEP) is a three-year European project aimed at achieving operational interoperability across first responders in Europe. Operational interoperability will be achieved by developing a cost effective Inter System Interface (ISI) cloud network integrating Public Protection and Disaster Relief (PPDR) national infrastructures, and a novel terminal architecture. To establish the added value of the newly developed infrastructure, a series of test runs following different scenarios will be carried out. This document describes the evaluation plan for WP 7.2, the cross border police hot pursuit.

1.2 Objectives WP 7.2[1]

The main goal of ISITEP is to facilitate the cross-border communication of first responders. Cross border communication can be communication between a police force and their own control room when crossing a national border, or communication between police forces and their control rooms from different countries. To evaluate the added value of ISITEP it is therefore essential to test the framework in a scenario across national borders. The Germany-Belgium-Holland border that is chosen as the location of the cross border police hot pursuit scenario is interesting because it allows for testing the system whilst crossing three national borders in quick succession. This area is also interesting because of the existing collaborations between the three countries in real life.

WP 7.2 aims to demonstrate the feasibility of a police cross border cooperation scenario using the ISITEP framework, including the procedures, network technology, terminals and supporting tools. The work package consists of the development of the demonstrator, the development of the evaluation plan, running one baseline and two demonstrator sessions, and the evaluations of these sessions in which the measures of merit of the ISITEP framework will be assessed.

Specific objectives are discussed in chapter 3

In order to reach these objectives, the following tasks are assigned to WP 7.2:

1. Task 7.2.1: Demonstrator Plan and requirements
2. **Task 7.2.2: Demonstrator Design**
3. Task 7.2.3: Demonstrator implementation and first test run
4. Task 7.2.4: Demonstrator implementation and second test run
5. Task 7.2.5: Demonstrator follow-up

This deliverable D7.2.2 related to the bold printed task.

---

[1] This section is inspired by the report: *ISITEP D7.2.1 Demonstrator Plan and Requirements*

1.3 Scope of Task 7.2.2

This task deals with the whole set-up of the Hot Pursuit demonstration. Referring to the DoW, it comprises:

- Scenario design and description
- Test procedures
- Scenario technical design (specifying architecture, updated of software hardware architecture, procurement, terminals)
- Security configurations

Concerning the test procedures, this is interpreted as the conduct of tests on techno-functional requirements. From the available gross list of ISITEP functional requirements (Annex C), a subset has been composed by the Dutch National Police and TNO of techno-functional requirements which are considered most important in the Netherlands context. Any low level testing on the vendors' systems is at their discretion and considered outside the scope of this document.

Additionally to what is proposed in the DoW we have developed an evaluation plan which focusses on the assessment of the operational added value of the ISITEP/ISI capability.

Details on the security solutions applied is made part of the Scenario technical design, in which also the networks set-up and ISI is documented.

1.4 Definitions and terminology[2]

Key Performance Indicators (KPIs) is a measurable value that demonstrates how effectively key objectives are being reached.

Factors of influence are internal and external issues that may influence task output, such as experience and weather conditions.

The **added value** of PPDR interoperability is defined as the positive difference of the values of the measures of merit compared to the situation without using the ISITEP framework.

An **experiment** is an empirical means of establishing cause-and-effect relationships through the manipulation of independent variables and measurement of dependent variables in a controlled environment. This way one can test what effect a specific change has. In this document we evaluate the effect of the ISITEP framework implementation (independent variable) in a specific scenario, the hot pursuit across three countries. Dependent variables are the MoM; how does this implementation affect task result, speed of task execution and ease of use.

A **scenario** is defined as a description of the area, the environment, means, objectives, events and people that are used to test the effect of one or more independent variables. To analyse the added value of the ISITEP framework, a set of relevant scenarios were developed, including a multi-agency demo (WP 7.1), a hot pursuit (WP 7.2), an airplane disaster in the Geneva border (WP 7.3), a joint police surveillance patrol (WP 7.4), and VIP protection (WP 7.5).

---

[2] This section is inspired by TNO report: TNO methodology for evaluating the (added) value of C2 systems

A **trial** is a single test run in which the effect of the independent variable can be assessed. For example, a trial with old equipment can provide a baseline measure, while a trial with new equipment can demonstrate the MoM of the new system. A comparison between the two trials can help establish the added value of the new system in a specific scenario.

2. PRACTICAL OBJECTIVES AND APPROACH

2.1 Specific objectives

In the actual preparation on the basis of which this Deliverable is produced, the practical possibilities and limitations have become more clear. Hence, the table below presents the envisioned objectives (D7.2.1) and the practical objectives which further defines the whole set-up and evaluation as described on this deliverable.

Envisioned objective (ref: D.7.2.1)	Adopted as practical objective? (Y/N)	If not adopted, why not?
Verification of the ISITEP procedures	Y	
Demonstration of cross border collaboration guidelines in action	Y	
Demonstration of ISI gateway functionalities	Y	
Demonstration of roaming capabilities of terminals	Y	
Continued connection with native emergency room in foreign networks	Y	
Communication with foreign groups in connected (foreign) networks	Y	
Demonstration of migration capabilities of terminals	Y	
Evaluation of enhanced terminals	Y	
Final assessment on procedures, technologies and tools and performance evaluation	Y	
Lower management costs mobile terminals and handhelds	N	Management of network and terminals not in scope of the systems demonstrated
Better management solutions, safer and more flexible	N	Management of network and terminals not in scope of the systems demonstrated
Easier access for guest users	N	Is a security matter (authentication). Security support is only limited in this demonstration
Easier to block unwanted users	N	Is a security matter (authentication). Security support is only limited in this demonstration

2.2 Approach

The approach is to evaluate the added value of ISI interface capabilities to operational users, compared to existing operational facilities. This done by replaying a realistic scenario involving a hot pursuit through the three neighbouring countries the Netherlands, Belgium and Germany. Three single base station networks are deployed at suitable places in the pilot area which represent portions of national networks, which jointly provide the necessary coverage and the ISI functions to support communications during the pursuit (two ISI's actually provisioned). The evaluation is done in a systematical way to ensure high value results. Systems deployed will have had pre-testing under lab conditions and will be tested and demonstrated under deployment conditions before the pilot commences.

3. HOT PURSUIT SCENARIO

3.1 Introduction

The scenario is designed in cooperation with the Dutch, Belgium, and German police, the Expertgroep C2000 (an international coordination group aimed at supporting and further improving cross border communication) and the project Cross Border Communication (a project to implement and test a new back to back solution using digital TETRA technology to support communication for PPDR organisations across borders).

This scenario describes the situation of an armed robbery. The scenario is used to describe the cross border (Belgium, The Netherlands and Germany) radio communication between police forces. Cross border communication can mean the connection of police forces with their own control room while they are active across the border. It can also mean the communication between the police forces of The Netherlands, Germany and Belgium including one or more control rooms.

3.2 Hot pursuit scenario

The scenario involves a police hot pursuit of a getaway car in the border area in the south of the Netherlands across the three participating countries.

3.2.1 Start Incident

During a traffic control on the N3 / Lütticher Strasse in Kelmis in Belgium a vehicle ignores the stop sign, turns to left on the Kirchstrasse and drives away with high speed. A surveillance car from the Belgium police starts chasing the getaway car. The getaway car is a [brand, type][3] with Belgium license number [x-XXX.XX].

In the vehicle there are 2 persons, male, one about [XX] years old, the other about [XX] years old. No specific recognition marks.

---

3 Content and values [between brackets] to be filled in short before the actual test runs

> **Communication 1 from B-IV-1 to Dispatcher B on Group SP-NAT-7**
>
> *The crew of the Belgium surveillance car (B-IV-1) reports the chase on high speed, naming the brand, type and license number of the getaway car to CILIE (1ˢᵗ Demo)/CILIM (2ⁿᵈ Demo), the police control room in Hasselt (Dispatcher B), communicates their position and direction.*

3.2.2 Scenario development and communication

The getaway car was stolen less than one hour ago. It was taken by two men after they had robbed two inhabitants in their home with brutal force under threat of firearms in the city of Liege. A witness saw about fifteen minutes after the suspects left the crime scene that a car with German license plates stopped on a parking place north of Liege. The driver removed the license plates, took a can of fluid out of the trunk and put the car into fire. Then he walked to another car, [brand] with Belgium license plates, engine running and wit another person inside. The license number belongs to the car of the robbed persons. They left the parking place, heading north.

> **Communication 2 from Dispatcher B to B-NH-1 on Group SP-NAT-7**
>
> *CILIE (1ˢᵗ Demo)/CILIM (2ⁿᵈ Demo) gives the crew of the Belgium surveillance car an update on the robbery, the used cars and the possible use of firearms.*

> **Communication 3 from B-NH-1 to Dispatcher B on Group SP-NAT-7**
>
> *Crew of the Belgium surveillance car continuously reports position and direction to inform CILIE (1ˢᵗ Demo)/CILIM (2ⁿᵈ Demo).*

The getaway car heads on following the Moresneterstrasse, through Moresnet-Chapelle, further on the Rue de Moresnet to Gemmenich. They turn right to the N608, in the direction of the Dutch border.

The Belgium police estimates that they will not be able to catch the robbers before they arrive at the border.

> **Communication 4 from B-NH-1 to Dispatcher B on Group SP-NAT-7**
>
> *The crew of the Belgium surveillance car reports to CILIE (1ˢᵗ Demo)/CILIM (2ⁿᵈ Demo) that they are heading towards the Netherlands.*

The Belgium police has a high priority to stop the pursuit quickly because of the dangerous situations during the chase. Given the seriousness of the offences there is a big incentive to catch the robbers. Because of this situation they want to communicate with their Dutch colleagues for making a jointly operational approach.

> **Communication 5 from Dispatcher B to Dispatcher NL on Group CO-EUCOM-NLBD**
>
> *CILIE (1ˢᵗ Demo)/CILIM (2ⁿᵈ Demo) (Dispatcher B) contacts OC Maastricht (Dispatcher NL), reports the chase heading to the Dutch border, the details of the crime and request OC Maastricht to position a Dutch surveillance car. CILIE/CILIM also coordinates the assignment of **EUCOM-NLBD** as the communication channel for the incident. CILIE/CILIM gives the calling names and numbers of the Belgium surveillance car to OC Maastricht.*
>
> *CILIE/CILIM patches/combines **SP-NAT-7** with **EUCOM-NLBD**.*

Communication 6 from Dispatcher B to B-NH-1 on Group SP-NAT-7

CILIE (1st Demo)/CILIM (2nd Demo) (Dispatcher B) asks the Belgium intervention team to switch to group **EUCOM-NLBD** at a suitable moment.

B-NH-1 switches to group **EUCOM-NLBD.**

Communication 7 from Dispatcher NL to NL-NH-1 on Group PLB-OC-7

OC Maastricht informs the Dutch surveillance car about the chase in Belgium and requests the Dutch crew to switch to **EUCOM-NLBD** and to listen to the communications in this group and to take a position on the Dutch side of the border.

NL-NH-1 switches to group **EUCOM-NLBD**

Communication 8 from NL-NH-1 to Dispatcher B and B-NH-1 on EUCOM-NLBD

NL-NH-1 informs CILIE (1st Demo)/CILIM (2nd Demo) and B-NH-1 that they are taking position on the Dutch side of the border.

The robbers and the Belgium police surveillance car arrive and pass the Belgium-Dutch border.

Communication 9 from B-NH-1 to Dispatcher B and Dispatcher NL on EUCOM-NLBD

The crew of the Belgium surveillance car reports that they crossed the border and request communication with the Dutch police.

Communication 10 from Dispatcher NL to Dispatcher B on Group CO-EUCOM-NLBD

OC Maastricht communicates to CILIE (1st Demo)/CILIM (2nd Demo) that they will take over the coordination.

CILIE/CILIM removes the patch between SP-NAT-7 and EUCOM-NLBD.

Communication 11 from Dispatcher NL to B-NH-1 on Group EUCOM-NLBD

OC Maastricht informs that have taken over the coordination and instructs the Belgium intervention team to switch to the Dutch NL network.

B-NH-1 switches to the Dutch **NL** network

Communication 12 from B-NH-1 to Dispatcher NL and NL-NH-1 on Group EUCOM-NLBD

Crew of the Belgium surveillance car continuously reports position and direction to inform OC Maastricht and the Dutch surveillance car.

Communication 13 from Dispatcher NL to NL-NH-1 on Group EUCOM-NLBD

OC Maastricht guides the Dutch surveillance car to the position of the getaway car.

Across the border the chase continues on the Gemmenicherweg in the direction of Wolfhaag. Just before they enter Wolfhaag the Dutch surveillance car takes over the position directly behind the getaway car.

Communication 14 from NL-NH-1 to Dispatcher NL on Group EUCOM-NLBD

The crew of the Dutch surveillance car reports to OC Maastricht that they have taken in the first (A) position behind the getaway car.

Communication 15 from NL-NH-1 to Dispatcher NL on Group EUCOM-NLBD

Crew of the Dutch surveillance car continuously reports position and direction to inform OC Maastricht.

The chase continues in the direction of Vaals.

The fact that the car that the robbers abandoned and put into fire had a German license number is a good reason to think that the robbers will try to head to the Dutch-German border.

Communication 16 from Dispatcher NL to Dispatcher Gabriel on Group CO-EUCOM-NLBD

OC Maastricht contacts Gabriel (Duisburg), reports chase in progress, the details of the crime and request Gabriel to be alert.

On the south side of Vaals the chase party turns left onto the Nieuwe Hertogenweg, further on to the Randweg. When the Randweg ends the getaway car takes the auction to the N278 in the direction of Nijswiller.

Near Nijswiller the getaway car takes the auction to the N281 heading to Simpelveld and Heerlen. Just across the city border of Heerlen the getaway car leaves the N281 and turns right onto the N300.

After about 150 meters they suddenly turn left onto the Beitel, another about 250 meters right onto the Locht, and heading to the German border.

Regarding the last move of the getaway car and the high speed the coordinator of OC Maastricht estimates that the getaway car will not be stopped before they arrive at the border.

Communication 17 from Dispatcher NL to Dispatcher D Gabriël on Group CO-EUCOM-NLBD

*OC Maastricht contacts Gabriel, reports chase is heading to the Dutch-German border, repeats the details of the crime and requests Gabriel to prepare for the coordination of the police actions when the chase party crosses the German border. OC Maastricht informs about the assignment of **EUCOM-NLBD** Group for this incident and gives the calling name and number of the Dutch surveillance car to Gabriel.*

Dispatcher D Gabriël answers that they will order Leitstelle Aachen to prepare to handle the chase.

Communication 18 from Dispatcher D Gabriël to Dispatcher D Aachen on Group CO-GAB-AACHEN

*Gabriel contacts Leitstelle Aachen, reports chase in progress, the details of the crime and requests Leitstelle Aachen to be alert. Gabriel informs Leitstelle Aachen about the assignment of **EUCOM-NLBD** for this incident and orders Aachen to coordinate the police actions when the chase party crosses the German border. Gabriel gives the calling name and number of the Dutch surveillance car to Leitstelle Aachen.*

Communication 19 from Dispatcher D Aachen to D-NH-1 on Group PD-LS-06

*Leitstelle Aachen informs the German surveillance car about the chase in the Netherlands and requests the German crew to switch to **EUCOM-NLBD** and to listen to the communications in this group and to take a position on the German side of the border.*

*D-NH-1 switches to **EUCOM-NLBD.***

> **Communication 20 from D-NH-1 to Dispatcher NL and NL-NH-1 on EUCOM-NLBD**
>
> *D-NH-1 informs OC Maastricht and NL-NH-1 that they are taking position on the German side of the border.*

The robbers and the Dutch police surveillance car arrive and pass the Dutch-German border.

> **Communication 21 from NL-NH-1 to Dispatcher NL and Dispatcher D Aachen on Group EUCOM-NLBD**
>
> *The crew of the Dutch surveillance car reports that they crossed the Dutch-German border and request communication with the German police.*

> **Communication 22 from Dispatcher D Aachen to Dispatcher NL and NL-NH-1 on Group EUCOM-NLBD**
>
> *Leitstelle Aachen communicates that they will take over the coordination and instructs the crew of the Dutch surveillance car to switch to the German D network.*
>
> *NL-NH-1 switches to the German **D** network*

> **Communication 23 from NL-NH-1 to Dispatcher D Aachen on Group EUCOM-NLBD**
>
> *Crew of the Dutch surveillance car continuously reports position and direction to inform Leitstelle Aachen.*

> **Communication 24 from Dispatcher D Aachen to Dispatcher NL and NL-NH-1 on Group EUCOM-NLBD**
>
> *Leitstelle Aachen guides the German surveillance car to the position of the getaway car.*

In Germany the chase proceeds on the Horbacherstrasse. When they approach the crossing with the Forsterheidestrasse the two men in the getaway car see the German surveillance car approaching the crossing from the opposite side. They avoid a direct confrontation and turn left onto the Forsterheiderstrasse. On the Amstelbachstrasse the German surveillance car immediately takes in the position directly behind the getaway car. The Dutch surveillance car close behind them.

> **Communication 25 from D-NH-1 to Dispatcher D Aachen on group EUCOM-NLBD**
>
> *The crew of the German surveillance car reports to Leitstelle Aachen that have taken in the first (A) position behind the getaway car.*

In Kohlscheid the robbers turn left onto the Roermonder Strasse, the Voccartstrasse, Alte Strasse, Aachenerstrasse and Schütz-von-Rode Strasse.

> **Communication 26 from D-NH-1 to Dispatcher D Aachen on group EUCOM-NLBD**
>
> *Crew of the German surveillance car continuously reports position and direction to inform Leitstelle Aachen.*

In Herzogenrath the getaway car turns left into the Erkensstrasse, Dammstrasse, Geilenkirchener Strasse. At the crossing with the Bierstrasse the car turns right into the Bierstrasse.

At the roundabout, they turn right into the the dead end street Rathausplatz. The robbers are forced to stop the getaway car and the German police officers are able to arrest the two robbers.

> **Communication 27 from D-NH-1 to Dispatcher D Aachen on group EUCOM-NLBD**
>
> *The German police officers give the information about their position and the arrest of the robbers to Leitstelle Aachen.*

> **Communication 28 from Dispatcher D Aachen to Dispatcher D Gabriël on group CO-GABAACHEN**
>
> *Leitstelle Viersel informs Gabriel that the robbers are caught.*

> **Communication 29 from Dispatcher D Gabriël to Dispatcher NL and Dispatcher B on group CO-EUCOM-NLBD**
>
> *Leitstelle Gabriel informs CILIE (1st Demo)/CILIM (2nd Demo) and OC Maastricht that the robbers are caught and that all communications regarding the Hot Pursuit will be closed.*

End of the hot pursuit. All parties continue their normal tasks in their local groups.

3.2.3 Communication Scheme

PSC=Police Surveillance Car
PCR=Police Control Room
NL=The Netherlands
D=Germany
      Gab = Gabriel
      Vier = Viersen
B=Belgium

Nr	Time (from start incident)	Communication between	Communication about	Communication group
1	0 – 5 min	PSC-B/PCR-B	The chase on high speed, naming the brand, type and license number of the getaway, their position and direction.	B operational talk group
2	0 - 5 min	PCR-B/PSC-B	Update on the robbery, the used cars and the possible use of firearms.	B operational talk group
3	5 – 10 min	PSC-B/PCR-B	To inform the Dutch police.	B operational talk group
4	5 – 10 min	PCR-B/PCR-NL	Chase heading the border, the details of the crime, request to position Dutch surveillance car, to order the Dutch crew to switch to Operational channel B/NL and to hear out this talking group. Calling names and numbers of the Belgium surveillance car. Patching B-operational group with B-NL operational group.	NL-B-D coordination group
5	5 - 10 min	PSC-B/PCR-NL	Crossed the border and request communication with the Dutch police.	Patched B-operational group/B-NL operational group

6	5 - 10 min	PCR-NL/PCR-B+PSC-B+PSC-NL	Taking over the coordination, guiding the Dutch surveillance car to the position of the getaway car, order PSC-NL to switch to B-NL operational group.	Patched B-operational group/B-NL operational group + /NL operational talk group
7	10 - 15 min	PSC-NL/PCR-NL	Taken in the first (A) position behind the getaway car.	Patched B-operational group/B-NL operational group
8	10 - 15 min	PCR-NL/PSC-B	Dismisses the Belgium crew and gives them permission to go back to Belgium	Patched B-operational group/B-NL operational group
9	10 - 15 min	PCR-B	Removes patch between national operational group and B-NL operational group.	Patched B-operational group/B-NL operational group
10	15 -20 min	PCR-NL/PCR-D Gab	Chase in progress, the details of the crime and request to be alert.	NL-B-D coordination group
11	15 – 35 min	PSC-NL/PCR-NL	Continuously: position and direction.	B-NL operational group
12	30 – 35 min	PCR-NL/PCR-D Gab	Chase heading the border, details of the crime and requests to alert Leitstelle Viersen, to order Leitstelle Viersen to hear out the NL-D operational group and to coordinate the police actions when the chase party crosses the German border. Calling name and number of the Dutch surveillance car. Patches operational B-NL group with the operational NL-D group.	NL-B-D coordination group
13	30 – 35 min	PCR-D Gab/PCR-D Vier	Reports chase in progress, the details of the crime, requests Leitstelle Viersen to be alert, to switch to NL-D operational group, to hear out this talking group and to coordinate the police actions when the chase party crosses the German border. Gives the calling name and number of the Dutch surveillance car to Leitstelle Viersen.	
14	35 – 40 min	PSC-NL/PCR-DVier	Crossed the border and request communication with the German police.	Patched operational B-NL group/operational NL-D group
15	35 – 40 min	PCR-D Vier/PCR-NL/PSC-NL/PSC-D	Taking over the coordination, guiding the German surveillance car to the position of the getaway car, orders PSC-D to witch to NL-D operational group	NL-B-D coordination group/Patched operational B-NL group/operational NL-D group
16	40 -45 min	PSC-D/PCR-D Vier	Taken in the first (A) position behind the getaway	Patched operational

			car.	B-NL group/operational NL-D group
17	40 -45 min	PCR-D Vier/PSC-NL	Dismisses the Dutch crew and gives them permission to go back to the Netherland	Patched operational B-NL group/operational NL-D group
18	40 -45 min	PCR-NL	Removes patch between operational B-NL group/operational NL-D group.	Patched operational B-NL group/operational NL-D group
19	45 – 55 min	PSC-D/PCR-D Vier	Continuously: position and direction	Operational NL-D group
20	55 – 60 min	PSC-D/PCR-D Vier	Information about their position and the arrest of the robbers	Operational NL-D group
21	60 -65 min	PCR-D Vier/PCR Gab+PCR-NL+PCR-B	Robbers are caught, all communications regarding the Hot Pursuit will be closed.	NL-B-D coordination group

PSC=Police Surveillance Car / PCR=Police Control Room / NL=The Netherlands / D=Germany / B=Belgium

4. TECHNO-FUNCTIONAL TEST PROGRAM

4.1 Testing selected techno-functional requirements

Based on the practical objectives as specified in section 3.1, this chapter contains an overview of techno-functional tests which are considered of high importance to the Dutch national police in the context of cross border interoperability of communications. The industrial partners involved will be requested to conduct these static tests in the presence of a Dutch Police and TNO delegation, before the actual Hot Pursuit scenario (dynamic test) will be played out. On practical grounds, the Hot Pursuit demonstrations can only cover part of the prioritized techno-functional requirements.

4.2 Techno-functional tests

The tests to be conducted will be aimed to check the following functionality:

1. Roaming of terminal in home network to visited network, based on settings in the home network. Purpose of this test is to determine if roaming of a terminal to a visited network is possible, without this terminal being known by the visited network. I.e. the visited network checks, via ISI, whether the terminal exists in the home network and whether it is allowed to roam to the visited network.

2. Freely selectable ISSI of a roaming terminal (same ISSI can be in use in each network). Purpose of this test is to determine if the ISSI of a roaming terminal can be freely selected, such that international cooperation is possible without any change in existing national fleet maps.

3. Authentication of terminal in home and visited network, while keys have only been entered in the home network.

4. Configuration of ISSI's allowed (or not allowed) to roam to foreign networks.

5. Automatic or manual linking of an international group in a home network to an international group in a visited network.

6. (Static) linking of dispatchers in an international group.

7. Configuration to grant visitors access, or withdraw their granted access, to an international group in a visited network.

8. Provided functionality within an international group existing in multiple networks. (individual SDS, private call, emergency call to dispatchers, location message etc.)

The relation of these tests with the ISITEP priority 1 end-user requirements (as defined in D2.3.2) and their relevance to the hot pursuit scenario is given in Annex C.

5. DEMONSTRATOR SET-UP

5.1 Demonstrator set-up

The network architecture implemented for the "hot pursuit" trial is described in D 2.4.4 - Network Architecture [1]. It consists of a "Dutch", "German" and "Belgian" network implemented by respectively Motorola, Finmeccanica and Airbus (see Figure below). The "Dutch" network consists of the Motorola research environment in Copenhagen and a base station in the Netherlands (Simpelveld), the "Belgian" network consists of the Airbus research environment in Helsinki and a transportable base station in the Netherlands (Vijlen) and the "German" network consists of the Finmeccanica research environment in Genoa and a compact transportable base station in the Netherlands (Kerkrade).
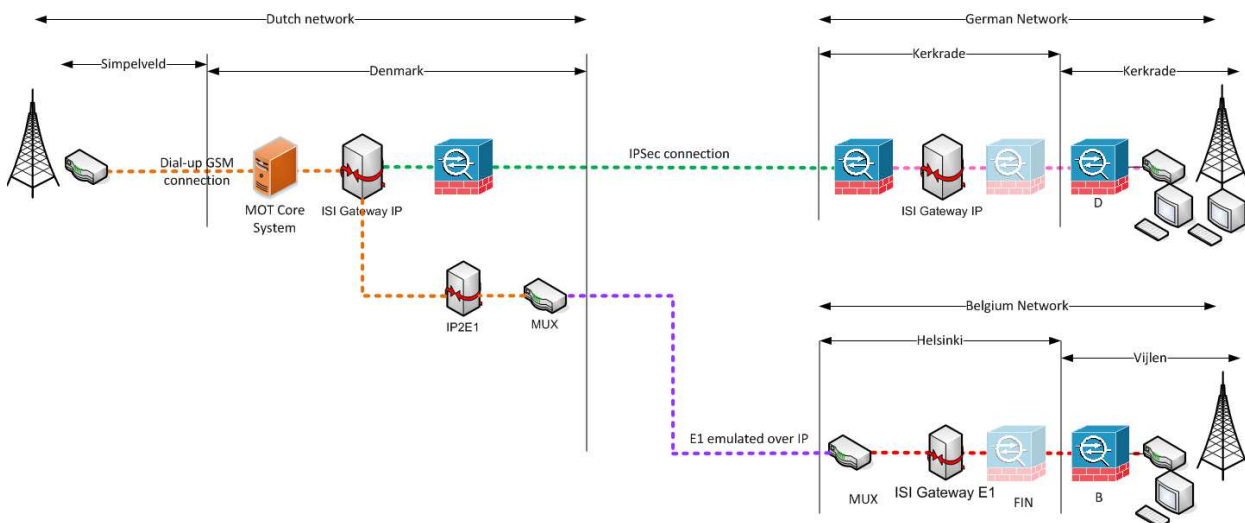
The "Dutch" and "German" network will be interconnected by IPsec, while the "Dutch" and "Belgium" network will be interconnected by E1 emulated over IP [1]. The base stations will be connected to the network by ADSL.

Four 'control rooms' will be included in the Netherlands, one in Simpelveld, one in Vijlen and two in Kerkrade (to reflect the existing hierarchy in Germany). These will either be provided with an actual dispatcher or a terminal (for communication, with any other actions to be performed by personnel in the research environment).

On each site in the Netherlands, the MDC will provide a mobile (30 m) mast including antenna and cable, ADSL with fixed IP address, housing (for equipment) and power (230 V AC).

The location of these sites in the Netherlands are shown in the Figures below.
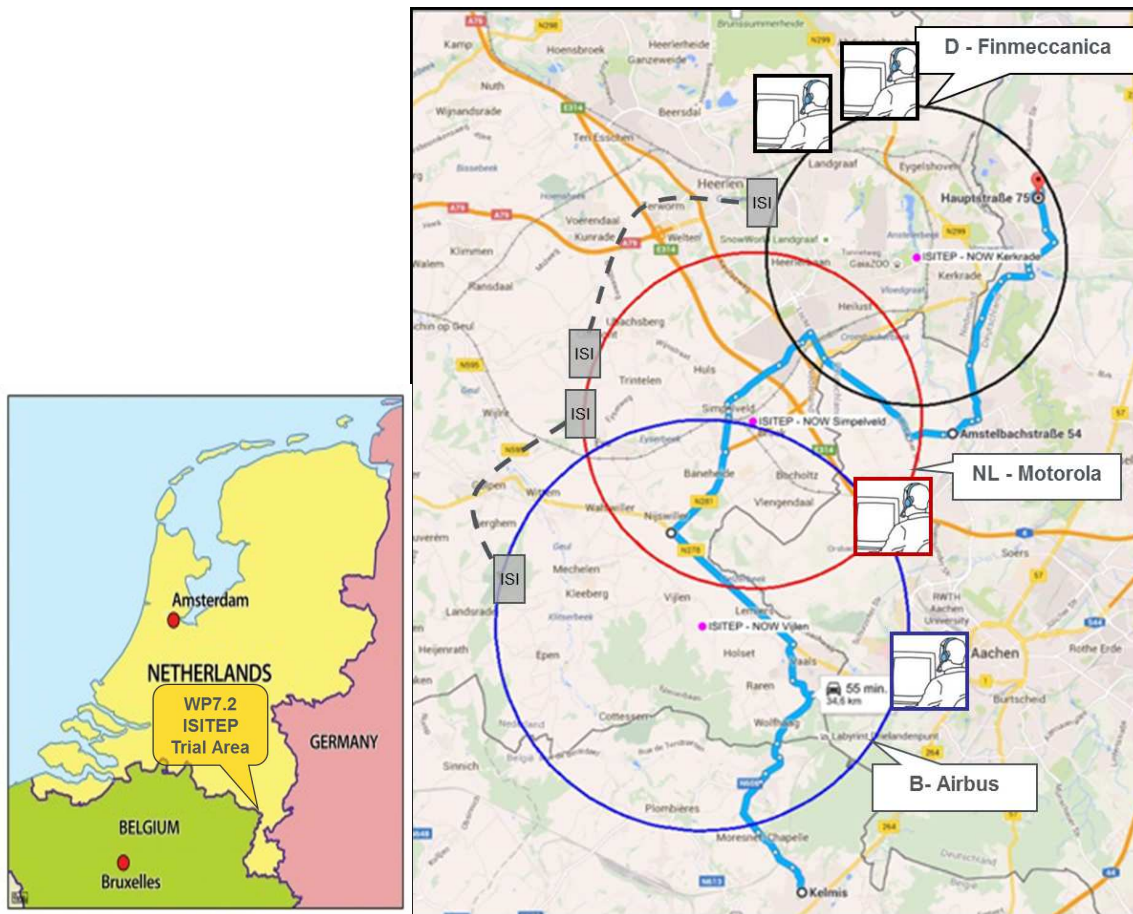
The 9 terminals required for the demo will all be handhelds and be delivered by Airbus, Motorola and Finmeccanica. They will also provide external antennas with magnetic mount (for attachment to vehicle roof). Three terminals will be used for the demo (vehicles) and 6 for scenario monitoring. Additional terminals will be delivered for each dispatcher which cannot be provided.

5.4 Security solutions/configuration

While Task 4.6.2 describes an overall security architecture to support the demonstration scenario's, Task 4.6.3 focusses on "off-the-shelf" security components, by using Security Gateways (SEG's). Security Gateways were initially not planned to be included for this demo. During the initial design phase of the demo the intention to work towards a realistic scenario as possible will imply the need for usage of SEG's between the ISI's when demonstrating the communication between the countries.

In the initial communication design SEG's were planned for international communication. From a practical point and the fact that the ISI's are placed in the individual lab environments of the manufacturers, the need for placing locally SEG's between the ISI's became questionable. The place for the SEG's would be at the labs of the individual manufacturers. From a practical and security point there may still be a need for encrypting the data before sending it over the internet. The ideal situation would be to use the SEG's to create three times a VPN tunnel to the manufacturing labs. This solution still make use of the SEG's but not as they would be implemented in a real life scenario.

Furthermore, suppliers agree that focus is not on air encryption and it will not be included (it would otherwise also cause a problem to deliver the required number of terminals for this demo).

5.5 Logging

Voice and CDR logging during the demo is considered beneficial for evaluation purposes. Suppliers have indicated that voice recording is not part of the test setup. CDR log files can be provided and the interpretation of these log files is currently investigated.

5.6 Demonstrator configuration aspects

Information required for configuration of the network is currently being exchanged (storyboard, fleetmap, country and network codes, etc) and fine tuned.

5.7 Pre-testing

Motorola, Airbus and Finmeccanica will test their networks starting at 7 March 2016. The test results will be reported in D4.7.4.

[1] *Inter System Interoperability D.2.4.4 – Network Architecture, Final Release*, Version V0.1

[2] *Motorola Solutions, Airbus DS Finmeccanica ISI Test Planning*, Issue 03, 08-Febr-2016.

6 EVALUATION PLAN

6.1 Introduction

To measure the added value of the ISITEP framework, we developed an evaluation method that can be tested across scenarios. Testing the ISITEP framework in several relevant real-time scenarios is an important aspect of determining the added value because for the framework to be successful, it has to offer added value in a range of situations. A scenario is relevant when it mimics real-life situations that users are likely to encounter when using the system. The developed scenarios include a multi-agency demo (WP 7.1), a hot pursuit (WP 7.2), an airplane disaster in the Geneva border (WP 7.3), a joint police surveillance patrol (WP 7.4), and VIP protection (WP 7.5).

In this document, the evaluation of the added value of the ISITEP framework, the efficiency of functional radio procedures and a verification of mandatory and desirable functional requirements in a cross border police hot pursuit is examined. To this end, we will first test the developed hot pursuit scenario with the current KTS-2 system in order to establish a baseline measurement, followed by a test run and the final run, both using the ISITEP framework. The evaluation has both a technical and usability component. These components allow for testing whether the developed technology functions properly, and to investigate how the people working with the technology experience it. By comparing the results from the baseline run with the final test run, we can establish the added value of the ISITEP framework.

6.2 Evaluation Approach

The setting up of the evaluation process started with interviewing the targeted end users of the ISITEP framework. This way, we could depict which system characteristics play a vital role in their interaction with the system and therefore should be included in the final evaluation. We also asked the end users what communication issues they were currently encountering in their job, and what benefits they were expecting from the ISITEP framework.

An exploratory interview with police officers from Eindhoven police district.was conducted. During these interviews we identified several important factors including audio quality, the duration of the build-up time, and maintenance. These factors are included in the questionnaire and will be discussed during the semi-structured interviews. When applicable, these factors will also be objectively measured through observations.

Throughout the hot-pursuit trials the key performance indicators (KPI) and defined target performances as described in D7.2.1 Chapters 3 and 4 will be used. These KPIs are:

1) Added value of ISITEP in a tri-nation cross-border hot-pursuit scenario.

2) Efficiency of functional radio procedures

3) Verification of mandatory and desirable ISITEP functional requirements.

The first trial involves establishing a baseline measurement of the first two KPIs with the currently used KTS-2 system. The second trial involves the initial testing of the new ISITEP framework and will provide an insight into how well the system performs on KPI number 3 (verification of requirements) . Because it concerns the initial testing of the system, feedback from this evaluation will be used to further improve the ISITEP framework and will be implemented in the final product. In the third and final trial, the ISITEP framework will be tested in a hot pursuit scenario and the evaluation of this trial will form the bases for establishing the added value of the ISITEP framework and the efficiency of the radio procedures by comparing the results with the first baseline trial.

The user evaluation comprises of three types of data: each individual that participated in the cross border police hot pursuit scenario will be invited to fill out a questionnaire before being debriefed. In addition to this self-report measures, a range of observations will take place. During the trials, a neutral observer will be present at each test location (i.e., the German, Belgium and Dutch police cars and control rooms). These observers will note the series of occurring events and their observations of the participants' interactions. They will also carry the android phone that tracks the movements of the car.

6.2.i Questionnaires

At the end of the trial session, each participant will start with individually filling out the questionnaire (See Appendix A). The questionnaire is used to determine the added value of the old and new system. The type of questions is based on previous TNO evaluation reports (C2 evaluation), and the covered topics are derived from the exploratory interviews, the ISITEP proposal, and system-specific features.

The questionnaire comprises of a general section that each participant regardless of their role in the organization can fill out, and a more specialized part that is dependent on their role of the participant in the organization. For example, in the hot pursuit scenario three different specialized questionnaire parts were developed: one for the police car driver, one for the police officer assisting the driver in the car (i.e., the navigator), and one for officers in the control center. Questions in the specialized sections are focused on those aspects of the system that directly involve the people working with the system. For example, the navigator will be asked how clear and easy to follow the instructions were, whilst the control center officer will be asked about the ease of setting up and managing both planned and unplanned activities.

6.2.ii Interviews

After the questionnaire, we will hold an interview with each trial participant at the end of the test day. The observer who was present at the test location will conduct the interviews with the participants they observed that day. This is both practically relevant as they will finish the day in the same location, as content wise relevant, as observers can discuss their observations with the participant. Interviews will be held individually, with one interviewer and one interviewee and are semi-structured. We developed a list of questions, but there is also opportunity to ask follow-up questions to gain a better understanding of the participant's experiences and motivations. This deeper insight and room for clarification is an important addition to the questionnaire. The structure of the interview means we can compare outcomes across individuals and across trials, which is beneficial for the evaluation purposes of this project.

During the interviews we aim to establish which system related factors were of importance by using the story telling approach. For example, interviewers can ask police officers to describe what problems they encounter in their job in a structured manner following a specific format. The interviewer will first ask about the participant's goals, crucial tasks and issues they come across during their job that are relevant to ISITEP, and then they will use that information in the story telling approach. For example, to explore what functionalities are needed, one can ask "In my function as …, I want to do…, to achieve …". To explore what issues police come across in their jobs and how they might be solved, one may ask: "when doing …, I get hindered by …, which can be solved …". For a full list of questions, please see Appendix B.

6.2.iii Observations

The self-report questionnaire data will provide a valuable insight into the experiences of the trial participants. However, people's beliefs and experiences are colored by their frame of reference, which can affect their reporting of events. To gain an additional, more neutral perspective, one observer will be present at all test locations; at the central control room, the Dutch control room, the Belgium control room, the German control room, and in all three police cars, one from each participating country. The observer will note the interactions and activities of the participants. In addition, video footage will be collected during the hot pursuit from all participating cars. These videos serve a dual purpose. They can be used for data analysis but also for presentations.

6.2.iv Data logging

The observers in the police cars will be carrying an android phone. On these phones, an app developed by TNO will be installed. This app tracks the location of the phone via GPS. Data from this app is transferred in real-time and can be projected on a large screen to enable the audience to follow the hot pursuit whilst it is happening. Additionally, the manufacturers will be asked to provide 'call data records' of the established calls that happened during the trials.

6.2.v Time plan

We scheduled 3 trials, and each trial will make use of the same scenario. See Table 2 for an overview of the trials and test days and locations. During the first trial, on the third of February 2016, we will evaluate the KTS-2 communication system, which will serve as a baseline measurement. The second trial is a test trial for the ISITEP framework. Because the participants have never come across this system before, an introduction day will be organized one day prior to the trial. Results from this test trial will be implemented in the system before we run the final trial on the 25th of May 2016. During both ISITEP trials, an audience will be present.

Table 3. Overview trials, trial dates and locations.

Activity	Date	Location
CBC baseline trial with KTS-2	3 February 2016	Zuid-Limburg
ISITEP introduction	One day before test trial	Zuid-Limburg
ISITEP test trial	26 April 2016	Zuid-Limburg
ISITEP final trial	25 May 2016	Zuid-Limburg

The test trial and the final trial will follow the same schedule:

Table 4. Schedule trials.

Activity	Time	Location
Introduction & scenario explanation	09.00-11.00	Simpelveld
Participants travel to their start locations	11.00-11.30	Various locations
Static practice hot pursuit trial	11.30-12.30	Various locations
Lunch	12.30-13.30	Provide lunch packages, various locations
Hot pursuit	13.30-15.30	Various locations
Filling out questionnaire	15.30-15.45	Various locations, in the car / control room
Travel back to Simpelveld	15.45-16.00	Various locations
Coffee break & feedback moment for observers	16.00-16.30	Simpelveld
Group interview with observers and participants	16.30-17.00	Simpelveld
Debriefing	17.00-17.15	Simpelveld

7. TIME PLANNING

The simplified version of the planning of the Hot Pursuit demonstrations is depicted below. The dates have been determined based on availability information of all important stakeholders involved and taking into account specific limitations, especially regarding the supporting unit in Limburg. The demonstration dates have been communicated to and agreed with the industrial partners.

WP7.2 PLANNING			08-2015	02-2016	03-2016	04-2016	05-2016	06-2016	07-2016	08-2016
			M24	M30	M31	M32	M33	M34	M35	M36
		Lead								
7.2.1	Demonstrator Test Plan	POL								
7.2.2	Demonstrator Design	TNO								
7.2.3	Demonstrator Implementation (1st run) 26 april 2016	TNO								
7.2.4	Demonstrator Implementation (2nd run) 25 mei 2016	TNO								
7.2.5	Demonstrator follow-up	POL								

Installation, configuration, testing ISITEP trial environment

26th of April: first run

Applying findings 1st run, (re)testing ISITEP trial environment

25th of May: second run
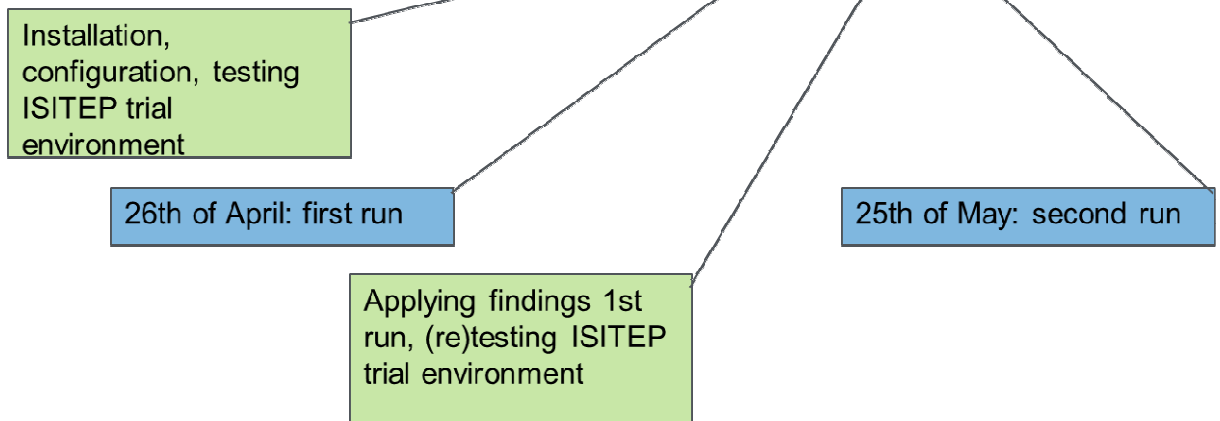
8.   ORGANISATIONS AND PERSONS INVOLVED IN THE DEMONSTRATION

Organisation	Role/Main task
Department of Safety and Justice	ISITEP partner
Dutch Police / Portfolio Regional Operational Centers	National policy and coordination Regional Operational Centers
Dutch Police / Program International Cooperation	Coordination of International cooperation
Dutch Police / Unit Limburg	Host for Demonstrators / participant in the scenario's
Dutch Police / Operational Centers Service Department	Technical/functional support
Dutch Police / Business Consultancy	Project leader WP 7.2
TNO	ISITEP Partner
TNO	Project leader TNO
TNO	Evaluation design, execution and reporting
TNO	Technical Design
Dutch, German and Belgium PPDR organizations / Project Cross Border Communications	Operational Functional requirements, participants in the Demonstrators

9.
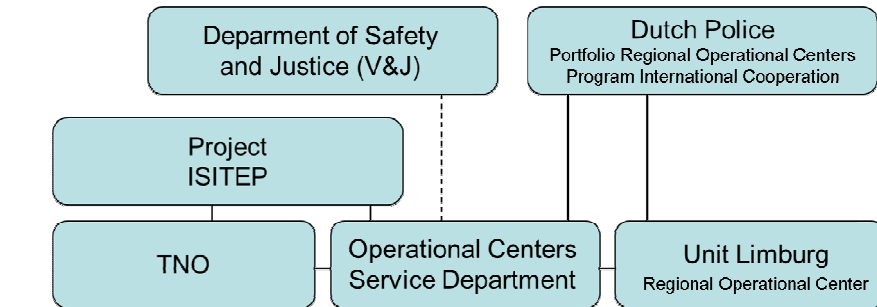
Overview National participants

11.
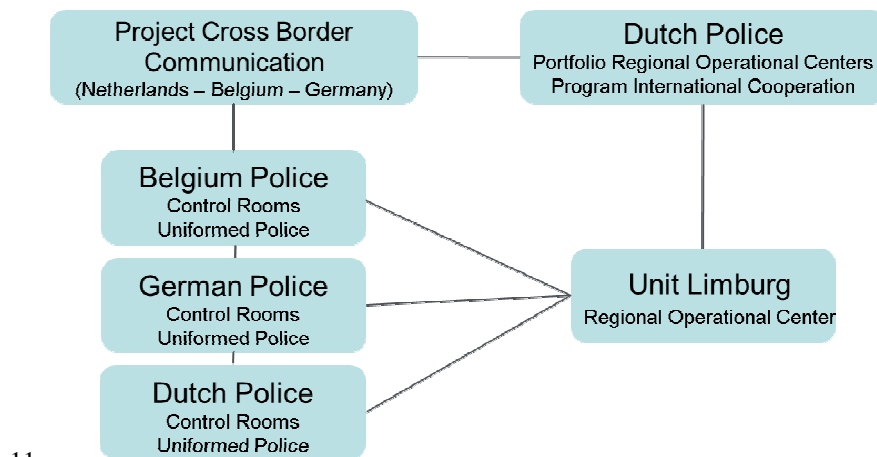
Overview international end users

APPENDIX A: POST-TRIAL QUESTIONNAIRE

GENERAL SECTION

Demographics

Gender:	Male / Female
Age:	…… years

Work experience

Police force:	Dutch / German / Belgium
Years of experience:	…… years
Job title:	……………………………..
With what communication system do you usually work?	……………………………..

Trial

What was your role in the trial today?	Driver / Navigator / Control center
What scenario did you just take part in?	…………………………….

You have just participated in a trial. When answering the following questions, please keep your experiences during the trial today in mind.

	Completely agree	Agree	Neutral	Disagree	Completely disagree	Don't know
Today's hot pursuit scenario was realistic	❑	❑	❑	❑	❑	❑
After the introduction this morning, I understood what was expected of me	❑	❑	❑	❑	❑	❑
The equipment functioned well	❑	❑	❑	❑	❑	❑

The equipment hindered me to achieve my goals	❑	❑	❑	❑	❑	❑

Room for comments

Measures of Merit

Please answer the following open questions:

How did you experience the trial in general today?

What went well?

What could be improved?

Please indicate to which extent you agree or disagree with the following statements:

Quality Questions	Completely agree	Agree	Neutral	Disagree	Completely disagree	Don't know
This system helps me to do my job well	❑	❑	❑	❑	❑	❑
I can do all the tasks I would like to perform with this system	❑	❑	❑	❑	❑	❑
This system allows me to achieve my goals	❑	❑	❑	❑	❑	❑
The benefits of this system are clear to me	❑	❑	❑	❑	❑	❑

Room for comments

Please indicate to which extent you agree or disagree with the following statements:

Audio Quality	Completely agree	Agree	Neutral	Disagree	Completely disagree	Don't know
The quality of audio messages is high	❑	❑	❑	❑	❑	❑
Communication was not hindered by crossing borders	❑	❑	❑	❑	❑	❑

Please indicate to which extent you agree or disagree with the following statements:

Speed of Use Questions	Completely agree	Agree	Neutral	Disagree	Completely disagree	Don't know
This system helps me to work fast	❑	❑	❑	❑	❑	❑
Crossing a border does not delay my work	❑	❑	❑	❑	❑	❑
I can quickly switch channels	❑	❑	❑	❑	❑	❑
Learning how to work with this system is time-consuming	❑	❑	❑	❑	❑	❑
The call set-up time of this system is short	❑	❑	❑	❑	❑	❑

Room for comments

Please indicate to which extent you agree or disagree with the following statements:

Easiness of Use Questions	Completely agree	Agree	Neutral	Disagree	Completely disagree	Don't know
This system is easy to use	❑	❑	❑	❑	❑	❑
It is easy to make mistakes when using this system	❑	❑	❑	❑	❑	❑
Learning how to operate this system is difficult	❑	❑	❑	❑	❑	❑
I find this system intuitive	❑	❑	❑	❑	❑	❑
I can easily switch channels	❑	❑	❑	❑	❑	❑
There were moments during the trial I did not know how to handle the system	❑	❑	❑	❑	❑	❑
The benefits of this system are clear to me	❑	❑	❑	❑	❑	❑

Room for comments

Please answer the following open questions:

During a hot pursuit, what goals do you try to achieve?

Does this new system help you achieve your goals?

During a hot pursuit, what are the most important activities?

Are these activities possible with this new system?

During a hot pursuit, what type of obstacles hinder achieving your goals?

Can this new system help to remove these obstacles?

Do you have any additional comments?

COMPARISON QUESTIONS

Compared to the system you usually use, the new system you tested today:

	Yes	**No**	**No difference**	**Not applicable**
Is easier to use	❏	❏	❏	❏
Works better	❏	❏	❏	❏
Functions well under different circumstances	❏	❏	❏	❏
Works faster	❏	❏	❏	❏
Is less hassle	❏	❏	❏	❏
Has more functions	❏	❏	❏	❏
I prefer the new system over the old system	❏	❏	❏	❏

SPECIFIC QUESTION SECTION

The following questions are dependent on which role you fulfilled during the trial. Please only fill out the questions that are relevant to your role.

If your role was *driver* during the hot pursuit, please continue with driver questions

If your role was *navigator* during the hot pursuit, please continue with navigator questions

If you worked in *the control center* during the hot pursuit, please continue with control room questions

Driver

Driver	Completely agree	Agree	Neutral	Disagree	Completely disagree	Don't know
During the drive, all necessary information could be provided by the control room	❑	❑	❑	❑	❑	❑
During the drive, we could communicate all necessary information to the control room	❑	❑	❑	❑	❑	❑
During the drive, I could understand the audio messages clearly	❑	❑	❑	❑	❑	❑

Thank you for completing this questionnaire. Please return the completed questionnaire.

Navigator

Have you ever used this handheld device before?   Yes / No

How long did it take you to find the right talking group?   …… seconds

Navigator	Completely agree	Agree	Neutral	Disagree	Completely disagree	Don't know
Before the hot pursuit started, it was clear to me how to navigate the handheld device	❑	❑	❑	❑	❑	❑
This handheld device is easy to use	❑	❑	❑	❑	❑	❑
This handheld device has all the functionality I need	❑	❑	❑	❑	❑	❑
With this handheld device, I was quicker in finding the right talk group	❑	❑	❑	❑	❑	❑
This handheld device is safeguarded against making mistakes	❑	❑	❑	❑	❑	❑

Why do you think you were *quicker / slower / no difference* in finding the right talk group with this handheld device?

_____

_____

Are there any functionalities missing specifically from the handheld device? Yes / No

If yes,

Thank you for completing this questionnaire. Please return the completed questionnaire.

APPENDIX B POST-TRIAL INTERVIEW

1) How did you experience the trial in general today?

2) What went well?

3) What could be improved?

4) How did you find working with the ISITEP framework?

5) During a hot pursuit, what goals do you try to achieve?

6) Does the ISITEP framework help you achieve your goals?

7) During a hot pursuit, what are the most important activities?

8) Are these activities possible within the ISITEP framework?

9) During a hot pursuit, what type of obstacles hinder achieving your goals?

10) Can the ISITEP framework help to remove these obstacles?

11) What functionalities would you like a communication system such as ISITEP to have?

12) Is there anything else you would like to discuss?

Questions 5, 7, and 9 can be used as input for the story telling approach.

APPENDIX C: Requirements and their relevance for the Hot Pursuit scenario

ID	Title	Requirement for hot pursuit demo	Techno-functional test
I-EUR-FUN-1	ISI channel trunking	Mandatory	1-8
I-EUR-FUN-2.a	Registration in another network than its home network	Mandatory	1, 2
I-EUR-FUN-5.a	Migrating subscriber profile in the visited network.	Desirable	1, 4
I-EUR-FUN-5.b	Several Migrating subscriber profiles in the visited network.	Desirable	8
I-EUR-FUN-10.a	Automatic Migration Performance	Mandatory	8
I-EUR-CNF-4.a	Terminal - permitted network	Desirable	1
I-EUR-FUN-12	Air Interface Encryption	Mandatory	3
I-EUR-FUN-13	End to End Encryption transparency	Mandatory	3
I-EUR-FUN-15.a	ISI Individual speech call	Mandatory	8
I-EUR-FUN-16.a	ISI Individual speech call – migrated user and home dispatcher	Mandatory	8
I-EUR-FUN-16.b	ISI Individual speech call – migrated user and user in home network	Desirable	8
I-EUR-FUN-16.c	Individual speech call – two migrated users	Desirable	8
I-EUR-FUN-16.d	Individual speech call –migrated and local users	Mandatory	8
I-EUR-FUN-17.a	ISI Individual speech call from telephone PSTN	Not necessary	8
I-EUR-FUN-18.a	Individual speech call to telephone PSTN	Not necessary	8
I-EUR-FUN-19.a	ISI Individual short data service	Desirable	8
I-EUR-FUN-20.a	ISI Individual short data service – migrated user & home dispatcher	Desirable	8
I-EUR-FUN-20.c	ISI Individual short data service – migrated user & user in home network	Desirable	8
I-EUR-FUN-20.e	Individual short data service – two migrated users	Desirable	8
I-EUR-FUN-22.a	ISI Group speech call – users belonging to one network	Mandatory	8
I-EUR-FUN-22.b	ISI Group speech call – users belonging to several network	Mandatory	8
I-EUR-FUN-23.a	Joining a statically linked group	Mandatory	8
I-EUR-FUN-23.b	Joining a statically linked group – migrated and local users	Mandatory	8
I-EUR-FUN-23.c	Joining a statically linked group – user rights	Desirable	5, 6, 7
I-EUR-FUN-25.a	Group addresses used for statically linked groups	Desirable	5, 6, 7
I-EUR-FUN-26.a	ISI group speech call – migrated user	Mandatory	8
I-EUR-FUN-27.a	ISI group short data message	Desirable	8

I-EUR-FUN-28.a	ISI emergency group status message to dispatchers	Desirable	8
I-EUR-FUN-31.a	ISI group short data message to home network	Desirable	8
I-EUR-FUN-31.b	ISI group status message to home network	Desirable	8
I-EUR-FUN-32.a	Joining a local group – migrated user	Desirable	8
I-EUR-FUN-32.b	Local group – migrated and local users	Desirable	8
I-EUR-FUN-32.c	Local group – user rights	Desirable	8
I-EUR-FUN-33.a	Local Group speech Call – migrated user	Desirable	8
I-EUR-FUN-34.a	Local Group short data message – migrated user	Desirable	8
I-EUR-FUN-35.a	Local Group Status message – migrated user	Desirable	8
I-EUR-FUN-36.a	Status message toward a local group of Dispatchers – migrated user	Desirable	8
I-EUR-FUN-37.a	Local Combining of a statically-linked group with one or more local groups	Desirable	5
I-EUR-FUN-49.a	Emergency call to a pre-defined local group	Desirable	8
I-EUR-FUN-50.a	Positions sending to home network	Desirable	8
I-EUR-HUM-1.a	Terminal MMI - display of MCC and MNC	Mandatory	8
I-EUR-HUM-2.a	Terminal MMI - Migration Mode Selection	Mandatory	8
I-EUR-HUM-3.a	Terminal MMI - CLIP	Mandatory	8
I-EUR-HUM-4.a	Terminal MMI - TPI	Mandatory	8
I-EUR-HUM-10.a	Reflex pre-defined group selection	Mandatory	8
I-EUR-FUN-54.a	Mobility TETRA-TETRAPOL	Not necessary	8
I-EUR-FUN-56.a	Dynamic Functional Numbering	Mandatory	8
I-EUR-FUN-57.a	GPS Location Assisted Numbering	Desirable	8
I-EUR-FUN-58.a	Enhanced Message Exchange	Desirable	8
I-EUR-FUN-59.a	Procedures for visiting user	Desirable	8