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Area of intervention:	To promote the development of efficient and effective logistics solutions
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Other contributing contractors:	Volvo, Avonwood



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DISSEMINATION LEVEL		
PU	Public	
PP	Restricted to other programme participants (including Interreg IVB NSRP)	
RE	Restricted to a group specified by the consortium (including Interreg IVB NSRP)	X
CO	Confidential, only for members of the consortium (including Interreg IVB NSRP)	

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1 INTRODUCTION

1.1 PROJECT SCOPE

The NS FRITS project will improve accessibility for the road freight sector in the North Sea Region (NSR) by advancing safety, efficiency, congestion, and security threats for Heavy Goods Vehicles (HGV) operators and drivers.

The project will develop an information and communications management system to provide hauliers and freight operators with information about traffic incidents, HGV route planning, HGV parking information and crime hotspots. The system will be capable of notifying container port operators and other stakeholders about approaching trucks as well as delays.

Additionally, as part of the project, a platform will be developed that ferry operators, container port operators and independent transport information providers can utilise to input relevant freight logistics information into the system.

The system will also provide visibility to container port operators and other relevant stakeholders of approaching trucks, delays as well as congestion.

The project will design and implement a Proof of Concept (POC) system that will provide all of the above functionality. The POC system will be piloted by hauliers and HGV operators in the North Sea Region in 2011.

1.2 PURPOSE OF THE DOCUMENT

The purpose of this document is to provide user requirements for the system. Prior to generating this document, the project partners carried out extensive research including surveys, questionnaires and user consultation workshops with stakeholders. The surveys, questionnaires and user consultation workshops were conducted with drivers and HGV operators in Sweden, the U.K, Germany, the Netherlands, and other European countries.

The results of the surveys, questionnaires and user consultation workshops were collated and are here presented.

1.3 DOCUMENT VERSIONS SHEET

Table 1 : Document versions sheet

Version	Date	Description, modifications, authors
1.0	04/04/2011	Avanti communications, initial draft
1.1	20/10/2011	Avanti communications, circulated for feedback

2 REFERENCE DOCUMENTS

2.1 REFERENCE (R) AND APPLICABLE (A) DOCUMENTS

- [1] Concepts document - A
- [2] Scenario document - A
- [3] Results of driver and operator surveys - A
- [4] Mission requirements - A

2.2 ABBREVIATION

API	Application Programming Interface
HGV	Heavy Goods Vehicle
ID	Identification
MTTR	Mean Time To Repair
NSR	North Sea Region
POC	Proof of Concept
SLA	Service Level Agreement
TCO	Total Cost of Ownership
WGS	World Geodetic System
WP	Work Package

3 DOCUMENT OVERVIEW

3.1 METHODOLOGY

The methodology used to collate the requirements presented in this document is outline in Figure 1 below. Interviews, surveys and stakeholder workshops were conducted with the major actors in the freight logistics industry within the consortium and outside, such as hauliers, law enforcement authorities, freight and container terminal operators, etc. It is anticipated that the development of the system will be iterative such that user/stakeholder feedback will be sought and incorporated throughout the system development life cycle as shown in Figure 2 below. This collaborative approach will ensure that the Proof of Concept (POC) application developed in the project meets user needs.

Though a broad outline of business requirements have been included in this document, exploration of detailed cost-benefit analysis was limited during the requirements gathering process because that will be covered in a separate business case and exploitation document which will be published at the end of the project.

The requirements are presented in a table each row of which contains the following 4 columns:

- I. An Identification (ID) to uniquely and unambiguously identify the requirement. The identification is generated from the section header and number. The ID is used for cross-referencing with mission and system requirements;
- II. A priority for each requirement, denoted as either essential (E) or desirable (D);
- III. The phase in which the requirements will be developed. It is envisaged that the NS FRITS system will be developed in two phases; a first phase (1) during which the proof of concept application will be developed and a second phase (2) beyond the current project lifespan during which the POC system will be developed further into an operational system;
- IV. A description of the requirement.

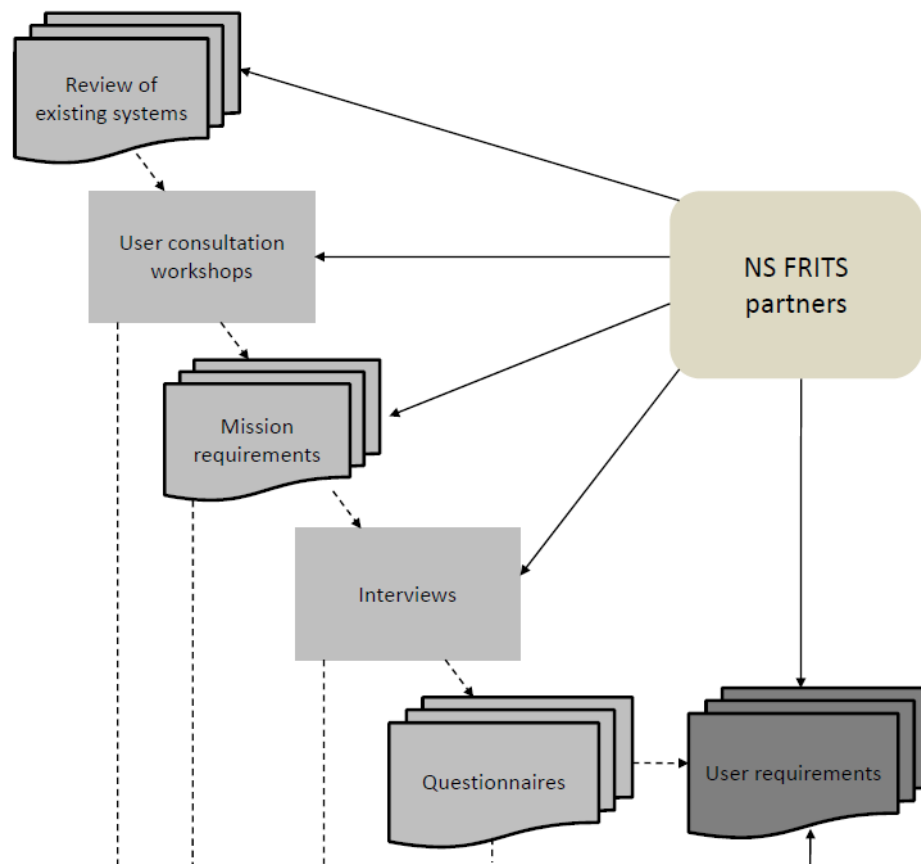


Figure 1 : User requirements capture methodology

3.2 DOCUMENT LOCATION IN PROJECT ACTIVITIES

This document is a deliverable of WP2.2 activities. The document's location in the context of other project activities is shown in Figure 2;

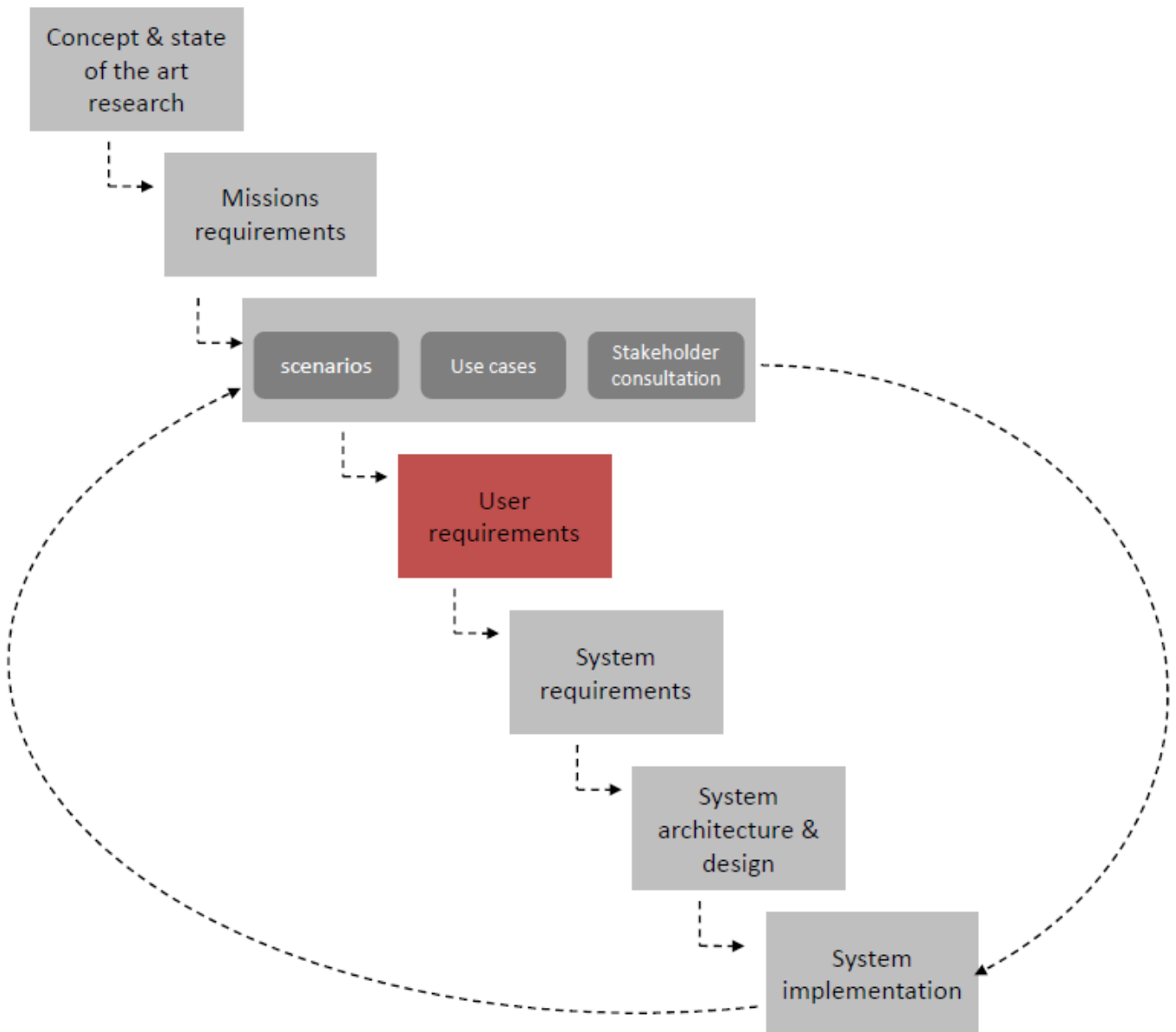


Figure 2 : Document location in project activities

4 FUNCTIONAL USER REQUIREMENTS

Req. ID	Priority	Phase	Description
REQ-FUNC-10	E	1	The system shall be capable of aggregating relevant freight transport information from a variety of sources and providers (regional, national and international) into a single automated view
REQ-FUNC-20	E	1	The system shall provide freight logistics information services to drivers of Heavy Goods Vehicles (HGVs) in the NSR using the Trans European Road Network (TERN) who have access to the appropriate equipment and are in range of system transmissions
REQ-FUNC-30	E	1	The system shall provide two deployment models based on user profile; one for stationary users and another for nomadic users
REQ-FUNC-40	E	2	The mobile deployment model of the system shall be capable of being operated and used hands-free
REQ-FUNC-50	E	2	The system shall be capable of providing end users with contextually relevant, time-dependent and location specific freight transport information
REQ-FUNC-60	E	1	The system shall provide freight transport information services to end users in all the languages of the NSR
REQ-FUNC-70	E	1	The system shall be capable of exploiting multiple communication technologies where applicable to achieve sufficient coverage and availability
REQ-FUNC-80	E	1	The system shall be capable of being used by HGV operators of varying sizes including single owner-driver operators
REQ-FUNC-90	E	1	The system shall provide HGV optimised routing to users taking into account the vehicle height, weight, length, and tonnage
REQ-FUNC-100	E	1	Users shall be provided with capability to select or prioritise information received from the system
REQ-FUNC-110	E	1	The system shall be capable of providing information to end users in all the languages of the NSR
REQ-FUNC-120	E	1	The system shall provide capabilities for automated as well as manual data ingestion
REQ-FUNC-130	E	2	Transport logistics information from the system shall take into account local traffic conditions where available
REQ-FUNC-140	E	1	The system shall provide appropriate advanced notification about traffic incidents to end users where available
REQ-FUNC-150	E	1	The system shall provide appropriate notification information about crime hotspots in the NSR to where available
REQ-FUNC-160	E	2	The system shall provide appropriate notification information about parking locations in the NSR to where available
REQ-FUNC-170	E	2	The system shall provide appropriate notification about local policing information where available
REQ-FUNC-180	E	2	The system shall provide HGV specific turn-by-turn navigation information including suitable visual indicators
REQ-FUNC-190	E	1	The system shall provide capability for authorised personnel to broadcast transport information to all users or users within a designated locality
REQ-FUNC-200	E	1	The system shall recognise location information based on one or a combination of the following: <ul style="list-style-type: none"> • Location name; • Postcode; • Automatically reverse-geocoded WGS84 coordinates.
REQ-FUNC-210	E	2	The system shall provide up to date , relevant and timely freight logistics information to users on demand where available

5 NON-FUNCTIONAL USER REQUIREMENTS

5.1 COMMUNICATION REQUIREMENTS

Req. ID	Priority	Phase	Description
REQ-COMM-220	E	1	The system shall provide two way communication of freight transport information between users
REQ-COMM-230	E	1	The system shall provide capability for authorised personnel to broadcast transport information to all users or only users within a designated locality
REQ-COMM-240	E	1	The system shall provide a suitable platform for transport information to be uploaded, and accessible to users in real-time

5.2 SECURITY REQUIREMENTS

Req. ID	Priority	Phase	Description
REQ-SECU-250	E	1	Only authorised users shall be allowed access to the system
REQ-SECU-260	E	1	The system shall be capable of logging all user activities subject to the user's permission
REQ-SECU-270	E	1	The system shall grant access rights and privileges to users based on profile
REQ-SECU-280	E	1	The system shall augment and amalgamate but not alter the contents of freight transport information data from sources and providers

5.3 PERFORMANCE REQUIREMENTS

Req. ID	Priority	Phase	Description
REQ-PERF-290	E	2	Response time to retrieve freight logistics information services from the system shall be no more than 10 seconds
REQ-PERF-300	E	2	The system shall take no more than 10 seconds to respond to user actions

5.4 ADAPTABILITY REQUIREMENTS

Req. ID	Priority	Phase	Description
REQ-ADAP-310	E	1	The system shall modular and allow for possibility of enhancement to take into account future and evolving data management and communication technologies
REQ-ADAP-320	E	1	The system shall be capable of ingesting data from proprietary freight logistics information management systems
REQ-ADAP-330	E	1	A suitable interface shall be provided for independent transport information services developers to utilise the data contents of the system
REQ-ADAP-340	E	2	The system shall be deployable on at least two mobile and desktop operating system platforms

5.5 USABILITY REQUIREMENTS

Req. ID	Priority	Phase	Description
REQ-USAB-350	E	2	It shall be possible for at least 90% of a statistically valid sample of users to operate and use the system in under 20 minutes without prior training.
REQ-USAB-360	E	1	Information from the system shall be provided to users via text, audio or cartographic formats or a combination these formats
REQ-USAB-370	E	1	It shall be possible for a user to configure the system to suit their specific preferences
REQ-USAB-380	D	2	The system shall provide information in the user's preferred language where available
REQ-USAB-390	E	1	It shall be possible to enable access to the system or exit from the system in a single step and with appropriate confirmation
REQ-USAB-400	E	2	It shall be possible for at least 90% of a statistically valid sample of trained users to complete a task using the system within 5 minutes
REQ-USAB-410	E	2	It shall be possible for at least 90% of a statistically valid sample of users to successfully complete assigned tasks using the system after receiving no more than 2.5 hours of training
REQ-USAB-420	E	2	At least 90% of a statistically valid sample of users shall rate the overall user interface as being either very easy to navigate or easy to navigate on the following scale (very easy to navigate, easy to navigate, neutral, difficult to navigate, very difficult to navigate).
REQ-USAB-430	E	2	At least 90% of a statistically valid sample of trained users shall be able to correctly interpret 95% the system's error messages
REQ-USAB-440	E	2	At least 90% of a statistically valid sample of users shall rate the overall layout of the user interface as either very clear or clear on the following scale (very clear, clear, neutral, unclear, and very unclear).

5.6 REGULATORY REQUIREMENTS

Req. ID	Priority	Phase	Description
REQ-REGU-450	E	2	The system shall comply with the regional and national regulations where it is deployed and used
REQ-REGU-460	E	2	The system shall adhere to relevant freight logistics information management standards where applicable

5.7 RELIABILITY REQUIREMENTS

Req. ID	Priority	Phase	Description
REQ-RELI-470	E	2	The system shall provide reliability of no less than 98%
REQ-RELI-480	E	2	The system shall provide a Mean Time To Recovery (MTTR) of no more than 48 hours
REQ-RELI-490	E	2	The system shall provide redundancy to minimise single points of failure

5.8 SAFETY REQUIREMENTS

Req. ID	Priority	Phase	Description
There are no safety requirements for the NS FRITS system software. However, suitable cautionary messages shall be provided to drivers as appropriate.			

5.9 SCALABILITY REQUIREMENTS

Scalability Requirements			
Req. ID	Priority	Phase	Description
REQ-SCAL-500	E	1	The system shall initially be operational in the NSR but with capability of upgrade and extension to eventually operate in the rest of Europe
REQ-SCAL-510	E	2	The system shall be capable of supporting multiple remote concurrent users without degradation in performance
REQ-SCAL-520	E	2	The system shall be capable of accommodating additional data sources and providers without degradation in performance
REQ-SCAL-530	E	2	Increase in the number of concurrent users shall not degrade system availability or reliability

5.10 BUSINESS REQUIREMENTS

Req. ID	Priority	Phase	Description
REQ-BUSI-540	E	2	The system shall be capable of being implemented as a wholly public, private or public/private partnership
REQ-BUS-550	E	2	The system shall optimise utilisation of cellular network capacity to reduce Total Cost Ownership (TCO) for end users
REQ-BUS-560	D	2	The system services should be capable of improving the bottom line for large fleet operators as well as single owner-driver businesses
REQ-BUS-570	E	2	The system shall provide pricing options to users based on predefined Service Level Agreements (SLA)

6 APPENDICES

6.1 APPENDIX 1 DRIVER SURVEY IN ENGLISH



North Sea Freight Intelligent Transport Solutions

NS FRITS Driver Survey



NS FRITS - North Sea Freight Intelligent Transport Solutions -

is set to dramatically improve conditions for drivers by:

- Providing live, in-cab information about the region or country they are about to enter
- Reducing accidents as drivers are alerted to poor weather conditions and local driving laws
- Improve driver safety by providing security information
- Providing information about congestion and local driving conditions
- Positively impact on the environment as emissions are reduced
- Transmit / receive information in a series of languages
- Improve competitiveness, growth and job opportunities

As NS FRITS is being developed for drivers and to ensure the system will benefit you at work we need to understand your requirements.

Please distribute this questionnaire amongst your drivers and ask them to take a few minutes to answer the following questions.

Company information - understanding your working environment

1. Name of business: _____

2. How many people work for your employer? (please tick)

0 – 5 ☐ 6-25 ☐ 26-50 ☐
 50 – 100 ☐ 100-250 ☐ 250 + ☐

3. What is the size of your fleet? _____ vehicle(s)

4. Do you drive internationally? (please tick) Yes ☐ No ☐

5. Which country(s) is your business based in? _____

6. Which countries do you regularly drive in? (please tick all that apply)

UK	<input type="checkbox"/>	Germany	<input type="checkbox"/>	Netherlands	<input type="checkbox"/>
Denmark	<input type="checkbox"/>	Norway	<input type="checkbox"/>	Belgium	<input type="checkbox"/>
Sweden	<input type="checkbox"/>	Other EU countries	<input type="checkbox"/>	Other non-EU countries	<input type="checkbox"/>

Current data system - understanding the information you currently receive

7. Which system do you use for your main in-cab communications?
(please specify name and brand)

8. What do you feel is missing or could be improved with your main in-cab communication system?

9. Which features from systems you have used or know about do you consider particularly useful?

NS FRITS - how NS FRITS can improve your working life

10. What major problems have you encountered when travelling internationally? (please tick all that apply)

- | | | | |
|--------------------------------|--------------------------|------------------------------|--------------------------|
| Traffic | <input type="checkbox"/> | Road traffic collisions | <input type="checkbox"/> |
| Understanding foreign laws | <input type="checkbox"/> | Weather | <input type="checkbox"/> |
| Crime | <input type="checkbox"/> | Finding secure parking areas | <input type="checkbox"/> |
| Lorry specific road conditions | <input type="checkbox"/> | Other _____ | |

11. What information gaps exist that would help you? (please tick all that apply)

- | | | | |
|--------------------------------|--------------------------|------------------------------|--------------------------|
| Traffic | <input type="checkbox"/> | Road traffic collisions | <input type="checkbox"/> |
| Understanding foreign laws | <input type="checkbox"/> | Weather | <input type="checkbox"/> |
| Crime | <input type="checkbox"/> | Finding secure parking areas | <input type="checkbox"/> |
| Lorry specific road conditions | <input type="checkbox"/> | Other _____ | |

12. How do you think this system would best operate? (please tick)

- | | | | |
|-------------------|--------------------------|---------------|--------------------------|
| Hands free device | <input type="checkbox"/> | In-cab device | <input type="checkbox"/> |
| In transit | <input type="checkbox"/> | Remote access | <input type="checkbox"/> |

(e.g. accessed at service stations or on ferries)

Other _____



Driver information

Name _____ Tel No _____

E-mail _____

Any other comments _____

Please return the completed form to People United Against Crime at:

✉: 4th Floor, Castle Market Buildings
Exchange Street
Sheffield
S1 2AH

E: info@nsfrits.eu
F: +44 (0)114 275 8637

If you do not wish to receive future information regarding NS FRITS please tick this box ☐
Please note we will not pass your information to anyone outside of the NS FRITS partnership

For more information:

Please visit the NS FRITS website - www.nsfrits.eu

PLUS register today as a NS FRITS Stakeholder and you can have access to the exclusive Stakeholder area where you will be able to provide NS FRITS Partners with feedback throughout the development of the system.

Alternatively e-mail us at info@nsfrits.eu

NS FRITS Partnership



Working with



6.2 APPENDIX 2 DRIVER SURVEY IN GERMAN



North Sea Freight Intelligent Transport Solutions

NS FRITS

Fahrerumfrage



NS FRITS - North Sea Freight Intelligent Transport Solutions -

Hat das Ziel, die Bedingungen für Fahrer entscheidend zu verbessern:

- Informationen über Länder und Regionen, die angesteuert werden, direkt ins Fahrzeug zu senden
- Unfälle durch Warnungen zu Wetterverhältnissen und lokalen Vorschriften zu verhindern
- Die Sicherheit durch aktuelle Gefahreninformationen zu erhöhen
- Informationen über Verkehrsstaus und aktuelle Straßenbedingungen zu liefern
- Durch bessere Informationen Emissionen zu reduzieren
- Informationen mehrsprachig zu vermitteln
- Verbesserungen der Wettbewerbsfähigkeit, Wachstumsmöglichkeiten und Arbeitsbedingungen zu erzielen

NS FRITS wird zur Unterstützung der Fahrer entwickelt. Um sicherzustellen, dass der Fahrer wirklich in seiner Arbeit unterstützt wird, müssen wir die Anforderungen der Fahrer möglichst gut verstehen.

Bitte nehmen Sie sich ein paar Minuten Zeit, um mit Ihren Fahrern die folgenden Fragen zu beantworten.

Firmeninformationen - Ihre Arbeitsumgebung

1. Name des Unternehmens: _____

2. Zahl der Mitarbeiter? (bitte ankreuzen)

0 - 5	<input type="checkbox"/>	6 - 25	<input type="checkbox"/>	26 - 50	<input type="checkbox"/>
51 - 100	<input type="checkbox"/>	101 - 250	<input type="checkbox"/>	251 +	<input type="checkbox"/>

3. Wie groß ist Ihre Fahrzeugflotte? _____ Fahrzeuge

4. Fahren Sie international? (bitte ankreuzen) Ja ☐ Nein ☐

5. In welchem Land ist Ihr Hauptsitz? _____

6. Welche Länder bedienen Sie regelmäßig? (bitte alle Zutreffenden ankreuzen)

Großbritannien	<input type="checkbox"/>	Deutschland	<input type="checkbox"/>	Niederlande	<input type="checkbox"/>
Dänemark	<input type="checkbox"/>	Norwegen	<input type="checkbox"/>	Belgien	<input type="checkbox"/>
Schweden	<input type="checkbox"/>	Andere EU Länder	<input type="checkbox"/>	Andere Nicht EU Länder	<input type="checkbox"/>

Vorhandene Kommunikationssysteme

7. Welche Systeme nutzen Sie hauptsächlich für die Kommunikation mit dem Fahrer? (Bitte Hersteller und Marke angeben)

8. Was könnte bei der Kommunikation mit dem Fahrer verbessert werden?

9. Welche Möglichkeiten der Systeme, die Sie nutzen oder kennen, sind besonders hilfreich?

NS FRITS - wie kann NS FRITS Ihre Arbeit unterstützen

10. Welche Hauptprobleme treten bei internationalen Fahrten auf?
(bitte alle Zutreffenden ankreuzen)

- | | | | |
|-------------------------------|--------------------------|---------------------------|--------------------------|
| Verkehrsdichte | <input type="checkbox"/> | Verkehrsunfälle | <input type="checkbox"/> |
| Länderspezifische Gesetze | <input type="checkbox"/> | Wetter | <input type="checkbox"/> |
| Kriminalität | <input type="checkbox"/> | Sichere Parkmöglichkeiten | <input type="checkbox"/> |
| Straßenbeschränkungen für LKW | <input type="checkbox"/> | Andere _____ | |

11. Welche Informationen könnten weiterhelfen?
(bitte alle Zutreffenden ankreuzen)

- | | | | |
|--------------------------------|--------------------------|---------------------------------|--------------------------|
| Verkehrsdichte | <input type="checkbox"/> | Verkehrsunfälle | <input type="checkbox"/> |
| Informationen über | | Wetter | <input type="checkbox"/> |
| Länderspezifische Vorschriften | <input type="checkbox"/> | Hinweise auf sichere Parkplätze | <input type="checkbox"/> |
| Kriminalität | <input type="checkbox"/> | Andere _____ | |
| Straßenbeschaffenheit für LKW | <input type="checkbox"/> | | |

12. Welche Systeme würden Sie bevorzugen? (bitte ankreuzen)

- | | | | |
|---|--------------------------|----------------------------------|--------------------------|
| Tragbare Geräte | <input type="checkbox"/> | Einbaugeräte in der Fahrerkabine | <input type="checkbox"/> |
| Feste Servicestationen
(z. B. auf Fahrten, an Parkplätzen) | <input type="checkbox"/> | Zugriff per Internet | <input type="checkbox"/> |

Andere _____



North Sea Freight Intelligent Transport Solutions

Fahrerinformation

Name _____ Tel. Nr. _____

E-Mail _____

Weitere Kommentare _____

Bitte senden Sie den ausgefüllten Fragebogen an:

Institut für Seeverkehrswirtschaft und Logistik (ISL)
Barkhausenstraße 2
27568 Bremerhaven
Deutschland

E-Mail: dreyer@isl.org
Tel.: +49/4 71/30 98 38-0
Fax: +49/4 71/30 98 38-55

Wenn Sie keine weitergehenden Informationen zu NS FRITS wünschen, bitte hier ankreuzen ☐
Ihre Informationen werden ausschließlich innerhalb der NS FRITS Partnerschaft verwendet

Für weitere Informationen:

Besuchen Sie bitte die NS FRITS Webseite - www.nsfrits.eu

UND registrieren Sie sich als NS FRITS Stakeholder. So haben Sie Zugriff auf die „exclusive Stakeholder area“, wo Sie die NS FRITS Partner bei der Entwicklung des Projektes mit Kritik und Anregungen unterstützen können.

Alternativ erreichen Sie uns per E-Mail unter info@nsfrits.eu

NS FRITS Partnerschaft mit

In Zusammenarbeit
mit



6.3 APPENDIX 3 DRIVER SURVEY IN POLISH



North Sea Freight Intelligent Transport Solutions

NS FRITS

Badanie ankietowe kierowcy



Obecny system danych - zrozumienie informacji, które obecnie otrzymujesz

7. Jaki jest główny system komunikacyjny, którego używasz w szoferce? (prosimy podać nazwę i markę)

8. Czego brakuje, lub co mogłoby być ulepszone w głównym systemie komunikacyjnym, którego używasz w szoferce?

9. Które funkcje z systemów, jakie używałeś bądź znasz uważasz za szczególnie przydatne?

NS FRITS - jak NS FRITS może ulepszyć Twoje życie zawodowe

10. Z czym związane były największe problemy, na które natrafiałeś podróżując za granicą? (prosimy o odznaczenie haczykiem wszystkich odpowiedników)

Ruchem drogowym ☐ Kolizjami w ruchu drogowym ☐

Rozumieniem zagranicznego

prawa ☐ Pogodą ☐

Przestępczością ☐ Odnajdywaniem bezpiecznych miejsc parkingowych ☐

Warunkami drogowymi dla samochodów ciężarowych ☐ Inne _____

11. Z czym związane są informacje pomocnicze, w których istnieją luki? (prosimy o odznaczenie haczykiem wszystkich odpowiedników)

Ruchem drogowym ☐ Kolizjami w ruchu drogowym ☐

Rozumieniem zagranicznego prawa ☐ Pogodą ☐

Przestępczością ☐ Odnajdywaniem bezpiecznych miejsc parkingowych ☐

Warunkami drogowymi dla samochodów ciężarowych ☐ Inne _____

12. W jakiej formie system ten działałby najlepiej? (prosimy o odznaczenie)

Urządzenia głośnomówiącego ☐ Urządzenia wewnątrz szoferki ☐

Podczas tranzytu ☐ Zdalnego dostępu ☐

(Np. poprzez dostęp na stacjach, na promach)

Inne _____

Obecny system danych - zrozumienie informacji, które obecnie otrzymujesz

7. Jaki jest główny system komunikacyjny, którego używasz w szoferce? (prosimy podać nazwę i markę)

8. Czego brakuje, lub co mogłoby być ulepszone w głównym systemie komunikacyjnym, którego używasz w szoferce?

9. Które funkcje z systemów, jakie używałeś bądź znasz uważasz za szczególnie przydatne?

NS FRITS - jak NS FRITS może ulepszyć Twoje życie zawodowe

10. Z czym związane były największe problemy, na które natrafiłeś podróżując za granicą? (prosimy o odznaczenie haczykiem wszystkich odpowiedników)

- | | | | |
|--|--------------------------|--|--------------------------|
| Ruchem drogowym | <input type="checkbox"/> | Kolizjami w ruchu drogowym | <input type="checkbox"/> |
| Rozumieniem zagranicznego prawa | <input type="checkbox"/> | Pogodą | <input type="checkbox"/> |
| Przestępczością | <input type="checkbox"/> | Odnajdywaniem bezpiecznych miejsc parkingowych | <input type="checkbox"/> |
| Warunkami drogowymi dla samochodów ciężarowych | <input type="checkbox"/> | Inne _____ | |

11. Z czym związane są informacje pomocnicze, w których istnieją luki? (prosimy o odznaczenie haczykiem wszystkich odpowiedników)

- | | | | |
|--|--------------------------|--|--------------------------|
| Ruchem drogowym | <input type="checkbox"/> | Kolizjami w ruchu drogowym | <input type="checkbox"/> |
| Rozumieniem zagranicznego prawa | <input type="checkbox"/> | Pogodą | <input type="checkbox"/> |
| Przestępczością | <input type="checkbox"/> | Odnajdywaniem bezpiecznych miejsc parkingowych | <input type="checkbox"/> |
| Warunkami drogowymi dla samochodów ciężarowych | <input type="checkbox"/> | Inne _____ | |

12. W jakiej formie system ten działałby najlepiej? (prosimy o odznaczenie)

- | | | | |
|----------------------------|--------------------------|------------------------------|--------------------------|
| Urządzenia głośnomówiącego | <input type="checkbox"/> | Urządzenia wewnątrz szoferki | <input type="checkbox"/> |
| Podczas tranzytu | <input type="checkbox"/> | Zdalnego dostępu | <input type="checkbox"/> |

(Np. poprzez dostęp na stacjach, na promach)

Inne _____



Informacje o kierowcy:

Imię _____ Nr. Tel. _____

E-mail _____

Dodatkowe informacje: _____

Wypełniony formularz prosimy przesłać do People United Against Crime na adres:

✉: 4th Floor, Castle Market Buildings
Exchange Street
Sheffield
S1 2AH

E: info@nsfrits.eu
F: +44 (0)114 275 8637

Jeśli nie życzą sobie Państwo otrzymywać jakichkolwiek dalszych informacji w związku z NS FRITS prosimy o zaznaczenie kratki. ☐

Prosimy zwrócić uwagę, że wszystkie dostarczone przez Państwa informacje nie będą przekazane nikomu spoza Partnerstwa NS FRITS.

Aby uzyskać więcej informacji:

Prosimy odwiedzić stronę internetową NS FRITS pod adresem - www.nsfrits.eu

PLUS zarejestruj się dzisiaj jako Intersariusz NS FRITS a możesz mieć dostęp do ekskluzywnej części dla Intersariuszy, gdzie będziesz mógł dostarczać opinii Partnerom NS FRITS przez cały proces rozwoju systemu.

Alternatywnie można wysłać do nas e-mail na adres info@nsfrits.eu

NS FRITS Partnership



6.4 APPENDIX 4 OPERATOR SURVEY IN ENGLISH



North Sea Freight Intelligent Transport Solutions

NS FRITS

Transport Operator Survey



NS FRITS - North Sea Freight Intelligent Transport Solutions aims to dramatically improve competitiveness, growth and conditions for transport managers, freight handlers and drivers by:

- Developing a system that provides live, up-to-date information about the region or country they are about to enter
- Improving driver safety by providing security information
- Providing information about congestion and local driving conditions
- Reducing accidents as drivers are alerted to poor weather conditions and local driving laws
- Transmitting / receiving information in a series of languages
- Positively impacting on the environment as emissions are reduced

As NS FRITS is being developed for transport managers, freight handlers and drivers and to ensure the system will benefit you at work, we need to understand your requirements.

Please take a few minutes to answer the following questions.

Company Information - understanding your working environment

1. Name of organisation: _____

2. How many people work for your organisation? **(please tick)**

0 – 5	<input type="checkbox"/>	6-25	<input type="checkbox"/>	26-50	<input type="checkbox"/>
50 – 100	<input type="checkbox"/>	100-250	<input type="checkbox"/>	250 +	<input type="checkbox"/>

3. What is the size of your fleet? _____ vehicle(s)

4. Do your drivers work internationally? **(please tick)** Yes ☐ No ☐

5. Which country(s) is your business based in? _____

6. Which countries does your organisation regularly work in? (please tick all that apply)

UK	<input type="checkbox"/>	Germany	<input type="checkbox"/>	Netherland's	<input type="checkbox"/>
Denmark	<input type="checkbox"/>	Norway	<input type="checkbox"/>	Belgium	<input type="checkbox"/>
Sweden	<input type="checkbox"/>	Other EU countries	<input type="checkbox"/>	Other non-EU countries	<input type="checkbox"/>

Current communication system - understanding the information you currently receive

7. Do you operate a GPS tracking system? Yes ☐ No ☐
8. If you answered yes, which system do you use? (please specify name and brand)
- _____
9. What do you think is missing or could be improved with your main communication system?
- _____
10. What type of communications system would suit your needs?
- _____

NS FRITS - how NS FRITS can improve your working life

11. What major problems has your organisation encountered when drivers are working nationally / internationally? (please tick all that apply)

Traffic volumes	<input type="checkbox"/>	Road traffic incidents	<input type="checkbox"/>
Understanding foreign laws	<input type="checkbox"/>	Weather	<input type="checkbox"/>
Finding secure parking areas	<input type="checkbox"/>	Crime	<input type="checkbox"/>
Road conditions for goods vehicles	<input type="checkbox"/>	Other _____	

12. What information would you need to help you? (please tick all that apply)

Traffic volumes	<input type="checkbox"/>	Road traffic incidents	<input type="checkbox"/>
Understanding foreign laws	<input type="checkbox"/>	Weather	<input type="checkbox"/>
Finding secure parking areas	<input type="checkbox"/>	Crime	<input type="checkbox"/>
Road conditions for goods vehicles	<input type="checkbox"/>	Other _____	

13. How do you think an information system would best operate? (please tick)

Hands free device	<input type="checkbox"/>	In-cab GPS device	<input type="checkbox"/>
In transit (service stations or on ferries)	<input type="checkbox"/>	Remote access	<input type="checkbox"/>
Other _____			



Operator information

Name _____ Tel No _____

E-mail _____

Any other comments _____

Please return the completed form to People United Against Crime at:

✉: 4th Floor, Castle Market Buildings
Exchange Street
Sheffield
S1 2AH

E: info@nsfrits.eu
F: +44 (0)114 275 8637

If you do not wish to receive future information regarding NS FRITS please tick this box ☐
Please note we will not pass your information to anyone outside of the NS FRITS partnership

For more information:

Please visit the NS FRITS website - www.nsfrits.eu

PLUS register today as a NS FRITS Stakeholder and you can have access to the exclusive Stakeholder area where you will be able to provide NS FRITS Partners with feedback throughout the development of the system.

Alternatively e-mail us at info@nsfrits.eu



NS FRITS Partnership



People United Against Crime



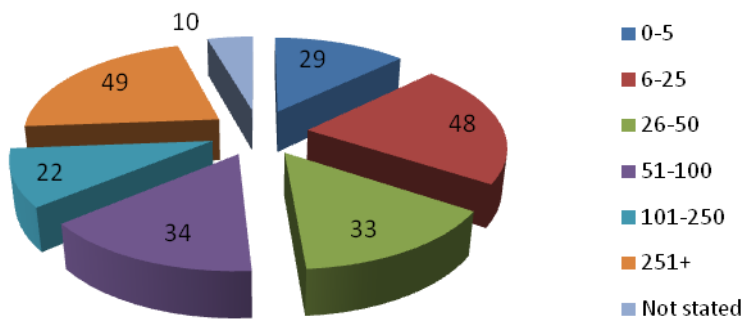
VOLVO



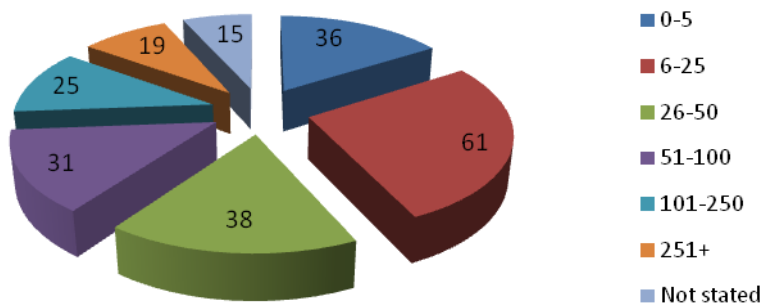
6.5 APPENDIX 5 DRIVER SURVEY REPORT

North Sea Freight Intelligent Transport Solutions NS FRITS Driver Survey Data

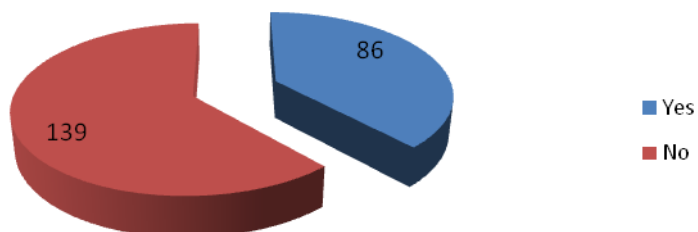
1. Number of surveys completed = 225
2. How many people work for your employer?



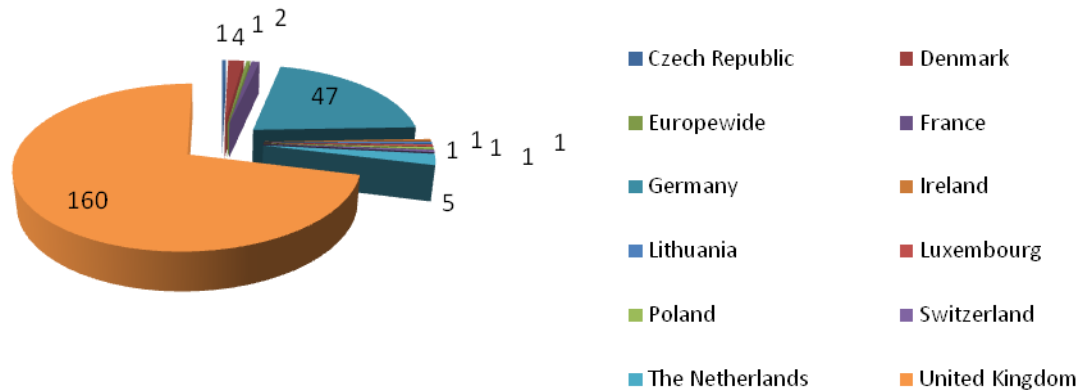
3. What is the size of your fleet?



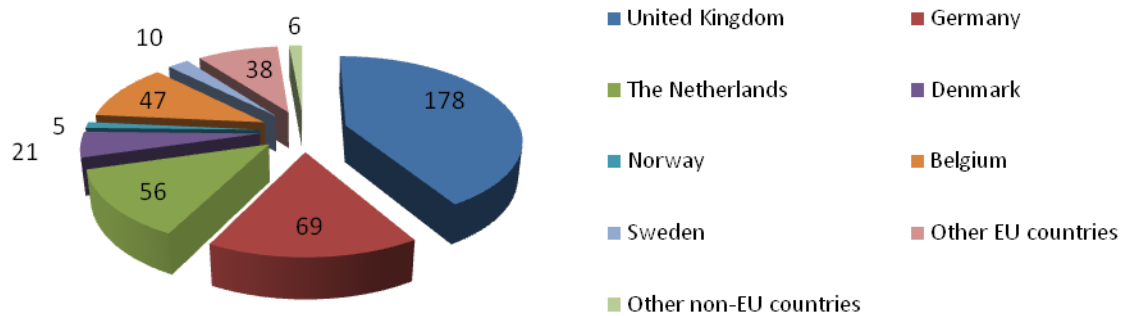
4. Do you drive internationally?



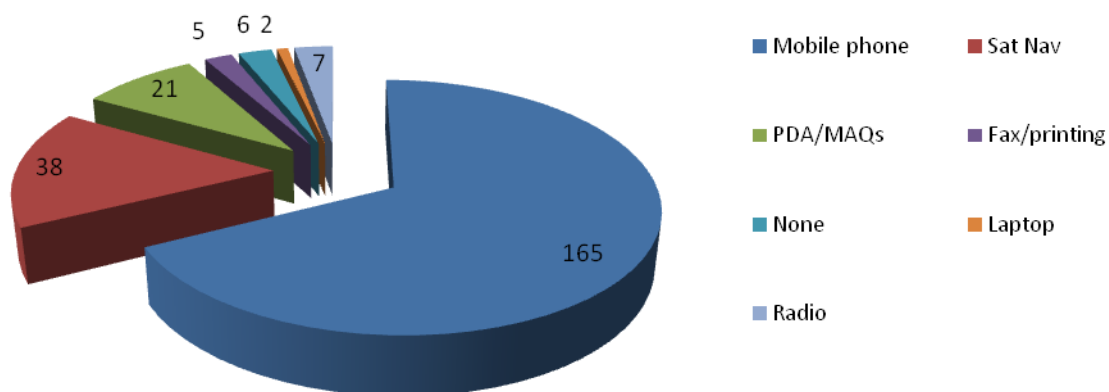
5. Which country is your business based in?



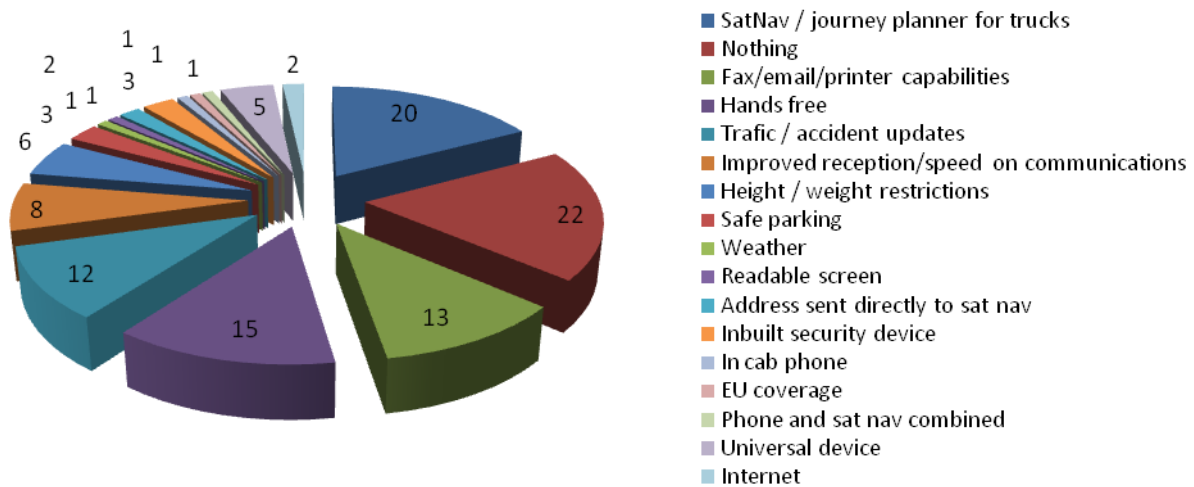
6. Which country do you regularly drive in?



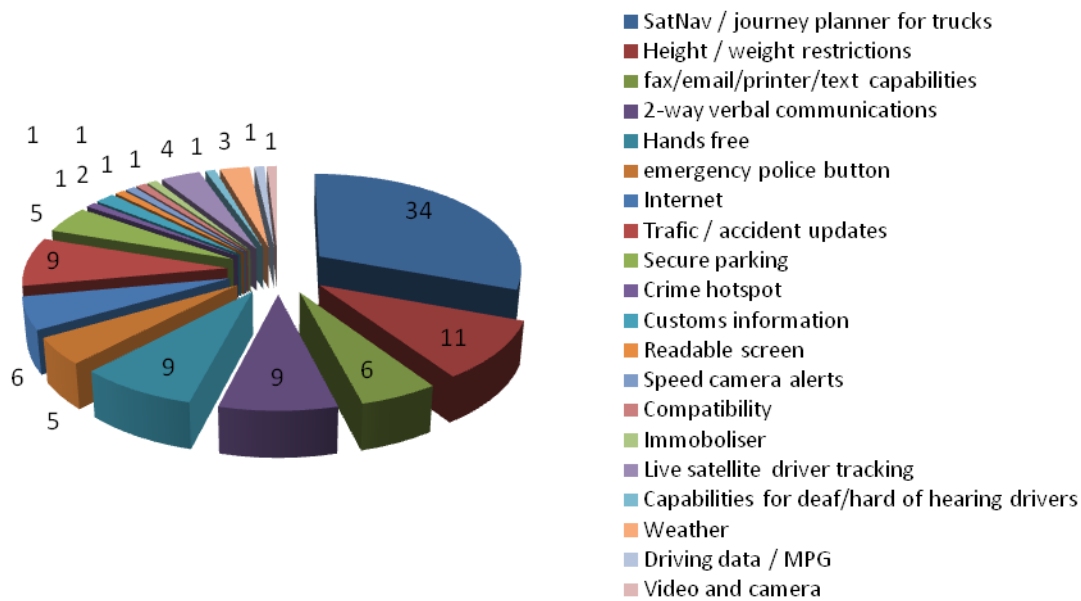
7. Which system do you use for your main in-cab communications?



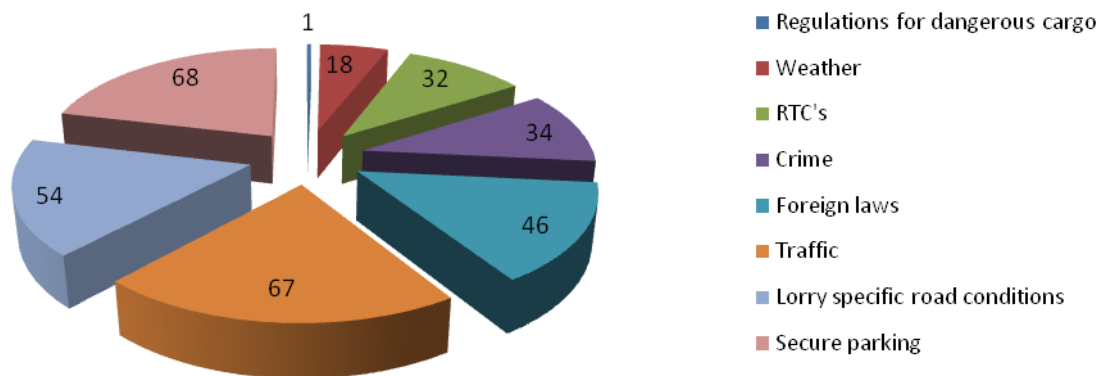
8. What do you feel is missing or could be improved with you main in-cab communication system?



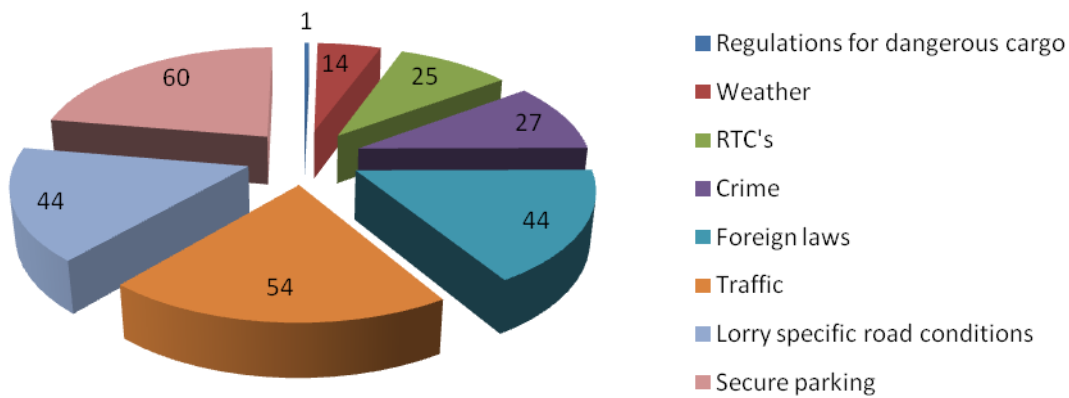
9. Which features from systems you have used or know about do you consider particularly useful?



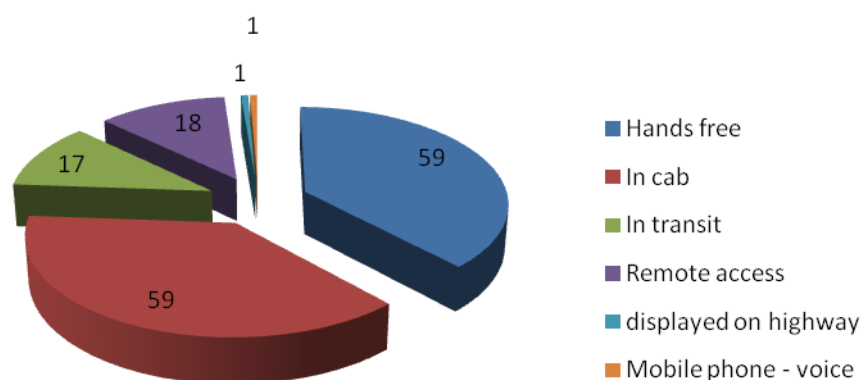
10. What major problems have you encountered when travelling internationally?



11. What information gaps exist that would help you?



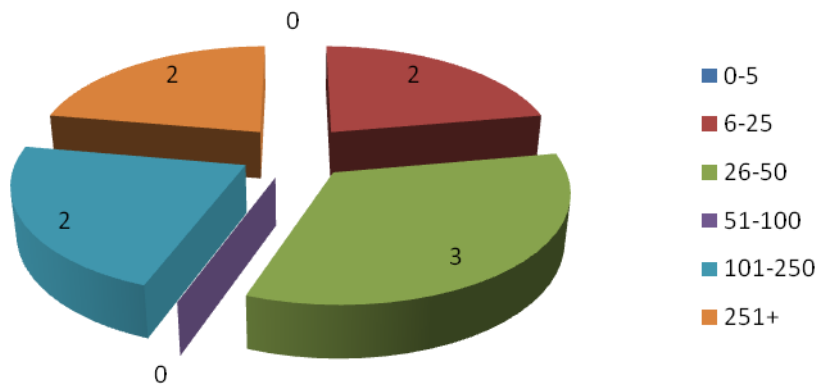
12. How do you think this system would best operate?



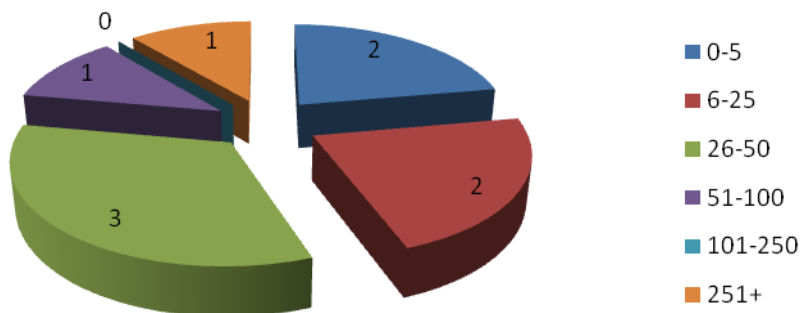
6.6 APPENDIX 6 OPERATOR SURVEY REPORT

NS FRITS - Transport Operator Survey Data

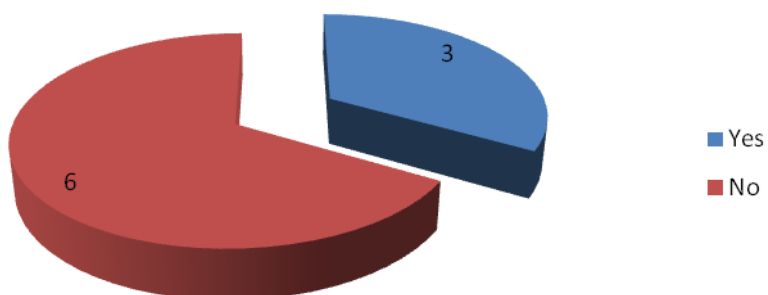
1. Number of surveys completed = 9
2. How many people work for your employer?



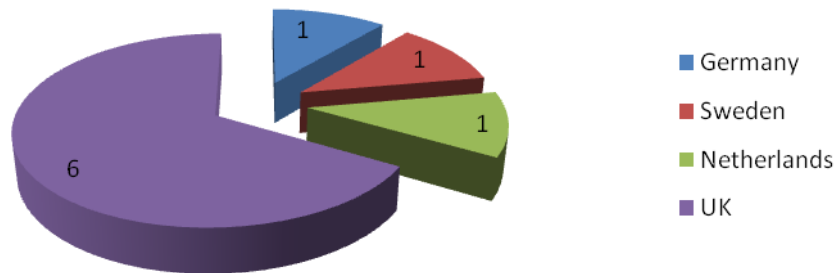
3. What is the size of your fleet?



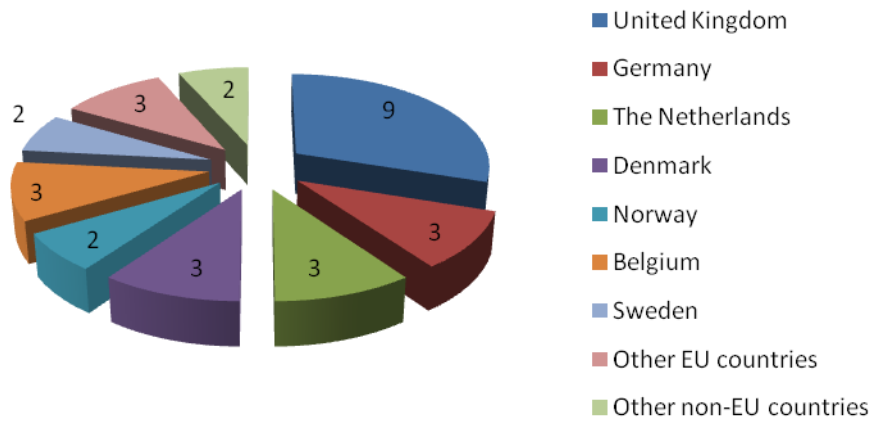
4. Do you drive internationally?



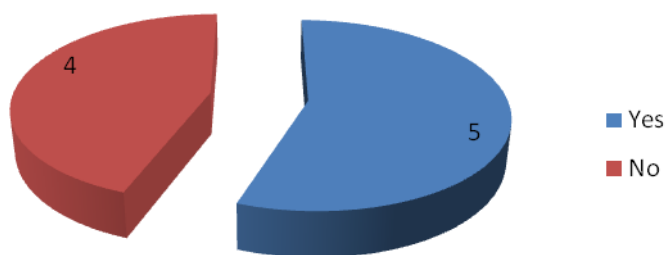
5. Which country is your business based in?



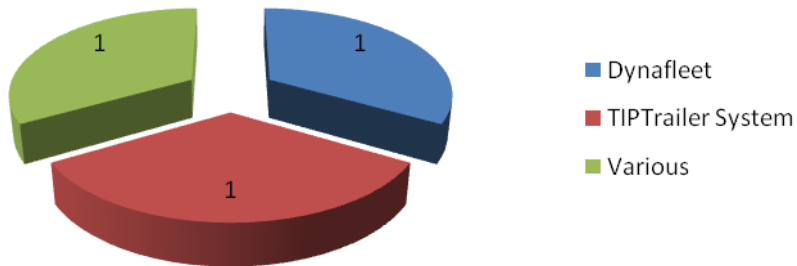
6. Which country do you regularly drive in?



7. Do you operate a GPS tracking system?



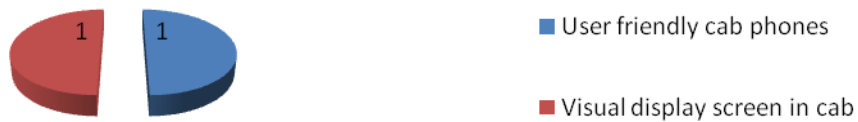
8. What is your main in-cab communication?



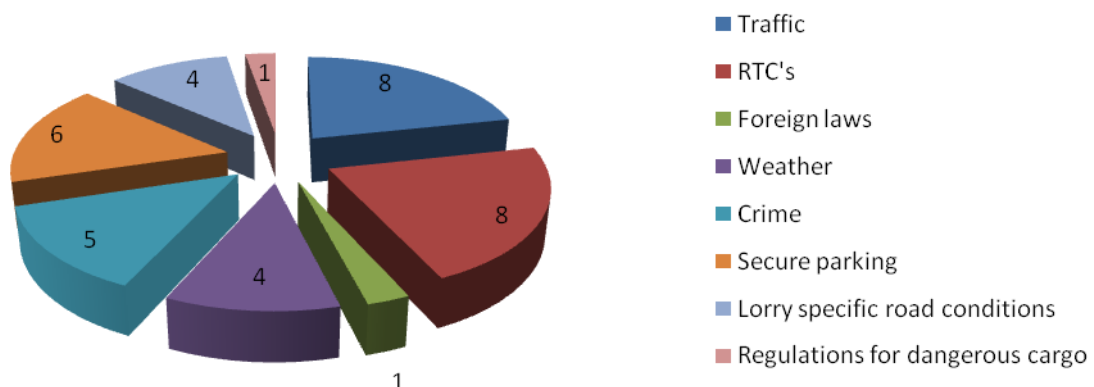
9. What is missing/could be improved?



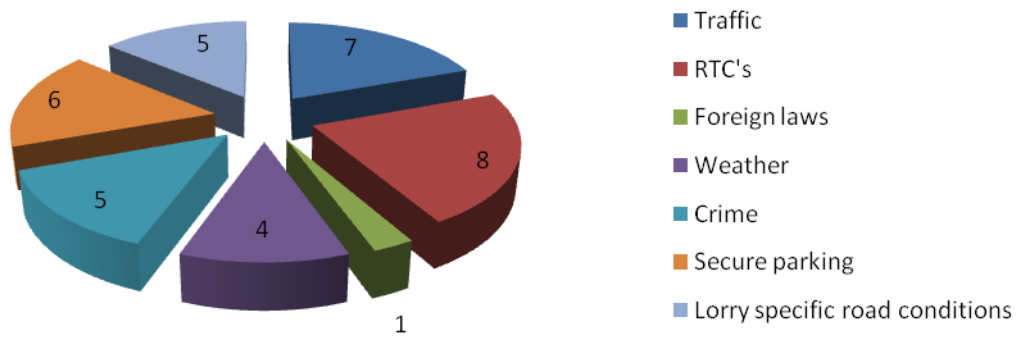
10. What type of communications system would best suit your needs?



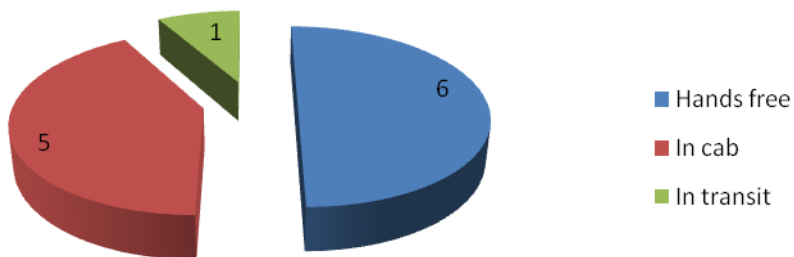
11. What major problems do you have when travelling internationally?



12. What information gaps exist?



13. How do you think NS FRITS would best operate?



6.7 APPENDIX 7 SCENARIO DOCUMENT

Project number:	35-2-38-08
Project acronym:	NS FRITS
Project title:	North Sea Freight and Intelligent Transport Solutions
Thematic priority:	Improving accessibility to places in the North Sea Region
Area of intervention:	To promote the development of efficient and effective logistics solutions
Start date of project:	01/01/09
Duration:	36 months

Deliverable reference number:	N/A
Deliverable title:	Scenario – actors and use cases
Version:	1.0
State within Consortium:	DRAFT: - FOR APPROVAL: X - APPROVED:
Due date of deliverable:	February 2010
Actual submission date:	September 2010
Lead contractor of this deliverable:	Avanti Communications
Other contributing contractors:	All partners and suitable stakeholders



Project co-funded by Interreg IVB North Sea Region Programme (2007 – 2013)		
DISSEMINATION LEVEL		
PU	Public	
PP	Restricted to other programme participants (including Interreg IVB NSRP)	
RE	Restricted to a group specified by the consortium (including Interreg IVB NSRP)	X
CO	Confidential, only for members of the consortium (including Interreg IVB NSRP)	

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7 INTRODUCTION

7.1 PROJECT SCOPE

NS FRITS will improve accessibility to places in the North Sea Region by promoting the development of efficient and effective logistics solutions.

7.2 PURPOSE OF THE DOCUMENT

This document, describes a hypothetical scenario in the freight logistics transport industry. The scenario endeavours to be as representative of real-life events in the industry as much as possible, whilst exploring ways in which the NS FRITS system could help or improve the state of affairs in the industry. The scenario is described in two phases;

- I. The scenario is first presented as a story
- II. Then the story is segmented by a timeline constituting use cases to demonstrate the evolution of the scenario (please see below)

The rationale for using a scenario to describe the system is that it provides a simple model for identifying the system's users, its services, and how the two interact.

The scenario will be amended (by the entire partnership and stakeholders) in due course to accommodate all the major objectives of the NS FRITS system. Once completed, it will constitute the basis of system requirements definition and design. A similar document and model could be used as the foundation for the trials and demonstration description (as shown in Figure 4 below).

7.3 DOCUMENT VERSIONS SHEET

Version	Date	Description, modifications, authors
1.0	08/03/10	First full draft version by Joseph Muna (AVANTI) with suggested amendments by PUAC

Table 2 : Document versions sheet

8 REFERENCE DOCUMENTS

8.1 REFERENCE DOCUMENTS

Concepts document

Mission requirements

Martin Fowler, December 2007, Unified Modelling Language (UML) distilled, A brief guide to standard Object Modelling language – third edition

8.2 DEFINITIONS

App:

A short form for application, specifically in the context of smart phones or other mobile devices. An app is a piece of software that runs on a smart phone or other mobile device. It is designed and written to perform a specific function directly for the user or, in some cases, for another application e.g. there are apps for checking the weather, shopping, calculating the bill at a restaurant etc – all from the convenience of a smart phone.

Actor:

A role that a system user plays with respect to the system; a user who performs a use case (please see below).

Android:

An operating system targeted at mobile devices – akin to what the Windows operating system is to the desktop computer. It provides the requisite tools that enable software developers to write apps using the Java programming language.

Scenario:

A sequence of steps describing an interaction between a user (or users) and a system. It is usually presented in the form of an excerpt from a story.

UML:

Unified Modelling Language. It is a graphical notation that helps in describing and designing software systems, particularly those built using the object oriented paradigm.

Use case:

A use case is a set of scenario events tied together by a common user goal.

8.3 ABBREVIATIONS

HGV	Heavy Goods Vehicle
HHC	Hand-Held Computer
ITS	Intelligent Transport System
OBU	Onboard Unit
OCG	Organised Crime Group
PC	Personal Computer
PND	Personal Navigation Device
RTC	Road Traffic Condition

9 DOCUMENT OVERVIEW

9.1 EXECUTIVE SUMMARY

One of the primary vehicles for understanding the user in the context of requirements in software system engineering has been the role.

The role is played by a user or actor. A user plays his role using use cases. A use case describes a system from the users' perspective i.e. it describes "who" can do "what" with the system in question. A scenario is a narrative centred on a user trying to achieve a task or goal within the context of the system i.e. it describes prospective use of the system in a real-life situation.

It provides a way to explore "what if" situations, and is also very useful in delineating the scope of the system

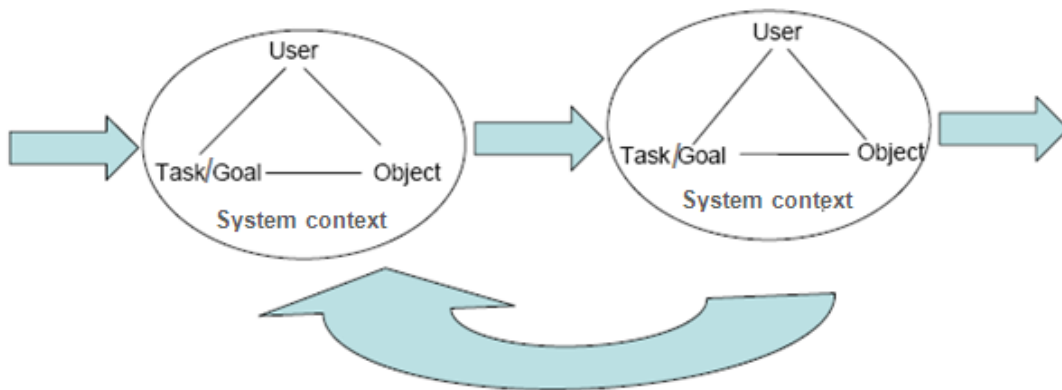


Figure 3 – Schematic representation of a scenario description

The versatility of describing a software engineering system by means of a scenario is that it provides a baseline for the system analyst, developer, user and other technical / non-technical stakeholders to arrive at a consensus on what the system is and will do.

Another useful element of the concept is flexibility i.e. the scenarios are not cast in stone, but are generated in an iterative process that is open ended, allowing for subsequent amendments as appropriate.

This system engineering paradigm is sometimes referred to as 'user centred design', 'participatory design' or 'scenario based design'.

A common understanding (amongst all stakeholders) as to what a software system will do is arguably one of the most important and critical elements in the success of any software project. The NS FRITS system is no different. NS FRITS actually poses some rather unique challenges resulting from having to balance time and budget against the risk of scope creep. This document intends to define what the NS FRITS system is, and what it will do within the life time of the project. The document will be reviewed, amended and approved by the entire NS FRITS consortium.

9.2 DOCUMENT LOCATION IN PROJECT ACTIVITIES

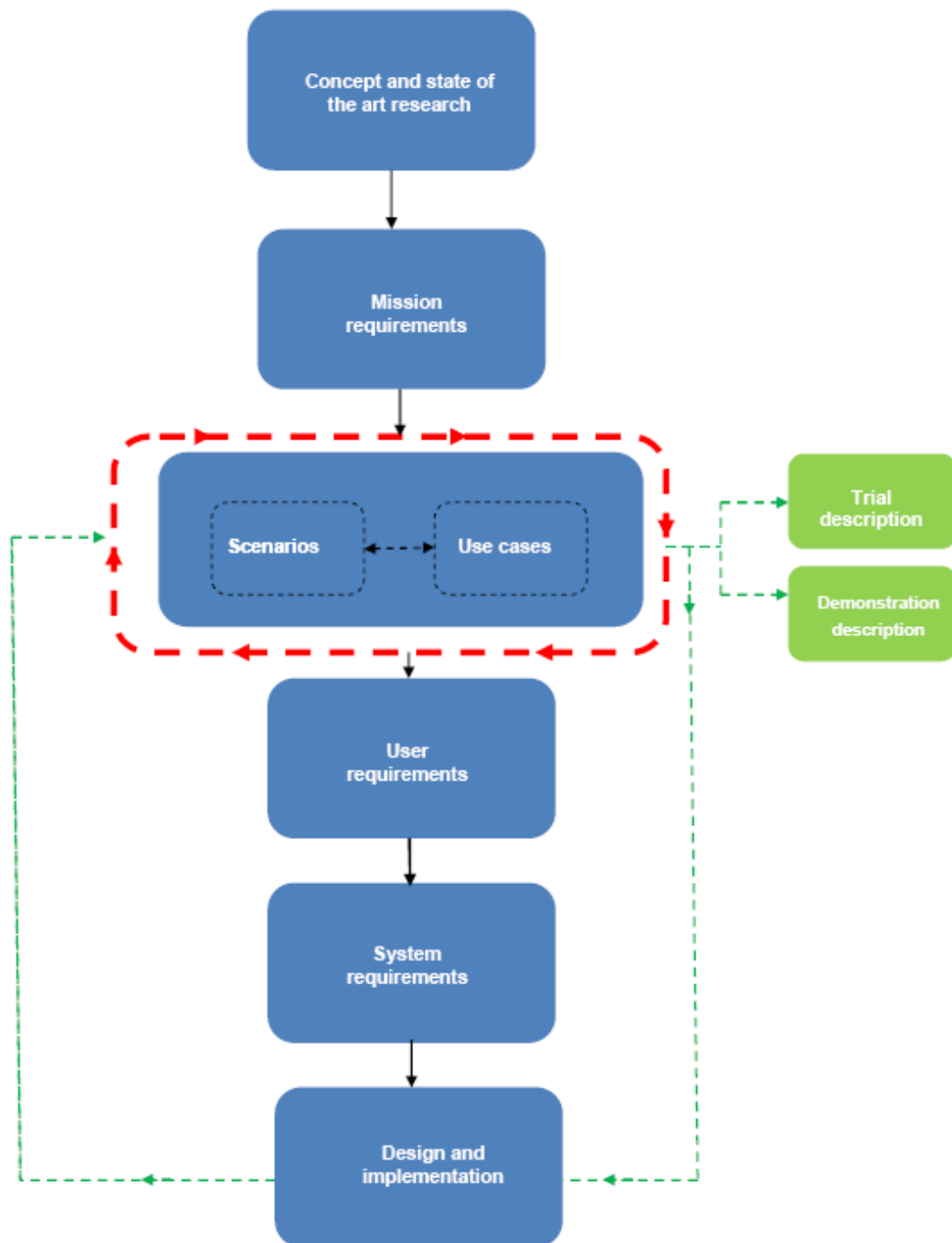


Figure 4 – Document location in project activities

10 NS FRITS SCENARIO DESCRIPTION

10.1 THE STORY:

It is now October and in order to be prepared for the busy period in the lead up to Christmas, Toy Retailer (TR) Ltd, a toy retailer based in Hardenburg (Germany) are chasing up on an order for €400,000 worth of Lego land toys and associated computer games from a manufacturer in Denmark. The order was placed back in March to give the manufacturer time to complete all legal and logistical requirements for the shipment. TR Ltd operations manager is chasing the Danish manufacturer up to ensure that the order has been prepared and is ready for shipment. He receives affirmation that the order items have been boxed and placed in a metal shipping container, and will be on their way in the next few days.

TR Ltd recruits an international freight forwarder to coordinate transportation of the cargo. The cargo will be brought into Amsterdam container terminal, from where it will be picked up and transported across the Dutch border to TR Ltd premises in Hardenburg (Germany). In their quest for a conveniently located trucker, and it being a single container that isn't travelling too far when it gets into port, the freight forwarder decides that Wim_Trucking_Services is just the man for the job.

10.1.1 The problems that NS FRITS seeks to ameliorate

At 04:15 a.m., Wim's alarm clock rings. This is his first day back to work from a two week holiday break. He was contacted yesterday by a freight forwarding company that regularly enlists his services. He has a good relationship with them because he used to drive one of their trucks before setting up his own trucking business. The job he has been given today is to go into Amsterdam port, pick up a load and take it across the border into Germany. He is fairly happy with the fact that even though he has to go across the border, it is still a fairly local job since he does not have to travel that far, but he has a number of concerns.

1. The weather is not very good at this time of the year resulting in many traffic incidents, the outcome of which is delays / long queues. The radio does endeavour to keep truckers notified of incidents, but sometimes, the news comes in a little too late i.e. when the driver is well on their way and on a segment of the highway where there are no opportunities to branch off and use another route.
2. He is also worried about getting stuck in the in-gate queue at the Amsterdam container terminal, or getting there and realising that he needs to wait because the ship was late and is still being unloaded. He's been in such a situation before and did not like it one bit. Being a one man band, he can't afford to waste a scarce resource such as time – time is money!
3. Organised crime (specifically targeting the freight transport industry) has been on the rise recently, with a number of hijacking incidents, reported in the local press. It will thus be handy to have some knowledge of crime hotspots etc, so he can plan his route to circumvent them. His load of toys is highly marketable in the run-up to Christmas making him a target for OCG's.
4. He typically takes loads into Belgium and not Germany, thus is not quite sure what documents he needs at the German border, plus he does not speak German!

He muses that if there was an affordable system that was dedicated to people like him, his work life would be a lot easier!

10.1.2 How the NS FRITS system can help

Before he heads out, he decides to give his friend and fellow trucker a ring to explain his concerns. His friend promptly informs him that he knows just the perfect solution – a new mobile platform application system that he can use on his mobile phone.

With a single application suite, his friend says, he will have all the information he needs, including crime hotspots to watch out for, secure parking locations, foreign HGV transport documents and legislation, HGV specific RTC, etc - all with just a few touch screen or button clicks!

His friend also informs him that the application is not only usable on a mobile phone, but can also be used on any OBU, PND or HHC running the Google Android operating system. Not being very tech savvy, Wim is a little wary but decides to give his friend's advice a go.

He downloads and installs the application suite on his Google Android mobile phone. The installation process is very easy because there are lots of helpful hints and an option to pick and chose applications as appropriate.

Being new to the system, he decides to go for all the applications on offer. He successfully completes the installation process and is quite proud of himself for having achieved this feat.

In his excitement, he decides to call the freight forwarder to announce this technology wonder, only to be told by the dispatcher that they already know of the system and have installed the PC version at their premises. Both systems are then synchronised to enable communication from trucker to dispatcher at headquarters and vice versa.

Just a few minutes later, Wim gets a message through the new system on his mobile device that the ship that is bringing in the cargo has encountered a problem and will be delayed by at least five hours - and that more information will follow¹. The dispatcher also picks up on this information and seeing that Wim isn't far away, decides to ask him to come into their premises to pick up a delivery that will only take him two hours to complete. Wim obliges.

On his way back from this interim job, he again receives a message from the dispatcher through the new system on his mobile device to pick up a load from a customer's premises and bring with him since he is returning empty. He uses the system to affirm receipt of the information and again obliges.

Subsequently, he is notified that the ship is now in port, so he sets out for the Amsterdam container terminal. He uses the new system to plan his route, taking into account weather and traffic incidents, and also, known crime hotspots. En route to the Amsterdam container terminal, he receives another update that the ship has been unloaded. Just before he gets into the terminal in-gate, he is again notified of the truck line to get into, and is given an approximation of the length of time it will take to complete his transaction within the port, based on the current average processing times – Wim is very content with the way the new system is transforming his work life!

After finishing his transactions within the Amsterdam container terminal, he realises that if he continues driving, he will exceed the legal driving time/rest period requirements. He consults his mobile device again and is advised of a number of secure HGV parking locations in the vicinity, the best of which has excellent facilities and is just 10 miles down the road. He thinks about it for a moment but decides against it because of the cost. Instead, he drives on hoping to find somewhere seemingly sheltered along the road where he can park for free and checks on the system if the area is a known crime hotspot.

Just before he veers off the motorway to find somewhere to park, he notices a white truck with some inscriptions that he can certainly recognise. It is one of the freight forwarders trucks that he used to drive back in the days before setting up his own business. He wonders what the truck is doing there, and as he gets closer, he notices that the number plates look foreign, possibly Eastern European. He also notices that the two men in the truck are acting suspiciously and thinks he can hear them speaking in Russian.

He carries on and finally finds a location that looks good enough to park at and spend the night. As he manoeuvres his truck into place, he just can't get rid of the nagging feeling that there certainly was something very wrong with the truck he saw earlier. He realises that he will only feel better if he does something about it. He uses an app on his smart phone to notify the dispatcher of his concerns/observations, so that the issue can be investigated and if it is something serious, the appropriate authorities notified.

Having rested for a while, he heads out again towards the German border.

¹ This possibility is based on the assumption that the NS FRITS system can interface with the existing systems that are used at the container terminal e.g. for the Bremerhaven trial, the Bremerhaven port will need to act as a data source for this particular use case to be feasible.

He was worried about not being able to speak German and was not so sure what documents the German border officials will require of him. Again, the new NS FRITS system came to the rescue. He used an application provided by the system to understand the exact documents that the German border officials will need.

The application also provides him with lots of information about German legislation on HGVs coming from outside the country. And what is even better is that the border officials use the same application but in their own language!

When he gets to the German border, the inspection process only takes a few minutes because he'd already known what would be expected of him and has complied to the letter. The German border officer uses the NS FRITS application for the inspection process and waves him through the barriers without delay.

10.1.3 Conclusion

Wim continues on his way to his destination, happily whistling, yet wondering how he has managed to survive all these years without the NS FRITS system.

11 SCENARIO BREAKDOWN

11.1 SCENARIO OBJECTIVE

Though a number of specific objectives exist within the scenario (please see use cases section below), the overall objective of the scenario is to demonstrate the use of ITS solutions to optimise the operational process of freight logistics transport management.

Some general objectives of the scenario are as follows;

- To provide a context in which the NS FRITS system could be used in real-life situations by presenting a problem domain
- To identify the actors and use cases i.e. who will use the system, for what and in what way?
- To delineate the scope of the system so that implementation can be restricted to what is achievable within budget and on time

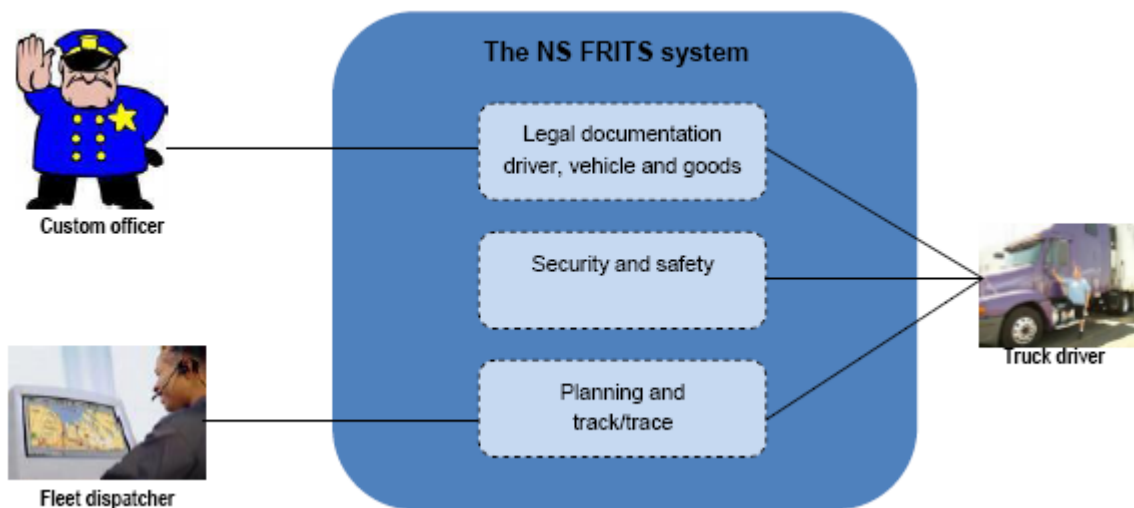


Figure 5 – Summary of scenario description

11.1.1 Actors

There are three actors in the scenario;

- The truck driver
- The dispatcher
- The customs official

11.1.2 Use cases

The use cases are grouped into three main categories;

- Planning with track and trace
- Security and safety
- Legal documentation - for driver, vehicle and goods

11.2 SCENARIO TIMELINE – DETAILED USE CASES

11.2.1 Initial preparation for journey



Trucker WIM – start of day

- Truck driver logs onto the NS FRITS system via his Google Android smart phone (assuming he has installed the NS FRITS system/apps)
- Uses the appropriate application to check jobs or messages
- Retrieves job and plans execution using appropriate apps as follows;
 - Route
 - Crime hotspots to avoid
 - Weather
 - HGV RTC



Dispatcher/planner

- Schedules new loads using the NS FRITS desktop system
- Communicates new requests to trucker



Trucker WIM – on leaving home

- Does a quick status check using appropriate NS FRITS applications on his smart phone – route, weather, RTC, crime hotspots etc
- Uses appropriate app to check status of his cargo – no reported delay

11.2.2 En route



Trucker WIM - intermediate delivery1

- Receives notification of ship delay from container terminal port
- Receives request from dispatcher to pick up intermediate delivery1
- Completes intermediate delivery1



Trucker WIM - intermediate delivery2

- Receives request from dispatcher to pick up intermediate delivery2
- Completes intermediate delivery2



Trucker WIM - update from container terminal

- Receives update about all clear from container terminal
- Uses appropriate NS FRITS applications to plan job execution
- Receives update from container terminal about ship unloaded
- Receives update from container terminal about line to get into and approximate processing time



Trucker WIM – completes transaction container terminal

- Enters container in-gate terminal
- Completes transaction, including loading at container terminal
- Leaves container terminal

11.2.3 Break, border crossing and destination



Trucker WIM – finds secure parking, alerts dispatcher

- Uses appropriate NS FRITS app to find secure parking
- Uses appropriate NS FRITS app to alert dispatcher of suspicious truck



Trucker WIM – document presentation

- Uses appropriate NS FRITS app to know and present the right documents at German border



Border official – document check

- Uses appropriate NS FRITS app to check documents in own language



Trucker Wim – continues on journey and arrives at destination

- A happy trucker with an easier working life (thanks to the NS FRITS system) continues on journey and arrives at his destination safe and sound!