OTIF

ORGANISATION INTERGOUVERNEMENTALE POUR LES TRANSPORTS INTERNATIONAUX FERROVIAIRES

ZWISCHENSTAATLICHE ORGANISATION FÜR DEN INTERNATIONALEN EISENBAHNVERKEHR

INTERGOVERNMENTAL ORGANISATION FOR INTERNATIONAL CARRIAGE BY RAIL

INF. 3

21. Juni 2013

Original: Deutsch

RID/ADR/ADN

Gemeinsame Tagung des RID-Fachausschusses und der Arbeitsgruppe für die Beförderung gefährlicher Güter (Genf, 17. bis 27. September 2013)

Tagesordnungspunkt 6: Berichte informeller Arbeitsgruppen

Bericht der 11. Sitzung der Arbeitsgruppe "Telematik" (Tegernsee, 3. und 4. Juni 2013)

übermittelt durch das Sekretariat der OTIF

1. Die 11. Sitzung der Arbeitsgruppe "Telematik" fand am 3. und 4. Juni 2013 auf Einladung Deutschlands unter dem Vorsitz von Helmut Rein (Deutschland) in Tegernsee statt.

2. Folgende Staaten haben an den Beratungen dieser Sitzung teilgenommen: Belgien, Deutschland, Frankreich, Niederlande, Schweden und Vereinigtes Königreich. Darüber hinaus haben die Europäische Eisenbahn-Agentur (ERA), die Zwischenstaatliche Organisation für den internationalen Eisenbahnverkehr (OTIF), der Europäische Rat der chemischen Industrie (CEFIC), die Internationale Straßentransportunion (IRU), die Internationale Tankcontainer-Organisation (ITCO),der Internationale Eisenbahnverband (UIC), die Internationale Union der Güterwagen-Halter (UIP), und der Verband der europäischen Eisenbahnindustrie (UNIFE) teilgenommen (siehe Anlage I).

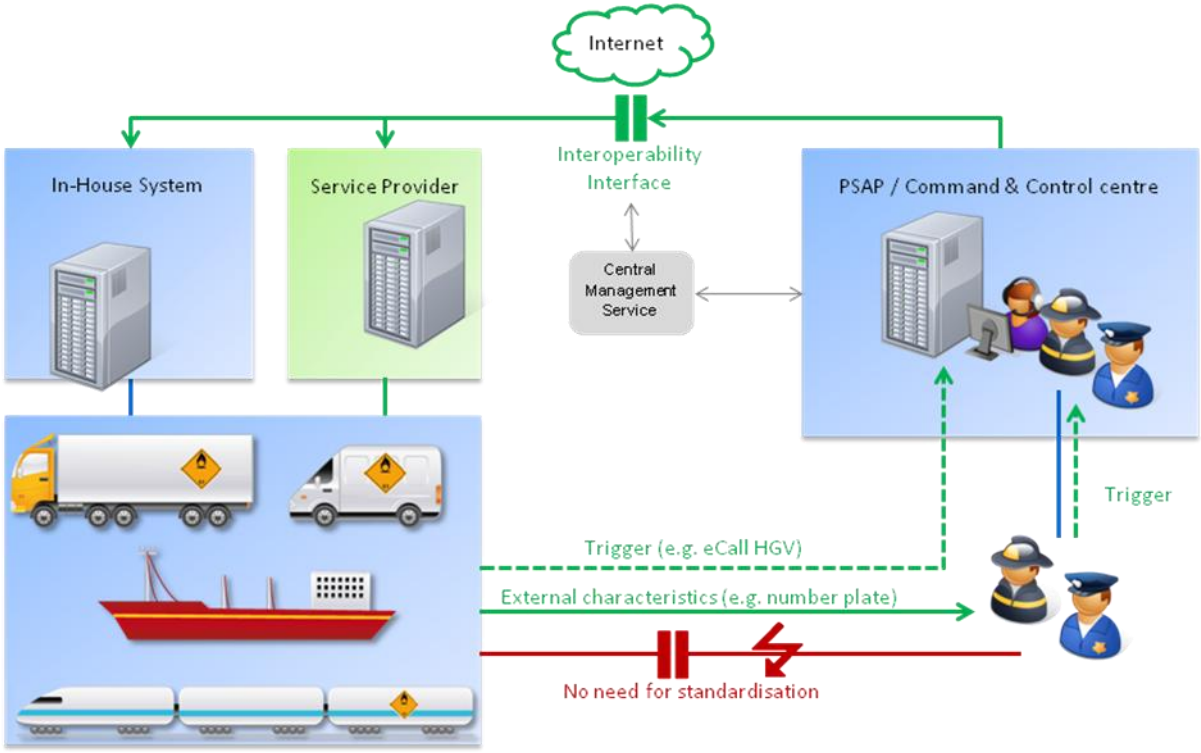
Tel. (+41) 31 - 359 10 17 • Fax (+41) 31 - 359 10 11 • E-Mail info@otif.org • Gryphenhübeliweg 30 • CH - 3006 Berne/Bern

Vorläufige Ergebnisse des deutschen Forschungsvorhabens

3. Als Auftragnehmer des deutschen Forschungsvorhabens ziehen die Herren Kaltwasser, Otten und Harrod Booth mit Hilfe der Präsentationen in den Anlagen II (Systemarchitektur), III (Normung) und IV (IT-Sicherheit) ein Resümee der bisherigen Diskussionen im Rahmen der Arbeitsgruppe und stellen eine Telematik-Systemarchitektur für den Einsatz des elektronischen Beförderungspapiers und zur Verbesserung des Notfallmanagements bei der Beförderung gefährlicher Güter vor, die als Basis für weitere Diskussionen und Projekte dienen könnte.

Anwendungsszenario

4. Die nachfolgende Abbildung verdeutlicht dabei das Anwendungsszenario:



Die Beförderungsunternehmen stellen alle Daten, die für die Beförderung gefährlicher Güter erforderlich sind, in eine eigene Datenbank oder in die Datenbank des von ihnen gewählten Dienstleistungsunternehmens ein. Diese Datenbanken, für die bereits bestehende Systeme verwendet werden können, werden als vertrauenswürdige Instanz TP2 (Trusted Party) angesehen.

Bei Verkehrskontrollen oder Notfalleinsätzen werden äußerlich erkennbare Merkmale, wie Fahrzeugkennzeichen und Wagennummern, vom Kontrollpersonal oder den Einsatzkräften an ihre jeweiligen Leitstellen weitergeleitet, die über eine Internet-basierte Schnittstelle (zentrale Dienstverwaltung (Central Management Service), vertrauenswürdige Instanz TP1) eine Datenabfrage bei der vertrauenswürdigen Instanz TP2 durchführt. Die vertrauenswürdige Instanz TP1 stellt dabei sicher, dass der Zugriff zu den von den Beförderern eingestellten Daten nur durch autorisierte Stellen erfolgen kann. Sie prüft auch die Autorisierung der TP2-Instanzen. Das gleiche Verfahren ist auch für automatisierte Meldungen vom Fahrzeug direkt zur Leitstelle (z.B. eCall) anwendbar.

Da die auf der linken und rechten Seite des Diagramms dargestellten Systeme bereits zur Verfügung stehen, muss lediglich die zentrale Dienstverwaltung eingerichtet werden, welche die Abfrage und den Zugang zu den Daten regelt. Diese sollte vorzugsweise auf Ebene der Europäischen Kommission als einzige zentrale Stelle eingerichtet werden.

5. Dieser vorgestellte Ansatz wird von der Arbeitsgruppe einhellig begrüßt. Dabei hebt der Vertreter der ERA hervor, dass dieser Ansatz mit der TAF TSI (Technische Spezifikationen für die Interoperabilität – Telematikanwendungen für den Güterverkehr) kompatibel sein sollte. Für die technische Umsetzung des vorgeschlagenen Konzepts müsste allerdings in Verbindung mit der TAF TSI eine detaillierte Analyse sowie eine Kosten-/Nutzenanalyse für den Eisenbahnverkehr vorgenommen werden.

6. Insbesondere der Vertreter des Vereinigten Königreichs, der in den bisherigen Sitzungen seine grundsätzliche Skepsis gegenüber telematischen Anwendungen wegen eines zu erwartenden negativen Kosten-/Nutzenverhältnisses zum Ausdruck gebracht hatte, unterstützt diesen Ansatz, weil er von der Nutzung bestehender Hardware- und Software-Systeme ausgeht und eine einfache Einführung der notwendigen Maßnahmen durch die Mitgliedstaaten ermöglicht. Relativ geringen Investitionskosten würde ein Nutzen sowohl für die Beförderungsunternehmen, die bestehende Daten verwenden können, als auch für die Einsatzkräfte und die Kontrollbehörden, die einen schnellen Zugriff zu diesen Daten erhalten, gegenüberstehen.

Auslegungsentscheidungen

7. Besonderes Augenmerk legt die Arbeitsgruppe auf die in der Präsentation enthaltenen Auslegungsentscheidungen:

   – Es wird keine Festlegung getroffen, wie die nationale Organisation zu erfolgen hat. Es ist daher auch möglich, jeden Mitarbeiter der Kontrollbehörden oder der Einsatzkräfte mit einem mobilen Endgerät auszustatten, um die Datenabfrage direkt und nicht über eine Leitstelle durchführen zu können.

   – Für die zentrale Registrierung können bereits existierende Zertifikate verwendet werden, die von kommerziellen Anbietern ausgegeben werden.

   – Jedes einzelne Beförderungsunternehmen kann selbst entscheiden, ob die Beförderungsdokumentation elektronisch oder in Papierform erstellt wird. Es ist aber zu erwarten, dass viele Unternehmen sehr schnell die Papierform aufgeben werden, weil sie bereits über elektronische Systeme verfügen, mit denen beispielsweise die Auslieferung einer Sendung bestätigt wird. Insofern erfolgt mit dem vorgestellten System eine Ausgestaltung der in Abschnitt 5.4.0 RID/ADR/ADN enthaltenen Möglichkeit der Verwendung elektronischer Systeme anstelle der schriftlichen Dokumentation.

   – Die Zertifikate werden nicht für Einzelpersonen, sondern nur für Organisationen ausgestellt.

   – Der Zugang wird bei Berechtigung wie beim Papierdokument auf das vollständige Dokument gewährt.

   – Die Zertifikate werden für die Sicherung der Kommunikation zwischen den Endpunkten und für digitale Unterschriften genutzt.

   – Für die Sicherstellung der Interoperabilität müssen Dienste zertifiziert werden.

   – Für TP2-Dienste wird keine ständige Überwachung gefordert. Allerdings muss überlegt werden, welche Anforderungen im Regelwerk für den Fall der zeitweisen Nichtverfügbarkeit eines Dienstes getroffen werden.

– TP2-Dienste müssen bei einer zentralen Registerstelle (TP1) registriert sein. Ein föderatives System für TP1-Dienste wird nur als sekundäre Lösung angesehen, wenn die Europäische Kommission nicht bereit ist, einen TP1-Dienst zu betreiben (siehe auch Absätze 4 und 12).

– Nutzung des Internets für die Kommunikation.

– Verwendung offener Schnittstellen, um künftigen Ausbau zu ermöglichen.

– Das System muss zum Einen eine automatische Abfrage auf der Grundlage der Fahrzeugidentifikationsnummer (z.B. eCall) und eine Abfrage auf der Grundlage der Angaben eines zufälligen Beobachters (z.B. Ort, Fahrzeugkennzeichen) ermöglichen. Anhand dieser Angaben muss der vollständige Datensatz ermittelt werden können.

– Der Beförderer muss über die vollständigen Daten der beförderten gefährlichen Güter verfügen.

– Die Datenstruktur muss die Organisationsgrundsätze, die für das Papierdokument verwendet werden, abbilden.

8. Diese Auslegungsentscheidungen werden von der Arbeitsgruppe nicht in Frage gestellt, wobei allerdings die Auswirkungen dieser Entscheidungen nicht ohne nähere Analyse abgeschätzt werden können.

Systemarchitektur

9. Die dargestellte Architektur wird von der Arbeitsgruppe im Grundsatz für gut befunden. Kein Vertreter kann jedoch für seinen Staat oder Verband erklären, dass dies der einzig mögliche Weg ist. In den Projekten Frankreichs und Schwedens (siehe Absätze 20 bis 22) wird von dieser Grundstruktur ausgegangen, deren Annahmen im Rahmen dieser Projekte verifiziert werden. Die Arbeitsgruppe sollte auf der Grundlage dieser Architektur notwendige weitere Details erarbeiten.

Zukünftige Arbeiten

10. Der Schlussbericht dieses von Deutschland finanzierten Forschungsvorhabens, der Ende Juli 2013 vorliegen wird, wird allen Delegierten zugestellt. Das darin vorgestellte Datenmodell wird frei verfügbar sein und von Software-Unternehmen genutzt werden können.

11. Die Erkenntnisse werden der Gemeinsamen Tagung und dem Gefahrgut-Regelungsausschuss der Europäischen Kommission vorgelegt, damit die RID/ADR/ADN-Vertragsstaaten zur Grundkonzeption Stellung beziehen und gegebenenfalls Abänderungen vorschlagen können, die in die weiteren Arbeiten der Arbeitsgruppe einfließen können.

12. An die Europäische Kommission wird die Bitte gerichtet, die vertrauenswürdige Instanz TP1 auf Ebene der Kommission anzusiedeln, um eine föderative Lösung zu vermeiden (siehe auch Absatz 4 und zehnter Spiegelstrich des Absatzes 7). Es wird daran erinnert, dass die Kommission bei Tiertransporten eine ähnliche Funktion erfüllt, wobei auch eine Schnittstelle zu Nicht-EU-Mitgliedstaaten besteht.

13. Die Arbeitsgruppe empfiehlt auch, im Gefahrgut-Regelungsausschuss eine Diskussion mit den für Telematik zuständigen Stellen der Kommission zu führen. In diesem Zusammenhang weist die Arbeitsgruppe erneut darauf hin, dass in zahlreichen Telematik-Projekten der Kommission Gefahrgutthemen angesprochen werden, die nicht mit der Arbeitsgruppe harmonisiert sind.

14. Nach einer grundsätzlichen Entscheidung durch die Gemeinsame Tagung müssen grundsätzliche Bestimmungen für das RID/ADR/ADN und Kriterien ausgearbeitet, die von der Normung erfasst werden sollen. Da die Ausarbeitung von Normen mindestens zwei Jahre benötigen wird, erscheint ein Inkraftsetzungszeitpunkt 2017 als zu ambitioniert. Dabei ist zu berücksichtigen, dass nicht alle Mitgliedstaaten die Arbeiten der Arbeitsgruppe verfolgt haben und zunächst Informationen über die technische Machbarkeit und über die zu erwartenden Kosten benötigen.

Telematik im Verkehr

15. Frau Dannelke (deutsches Verkehrsministerium) gibt mit Hilfe der Präsentation in Anlage V einen allgemeinen Überblick über Satellitennavigation, Navigationsanwendungen und Telematik im Verkehr.

Entwicklungen in den TAF TSI in Bezug auf die Beförderung gefährlicher Güter

16. Herr Gutiérrez (ERA) erläutert anhand seiner Präsentation (siehe Anlage VI), dass die meisten der in Abschnitt A der Tabelle "Who does what" aufgeführten Informationen in den Datenkatalog der TAF TSI übernommen werden. Er hebt dabei hervor, dass das Hauptziel der TAF TSI nicht eine Erhöhung der Sicherheit, sondern die Sicherstellung der Interoperabilität beim Datenaustausch im Eisenbahngüterverkehr sei. Bevor eine Aussage über die wirtschaftliche Umsetzung des vorgeschlagenen Konzepts getroffen werde könne, müssten in Bezug auf Echtzeitanwendungen andere Entwicklungen, wie GSM-R-Anwendungen, betrachtet werden.

17. Die Arbeitsgruppe stellt fest, dass mit der vorgestellten TAF TSI der heutige Rechtsstand des RID abgebildet wird und damit neben dem bereits bestehenden Standard für das elektronische Beförderungspapier des eRailFreight-Projekts, auf dem die betreffende Datenstruktur der TAF TSI basiert, ein weiteres System besteht, welches für den Eisenbahnverkehr den linken Teil der Abbildung in Absatz 4 (TP2) abdeckt und auf das die Leitstellen des Kontrollpersonals oder der Einsatzkräfte zukünftig über eine TP1-Instanz möglicherweise zugreifen könnte. Da die TAF TSI nur für die EWR-Mitgliedstaaten und die Schweiz verbindlich sind, sollte eine Transferierung in einheitliche technischen Vorschriften gemäß Anhang F zum COTIF ins Auge gefasst werden.

eCall HGV

18. Herr de Waal (niederländisches Verkehrsministerium) stellt mit einem Film die Entwicklungen im Bereich eCall in Bezug auf die Beförderung gefährlicher Güter dar (http://www.youtube.com/watch?v=zmOCc0qFmSg).

19. Auf der Grundlage des in der Abbildung in Absatz 4 dargestellten Anwendungsszenarios für die Abfrage vollständiger Informationen hält es die Arbeitsgruppe entgegen früherer Aussagen nicht mehr für erforderlich, dass eCall einen Minimaldatensatz für Gefahrgut vorsehen sollte. Da sowohl eCall-Meldungen als auch Abfragen von Gefahrgutdaten über die Leitstelle der Einsatzkräfte erfolgen, reicht nach Ansicht der Arbeitsgruppe die Übermittlung einer eindeutigen Identifizierungsnummer an die Leitstelle aus.

Schwedisches Projekt

20. Frau Rydberg (Security Arena Lindholmen) weist mündlich auf ein schwedisches Projekt hin, in dem für Telematikanwendungen im Bereich der Beförderung gefährlicher Güter Erfordernisse der zuständigen Behörden evaluiert werden.

GeoTransMD

21. Die Herren Pfauvadel und Méchin (französisches Verkehrsministerium) stellen anhand der Präsentation in Anlage VII ein französisches Projekt vor, das auf der Grundlage der im Forschungsvorhaben Deutschlands vorgestellten und von der Arbeitsgruppe angenommenen Systemarchitektur (siehe Absatz 9) unter anderem die Prüfung der vertrauenswürdigen Instanzen TP1 und TP2 umfassen soll. Die Laufzeit des Anfang Juni 2013 in Angriff genommenen Projekts ende am 31. Mai 2016.

22. Die Arbeitsgruppe äußert den Wunsch, diejenigen Punkte, die Einfluss auf die Regelsetzung und die Normung haben, vorzuziehen, damit sie für eine Inkraftsetzung zum 1. Januar 2019 rechtzeitig zur Verfügung stehen. Auf die Frage des Vertreters der ERA, ob der Projektrahmen auch den Eisenbahnverkehr sowie internationale und multimodale Fallstudien umfasse, antworten die Vertreter Frankreichs, dass sie eine stärkere Einbeziehung des Eisenbahnbereichs in Erwägung ziehen würden. Weitere Punkte, die in Bezug auf die Architektur untersucht werden sollten, wie Evaluierung und Optimierung des Datenaufkommens bei TP1, Zertifizierungsinfrastruktur und Prüfung der Machbarkeit, werden von den Vertretern Frankreichs direkt in die Präsentation aufgenommen und sind in der Anlage VII bereits berücksichtigt.

Anlage I

LIST OF PARTICIPANTS
of the Joint Meeting working group on telematics (Tegernsee, 3-4 June 2013)

	Name of Participant	Body represented	Address	Phone	Fax	E-mail
Representatives of the Contracting States/Member States, international organisations and the European Commission:						
1	Bailleux, Caroline	Belgium (Min.)	Service Public Fédéral Mobilité et Transports Rue du progrès, 56 B – 1210 Bruxelles	+32-2-277-3916	+32-2-277-4055	Caroline.Bailleux@mobilit.fgov.be
2	Rein, Helmut	Germany (Min.)	Bundesministerium für Verkehr, Bau und Stadtentwicklung – Referat UI 33 – Robert-Schuman-Platz 1 D – 53175 Bonn	+49-228-99-300-2640	+49-228-99-300-807-2640	helmut.rein@bmvbs.bund.de
3	Schwan, Gudula	Germany (Min.)	Bundesministerium für Verkehr, Bau und Stadtentwicklung – Referat UI 33 – Robert-Schuman-Platz 1 D – 53175 Bonn	+49-228-99-300-2641	+49-228-99-300-807-2641	gudula.schwan@bmvbs.bund.de
4	Dannelke, Sabine	Germany (Min.)	Bundesministerium für Verkehr, Bau und Stadtentwicklung – Referat UI 35 – Invalidenstraße 44 D – 10115 Berlin	+49-30-18-300-2660	-	sabine.dannelke@bmvbs.bund.de
5	Hoffmann, Alfons	Germany (Min.)	Bundesministerium für Verkehr, Bau und Stadtentwicklung – Referat UI 33 – Robert-Schuman-Platz 1 D – 53175 Bonn	+49-228-99-300-2645	+49-228-300-99-807-2645	alfons.hoffmann@bmvbs.bund.de

6	Pfauvadel, Claude	France (Min.)	Ministère de l'Écologie, de l'Énergie, du Développement Durable et de l'Aménagement du Territoire Mission du Transports des Matières dangereuses Arche Nord F – 92055 Paris la Défense Cedex 04	+33-1-4081-8766	+33-1-40811065	claude.pfauvadel@equipement.gouv.fr
7	Méchin, Jean-Philippe	France (CETE SO)	Centre d'Études Techniques de l'Équipement du Sud Ouest (CETE SO) Département Informatique et Moder-nisation Rue Pierre Ramond Caupian, BP C F – 33165 Saint-Médard-en-Jalles cedex	+33-55670-6575	+33-1-40811690	jean-philippe.mechin@developpement-durable.gouv.fr
8	Leminh, Marc	France (NOVACOM)	NOVACOM-Services 8-10 rue Hermès Parc Technologique du canal F – 31520 Ramonville Saint Agne	+33-56139-5011	+33-56139-5001	marc.leminh@novacom-services.com
9	Dr. Ruffin, Emmanuel	ERA (Safety Unit)	European Railway Agency (ERA) Safety Unit 120 rue Marc Lefrancq BP 20392 F – 59307 Valenciennes Cedex	+33-3-2709-6707	+33-3-2709-6807	emmanuel.ruffin@era.europa.eu
10	Gutiérrez Domínguez, Rodrigo	ERA (Interoperability Unit)	European Railway Agency (ERA) Interoperability Unit 120 rue Marc Lefrancq BP 20392 F – 59307 Valenciennes Cedex	+33-3-2709-6764	+33-3-2709-6608	rodrigo.gutierrez@era.europa.eu
11	De Waal, Johannes Frederik	Netherlands (Min.)	Ministry of Infrastructure and Envi-ronment Plesmanweg 1-6 NL – 2597 JG Den Haag	+31-70-456-6845	-	hans.de.waal@minienm.nl
12	Conrad, Jochen	OTIF	Intergovernmental Organisation for International Carriage by Rail (OTIF) Gryphenhübeliweg 30 CH – 3006 Bern	+41-31-359-1017	+41-31-359-1011	jochen.conrad@otif.org
13	Guricová, Katarina	OTIF	Intergovernmental Organisation for International Carriage by Rail (OTIF) Gryphenhübeliweg 30 CH – 3006 Bern	+41-31-359-1016	+41/31-359-1011	Katarina.Guricova@otif.org

14	Skärdin, Brita	Sweden (Min.)	Swedish Civil Contingencies Agency Hazardous Substances Section Norra Klaragatan 18 SE – 651 81 Karlstad	+ 46-10-240-5495	+46-10-240-5600	brita.skardin@msb.se
15	Rydberg, Gunilla	Sweden (S&T)	Security Arena Lindholmen Sjöland & Thyselius Box 6238 SE – 10234 Stockholm	+46-761416947	-	gunilla.rydberg@st.se
16	Hart, Jeff	United Kingdom (Min.)	Department for Transport Dangerous Goods Division Zone 3/19 Great Minster House 33 Horseferry Road GB – London SW1P 4DR	+44-20-7944-2758	+44-20-7944-2039	jeff.hart@dft.gsi.gov.uk
17	Trojanowska, Valerie	United Kingdom (Min.)	Department for Transport Dangerous Goods Division Zone 3/19 Great Minster House 33 Horseferry Road GB – London SW1P 4DR	+44-20-7944-2754	+44-20-7944-2039	valerie.trojanowska@ dft.gsi.gov.uk
18	Dr. Kaltwasser, Josef	Germany (FV Telematik)	AlbrechtConsult GmbH Theaterstr. 24 D – 52062 Aachen	+49-241-400-29025	+49-241-500-718	josef.kaltwasser@ albrechtConsult.com
19	Lüpges, Christian	Germany (FV Telematik)	AlbrechtConsult GmbH Theaterstr. 24 D – 52062 Aachen	+49-241-446-89708	+49-241-500-718	christian.luepges@ albrechtconsult.com
20	Dr. Otten, Marcus	Germany (FV Telematik)	Otten software GmbH Röntgenring 7 D – 40878 Ratingen	+49-2102-30964-10	+49-2102-30964-29	mo@otten-software.de
21	Dr. Harrod Booth, Jonathan	United Kingdom (FV Telematik)	Harrod Booth Consulting Ltd. (HBC) Denton New Park Road GB – Cranleigh, Surrey, GU6 7HJ	+44-7990520404	-	jon@harrodbooth.com
Representatives of international and European associations:						
22	Heid, Andrea	CEFIC (VCI)	Verband der Chemischen Industrie e.V. (VCI) Mainzer Landstraße 55 D – 60329 Frankfurt/Main	+49-69-2556-1444	+49-69-2556-1535	heid@vci.de
23	Marmy, Jacques	IRU	International Road Transport Union (IRU) 3, rue de Varembé – P.O. Box 44 CH – 1211 Geneva 20	+41-22-918-2720	+41-22-918-2741	jacques.marmy@iru.org

24	Köppen, Jochen	ITCO (Köppen GmbH)	Köppen GmbH Arnold-Dehnen-Straße 20-24 D – 47138 Duisburg	+49-203-42993-13	+49-203-42993-34	Jochen.Koeppen@koeppen-du.de
25	Gutbrod, Ralf	RAILDATA	RAILDATA Centralbahnstr. 11 CH – 4051 Basel	+41-61461-5375	+41-61461-5228	gutbrod@raildata.coop
26	Heintz, Jean-Georges	UIC (SNCF)	Union Internationale des Chemins de fer (UIC) 16, rue Jean Rey F – 75015 Paris	+33-1-5325-3028	-	heintz@uic.org
27	Kogelheide, Rainer	UIP (GATX)	GATX Rail Germany GmbH Valentinskamp 70 D – 20355 Hamburg	+49-40-36804-8232	+49-40-36804-112	rainer.kogelheide@gatx.eu
28	Haltuf, Miroslav	UNIFE (OLTIS Group a.s.)	OLTIS Group a.s. Washingtonova 1567/25 CZ – 110 00 Praha 1	+420-724001958	-	miroslav.haltuf@oltisgroup.cz
Interpreter:						
29	Ashman, David	OTIF	Intergovernmental Organisation for International Carriage by Rail (OTIF) Gryphenhübeliweg 30 CH – 3006 Bern	+41-31-359-1024	+41-31-359-1011	david.ashman@otif.org

Project of the Federal Ministry of Transport, Building and Urban Development

-

“Project to develop a telematics system architecture to deploy the electronic transport document and to improve emergency management in the transport of dangerous goods”

-

Preliminary results

Josef Kaltwasser

AlbrechtConsult GmbH

WG on Telematics on 3-4th June 2013

Outline

- **Scope and framework conditions**
- **From the previous R&D project to the current project**
- **Project introduction**
  - General concept
  - Focus topics
    - IT standards and trigger mechanisms
    - IT security mechanisms
    - Data model adaptions
  - Telematics system architecture and service interfaces
  - Mock-up demo
- **Conclusions**

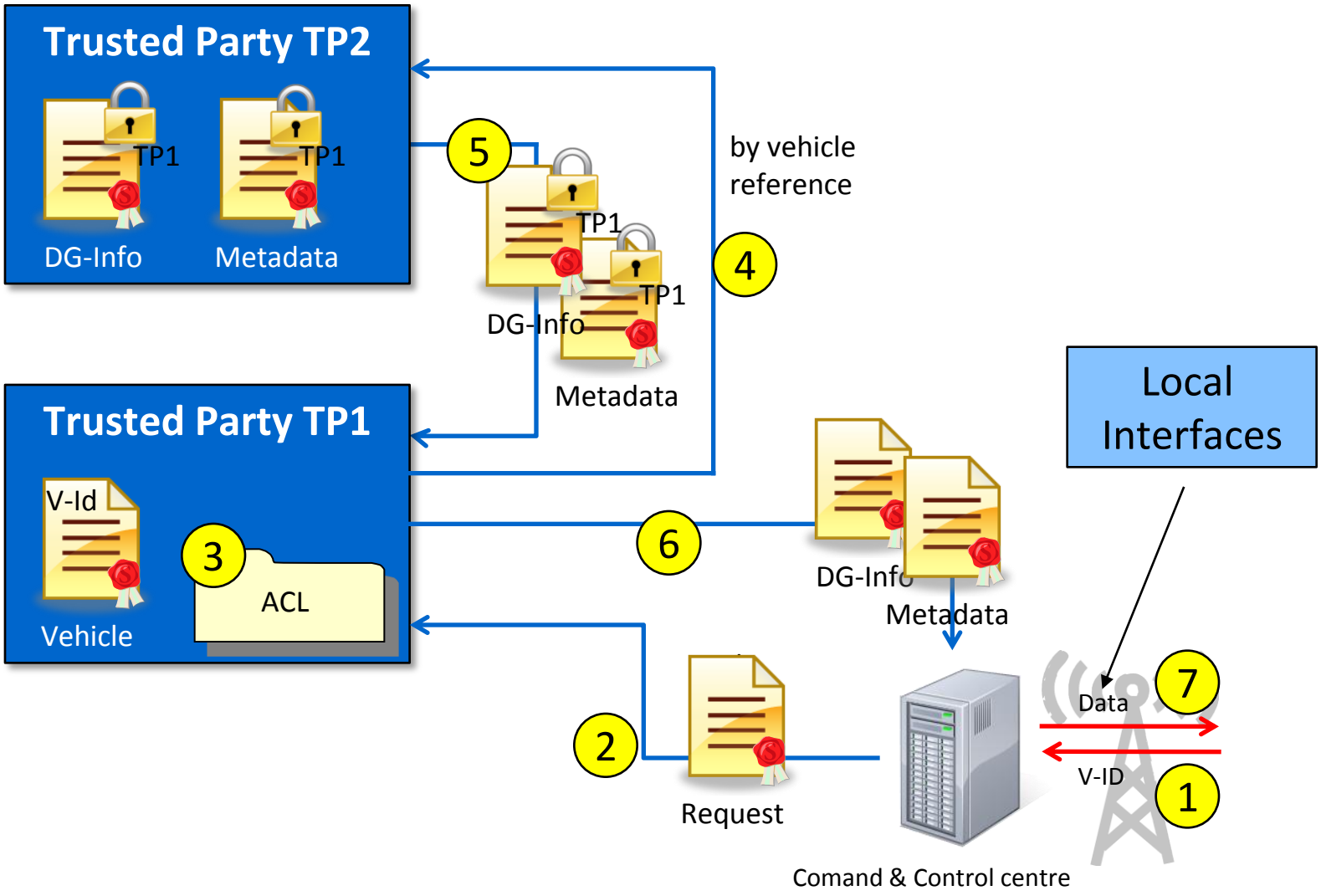
Scope and framework conditions

Scope and framework conditions

- The “Joint Meeting” is maintaining the DGT regulations for inland transport (rail, road & inland waterways) on a Europe+ scope
- The regulations are substantial and technically detailed when it comes to physical, material, etc. requirements – they do so far NOT mention Telematics
- What is mentioned is the optional electronic representation of the data requirements on the transport document – but this is based on “functional equivalence” which in itself is not specified
- DGT actors have so far drawn the conclusion that paperless transport is practically impossible and increasingly complain about this fact incurring unnecessary cost to their business
- The “Joint Meeting” has mandated an informal WG on Telematics (rotating chair DE/FR) – this group has created a tabular description of relevant data, including references to stakeholder roles and use cases
- Germany has launched a study in 2010 to consider the role that Telematics could potentially play in DGT
- The results of this study have been reported to WG Telematics – they are the basis of the current work

From the previous R&D project to the current project

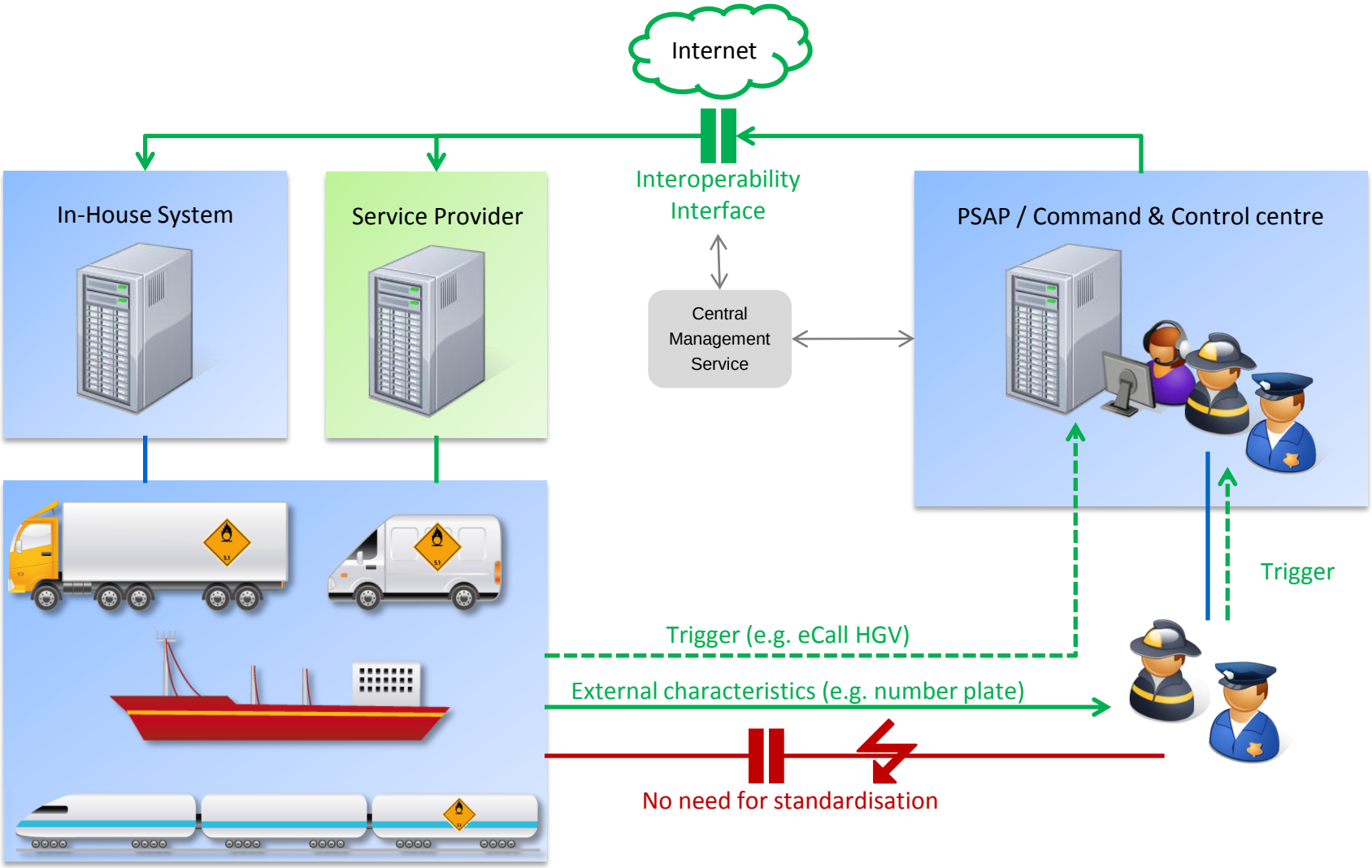
IT-Security Concept



How has this proposal evolved since 2011?

- The original proposal implied that DG data was by default forwarded to external entities (the Trusted Parties 1 & 2)
- The split in two disparate TPs was deliberate to reduce the risk of fraud or theft of data – only cooperating TPs 1 & 2 could actually read the data
- BUT: Users were reluctant to accept data stores where data for each single transport would need to be delivered!
- Alternative proposal: rather than stipulating the use of a central database to store the data, stipulate the provision of a standardised interface that allows justified access to the data when needed!
- Such an interface can be implemented by the carrier himself (e.g. large companies with mission critical IT) or by (private!) service providers contracted by the carrier (e.g. 'white van man')
- The actual data access interface takes the place of TP2
- A central service still is needed, e.g. to manage security features – this central service takes the place of TP1

Basic application scenario with federated services



Perceptions

- **Project findings and recommendations have been confirmed by the Working Group on Telematics**
  - Use of widely used IT standards (e.g. WSDL, XML, SOAP, http) that makes the introduction of the telematics system simple
  - Consider IT(S) standards as trigger mechanisms (e.g. eCall/TARV)
  - Use of IT security mechanisms (e.g. certificates, digital signatures encryption) that makes the system secure
  - Use of the dangerous goods data model that has been validated as an adequate replacement for the of the transport paper document
- **Aim is to use the telematics system architecture for field tests / pilot implementations**
- **A fully elaborated technical specification is required first that allows for producing the appropriate software and ensured comparable results**

General concept

General system concept

- Replace access to paper documents with (electronic, machine-to-machine) access to a back-office system
- The back-office service can be provided by the carrier or by a service provider (⇒ many instances of this service – needs addressing)
- Central (mainly) administrative tasks will be located in a central service (maybe implemented by a set of federated services)
- Each transport must uniquely be identified to access data:
  access credentials = service address + transport ID
- Access credentials can be carried by today's / future standards,
  e.g. for vehicle initiated emergency notification
- There need to be further 'lookup' services resolve access credentials in case of access based on external observations
- Access must be controlled and data protection must be ensured
  ⇒ up-to-data cryptographic technology needed
- The interface should easily integrate into the existing landscape of Freight & Logistics IT services ⇒ use of web services & XML technology

IT standards and trigger mechanisms

IT security mechanisms

Data model
(adaptions of result from R&D project)

Provision of a telematics system architecture and service interfaces

Design decisions (I)

- **No regulations for Member States or emergency responders**
  - Their internal behaviour and how they make use of the system is entirely up to them
- **Existing PKIs will be (re-)used**
  - This implies a central registry where certificates are registered and assigned to roles
- **Certificates are associated to organisations, not to individuals**
  - This may have impact of organisational procedures and does have an impact on non-repudiation
- **Access is not distinguished on content (e.g. no dedicated access right for particular Dangerous Goods classes)**
- **Certificates are used for securing the end-to-end link and for digital signatures of the content**
  - Data is not encrypted outside the communication channel

Design decisions (II)

- **Services can (and shall) be certified in the future to ensure interoperability**
  - There is a need to consider the establishment of the organisational framework for accredited certification organisations
- **The Service Level of the TP2 services will not be constantly monitored**
  - The basic legal assumption is the equivalence to the current (paper) situation: the carrier is responsible for the service to work when needed
  - Nevertheless, suitable service levels – ideally based on internationally accredited standards – shall be specified, but no SLAs
  - There should be provisions regarding DoS attacks in the service level descriptions
- **TP2s shall register with a central registration service (→ TP1)**

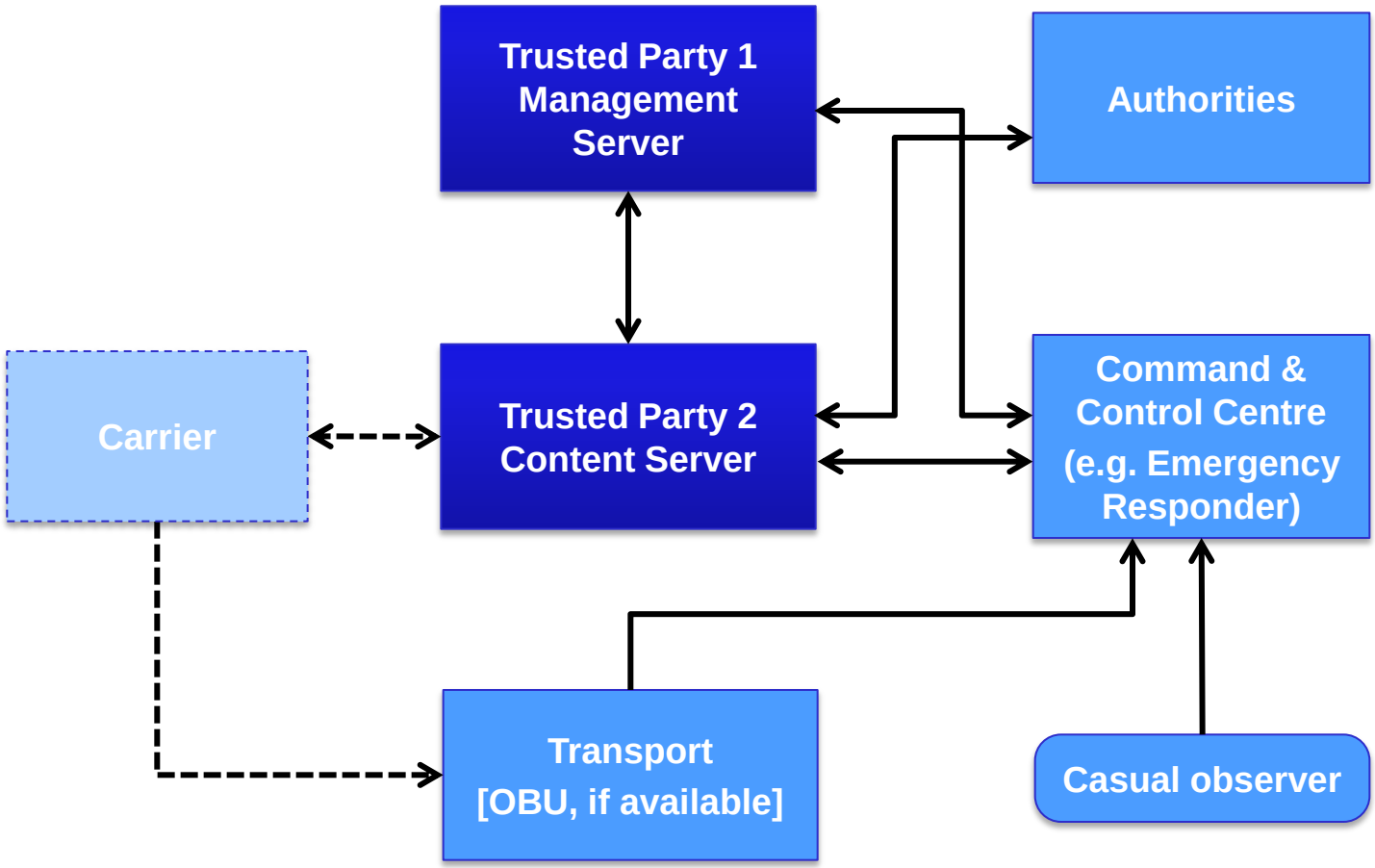
Design decisions (III)

- **VPNs (e.g. eTESTA) shall not be required for the backbone, but associated IT-security issues must be taken into account**
- **The service interfaces shall be fully specified (WSDL & XSD)**
  - The actual development of the services will be WSDL-first
- **The system specification shall contain self-inspection methods in order to support migrations paths in case of future evolution**
- **A logging interface shall provide access to evidence (details, e.g. storage period, to be determined)**
- **The system shall support two different types of access scenarios:**
  - Access with knowledge of service end point and vehicle ID
    - e.g. “electronic trigger” via eCall, TARV, etc.
  - Access with context knowledge only (e.g. location, number plates…)
    - e.g. “casual observer”
  - The latter implies services to look up service end point and vehicle ID depending on descriptive parameters, depending on mode of transport
    (it needs to be considered how existing services like RIS, EUCARIS, etc. can be used here)
  - There are two basic alternatives: caching the data of current transports in a central service (TP1) or specifying multicast / broadcast enquiries on TP2s

Design decisions (IV)

- **One single successful data access shall provide ALL DGT data needed for emergency response / control**
  - The carrier has to have the full data of the goods transported – it is not enough to have a reference to another system operated, e.g. by the consignor system
- **The data structure should reflect the organising principles used currently for paper documents for the different modes of transport (e.g. by wagon for trains)**

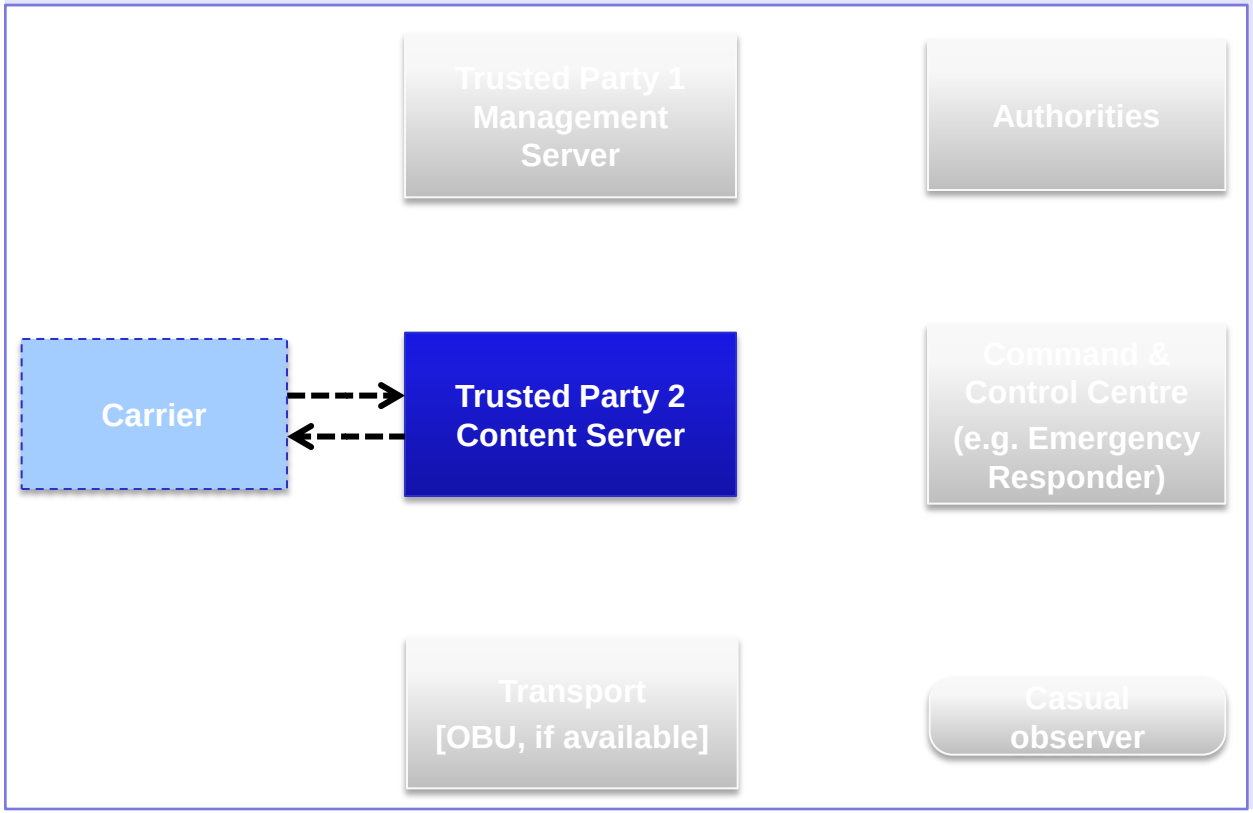
Telematics system architecture



Telematics system architecture

I. Carrier stores Dangerous Goods Transport Document in TP2

- Carrier may provide a TP2 himself → this interface becomes internal!
- No standardised interface between carrier and TP2

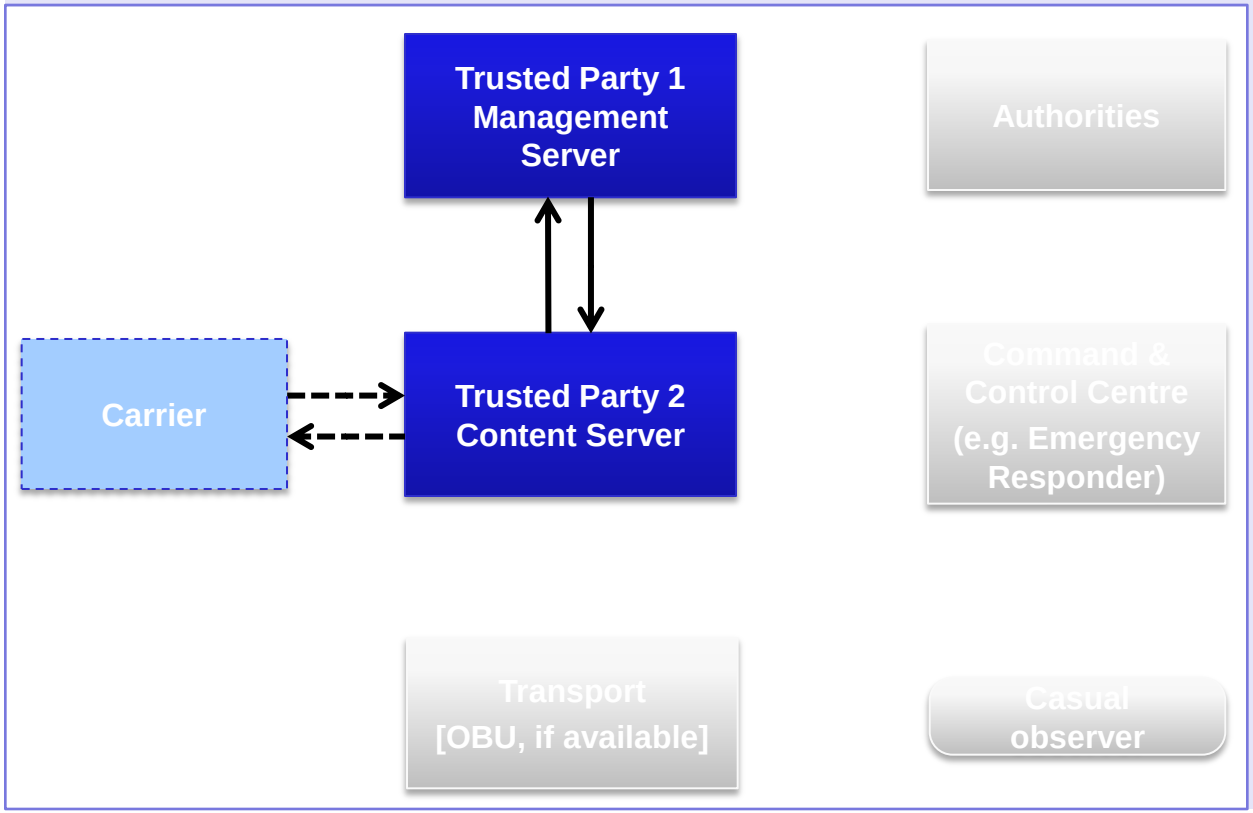


1. Carrier saves DG Transport document
2. Carrier receives transport ID

Telematics system architecture

II. Carrier registers DG transport on TP1

- TP2 registers transport when it starts (and de-registers when it ends)
- Carrier has to provide lookup criteria (e.g. number plates, etc.)

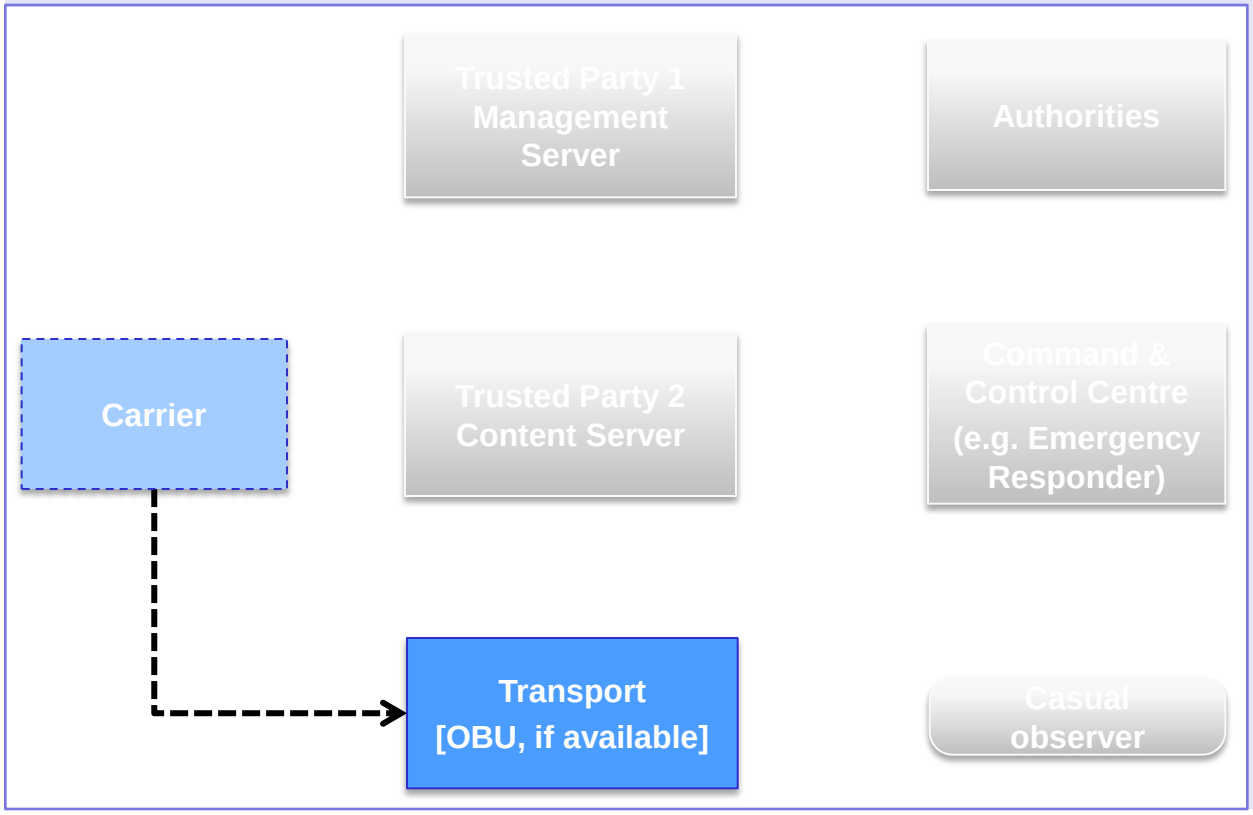


1. Connection to TP2 (if needed)
2. Authorisation check of TP 2 on TP 1
3. If authorised, transport metadata (e.g. number plate tractor and trailer, transport ID, service endpoint TP2, etc.) will be registered on TP1
4. Carrier receives status message

Telematics system architecture

III. Carrier saves transport ID and service endpoint TP2 in an OBU

- Only if OBU is available and vehicle initiated alerts are supported (e.g. HGV eCall)
- No standardised interface!

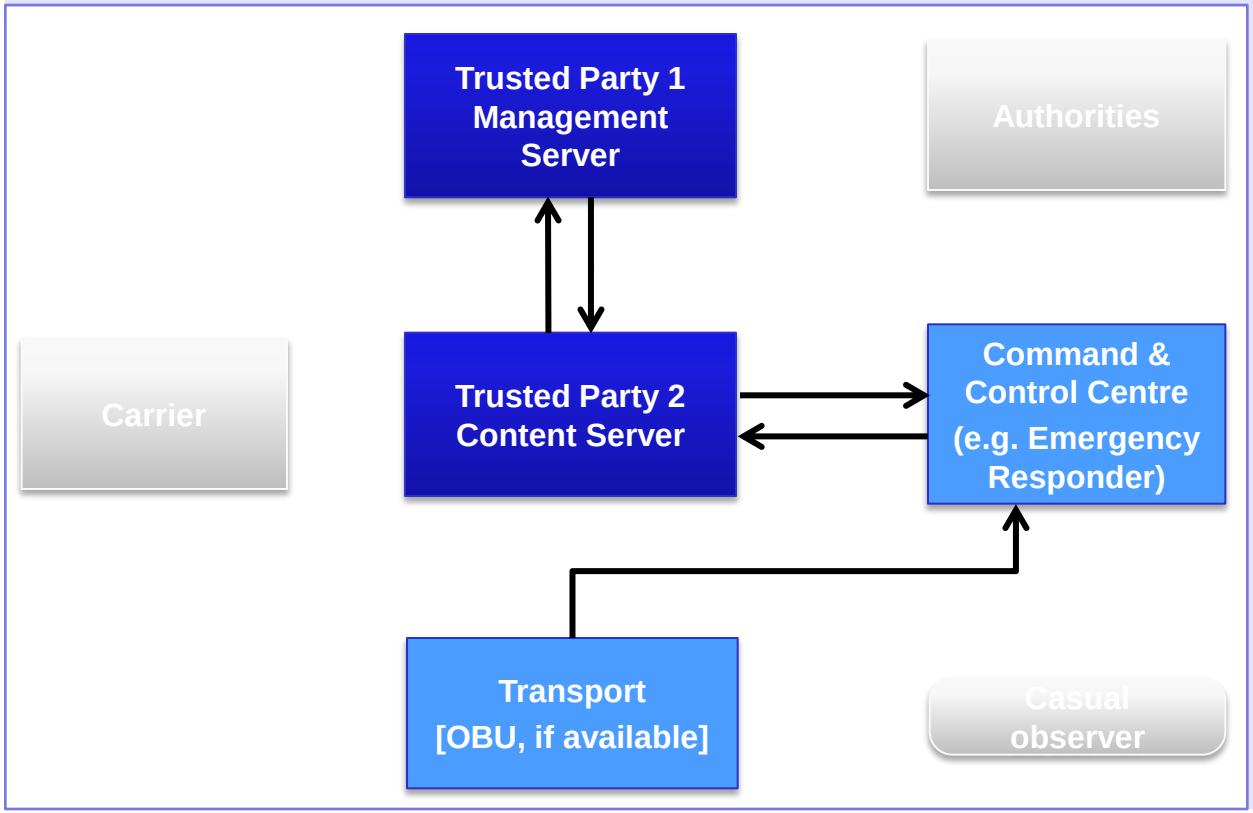


1. **Carrier saves transport ID and service endpoint TP2 in OBU**
2. **If storing full access credentials is not possible, store unique lookup criteria (e.g. VIN)**

Telematics system architecture

IV. Emergency situation with vehicle initiated emergency call (e.g. eCall HGV)

- Vehicle initiated emergency call is available and able to carry access credentials
- CCC has free access to the internet (redirect mode via TP1 is applicable)

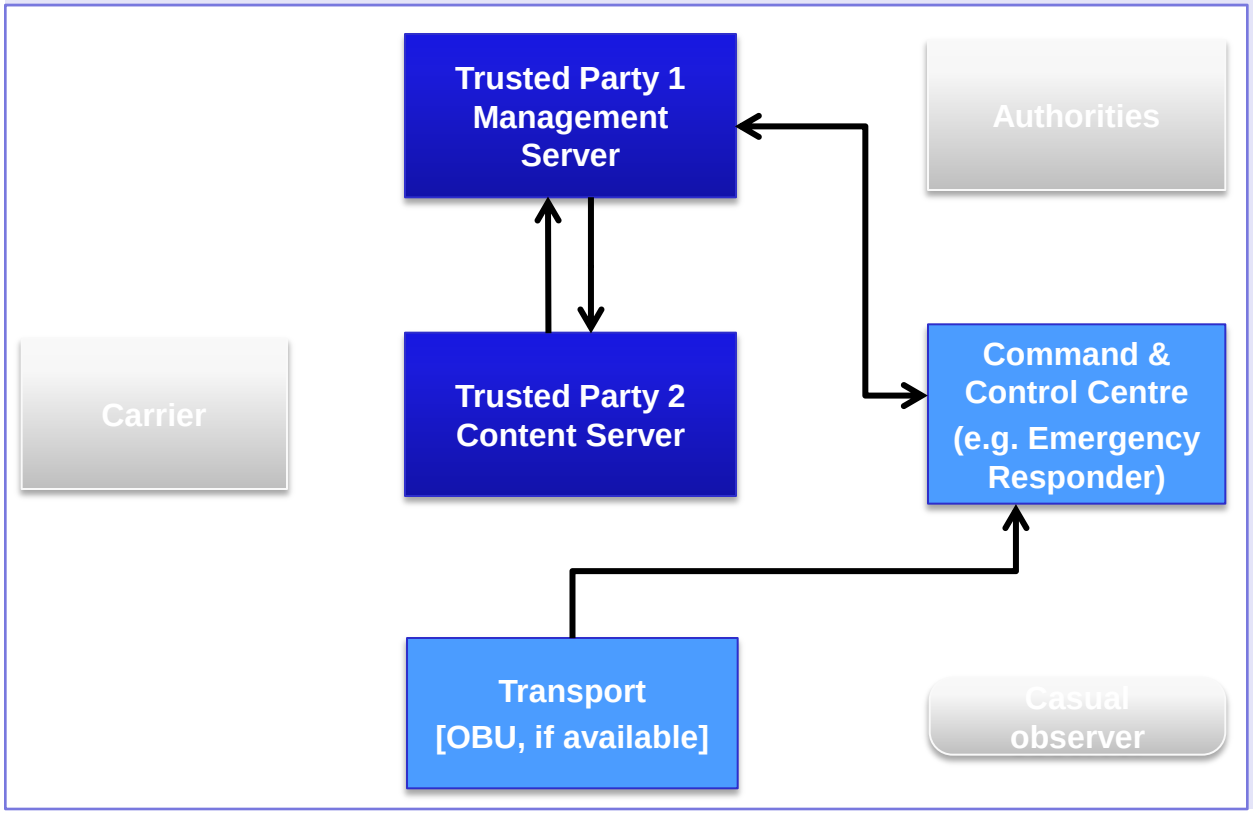


1. Emergency responder receives an emergency notification (transport ID, service endpoint TP2)
2. CCC connects to appropriate TP2
3. Authorisation check of CCC on TP 1
4. If authorised, CCC will receive DG transport document

Telematics system architecture

IV. Emergency situation with vehicle initiated emergency call (e.g. eCall HGV)

- Vehicle initiated emergency call is available and able to carry access credentials
- CCC has restricted access to the internet (proxy mode must be used)

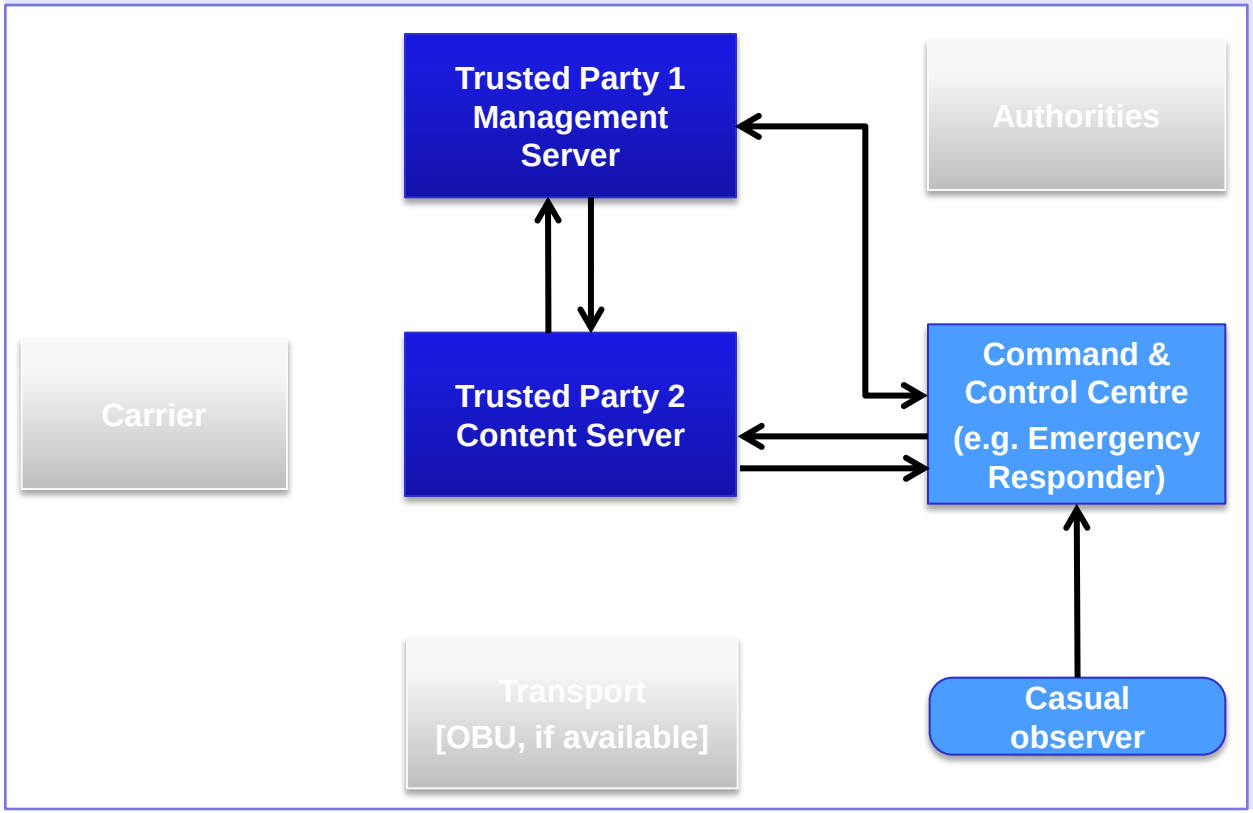


1. Emergency responder receives an emergency notification (transport ID, service endpoint TP2)
2. CCC connects to appropriate TP1
3. Authorisation check of CCC on TP 1
4. If authorised, TP1 will request Deployment Guideline data from TPs
5. CCC will receive DG transport document

Telematics system architecture

IV. Emergency situation reported by casual observer

- No automatic emergency call by the vehicle
- CCC has full access to the internet (redirect mode would be used)



1. Emergency responder receives a call from an observer with observable criteria
2. CCC connects with appropriate TP1 and performs lookup; if authorised it receives credentials
3. CCC connects to appropriate TP2
4. Authorisation check of CCC on TP 1
5. If authorised, CCC will receive DG transport document

Issues

- Legal basis (e.g. regarding digital signatures) not necessarily aligned in the ADR/AND/RID signatory countries
- Although the central storage (‘national database’) is no longer mandatory (but still feasible!), there are a couple of central (“national”/”European”?) responsibilities in the concept (TP1 ACL / certificate registry / revocation / proxy mode…) that need to be addressed and options / commitment to provide these central services need to be considered
- Service certification must be considered (avoid demanding new, dedicated structures with prohibitive cost)

Mock-up demo of system processes

Conclusions / Recommendations

- **The architecture has been transformed into a technical specification that can be used for pilot implementation**
- **The specification is not final as it would be needed for inclusion into the regulatory framework**
  - Some parts require policy decision (e.g. federated TP1 vs. central TP1)
  - Some parts require feedback from the field (e.g. self-inspection and logging)
  - Data model of transport document
    (although much feedback has already been processed)
- **The full specification (after including feedback from WG Telematics and Transport Logistics WS) will be made available end of July**
- **It would be preferred to accompany local / regional / national pilot projects with a European umbrella led / accompanied by WG Telematics**
- **Regulation would require steps beyond successful pilots, namely agreements on standardisation and compliance assessments**

Thank you!

Josef Kaltwasser

AlbrechtConsult GmbH

direct contact

Tel: +49 1520 877 04 02

Fax: +49 241 500 718

Josef.Kaltwasser@albrechtconsult.com

Project of the Federal Ministry of Transport, Building and Urban Development

-

"Telematics system architecture to allow electronic transport documents and improve emergency response in dangerous goods transport"

-

AP220 – Relevant Standards

Jonathan Harrod Booth

Harrod Booth Consulting Limited

Working Group Telematics Meeting

Tegernsee 03/04 June 2013

Outline

- **Scope and framework conditions**
  - Need to understand the context of this work as it has developed over the last couple of years
- **Results from the previous R&D project**
  - Summary of main conclusions / recommendations from the German national study carried out 2010/11
- **Assessment of relevant current telematics Standardisation**
  - Review of relevant Standards across main surface transport modes
  - Suitability of existing standards and trigger mechanisms for linkage to proposed back-office solution
- **Recommendations**

Scope and framework conditions

Scope and framework conditions

- The “Joint Meeting” is maintaining the DGT regulations for inland transport (rail, road & inland waterways) on a Europe+ scope
- The regulations are substantial and technically detailed when it comes to physical, material, etc. requirements – they do so far NOT mention Telematics
- What is mentioned is the optional electronic representation of the data requirements on the transport document – but this is based on “functional equivalence” which in itself is not specified
- DGT actors have so far drawn the conclusion that paperless transport is practically impossible and increasingly complain about this fact incurring unnecessary cost to their business
- The “Joint Meeting” has mandated an informal WG on Telematics (rotating chair DE/FR) – this group has created a tabular description of relevant data, including references to stakeholder roles and use cases
- Germany has launched a study in 2010 to consider the role that Telematics could potentially play in DGT
- The results of this study have been reported to WG Telematics – they are the basis of the current work

Scope and framework conditions

- **The scope of Workpackage 220 is:**
  - an analysis of the telematics standards to be used for the communication between the back-office systems.
  - Furthermore, the operations should be determined (trigger), which can cause access to the back office interface.
  - Standards, such as eCall and TARV, are examined and checked with regard to their suitability.

Results from the previous R&D project

Albrecht Consult

Freight / Commercial

- E-documentation
- E-clearances
- Smart container management
- Fleet management

Monitoring & Enforcement

- Track & Trace
- Enforcement
- Required Authority documents

Incident & Emergency Response

- Remote notification
- Incident scene data access
- Incident management
- Additional information sourcing
- Information dissemination

Architecture/Framework

Common terminology/ Common concepts

- Classification
- Identification
- Location
- Payload description
- Load Status
- Event /Status description
- Communications
- Processes
- Security

Previous Study – WP200 Conclusions

- **Many relevant existing and developing standards exist**
- **Regulation of Telematics in Dangerous Goods Transport needs to consider which domains & application areas are priorities & its approach to engagement with Standards bodies**
- **Establish a common data centric terminology for promotion into a number of these initiatives (i.e. provide views on appropriate data to support different DG applications for reuse by other initiatives):**
  - Raise awareness in Freight Single Framework and Regulated Vehicle initiatives
  - Engage with eCall HGV PWI activity in HeERO/CEN TC278 WG15 to ensure appropriate data set adopted, and business operational model appropriate
  - Consider review and input into existing standards (e.g. ISO 17687) to ensure alignment.
- **Consider support for establishment of open framework to support DG applications in future**

Assessment of relevant current telematics Standardisation

Extending the review of Standards

- With a better understanding of the proposed back-office solution and services review relevant standards to examine ability for the standard to carry relevant data and expected trigger mechanisms
- Extend the review to road, rail and inland waterways

- Request/disclaimer: As this is involving areas beyond personal experience and expertise therefore there will be people present who will know some details in greater detail… comments are welcome

In each case….

- **This presentation provides:**
  - A brief description of the intended use of the Standard(s)
  - The scope of applicability
  - Current status
  - Ability to carry relevant data
  - Triggers
  - Recommendations

For Roads – Relevant Telematics Standards

Common Name	Domain of Application	Region	Short Description
eCall HGV CEN TR 16405	Standards specifying vehicle initiated emergency notification	Europe	Developing appendum to eCall standards to support notification from HGVs/Dangerous Good Vehicles
TARV - ISO 15638 – multipart standard: ITS Framework for cooperative telematics applications for regulated commercial freight vehicles	A range of regulated telematics applications for commercial vehicles	International	Includes an emergency call application (Part 10) and a Dangerous Goods Monitoring application (Part 18)
DATEX II	Standard for traffic centre to centre communications	Europe	
IS 17687: 2007	Vehicle to centre dangerous goods messaging standard	International	ITS – Data Dictionary and Message Sets for electronic identification and monitoring of hazardous materials/dangerous goods transportation (ISO Standard – unknown usage)

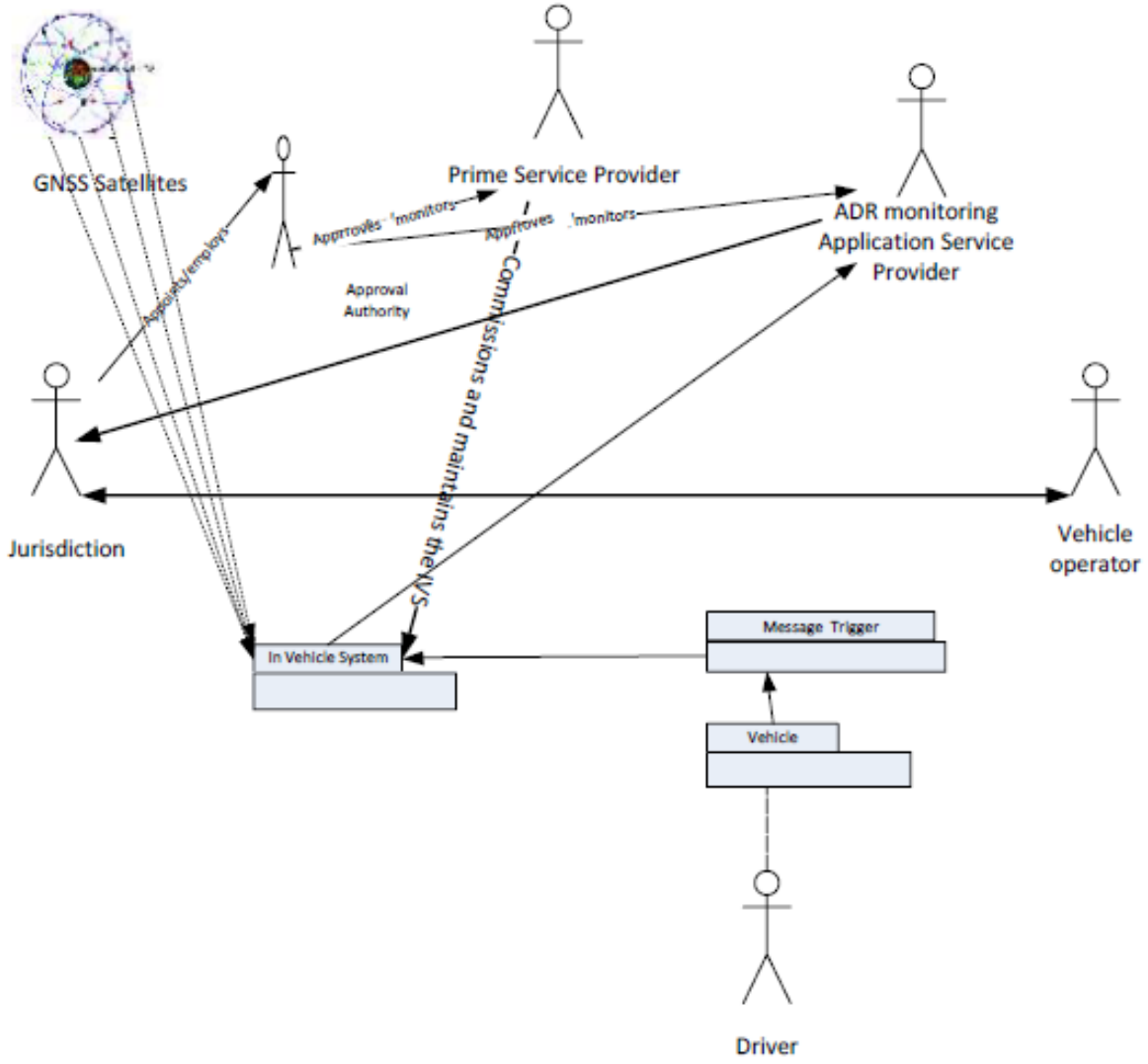
For Roads – eCall HGV

- **Description**
  - Road-centric suite of protocols, high-level procedures and communications standards to support emergency incident notification from vehicle to emergency response (Public Service Answering Point - PSAP) and subsequent immediate communication
- **Scope**
  - Europe + (CEN & ETSI) Standards, but wider uptake including Russian Federation
- **Current status**
  - Core eCall standards adopted; EC promoting EU resolution for mandatory deployment in new private cars in EU in 2015.
  - eCall HGV (including Dangerous Goods information), adopted as a CEN Technical Report (CEN TR 16405)
  - Large-scale pre-deployment trials on-going HEERO and HEERO 2 – which have observations to be fed back into eCall HGV standard.
- **Ability to carry relevant data**
  - eCall HGV Technical Report has an initial design to support some data for a remote call-out but as we do not have a definite definition of the required data element s for call-out. Further alignment and conformance check required. Note the eCall HGV Technical Report is subject to some revisions shortly as a result of feedback from the HEERO2 project - the HeERO team suggest that instead of having one data concept that provides the option to link to an IPv6 address AND provide the possibility for on-board data, there should be 2 data concepts, one simply providing a link and one simply providing data.
- **Triggers**
  - Note: eCall is limited to “life threatening situations” therefore can only be used for incident notification & response purposes
  - eCall does not address what onward actions a PSAP must do on receipt of an eCall message, i.e. there is no international standardisation of the solution between PSAP and 2nd line emergency response entities. However having standardised data to request DGT information could lead to deployment of a standardised solution.
- **Recommendations**
  - Provide firm guidance to CEN TC278 WG15 on form of data to be carried to support access to back-office solutions

For Roads – TARV HGV

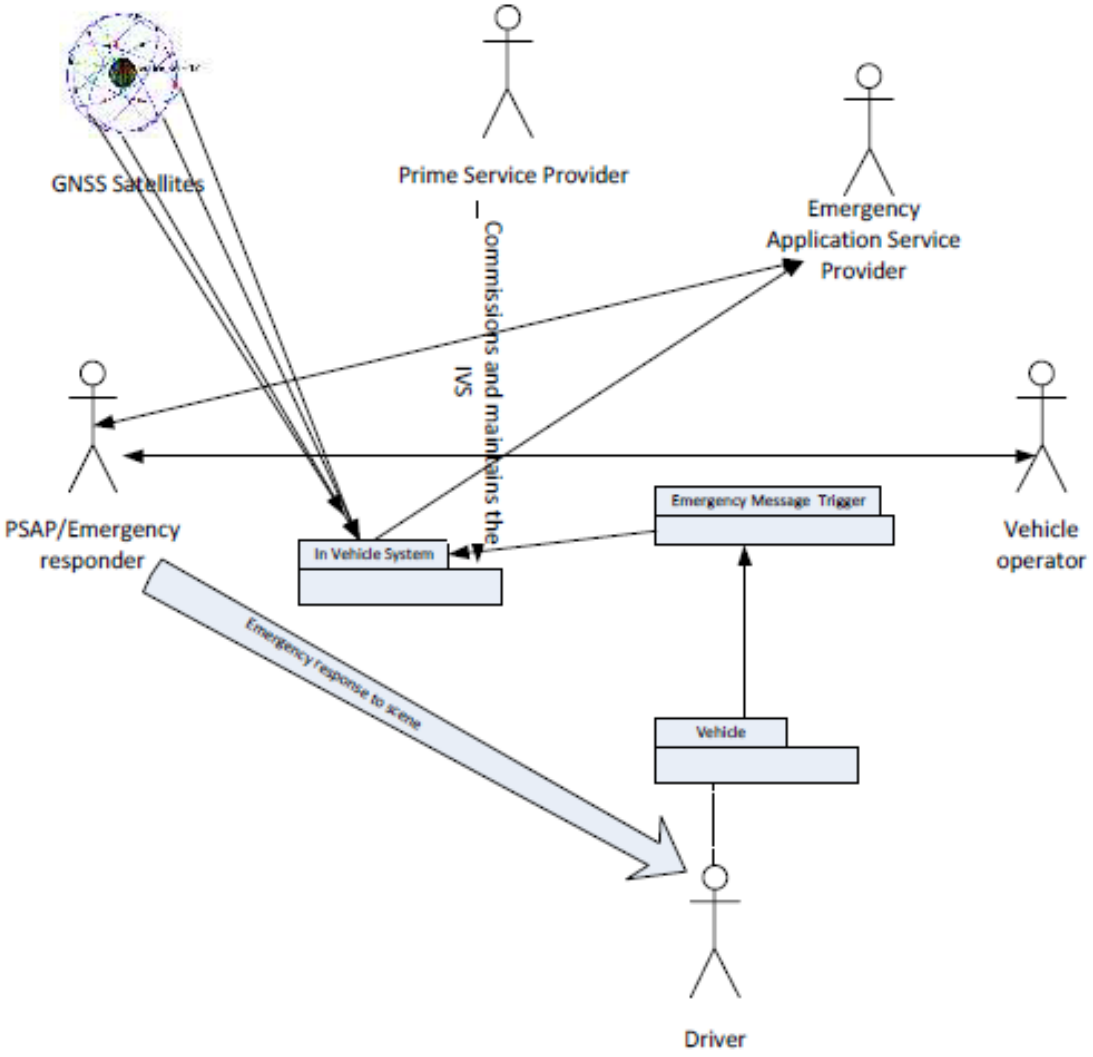
- **Description**
  - Road-centric suite of communication and application specifications for regulated commercial vehicle operations – ISO 15638 multi-part standard. Many applications such as mass monitoring and driver hours. These include an emergency call application [similar to eCall] (Part 10) and a Dangerous Goods Monitoring application (Part 18). The underlying communications framework is the same as used for Cooperative ITS/CVHS. The scope of TARV is communications between the vehicle and recipients.
- **Scope**
  - ISO international Standards , with wide international interest
- **Current status**
  - Many parts of the multi-part Standard are already adopted as full ISO Standard.
  - Part 18 (ADR) will progress no further until UNECE is satisfied that it meets their needs
- **Ability to carry relevant data**
  - Part 10 has been build on similar lines to eCall HGV with potential ability to carry suitable data elements but as we do not have a definite definition of the required data element s for call-out. Further alignment and conformance check required.
  - Part 18 (DG Monitoring) needs to be validated by this Working Group (or the Joint Meeting) before further standardisation can proceed. Review and comment by TWG required.
- **Triggers**
  - TARV supports the concept of multiple service providers. Under Part 10, when a TARV eCall message is issue from a vehicle the first recipient is the application service provider, who is expected to pass the data and call to a PSAP. Receipt of the eCall message by the PSAP can trigger a call-out to the back office solution for DGT information.
  - Part 18 (ADR) again uses the concept of an application service provider who receives data from the vehicle and passes this to a competent authority (regulator). Receipt of the ADR information by the authority can trigger a call-out to the back office solution for DGT information.
- **Recommendations**
  - Provide firm guidance to ISO TC204 WG7 on form of data to be carried to support access to back-office solutions for Part 10 and Part 18, and the nature of application use that it would consider acceptable for Part 18.

ADR Use Case (Part 18)



For Roads – TARV HGV

TARV eCall/Emergency Message Use Case (Part 10)



For Roads – DATEX II

- **Description**
  - Road-centric suite of information exchange protocols for information exchange between traffic centres.
- **Scope**
  - Europe - CEN Standards, widely used by traffic centres in Europe
- **Current status**
  - Parts 1-3 CEN 16157 are adopted Technical Specifications; Part 4-6 are in production.
  - Part 3 (Situation Publication) contains some DG information elements – it is proposed to align this model more fully to the TWG DG data model during next period review
  - As stated previously the modelling methodology used within the previous study and this one uses the DATEX II methodology to create a platform independent data model for Dangerous Goods Transportation
- **Ability to carry relevant data**
  - As designed at present Part 3 does not explicitly define data elements to support call-out to a back-office DG information solution. However, the DATEX II model and process, is by design extensible and a change management process can enable these elements to be introduced into later revisions of Part 3.
- **Triggers**
  - No specific triggers identified, as DATEX II is not a call and request transaction based service.
- **Recommendations**
  - Encourage CEN TC278 WG8 to adopt the defined data structure to carry call-out information within the DATEX II data model and exchanges.

For Roads – IS 17687

- **Description**
  - Road-centric protocol and message set definition for remote identification and monitoring of dangerous goods IS 17687 – Intelligent transport systems – Data dictionary and message sets for electronic identification and monitoring of hazardous materials/dangerous goods transportation
- **Scope**
  - ISO international full Standard. Usage unknown
- **Current status**
  - As per all full standards under ISO (or CEN) this product is now due for a periodic review, which can reconfirm/refresh/remove content.
- **Ability to carry relevant data**
  - Back-office call-out data – None – it was not part of the original design.
- **Triggers**
  - No specific triggers identified. Any office based solution would have to have processes to address inbound information appropriately.
- **Recommendations**
  - Suggest modifications to be considered in the periodic review.

For Rail

- On consultation with UK rail DG experts they identified that at present there is no internationally adopted system specification for the management of DGT, however TAF-TSI has been under-development for some time to address these issues and enable interoperability and harmonisation of approach
- The European Railways Agency (ERA) has recently proposed a CR to the existing TAF parameters in order to incorporate dangerous goods information into the consignment note – this is not aligned with the emerging requirements from TWG/studies for back office solutions access
- However, ERA has assured the TAF community that this proposal to include dangerous goods information in TAF consignment notes is in parallel to the RID information and is there to meet the legal requirement for consignment notes to carry complete information.
- Of course ERA colleagues are better placed to report progress on this topic

For European Inland Waterways

- **Description**
  - Commission Regulation (EU) 164/2010 dictates the use of River Information Service (RIS) specifications on inland waterways in the Community
- **Scope**
  - Europe
- **Current status**
  - The RIS specifications are in widespread use.
- **Ability to carry relevant data**
  - River Information Service (RIS) Electronic message specification support DGT information exchange, such as the ERINOT message, and others, but these messages do not currently support the likely data elements required for access to a back office solution.
  - The ERI notification message (ERINOT) must be used for the reporting of dangerous and non dangerous cargo carried by inland waterway vessels. But there appears to be no direct functionality for incident notification.
- **Triggers**
  - None currently included
- **Recommendations**
  - Discuss with the RIS specifiers:
    - processes for change to support message content structure modification to support data elements for access to back office solutions
    - The experiences from eCall and approaches that can be used for incident notification within the RIS environment

Summary – Relevant Telematics Standards Dangerous Goods Transport

Albrecht Consult

Mode	Common Name	Domain of Application	Region	DGT content in messaging?	Support DGT back-office call-out?	Existing key identifier
Road	eCall HGV CEN TR 16405	Vehicle emergency notification comms.	Europe			VIN
	TARV - ISO 15638 Parts 10/18	Multipart standard: ITS Framework for cooperative telematics applications for regulated commercial freight vehicles	International			VIN, Vehicle Registration?
	DATEX II CEN 16157	Standard for traffic centre to centre communications	Europe			VIN?, Vehicle Registration?
	IS 17687: 2007	Vehicle to centre dangerous goods messaging standard	International			VIN?, Vehicle Registration?
Rail	TAF-TSI	ERA-led Telematics Application Framework	Europe			UIC Wagon Number
Inland Waterway	RIS – River Information System	Messaging system for inland waterways	Europe			Name; ENI number or IMO number?

Emergency Notification Use Case

- Aforementioned standards/specifications do all support different Dangerous Goods Transport information content
- They do not currently support data to enable call-out to a back-office solution.
- However, changes could be encouraged to support the back-office solution across the 3 modes for emergency notification and other use cases

For Remote (Road-side) Inspection/Monitoring

- **Competent authorities have a responsibility under European Directives 90/50/EC and the later 2008/54/EC to undertake uniform procedures to check the transport of Dangerous Goods by road**
- **These Directives provide a proforma of information to be gathered during a road-side check, which assumes access to the paper DG Transport Document.**
- **Discussions with officials at the UK's Vehicle and Operator Services Agency (VOSA) indicates that access to the proposed back office solution, although not a pre-requisite, has the potential to introduce operational efficiencies into the check process. This still assumes that the vehicle under scrutiny is stopped and key access details to the back office solution are provided to the checking official.**

For Remote Inspection/Monitoring

- **Initiation of checks for loading details for a moving vehicle requires a different approach using the vehicle's unique visible identifiers/registration plates. The back-office solution needs to support an authorised user querying for Dangerous Goods Transport load information for an identified 'vehicle'**
  - ROAD: registration plate of lorry, tractor or trailer + Nationality; VIN?
  - INLAND WATERWAYS: Ship name and Nationality, ENI number ("European number of identification") or IMO number (for sea ships travelling inland waterways)
  - RAIL: UIC wagon number

- **Requires "directory services" for searching federated back-office solutions**
- **And guidance on what identification data shall be registered in the back-office (visible "vehicle" identifiers)**

Recommendations

Recommendations

- **Specify a clear technical approach to the back office solution – to identify capabilities and the specific data elements required to access the service for emergency response and off-vehicle monitoring purposes**
- **Disseminate the agreed data element information for back office solution access to the Standards and Specifications creators mentioned earlier**

- **Technical solutions must support concept of federated back-office systems and authorised search facilities supporting remote observer services**
- **Registration requirements, to be tested during trials, must clarify what identification data must be registered (regulation)**

Thank you!

Jonathan Harrod Booth

Harrod Booth Consulting Limited

direct contact

Tel: +44 7990 520 404

jon@harrodbooth.com

IT security mechanisms

Overall approach: what needs to be protected

- **Privacy of DGT Document Data**
  - DGT Document Data must be kept private during the entire process and may be revealed only to authorized organisations
- **Integrity of DGT Document Data**
  - DGT Document Data must have integrity
  - Changes of DGTdocument contents must be detectable
  - The document must be linked to the originator
- **Access Control**
  - Access to DGT Document Data must be granted only to authorized organisations
  - Organisations have to be registered in advance
  - Authorization must be based on a strong and reliable authentication mechanismen

IT security mechanisms: Basic technologies Encryption, Digital Signatures and Certificates

- **Main requirements in IT security can be grouped in categories**
  - Confidentiality: Data has to be kept private; only the intended recipient is able to read the content
  - Integrity: Data is secured against non observable changes, that means modification of data is detectable
  - Authenticity: The sender of a message can be verified
  - Non-Repudiation: The sender of a message cannot deny the origin and the content of sent data
- **Three basic mechanisms are available to fulfill the requirements**
  - Encryption: Data is encrypted with some key by the sender and will be decrypted with a corresponding key by the recipient (establishes confidentiality)
  - Digital Signatures: Data is enriched by additional information (‘Digital Signature’) that the sender has added to the payload (establishes integrity)
  - Certificates: A Certificate is a piece of information (analogous to a passport) that identifies a participant. A certificate is issued (and revoked) by a certification authority (establishes authenticity and non-repudiation)

Basic concepts like certificate, digital signature, CA, revocation

IT security basics:
Public Key Cryptography and Public Key Infrastructures (PKI)

- **The most common implementations method for these IT security mechanisms are based on Public Key Cryptography and Public Key Infrastructures**
- **Public Key Cryptography means**
  - Each participant holds a ***secret key*** and a ***public key***. The keys correspond to each other, based a sound mathematical foundation that ensures that information encrypted with one key can only be deciphered with access to the other key.
  - Each participant publishes its *public key*. It is used by senders for encryption and by receivers to validate digital signatures.
  - Each participant uses its *secret key* to produce digital signatures and to decrypt received data.
- **Public Key Infrastructure means**
  - A ***Certification Authority*** (sometimes called Trust Center) affirms that a *public key* belongs to a dedicated participant. This electronic affirmation is called ***Digital Certificate***.
  - The *Certification Authority* publishes all certificates in a public directory
  - Whenever a certificate becomes invalid (e. g. due to fraud) the *Certification Authority* ***revokes*** the certificate. Revocations are also published.

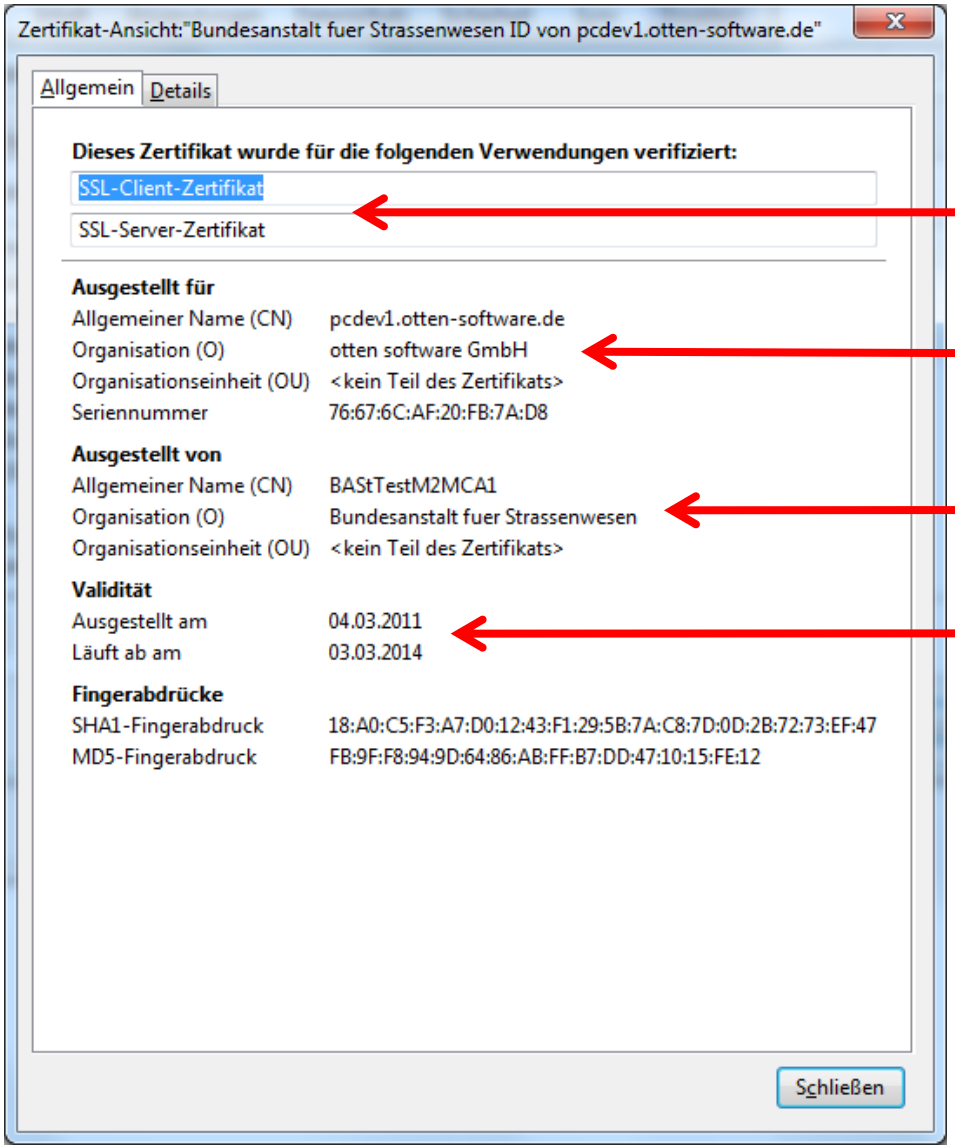
Example: Certification Authority

- **Main functions of a Certification Authority**
  - ***Registration of participants***, that means identification of the requester for a digital certificate
    - this task is sometimes delegated to a so called Registration Authority
  - Secure ***generation of a key pair*** (public and private key for the requester)
  - Secure ***generation of a certificate*** for the public key
    - Unique tie between the identifying properties of the requester and the generated public key
  - Secure transmission of the private key to the requester
  - Secure ***publication of generated certificates*** and public keys (as a part of the certificate)
  - Revocation of certificates, publication of revocation list
- **Main advantage of a Certification Authority**
  - ***Delegation of Trust*** (Issuer of digital identity Cards)
  - Avoidance of the need for mutual identification of the communication partners

Types of Certificates

- **The „quality“ of a certificate is determined by the following parameters**
  - The precision of the registration process, mainly the identification of the requester
  - The Safety and Securiy of the production and distribution processes for keys and certificates, mainly the technical and organizational processes to keep private keys really private
  - The response time for a certificate revocation request
- **Machine Certificates**
  - Usage:
    - Authentication during TSL/SSL connection setup
    - Signing Requests for DGT documents
  - Strength
    - Advanded certificate and digital signature
- **Personal Certificates**
  - Usage
    - Signing DGT documents
  - Strength
    - Qualified certificate and digital signature, DS is equivalent to manual signature

Example: Digital Certificates of TSL/SSL communication



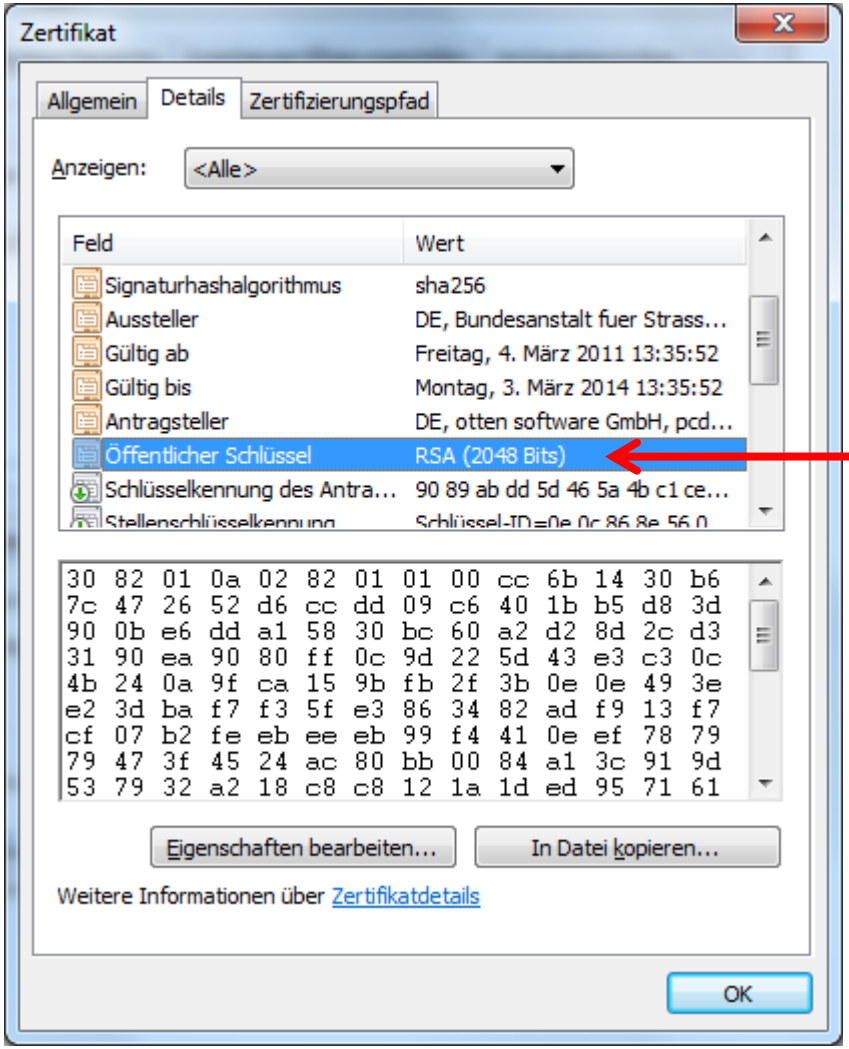
Key Usage

Machine Name / URI

Issuer / CA

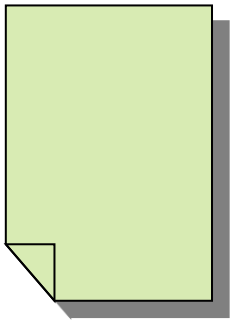
Validity

Example: Digital Certificates



Public Key

From messages to signed messages: How Digital Signatures are computed and checked



Compute Cryptographic Hash Function

(e.g. SHA-256)

(Unique) Message Digest (e.g. 256 bit)

```
7b 33 30 fe ee 02 4a b8 4c 6c 4a cc e8 b9 73 0c
a6 4e 7c 42 93 a0 63 6f c7 cc 92 d7 2e 60 11 ca
```

Encrypt with ***Secret Key*** by the Signer

```
cc 6b 14 30 b6 7c 47 26 52 d6 cc dd 09 c6 40 1b
b5 d8 3d 90 0b e6 dd a1 58 30 bc 60 a2 d2 8d 2c
d3 31 90 ea 90 80 ff 0c 9d 22 5d 43 e3 c3 0c 4b
24 0a 9f ca 15 9b fb 2f 3b 0e 0e 49 3e e2 3d ba
f7 f3 5f e3 86 34 82 ad f9 13 f7 cf 07 b2 fe eb
ee eb 99 f4 41 0e ef 78 79 79 47 3f 45 24 ac 80
bb 00 84 a1 3c 91 9d 53 79 32 a2 18 c8 c8 12 1a
1d ed 95 71 61 a5 d2 8c ee c1 93 e3 8e 61 7a 98
15 83 bf 35 da 25 65 db 1c 89 12 7f d9 64 08 60
e1 0f 2f 6f b5 1e 20 7d ed 9b 43 cf a3 02 d6 b6
48 e4 b3 b9 01 3e 3e 13 02 98 91 e4 84 11 a9 a1
21 a1 40 68 bf 6f f9 77 23 10 b3 2c ab d8 c6 b7
e1 42 62 5d 36 29 f9 61 10 2b 5b d5 b3 5a e2 8f
50 03 f5 ff d2 53 68 9c 21 f0 12 b0 26 f6 f2 63
60 fe 7b cb a5 60 a5 c4 27 d7 16 a3 4d d8 48 6e
ec 1d 72 2f 3f 91 ea d1 e3 30 be f3 c0 65 32 79
```

Digital Signature (e.g. 2.048 bit)

Compute Hash by the Recipient

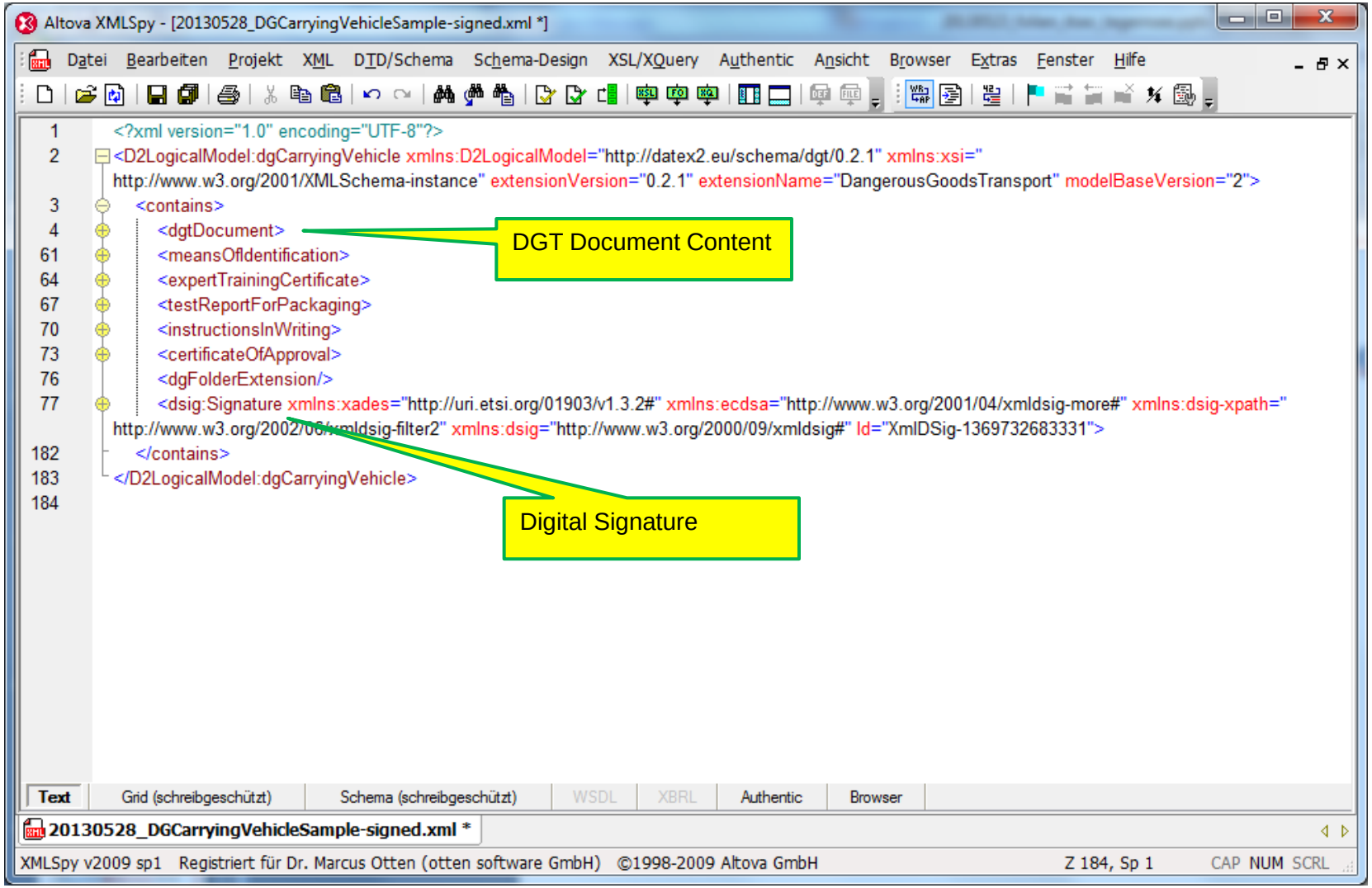
```
7b 33 30 fe ee 02 4a b8 4c 6c 4a cc e8 b9 73 0c
a6 4e 7c 42 93 a0 63 6f c7 cc 92 d7 2e 60 11 ca
```

??? = ???

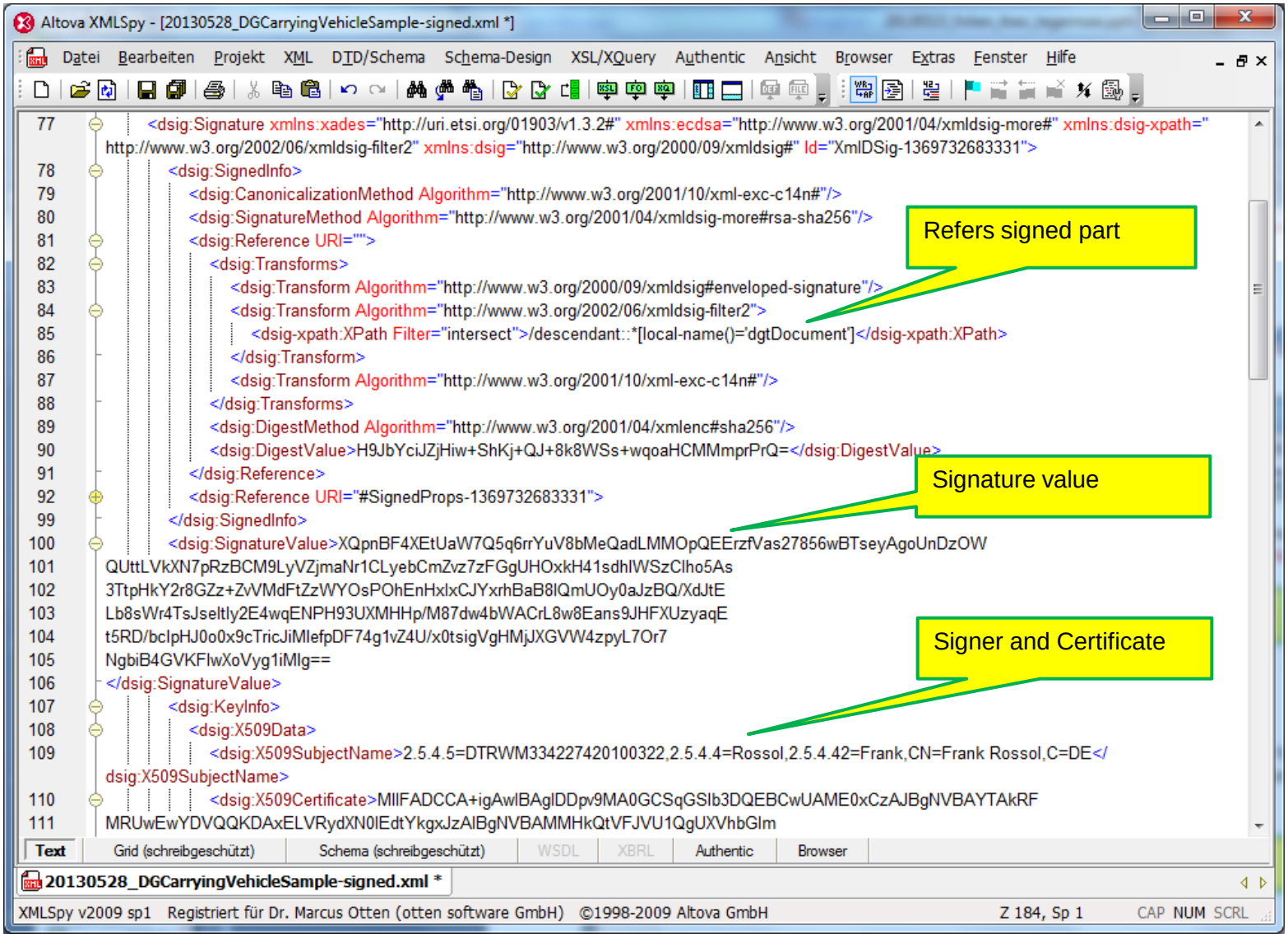
```
7b 33 30 fe ee 02 4a b8 4c 6c 4a cc e8 b9 73 0c
a6 4e 7c 42 93 a0 63 6f c7 cc 92 d7 2e 60 11 ca
```

Decrypt with ***Public Key*** by the Recipient

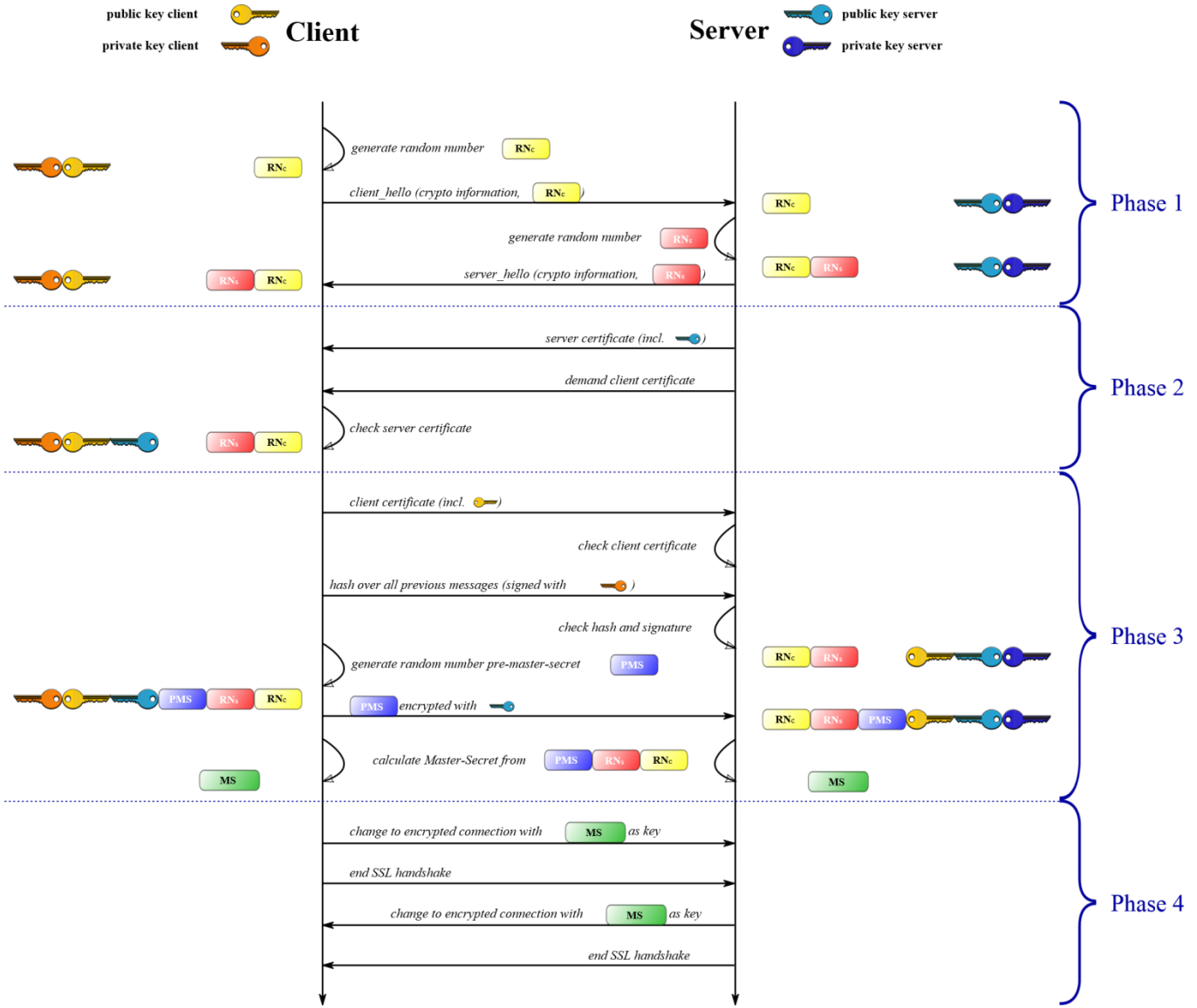
XMLDSig: A W3C Standard for Signing XML documents



XMLDSig: A W3C Standard for Signing XML documents



TSL/SSL connection setup using Digitale Certificates



Quelle: http://commons.wikimedia.org/wiki/File:SSL_handshake_with_two_way_authentication_with_certificates.svg

How are similar requirements met and similar questions handled in other relevant business areas (eCommerce, health, …)

Public Key Infrastructure (PKI) is widely used and "of the shelf" technology

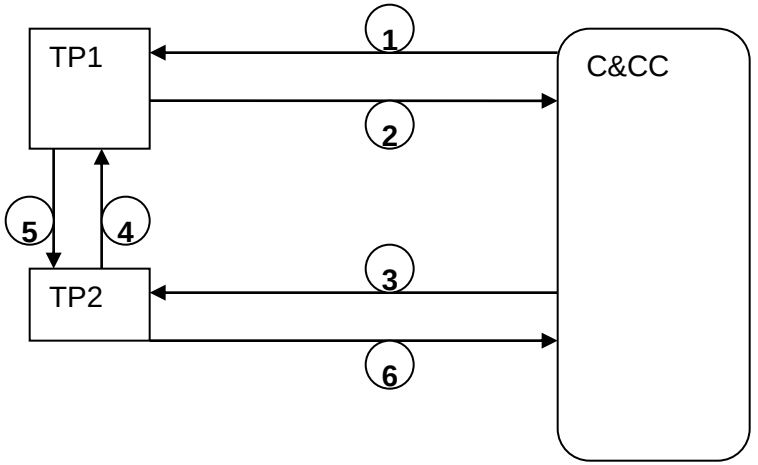
- **TLS/SSL encryption of Websites**
  - Websites present a Digital Certificate to prove their validity; certificates are issued by different Trust Centers (e. g. VeriSign)
- **EUCARIS - EUropean CAR and driving license Information System**
  - Communication of EUCARIS servers is secured by SSL
  - (XML-)Messages are signed using certificates
- **German Mobility Data Marketplace (service.mdm-portal.de)**
  - Authentication at marketplace information portal is based on enduser certificates (instead of username/password)
  - Machine-2-Machine-commuinication is secured by TSL/SSL with certificate based mutual authentication of sender and recipient
- **German Fiscal Authorities**
  - In B2G communication taxpayers have to sign their tax announcements digitally
- **Germany eANV Electronic record procedure for waste recovery and disposal**
  - Communication is secured by OSCI eGovernment Framework based on certificates
  - (XML-)Messages are digitally signed using certificates

IT security mechanisms in our DGT Framework proposal

- **Our Dangerous Goods Framework proposal**
  - TSL/SSL encryption of communication processes with mutual authentication (sender and recipient)
  - Digital signatures for dangerous goods data and data requests
- **authentication of communication channels**
  - machine-2-machine communication after mutual authentication based on certificates
- **encryption of communication channels**
  - TSL/SSL encryption of communication channels
- **Authentication and authorization mechanisms**
  - The identification of participants is without any exception based on digital certificates
- **Signed Data**
  - DGT document is secured by a (qualified) digital signature
  - Data Request message for DGT informations is secured by a (qualified or non-qualified) digital signature

Examples for the use of PKI for DS and Authentication

- **C&CC determines URI for TP2 (Step 1 and 2)**
  - TSL/SLL-Channel using Certs from C&CC and TP1
  - XMLDSig SOAP Request , Signature from C&CC (automatically generated)



- **C&CC gets DGT-Document from TP2 (Direct Mode, Step 3 to 6):**
  - TSL/SLL-Channel using Certs from C&CC and TP2
  - TSL/SLL-Channel using Certs from TP2 and TP1
  - XMLDSig SOAP Request, Signature from C&CC (automatically generated)
  - SOAP Response with XMLDSig DGT Document (qualified signature from carrier)

Organisational, financial and technical impacts

Impacts of our DGT Model

- **No need for a dedicated Public Key Infrastructure**
  - Due to the usage of standardized Algorithms and Certificate Structures the system can be based on existing Public Key Infrafstructure
- **How can users obtain certificates**
  - For both personal and machine certificates national and international certification authorities are avaible
  - Machine certificates are issued by a variety of companies, e.g. verisign, baltimore, digicert, RSA security, Twathe
  - Qualified personal certificates can be obtained from trustcenters according to DIRECTIVE 1999/93/EC of 13 December 1999 on a Community framework for electronic signatures
- **Carriers and C&CCs IT systems**
  - must be able to build, sign and verify XML documents
  - must implement SOAP interfaces to TP1 and TP2 with IT standard mechanisms including certificate based TSL/SSL connections

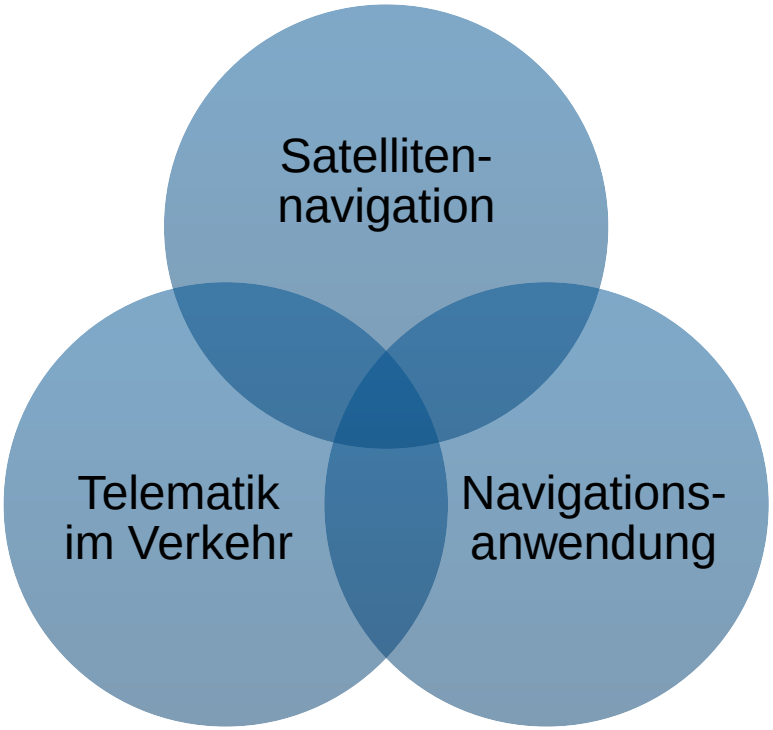
Bundesministerium
für Verkehr, Bau
und Stadtentwicklung

Telematik im Verkehr

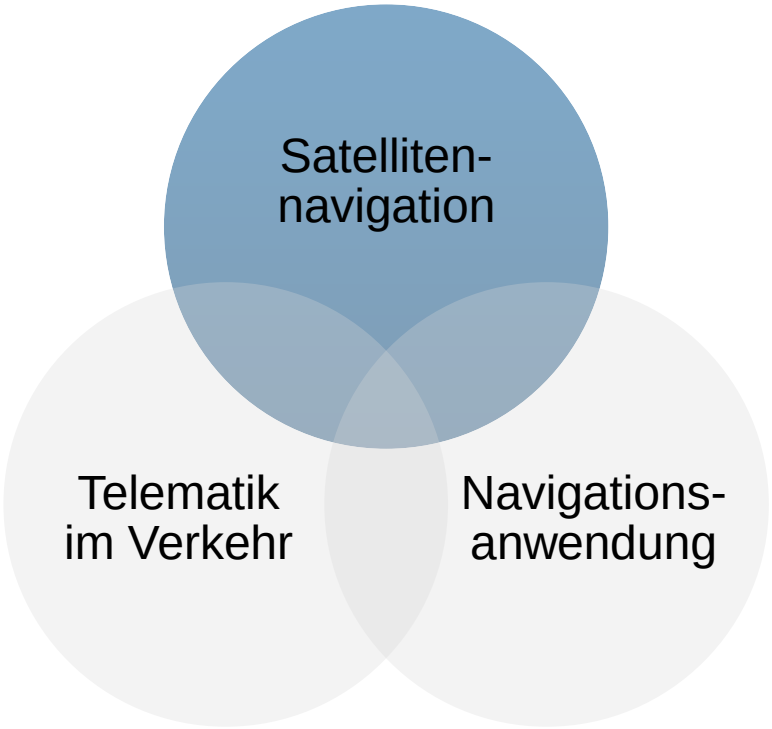
11. Sitzung der Arbeitsgruppe „Telematik“ der Gemeinsamen Sitzung
03. – 04.06.2013 in Tegernsee

BMVBS – UI 35

Das Tätigkeitsfeld von Referat UI 35



Satellitennavigation - Anwendungen - Telematik

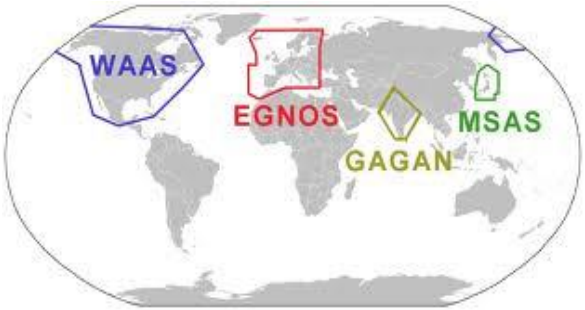


Satellitennavigation - Anwendungen - Telematik

Satellitennavigation leistet weltweit entscheidende Unterstützung bei Ortung und Positionierung

- Bestehende Globale Satelliten-navigationssysteme (GNSS)
  - GPS (USA)
  - GLONASS (RUS)

- regionale Ergänzungssysteme
  - WAAS (Nordamerika)
  - EGNOS (Europa)
  - MSAS (Japan / Asien)
  - GAGAN (Indien)



Satellitennavigation - Anwendungen - Telematik

Die Europäische Union entwickelt mit Galileo und EGNOS einen eigenständigen Zugang zur Satellitennavigation

- politische Entscheidung
- sichert Unabhängigkeit *(strategisch & wirtschaftlich)*
- sichert Technologiekompetenz *(Empfängerentwicklung)*

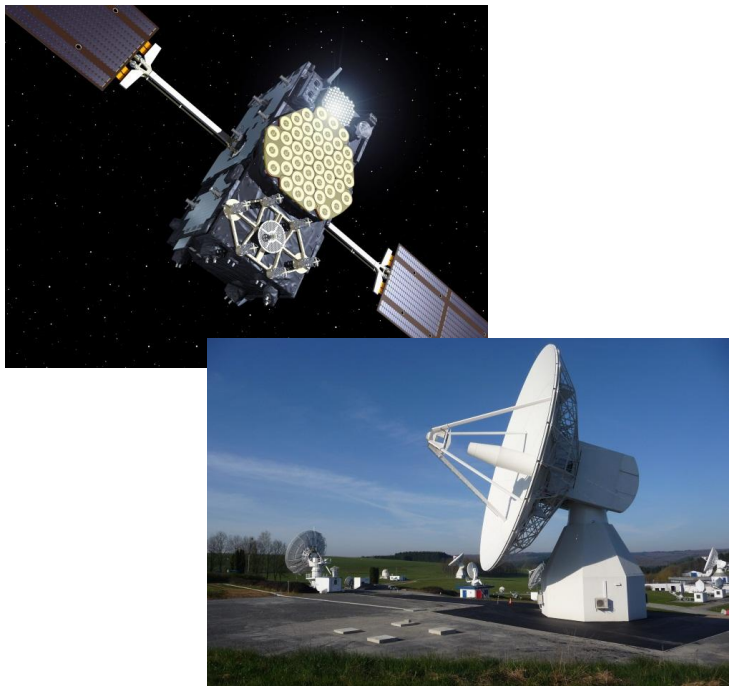
Satellitennavigation - Anwendungen - Telematik

Galileo Weltrauminfrastruktur

- 30 Satelliten
- auf drei Umlaufbahnen
- in 23 260 km Höhe

Galileo Bodeninfrastruktur

- Zwei Kontrollzentren steuern Satelliten und Signale
- Zwei Sicherheitszentren (GSMC) für PRS
- Ein GNSS Servicezentrum für OS, CS und SoL
- Weltweites Netz von mehr als 20 Bodenstationen



Satellitennavigation - Anwendungen - Telematik

- **Offener Dienst (OS)**
  Offenes, kostenloses Basissignal
- **„Public Regulated Service“ (PRS)**
  robuster verschlüsselter Dienst
  (vor allem für Behörden mit Sicherheitsaufgaben)
- **„Search and Rescue“ Dienst (SaR)**
  Verbesserung internationaler Hilfssysteme
- **Kommerzieller Dienst (CS)**
  Kommerzielles Signal
  mit kostenpflichtiger Zusatzinformation
- **„Safety of Life“ Dienst (SoL)**
  über EGNOS auf Basis Galileo + GPS
  Integritätsmeldung *(alle 10 Sek.)*

Satellitennavigation - Anwendungen - Telematik

Entwicklungsphase (bis 2013)

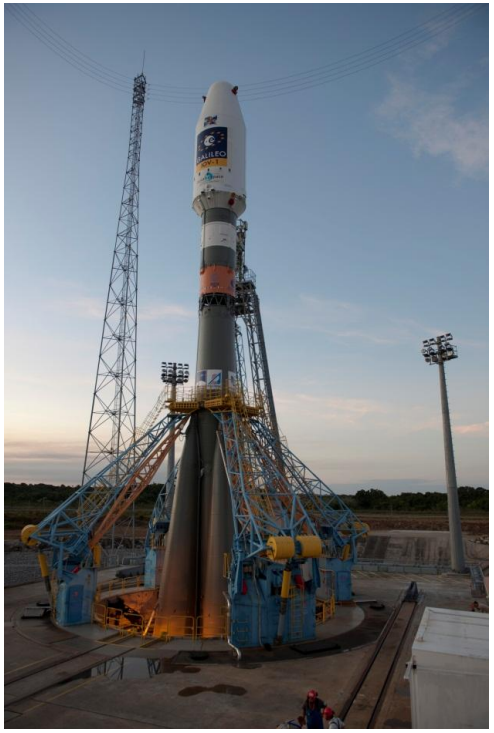
- seit Oktober 2012 vier Satelliten im All
- Aufbau der zentralen Bodeninfrastruktur
- Validierung der Systemfunktionen

Erste Betriebsbereitschaft (ab 2014/15)

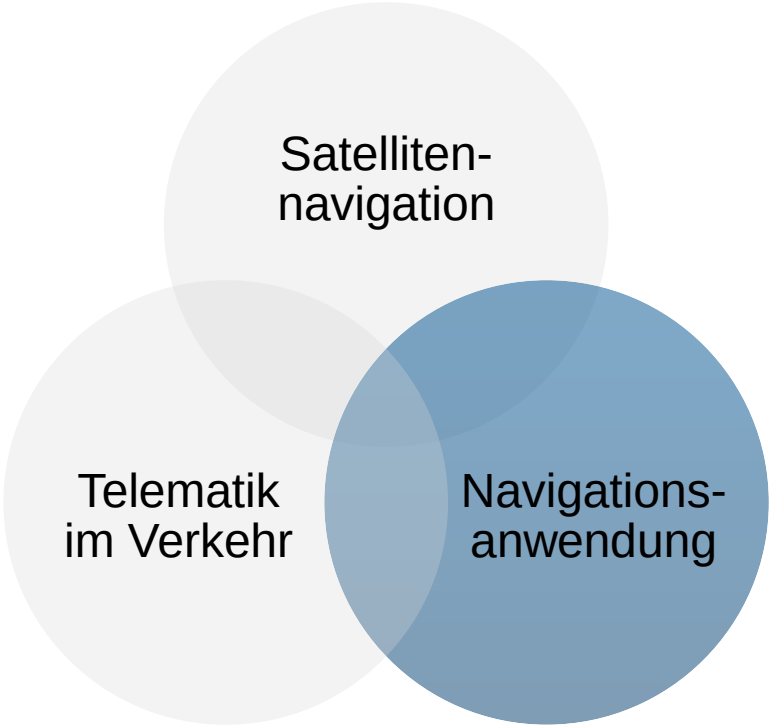
- ‚Initial Operational Capability' - IOC
- erste Galileo-Dienste verfügbar
- Spürbare Verbesserung beim Offenen Dienst durch GPS + Galileo
- PRS zunächst eingeschränkt nutzbar

Vollausbau (bis etwa 2018)

- Konstellation aus 30 Satelliten im All
- Vollausbau der Bodeninfrastruktur
- eigenständige Verfügbarkeit aller Dienste

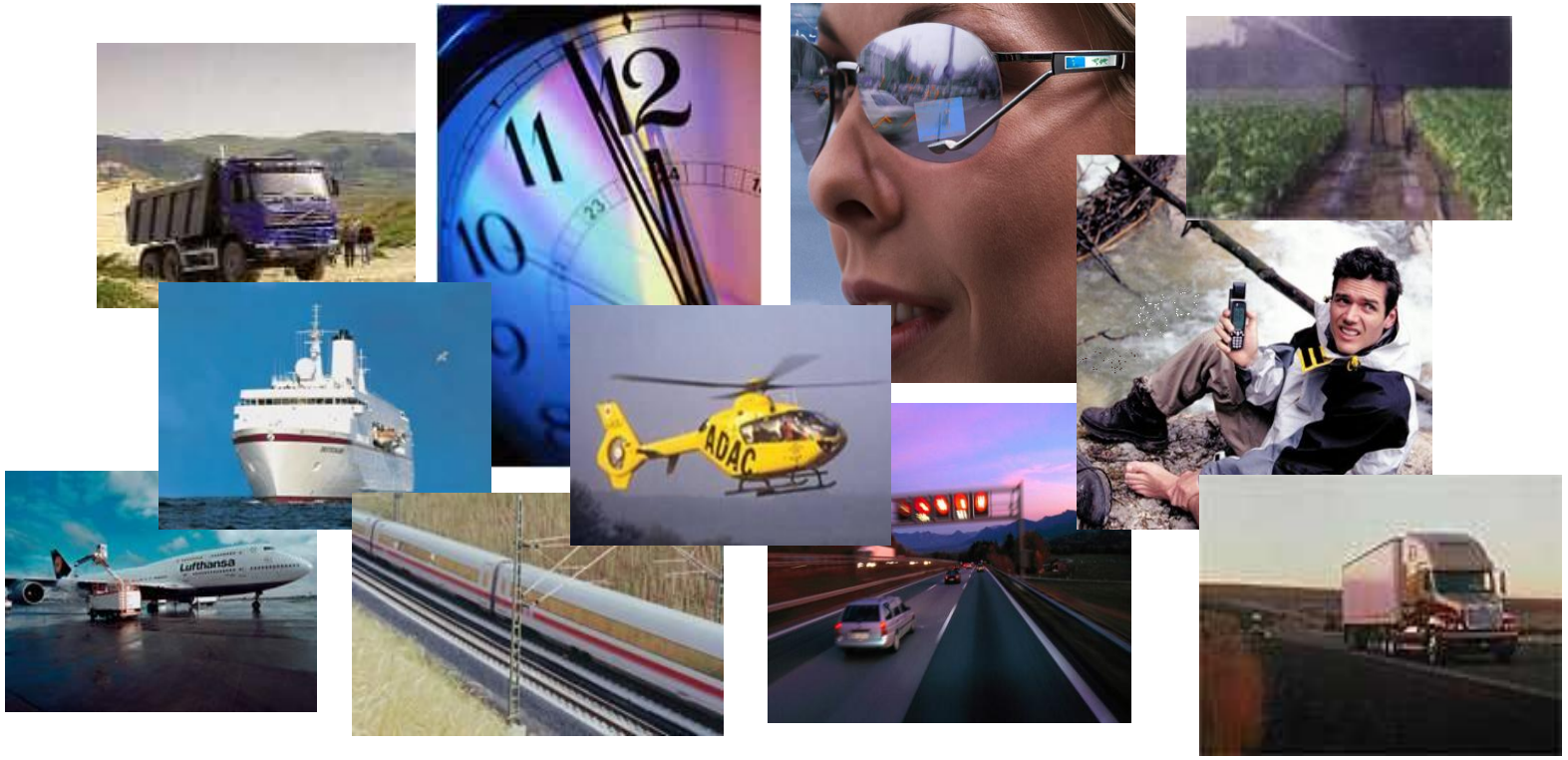


Satellitennavigation - Anwendungen - Telematik



Satellitennavigation - Anwendungen - Telematik

Vielfältige Einsatzmöglichkeiten der Satellitennavigation



Satellitennavigation - Anwendungen - Telematik

Satellitennavigation auf der Straße – weit mehr als reine Navigation

- Mautsysteme für effizientere Nutzung der Infrastruktur
- Flottenmanagement für Logistik, ÖPNV, Taxi-Dienste
- Neue Mobilitätsangebote z.B. Flexible Autovermietung, Mitfahrgelegenheiten

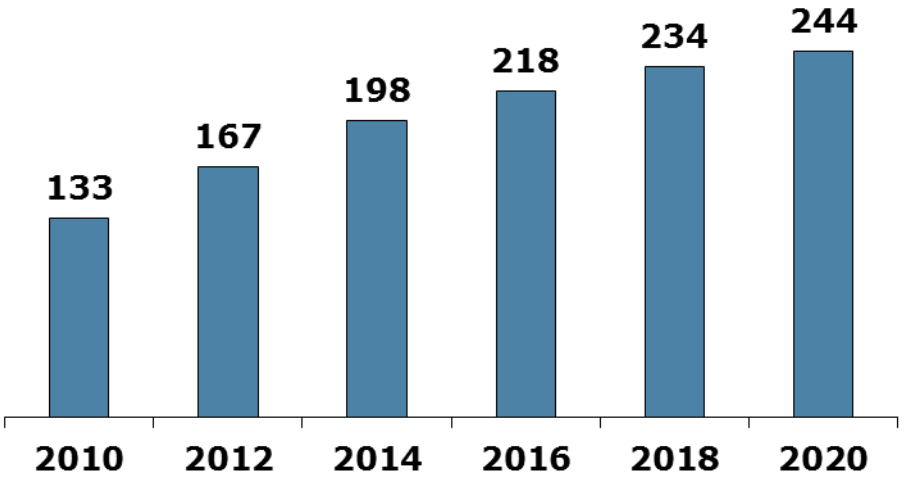
Satellitennavigation - Anwendungen - Telematik

mehr Sicherheit
durch präzise Ortung

- eCall automatischer Notruf mit Positionsdaten
- Überwachung von Gefahrguttransporten
- Effizientere Rettung bei Gefahrgutunfällen
- Neue Möglichkeiten für Unfallrekonstruktion und Diebstahlsicherung

Satellitennavigation - Anwendungen - Telematik

- Der weltweite Markt für Anwendungen der Satellitennavigation bietet deutliches Wachstumspotenzial
- Marktbericht der GSA prognostiziert stetiges Wachstum von jährlich 11 % bis 2020



Markt für GNSS-taugliche Produkte in Mrd. €

Quelle: „GNSS Marktbericht", GSA Oktober 2010

Satellitennavigation - Anwendungen - Telematik

Deutschland für Wettbewerb gut aufgestellt

- Logistikdrehscheibe für Europa
- Forschungsstandort
- starker IT-Sektor
- international führende Automobilindustrie
- Kleine und mittlere Unternehmen sind das wirtschaftliche Rückgrat

Synergiepotenziale liegen zunehmend in der **Kooperation über Branchengrenzen** hinweg

Satellitennavigation - Anwendungen - Telematik

Bundesregierung unterstützt Entwicklung innovativer Navigationstechnologie

- Galileo Test- und Entwicklungsumgebungen
- Förderprogramme
- Raumfahrtstrategie der Bundesregierung

Satellitennavigation - Anwendungen - Telematik

SAT NAV-Forum
Forum für Satellitennavigation

- Gemeinsames Netzwerk der regionalen Initiativen für Satellitennavigation
- Starkes Engagement der Bundesländer
- Schirmherrschaft und Moderation des BMVBS

Satellitennavigation - Anwendungen - Telematik

Die Navigationskonferenz
Orientierung in der intelligenten Welt

- jährliche Konferenz des BMVBS zu Navigationsanwendungen
- Nächster Termin 04.06.2013 im Rahmen der Fachmesse Transport Logistik München

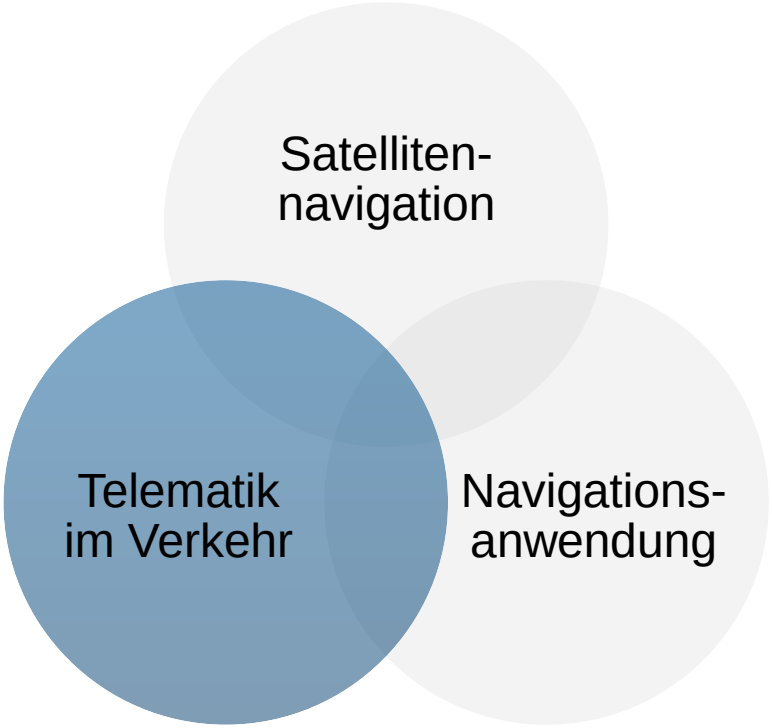
Bundesministerium
für Verkehr, Bau
und Stadtentwicklung

BITKOM

INTERGEO
Kongress und Fachmesse für Geodäsie, Geoinformation und Landmanagement

transport logistic

Satellitennavigation - Anwendungen - Telematik



Satellitennavigation - Anwendungen - Telematik

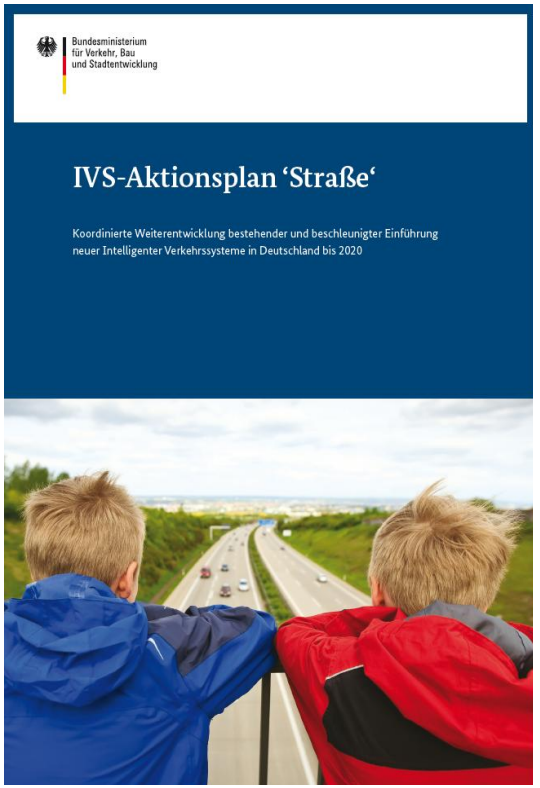
Verkehrstelematik für Sicherheit & Effizienz

- Telematiksysteme können Verkehr flüssiger machen und steigern Vernetzung der Verkehrssysteme
- in allen Verkehrsbereichen verbreitet
- privatwirtschaftliche Initiative gefragt
- ‚Kollektive Systeme' können staatlich betrieben werden
  (z.B. Beispiel Lenk- und Leitsysteme)

Satellitennavigation - Anwendungen - Telematik

Europäische **IVS-Richtlinie** erfordert nationale Umsetzung mit Aktionsplänen

- Deutscher IVS-Aktionsplan „Straße“ von BMVBS unter Beteiligung der maßgeblichen nationalen Akteure erarbeitet (Fdf LA 20)
- Erste Vorstellung beim ITS-Weltkongress 22.-26.10.2012 in Wien
- IVS-Konferenz am 26.02.2013 im BMVBS hat Aktionsplan weiter bekannt gemacht und für Mitwirkung bei Umsetzung geworben



Vielen Dank für Ihre Aufmerksamkeit.

Bundesministerium für Verkehr,
Bau und Stadtentwicklung (BMVBS)

Referat UI 35 - Verkehrsoptimierung, Telematik im Verkehr
Invalidenstraße 44
D-10115 Berlin

www.bmvbs.de

European Railway Agency

Developments in TAF TSI concerning Transport of Dangerous Goods by rail

Tegernsee – 3-4 June 2013

Request

- **In RISC committee held in October 2012, ERA was requested to better align the data conveyed in the framework of the TAF TSI in regards existing RID requirements**

- **ERA analysed the current data catalogue of the TAF and prepared a change to the content of the current messages, these changes will be adopted soon.**

The changes to the TAF data catalogue are discussed and validated through the Change Control Managment chaired by ERA

Analysis 1/2

- Core objectives of the TAF TSI and UNECE Telematics WG are not the same
- TAF TSI aims at establishing an optimum level of interoperability of data exchanges related to rail freight business
- TAF TSI is not focussed on safety improvements
- TAF TSI developments are operated within a strict scope and agenda included in the Strategic European Deployment Plan

Analysis 2/2

- To date, the following information can be considered within the TAF TSI scope:
  - CIM/SMGS consignment note, including dangerous goods description (as required by Chapter 5.4 of RID)
  - Other RID requirements concerning legally binding exchange of information between RUs and IMs, for example section 1.4.3.6
  - …
- The sector has prepared the corresponding data structures (messages) to be incorporated in the TAF TSI messages

Solution 1/3

- A combination of information sources:

-> what train is where at what time?

  - TAF TSI 'train running information'

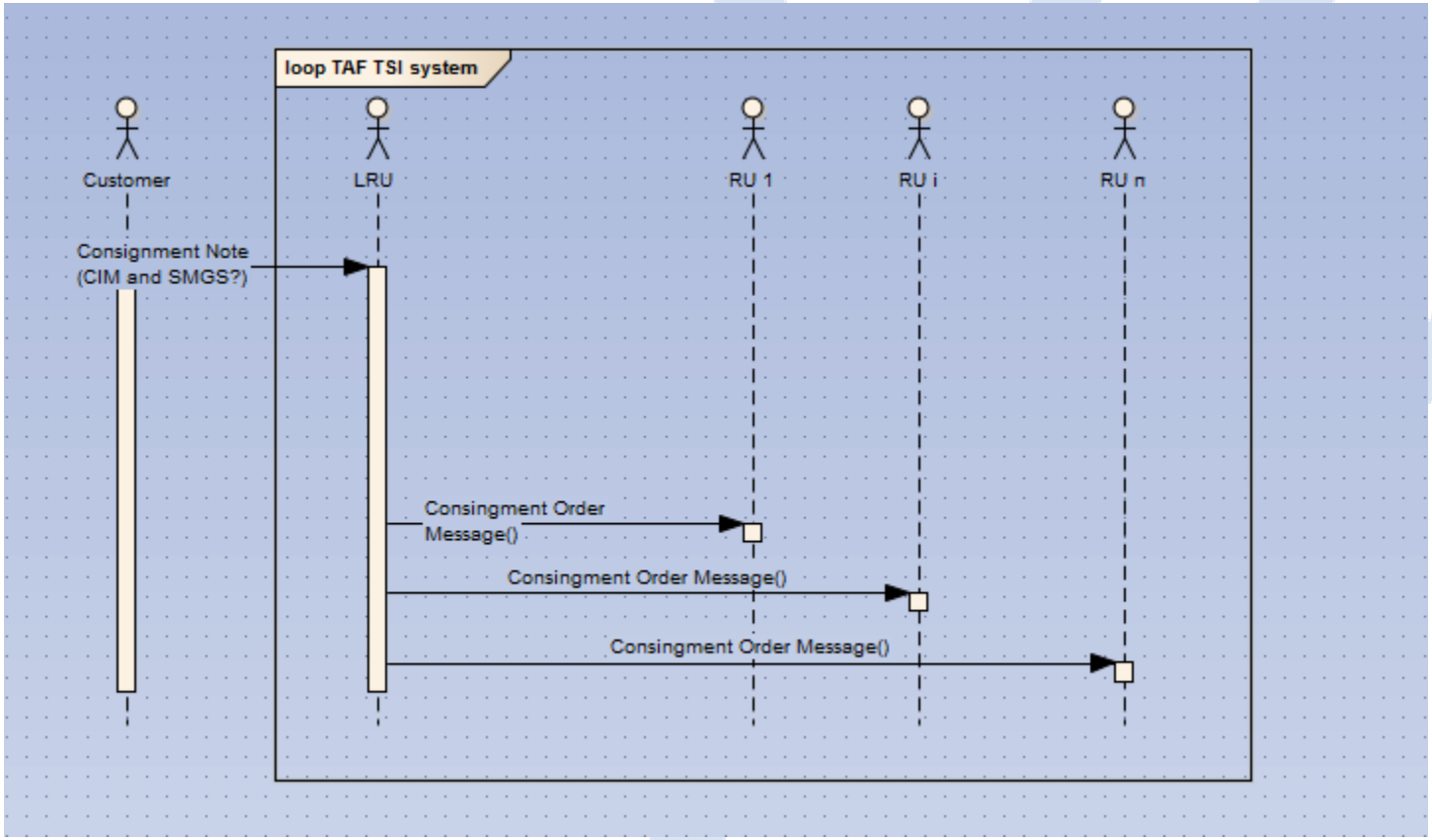
-> what is carried in/on what wagon?

  - TAF TSI 'train composition message' inc. wagon number

-> how can the information concerning Dangerous Goods be reached by third parties?

  - Several options need to assessed

Sequence diagram



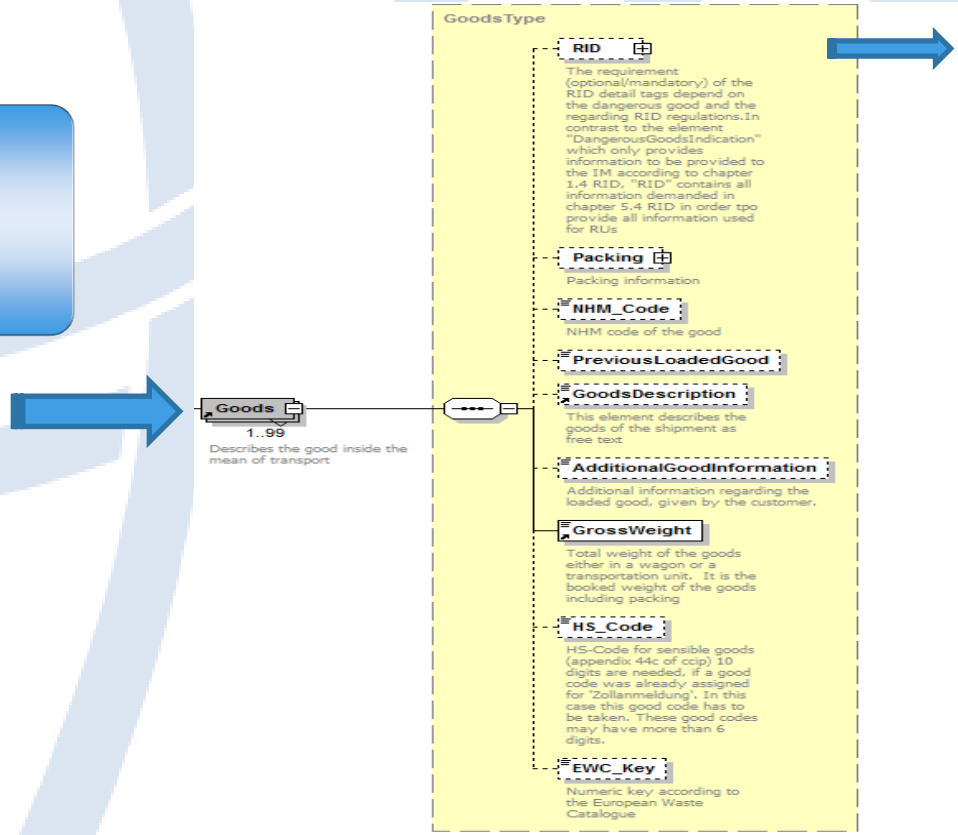
Solution 3/3

- **Most of section A (WHO DOES WHAT RID table) elements will be integrated in the TAF TSI data catalogue**

Consignment order message

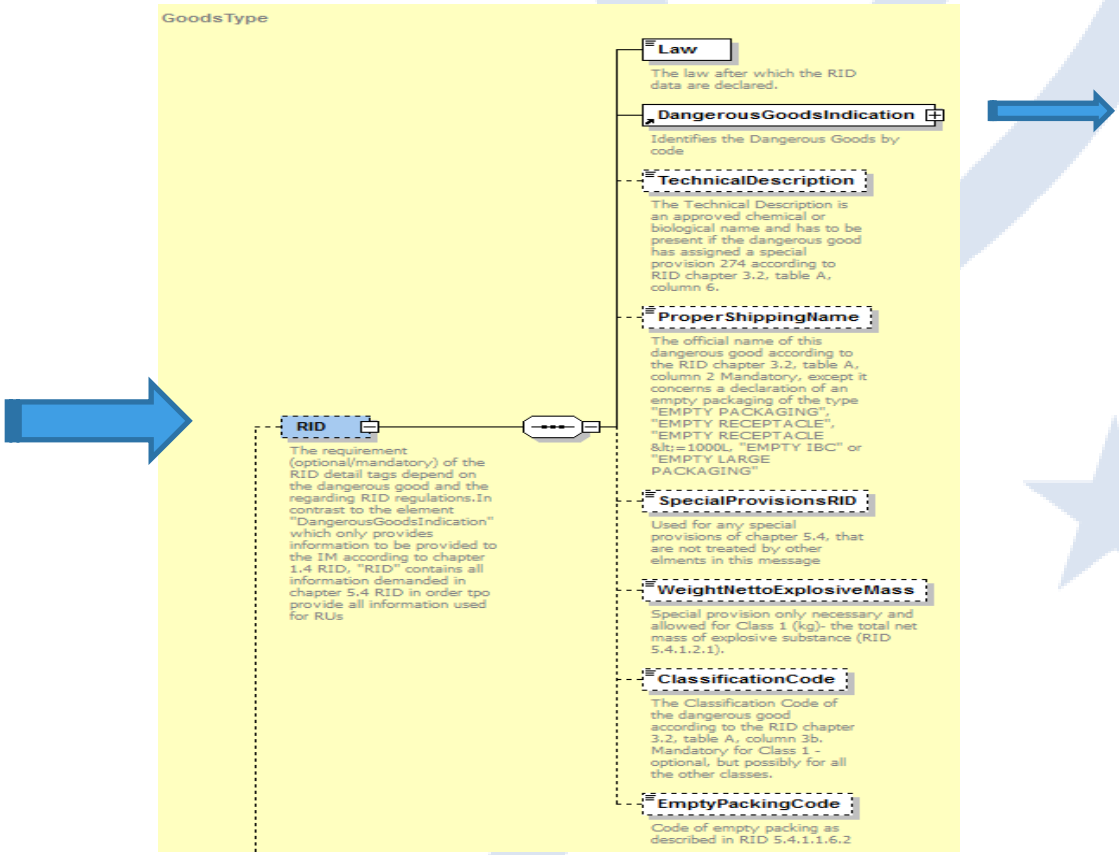
Wagon

- Goods



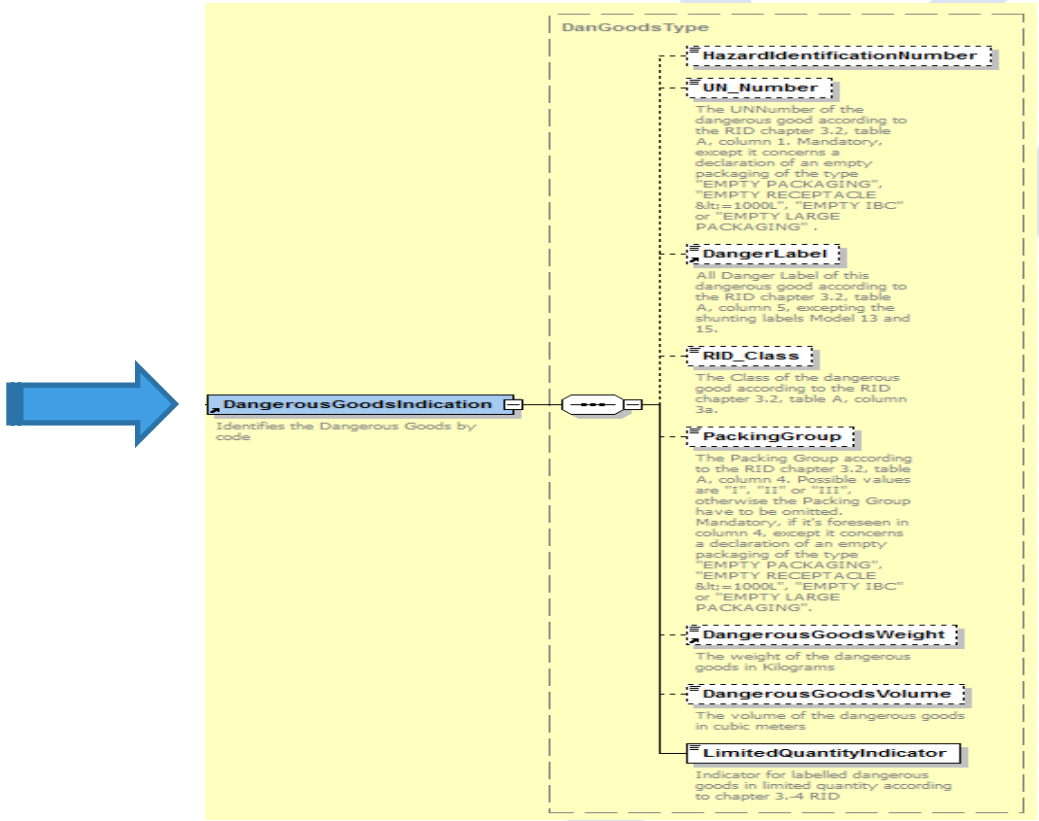
Solution 3/3

- **Most of section A elements will be integrated in the TAF TSI data catalogue**



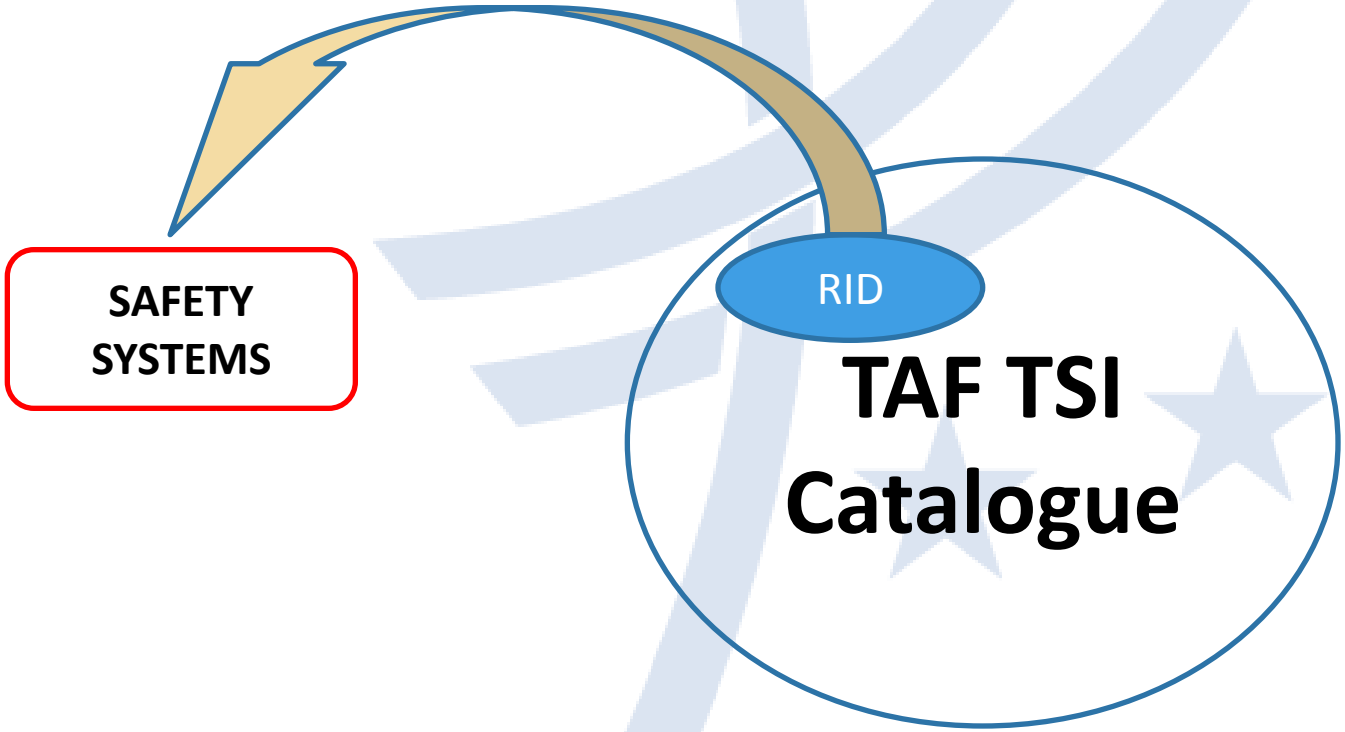
Solution 3/3

- **Most of section A elements will be integrated in the TAF TSI data catalogue**



Added value for non-TAF and safety related systems.

- TAF catalogue will contain RID data, but this will not be used in TAF system:



European Railway Agency

Thank you for your kind attention:

ERA Telematics Team

Project officers for Telematics Applications at European Railway Agency

E-mail: Mickael.VARGA@era.europa.eu
Stefan.Jugelt@era.europa.eu Rodrigo.Gutierrez@era.europa.eu
Rafael.garciamartinez@era.europa.eu

Further French Development

Jean-Philippe MECHIN
Cete du Sud-Ouest
5 June 2013

Ressources, territoires, habitats et logement
Énergies et climat
Prévention des risques
Développement durable
Infrastructures, transports et mer
Présent pour l'avenir

Context

- 24 October 2007 Mandate including 2 parts :
  - I. TERMS OF REFERENCE OF THE INFORMAL WORKING GROUP ON THE USE OF TELEMATICS FOR THE CARRIAGE OF DANGEROUS GOODS
  - II. WORK PROGRAMME OF THE INFORMAL WORKING GROUP ON THE USE OF TELEMATICS FOR THE CARRIAGE OF DANGEROUS GOODS
- 31 August 2010 Final version of the « who does what » table

Strong interest expressed in France

- Ministry of Ecology Sustainable Development and Energy
- Companies like :
  - Novacom
  - FDC
  - Geoloc Systems
  - M3 System
  - MD Service
  - Renault Trucks
- Telematic services already for freight and also DGT used by several operators

GEOTRANSMD

Work programme of the informal Working Group (1)

- 1 & 2. Examine national research projects and EC feasibility study
- 3. Verify or examine in what kind of functions in dangerous goods transport telematics facilities might be desirable (also in addition to tracking & tracing) in a multimodal perspective, to improve transport safety or security, each to be examined separately if necessary;
- 4. Verify or examine in which additional, mode-specific functions telematics facilities might be desirable (such as derailment detection, control of Mobile Explosives Manufacturing Units (MEMU) vehicles), to improve transport safety or security, each to be examined separately if necessary;
- 5. Verify or examine who the users of the screened telematics facilities would be (public and private);
- 6. Verify or examine what data and communication and in which form the desired telematics facilities would be needed;

Work programme of the informal Working Group (2)

- 7. Verify or examine to whom the data should be communicated (often several addressees);
- 8. Verify or examine whether, how and where the collected data should be stored and how it should be accessed;
- 9. Verify or examine what kind of regulations should be created and to whom they should be addressed in order to ensure that the necessary data is available for those who need it (e.g. obligation for transport companies to use on-board-units in vehicles);
- 10. Verify or examine if sufficient regulation can be provided in RID/ADR/ADN or if something more is needed in the European Union;
- 11. Verify or examine what kind of complementary standardisation would be needed to ensure interoperability of all regulated facilities and also of on-board-units with other tracking & tracing systems in other sectors;

Work programme of the informal Working Group (3)

- 12. On the basis of items 1-11 above, draft a preliminary concept of appropriate telematics facilities, including possible data centres and their organisation, and a preliminary scope of necessary regulations and standards;
- 13. Draw up a proposal to verify or assess the feasibility of the telematics facilities examined and their cost/benefit for the users;
- 14. Draw up the final description of the telematics facilities that are decided upon;

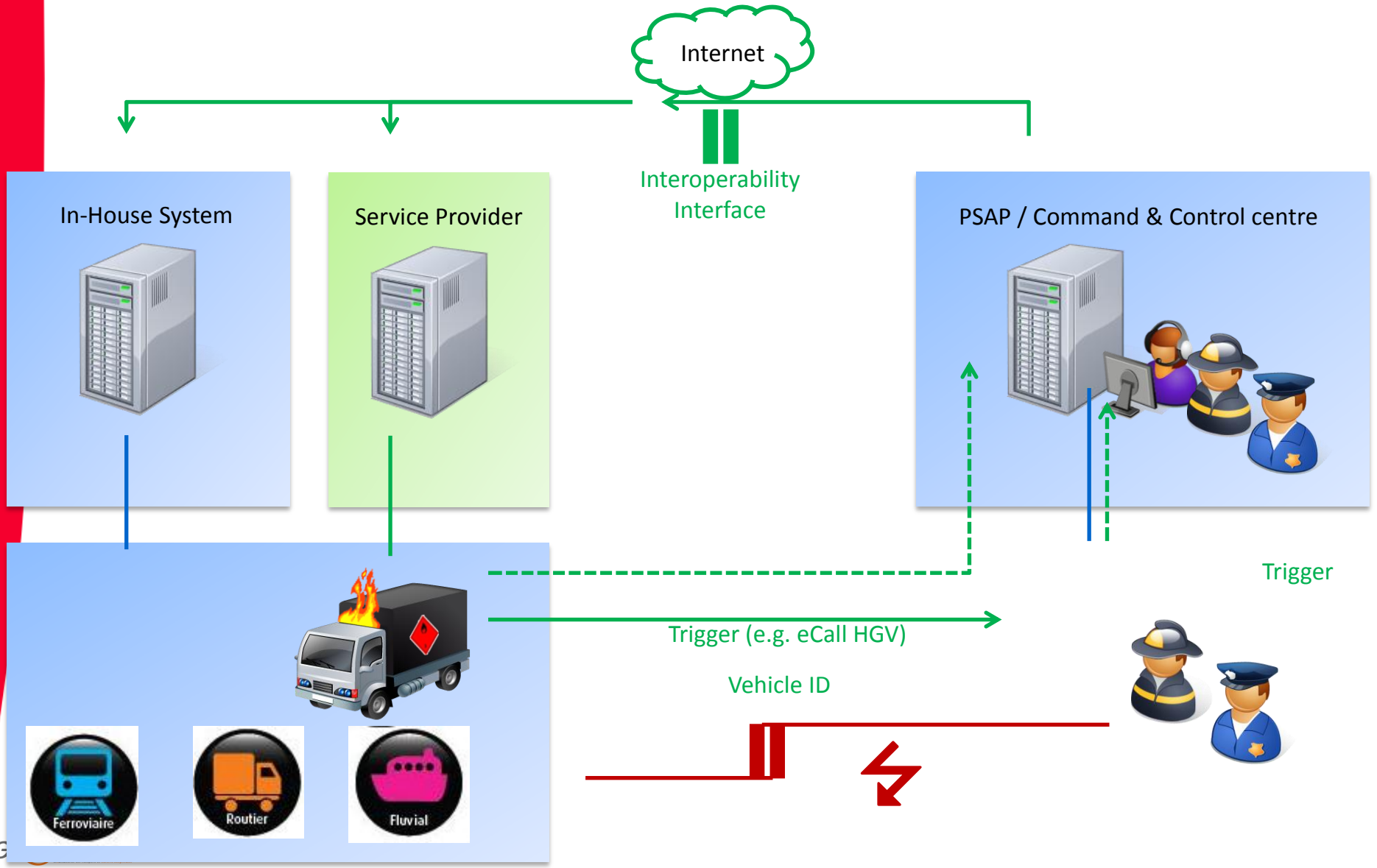
15. Draw up a proposal for the amendments to ADR/RID/ADN that will be required by the telematics facilities decided upon;

16. Draw up a summary description of necessary standards to complement the regulations.

German proposal for §8 and 12

- 8. Verify or examine whether, how and where the collected data should be stored and how it should be accessed;
- 12. On the basis of items 1-11 above, draft a preliminary concept of appropriate telematics facilities, including possible data centres and their organisation, and a preliminary scope of necessary regulations and standards;
  - Security ensured with 2 levels of Trusted Parties (TP1, TP2)
  - Focus on procedure as regulated for transport documents :
    - Carrier
    - Competent authorities
    - Emergency responders
  - Possibility of automatic trigger or casual observers

Basic application scenario with federated services



GeoTrans MD Project

- National call for proposal for innovative projects with objectives to finalise a demonstrator
- Consortium must integrate private, university and public bodies
- Funding from 25% to 45% depending the status (SMEs, University,)
- Leader must be a private company
- Request for economic Impact with a business plan and working places to create
- The project must be technically and economically self standing (independently of the Joint Meeting decision)
- Link with International partners and bodies is seen as an add value

Partners

	Partner	Effort R&D	Funding
Leader	Novacom (ETI)	105 HM	25%
SME	FDC	11 HM	30%
	M3Systems	30 HM	45%
	Geoloc Systems	90 HM	22%
	E.RE.CA	43 HM	45%
	MD Service	34 H,M	45%
University	LNE	12 HM	40%
	Université de Grenoble	45 HM	100%
	CEA LIST	72 HM	40%
Public Body	CETE SO	76 HM	3%
	CETE Lyon	5 HM	13%

- **Budget global** : 5,9 M€, aide de 1,9 M€ (33%)
  - 20 % ETI
  - 33 % PME
  - 29 % Laboratoire
  - 17 % autres
- **3 regions :**
  65 % South-Ouest
  22 % Paris
  13 % Lyon

GEOTRANSMD

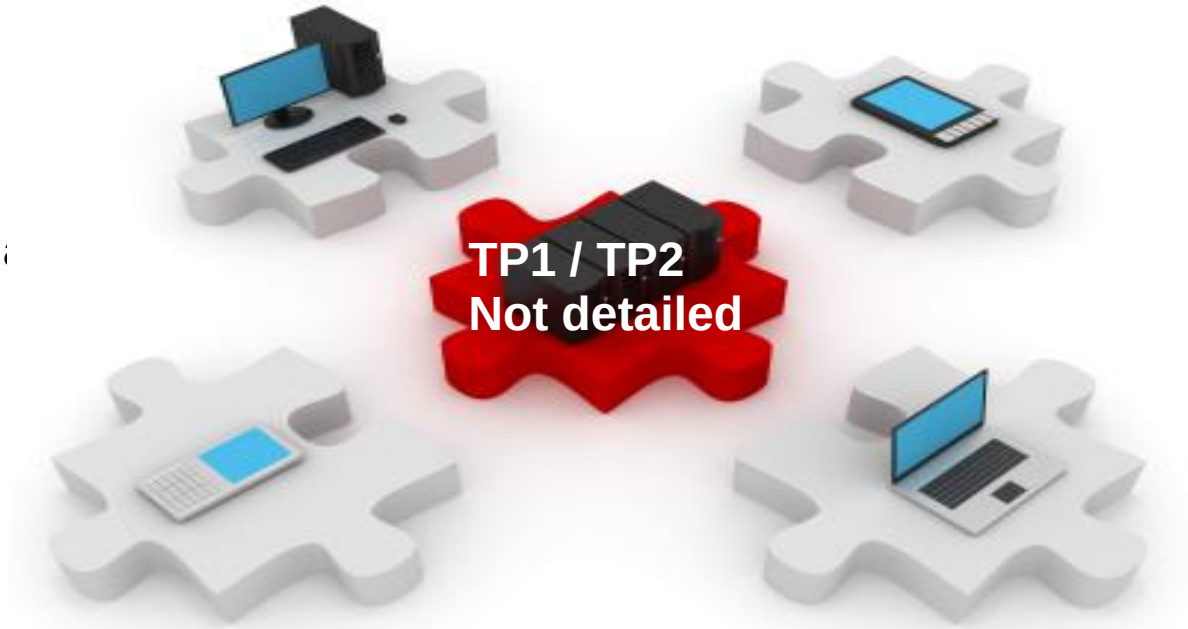
Various DGT actors related to project partners

- AERAZUR
- AIR FRANCE
- AIRBUS
- AMBRUSTER
- BERNARD
- BIOLANDES
- BOURGEY MONTREUIL
- CANAVI BOTANICA
- CLARIANT
- COOPERATIVE DE BROONS
- DAHER
- DECATHLON
- DHL
- DGS Transports
- DRT
- EOLYS
- E3Cortex
- EXPRESSIONS PARFUMEES
- BERNARD
- CLARIANT
- EADS Astrium
- FIRMENICH (CH)
- JEANNEAU-BENETEAU
- Groupe PHM
- Groupe Pierre LE GOFF
- Groupe SOUFFLET
- LOGITRANS
- MAIS ADOUR
- NIPPON EXPRESS
- PENA Environnement
- Transport QUIL
- RENAULT
- ROCHE
- SECURITE CIVILE
- TAKASAGO
- TRADIBEAUCE
- T-TRAM
- VIVADOUR...

GEOTRANSMD

Expected Results

- Common modular architecture for all players of Transportation MD with a standardized exchange format that will ensure the independence of each module
- Application Modules
  - Supply chain actors modules
  - Operators Fleet Tracking
  - Local, national and international a
  - Emergency Services
  - Infrastructure operators
  - Statistical applications
  - Embedded Modules
  - Devices for road vehicles
  - Terminals for container and traile.
  - Collection and onboard data processing
  - Data transmission
  - Access and control information for the crew
- More users will automatically decrease the cost of the System for each one



GEOTRANSMD

Innovation

- Key technology to remove locks:
  - Federating and distributing in a selective and secure way, all data used in systems management and monitoring of hazardous materials.
  - Designing a distributed information system that can be certified by a safety assessment organization.
  - Designing an information system taking into account all regulatory and operational constraints, especially guaranteeing anonymity and data access control.
  - Developing and integrating embedded systems in a module location and GNSS navigation certified by implementing the principles of the CEN Workshop Agreement CWA 16390: 2012)
  - Managing the process of certification for the modules

The challenge of the project is related to the size of the system, the volume and the security of transactions, its European identity and to comply with regulatory (need to know, access control, ...) constraints.

Links to other projects: GEOFENCING MD (LUTB), SCUTUM (FP7)

Planning compatible with Joint Meeting bi-annual agenda

- 3 years long project with a large demonstration at ITS World Congress in Bordeaux 5 to 9 October 2015

WP1: Project management
36mm – 1 Juin'2013 -> 31 Mai'2016

WP2: Functional analysis
65mm – Juin'13 -> Juin'14

WP3: Architecture
76mm – Mar'14 -> Nov'14

WP4: Implementations
192mm – Dec'14 -> Sep'15

WP5: Demonstration
39mm – Sep'15 ->Mar'16

WP6: Certification/Security
82mm – Juin'13 -> Mai'16

WP7: Dissemination
16mm – Juin'13 -> Mai'16

WP8: Results
17mm – Jan'16->Mai'16

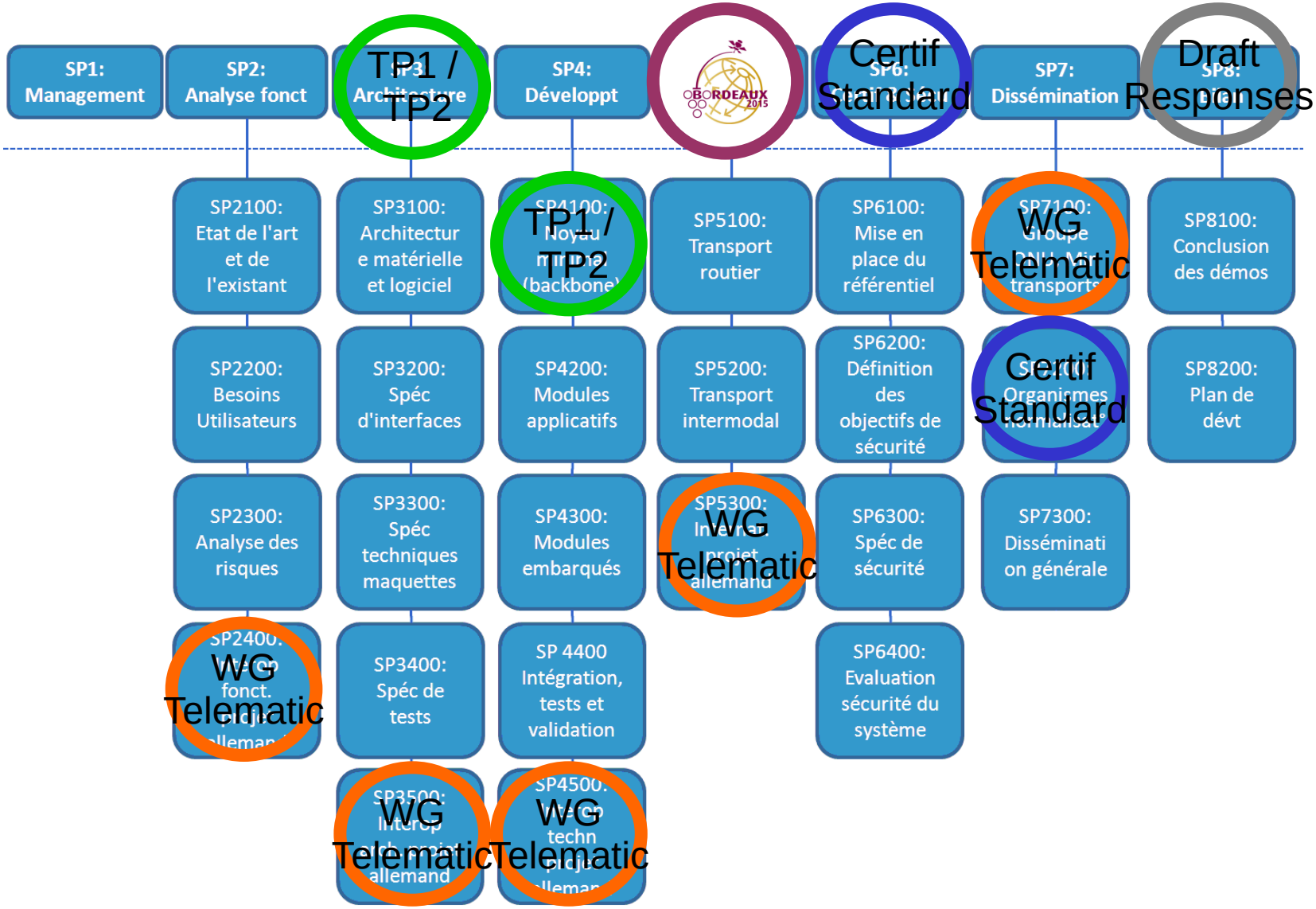
GEOTRANSMD

Partner Involvement

Partner	Domain of involvement
Novacom	Trusted Party 1, Trusted Party 2, Fleet operator services, Statistic
FDC	Trusted GNSS positionning and time stamp, Jaming and Spoofing detection
M3 Systems	GNSS positionning and hybridation
Geoloc Systems	Trusted Party 2, Road operator Services, Carrier services
E.RE.CA	On board equipment, Embedded services
MD Service	Trusted Party 2, Shipper, Consignor, Consignee, Carrier Services
LNE	Certification process
Grenoble Univ.	Real time environment risk evaluation
CEA List	Security and Specification validation
CETE SO & Lyon	Link with Telematic Working Group, Trusted Party 1, Link with local Road Operator, National road operator,

GEOTRANSMD

GeoTrans MD organisation



GEOTRANSMD

Points examined by the project in relation with the architecture

- Testing internet backoffice
- Verifying how much we depend on standard
- Testing security issues
- Experiment certification issues
- Look at optimizing the quantity of data
- Check implementation in practice and work on access control to the data

Depending on European Commision view

- Try to experiment TP1 issues centralized vs decentralized

Response to the Work Programme

- GeoTransMD will use the architecure proposed by Germany as validated by the Telematic WG by implementing :
  - Back office (Real life fonctionning
- GeoTransMD will give element to highlight response to :
  - § 3 in a multimodal perspective
  - § 4 depending on transport mode and willingness of the actors
  - § 5 in line with the needs expressed by actors
  - § 6 by declining from the German study an XML schema
  - § 7 by identifying the end users for private or public services
  - § 9 by showing the minimal equipment needed
  - § 11 with the certification rules proposal in line with the German study
  - § 13-16 by having a strong link with the Telematic WG to give some proposal for these items

GEOTRANSMD
Géolocalisation des Transports de Matières Dangereuses

Thank you
for your attention