R+D in safety in transport of dangerous goods: HECATE Project

C. Nerín, B. Seco, M. Calvo & A. Tena
Grupo Universitario de Investigación Analítica de Riesgos

Informal working group on TELEMATICS in the transport of dangerous goods

BORDEAUX 3-5 June 2014
Introduction of HECATE project

R+D Project

Advanced tool for controlling the transport of dangerous goods in real time.

Approved by:
Subprogram INNPACTO 2011 from Ministerio de Ciencia e Innovación

Financed by:
Subprogram INNPACTO from Ministerio de Economía y Competitividad
IPT-2011-1746-3700000
Introduction of HECATE project

Consortium:

- inventiaplus
- inelcan technologic group
- tecnalia
- ITS España
- pési
- GUIAR

Budget:

1.449.523,25 €

Public funds:

Financing: 297.074,00 €
Loan: 1.101.393,69 €

Period:

2011-2014
DG transport problems

DG hazards: explosion, inflamability, corrosion...

DG are very common products

DG Routes Network (RIMP) is mandatory. However, DG distribution is all over road network in Spain
Only in tanks is possible to know which substance is inside (UN numbers)
This is a great risk for emergency services

In addition, there are two different Competent Authorities in this field, who have developed their own legislation besides ADR
Inefficient management of **DG transport document**

It is not possible to know if a DG is changed from one vehicle to another (in case of **distribution/logistic centers**, for example)

Limited information about the **vehicle route** (highways, roads, secondary roads...). Truck driver decides the road to follow

Inefficient management of data, which are required for the **safety adviser reports**

Limited information and lack of confidence about data for getting the **flow maps**

High risk for the **emergency services** in case of accident, especially when the truck driver is unconscious or dead and it is not possible to get the DG transport document
Objectives

- To have available the DG transport document in “the cloud”, in order to get all the information about DG in real time.
- To get detailed information about the route of the vehicle and the DG
- To improve the management of DG (less resources and more information)
- To improve efficiency, safety and speed of emergency service intervention
- To design the Regional and National flow maps

HECATE

AN E-TOOL which allows the automatic register of data about the carriage of dangerous goods including the complete route followed by the vehicle
Functionality

Dangerous goods transport information

Vehicle tracking

On-line data for the generation of flow maps

DG transport document generation: consignor, carrier, consignee...

On-line data for emergency services
Interested users

- **Carriers** (with or without own CMR or ERP)
- **Consignors**
- **Consignees**
- **Government**: regional and national level
- **Emergency services**
System elements

- MÓVIL
- WEB
- CRM / ERP

API

SISTEMA HECATE
**APP pros:**

- ✔️ Paper free DG transport document
- ✔️ Real time sync with HECATE
- ✔️ Real time route transmission
System elements
System elements

HECATE pros:

- Paper free document management
- DG transport document includes time evolution and routing
- Allows direct access in case of emergency
- Complete management of the DG transport
Functionalties, users and roles

- **DG transport document generation**
  - **Consignors**
  - **Carriers**

- **DG transport document reception**
  - **Consignors**
  - **Carriers**
  - **Consignees**

- **Document management**
  - **Consignors**
  - **Carriers**
  - **Consignees**

- **Vehicle tracking**
  - **Carriers**

- **Inform generation**
  - **Carriers**
  - **Safety advisers**

*No government access in these cases!*
Flow map generation

DG transport data and route

Emergency situation

Emergency services

Functionalities, users and roles
Grupo Universitario de Investigación Analítica de Riesgos

Cristina Nerín  cnerin@unizar.es
Araceli Tena  aratena@unizar.es
Berta Seco  bseco@unizar.es
María Calvo  peana@unizar.es

Dpto. Química Analítica
Escuela de Ingeniería y Arquitectura (EINA)
Edificio Torres Quevedo
Universidad de Zaragoza
Tfno. +34 876 55 51 86
www.unizar.es/guiar