



Escuela de
Ingeniería y Arquitectura
Universidad Zaragoza



GUIAR
Grupo Universitario de Investigación Analítica de Riesgos

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

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Informal working group on TELEMATICS in the
transport of dangerous goods



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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**



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Zaragoza**



Introduction of HECATE project

Consortium:



Budget:

1.449.523,25 €

Period:

2011-2014

Public funds:

Financing: 297.074,00 €

Loan: 1.101.393,69 €



DG transport problems



DG hazards: explosion,
inflammability, corrosion...



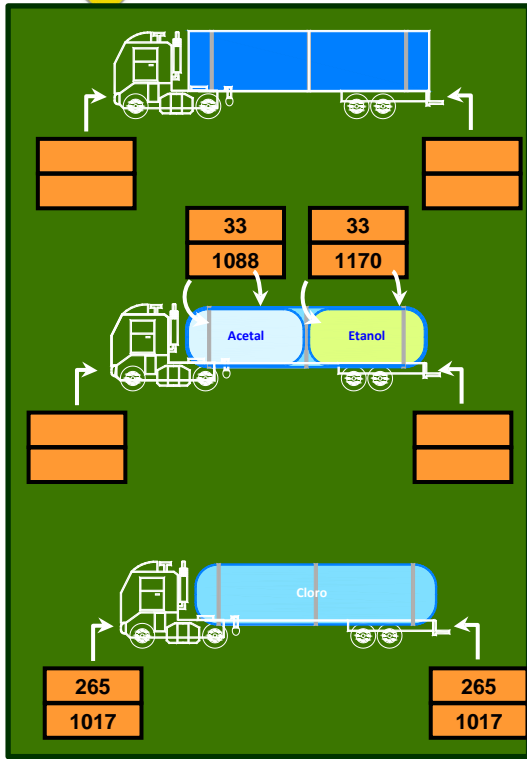
DG are very common
products



DG Routes Network (RIMP) is
mandatory.
However, DG distribution is all
over road network in Spain



DG transport problems



Only in tanks is possible to know which substance is inside (UN numbers)
This is a great risk for emergency services

MINISTRY OF PUBLIC WORKS

ADR 2013

MINISTRY OF INTERIOR

In addition, there are two different Competent Authorities in this field, who have developed their own legislation besides ADR



What is necessary to solve...

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

Vehicle tracking

On-line data for the generation of flow maps



Dangerous goods transport information

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

On-line data for emergency services

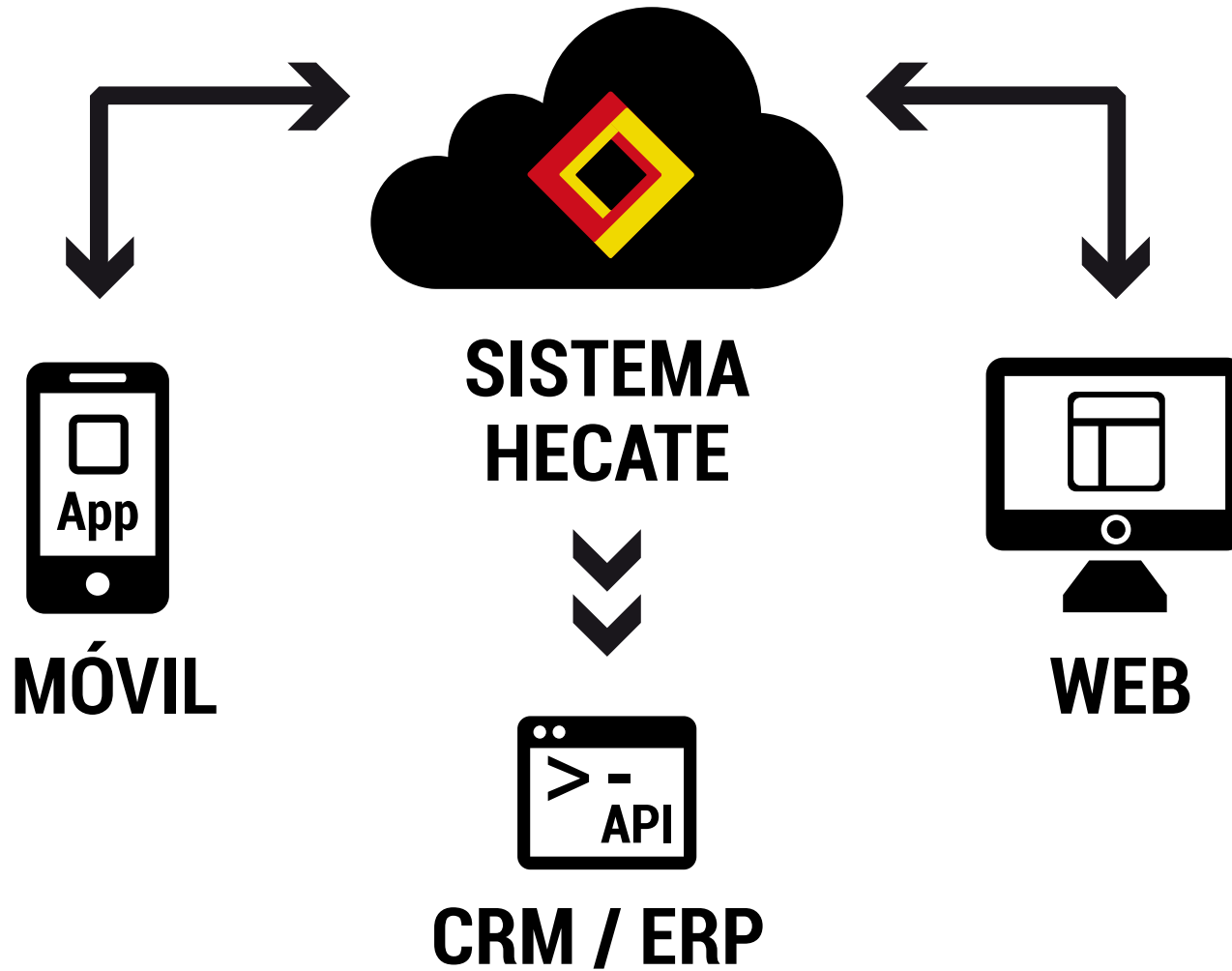


Interested users

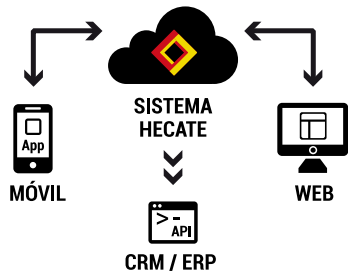
- ★ **Carriers (with or without own CMR or ERP)**
- ★ **Consignors**
- ★ **Consignees**
- ★ **Government: regional and national level**
- ★ **Emergency services**



System elements



System elements

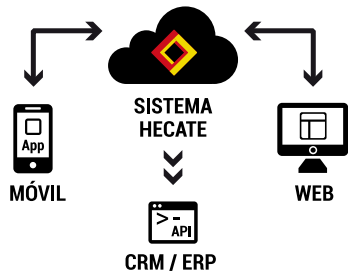


APP pros:

- ✓ Paper free DG transport document
- ✓ Real time sync with HECATE
- ✓ Real time route transmission



System elements



HECATE DASHBOARD NOTIFICACIONES MAPA ADMINISTRACIÓN EXPEDICIONES Admin Perfil Ce

MERCANCÍAS

- Ver Mercancías
- Ver Productos ADR Empresa
- Nuevo Producto ADR Empresa
- Nueva Mercancía

EXPEDICIONES

- Ver Expediciones
- Nueva Expedición

CARTAS DE PORTE

- Ver Cartas de Porte

VEHÍCULOS

- Ver Vehículos
- Ver Vehículos Terrestres
- Nuevo Vehículo
- Nuevo Vehículo Terrestre

Mapa

Buscar localización

Google

Datos de mapa ©2014 Basarsoft, GeoBasis-DE/BKG (©2009), Google, Mapa GISrael, ORION-ME, basado en BCN IGN España Términos de uso

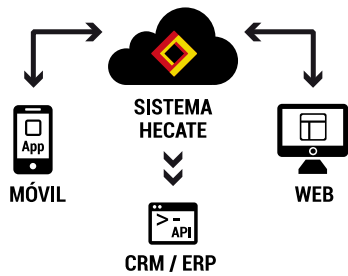
Recursos

- Default Project of admin

Listado

	NOMBRE	ESTADO	AVISO	INICIO	FIN	MEDIOS HUMANOS	MEDIOS MATERIALES
+	Actividad 1	Activa	2014-01-01 00:00	2014-01-02 00:00	2014-01-23 00:00	1	1

System elements



The screenshot shows the HECATE web application interface. The top navigation bar includes 'HECATE', 'DASHBOARD', 'NOTIFICACIONES', and 'MAPA'. The main content area is divided into several sections:

- MERCANCIAS**: Includes options like 'Ver Mercancías', 'Ver Productos ADR Empresa', 'Nuevo Producto ADR Empresa', and 'Nueva Mercancía'.
- EXPEDICIONES**: Includes 'Ver Expediciones' and 'Nueva Expedición'.
- CARTAS DE PORTE**: Includes 'Ver Cartas de Porte'.
- VEHÍCULOS**: Includes 'Ver Vehículos', 'Ver Vehículos Terrestres', 'Nuevo Vehículo', and 'Nuevo Vehículo Terrestre'.

The 'MAPA' section is active, showing a map of Spain and Portugal with a search bar 'Buscar localización'. Below the map is a table with the following data:

Listado			
	NOMBRE	ESTADO	AVISO
+	Actividad 1	Activa	2014-01-01

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



Functionalities, users and roles

★ **DG transport document generation** → Consignors
Carriers

★ **DG transport document reception** → Consignors
Carriers
Consignees

★ **Document management** → Consignors
Carriers
Consignees

★ **Vehicle tracking** → Carriers

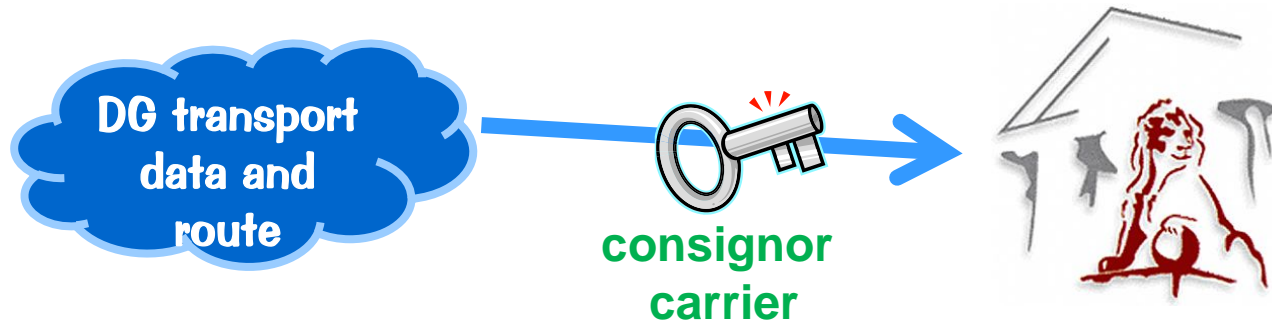
★ **Inform generation** → Carriers
Safety advisers

No
government
access in
these cases !



Functionalities, users and roles

★ **Flow map generation** → **Government**



★ **Emergency situation** → **Emergency services**





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