TRANSCONTROL Project presentation
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CONCEPT & BACKGROUND
**Projects: 2004 - 2009**

**MITRA project (24 month):**
- Co-funded by the European Commission
- Strong partnership with end-users
- Validation campaign (2006) in three European countries: rail and road cross-border field-trials

**TRANSCONTROL project (24 month):**
- Co-funded through « Pôle de Compétitivité »
- Partnership: main technological players (ALCATEL, ACTIA)
- Prototype technical infrastructure (platform & on-board) and operational trials
KEY Questions

Situation awareness: Traffic in a given zone? Nature and characteristics? Risks and effects?

Alarm & intervention: delays, relevant information, manage operations

Interoperability: geographical, transport modes, systems

dangerous situations
delays and/or inappropriate reaction
ALARM & INTERVENTION

Information to be confirmed by first responder

T₀
Alert situation
(e.g. alert signal: over-pressure...)

T₁
Accident

Information to be used by other crisis or emergency managers

Information to support decision-making

T₁+ ≈ 1 hour
Existing emergency or crisis management

TIME DOMAIN [T₀ ; T₁+ ≈ 1 hour]

Other expertise

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PROJECT OVERVIEW
Dangerous Goods tracking in Midi-Pyrénées & Aquitaine Regions

Budget: 4.7 M€

Financing:
- 35% : State (DGCIS), Toulouse, Midi-Pyrénées Région (FEDER) – collectivités locales
- 65% : partners investments

Final demo : Toulouse 1st November 2009
Conduct the project in the context of « Pôle de Compétitivité » cluster & set up industrial team

Set up « pré-operative » services at régional level (Midi-Pyrénées & Aquitaine)

Use a « multi-services » communication and navigation platform
Provide real-time & comprehensive information on the situation, to support intervention and rescue teams in their decision-making process:

- **In Nominal situation:**
  - Detect dangerous situations

- **In Alert and emergency situations:**
  - Evaluate the situation, before or immediately after the accident
  - Assess the risks and effects of the accident
  - Decide intervention measures
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Transcontrol development

« Multi-services » platform
- Dangerous goods data base
- Fleet tracking
- Real time information (traffic, weather, …)

On-board units
- Tracking units
- Bus driver Display

Dangerous goods applications
- Situation & dangerous goods knowledge
- Decision support
- Risks evaluation
- Actions to be taken
Transcontrol infrastructure

SDIS 31
(CTA & CODIS)

SUDOTRANS

COURRIERS DE LA GARONNE

Tunnel Equipment
Test terminal for in-door

Terminals for trucks
(SUDOTRANS)

Terminals for Bus drivers
Implemented architecture

Core Technology: open platform

- Server
- Truck terminal
- Ground user terminal
- Transporters (cars, bus, taxi, ...)
- Public entities (Régions, Cities, ...)
- Emergency services (Firemen, SAMU, police)

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OPERATIONAL TRIALS
Operational scenario

Different scenario have been experimented (tunnel, tracking, accident,..)

Demo case:

- A truck (SUDOTRANS) transporting Ethanol is going to Eurocentre (Toulouse North)

- A school bus (Courriers de la Garonne) goes to the same direction

- An accident occurs involving the dangerous goods truck and a car
T0 : (14h27) CHOC detection alarm : SUDOTRANS, SDIS & Courriers de La Garonne
T0 + 1 mn LEAKAGE information : SUDOTRANS, SDIS
Emergency call

T0

T0+ 1/2h

T0+ 1 h

T0+1,5 h

T0+ 2 h

T0+4 mn  First Call to Emergency number
T0+7 mn  Second call to Emergency number (SUDOTRANS)

T0+8 mn  The operator starts the intervention and provides information to CODIS
T0+8 mn  SUDOTRANS set up a crisis management team
T0+12 mn: CODIS establishes the relation with TRANSCONTROL display and informations (product identification, GPS location,..)
T0+14 mn: SUDOTRANS sends a personnel on the accident site

T0+17 mn: CODIS declares the crisis using the TRANSCONTROL information system: Emergency actions to be taken based on the product data and dispatch transporter coordinates
Coordination with other actors

T0+18 mn: Alarm is displayed at SUDOTRANS, SDIS & COURRIERS terminals. The protection area appears at SDIS, SUDOTRANS & Bus on-board display.

T0+19 mn: Re-definition of the intervention site in the SDIS information system using TRANSCONTOL data.

T0+20 mn: The bus driver stops to read alarms & define a new route.

T0+25 mn: The bus driver sends a message to his company and asks for acknowledge.

T0+26 mn: The bus starts again.
Intervention management

CODIS team provides to CTA key informations: accident location, chemical product identification, leakage information, protection & evacuation areas. These informations are transmitted to intervention teams that are moving towards the site.
On-site intervention

T0+ 1/2h

The first firemen vehicle arrives on the accident site.

T0+ 1h

SUDOTRANS sends a truck to transfer dangerous goods.

T0+ 2h

Additional resources are mobilized for the incident.

T0+ 29 mn

T0+ 30 mn

The 2 first firemen vehicles arrive on the accident site and SUDOTRANS sends a truck to transfer dangerous goods.
Bus re-routing

The acknowledge message for re-routing is provided to the bus driver.

T0+31 mn
Rescue team

T0 + 32 mn
Extraction of drivers
Secure situation

T0+41 mn    Process chemical leakage to avoid toxic risks & fire, at truck level & surroundings.
**Coordination with transporter**

- **T0+45 mn**: 6 Firemen cars + 3 trucks of chemical cell are arriving on the site.
- **T0+1h**: CODIS calls SUDOTRANS using the n° provided by Transcontrol. Information system. Informations are compared and validated.
Process chemical products

A truck arrives on site for eventual transfer of dangerous goods
T0+1h13mn : deployment of a local team responsible of crisis, set up specialised means, risk estimation, data collection (weather forecast, leakage evolution,…), Coordination with central team using all informations provided by SUDOTRANS.
Final processing

T0

T0+ 1/2h

T0+ 1 h

T0+1,5 h

T0+ 2 h

T0+1h23mn  Décision : No transfer of chemical product
End of operations

T0+1h51 : End of operations on the accident site, Debriefing, Clean up the site.

T0+1h52 mn: Crisis display is terminated, protection area disappears and traffic goes back to nominal.
BENEFITS & CONCLUSIONS
### Lessons learnt

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<td><strong>Courriers de la Garonne</strong></td>
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Project results

- Services specification with users involvement
- Technical feasibility
- Evaluation in « real conditions » of benefits :
  • Safety & Security ,
  • Operations efficiency
  • Anticipation (to avoid additionnal accidents),
  • Prevention (sensitive/protected areas)
- High level of involvement of all stakeholders
- Complementarity & cohesion of project partners
- Pre-operationnel product
Main Conclusions

Better management of dangerous has a positive economical impact on exploitation:

- Tracking allows to provide a better service to the end customer
- Some products are expensive, leakage management and transfer can represent savings

Need for clear roadmap towards standards to drive full scale implementation
Questions?