

Expert'crise Project

Emergency training in industrial environment by simulation exercises

First results

Pierrick DUHAMEL, Sylvain BROHEZ, Christian DELVOSALLE, Laurie-Anna DUBOIS,
Agnès VAN DAELE, Sylvie VANDESTRATE*



UNION EUROPÉENNE
Fonds social européen

UMONS
Université de Mons



Expert'crise Project

First results

The Expert'Crise Project

Expert'Crise Center = Training hub project for crisis management actors :

- Emergency services
- Seveso plants and critical infrastructures



ESF funded training - **Free** for wallonian companies

Learning process including **lectures** and **immersive exercises**

Check testing emergency planning requirements

§6 Art.12 2012/18/UE (SEVESO 3)

Expert'crise Project

First results

Exercises background

Compagny	Number of employees	Exercise & Environnement	Exercise category
A	250 to 499	Three plants coordinated exercise in a multi-operator industrial site <u>ASc</u> : Tank truck acrylonitril leakage	Full size
B	20 to 49		Functional
C	100 to 249		#NA
D	100 to 249	Single exercise in a multi-operator industrial site <u>ASc</u> : Fire of a cyclohexan tank truck and leak on a hydrochlorique acid tank truck	Functional
E	20 to 49	Single exercise in a single site <u>ASc</u> : Heat transfer fluid leakage and fire	Functional


Functional Exercise → Test some crisis management functions

Expert'crise Project

First results

Exercises background

Internal emergency planning and Roles tested:

- 2 to 3 crisis management levels
 - Operationnal : operators, internal firemen...
 - Tactic : supervisors, technicians ... 
 - Strategic : managers, professionals and executives
- Emergency planned functions *via Reflex Sheets*
 - Internal and external alert
 - Evacuation and census
 - Operations on disaster
 - Authorities and media communication
 - Coordination with emergency services
- Emergency planned equipement
 - Firemen hardware (*PPE, for chemical disaster...*)
 - Communication (*radio, phone, mail, fax...*)

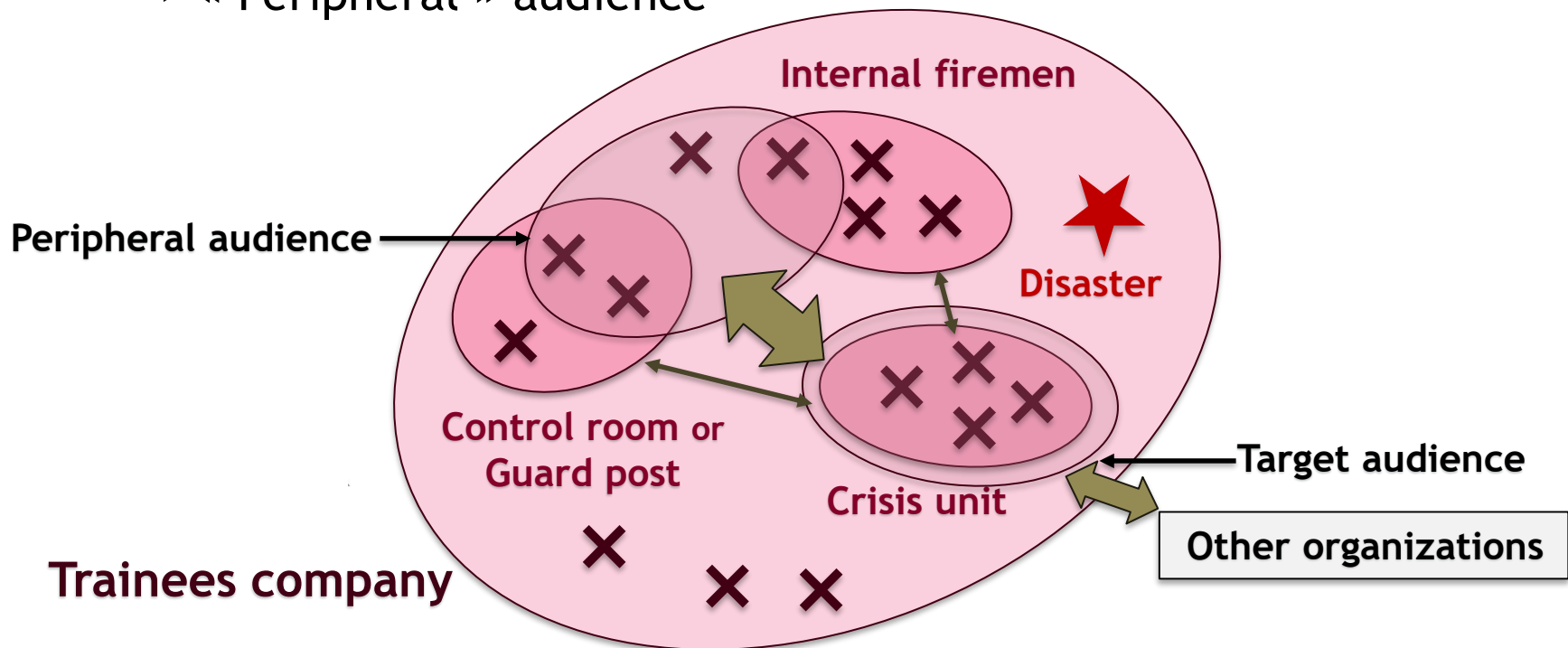
Expert'crise Project

First results

Exercises framework

Target audience and Emergency functions

- Target audience identification
- Target audience direct contact identification and media used
→ « Peripheral » audience

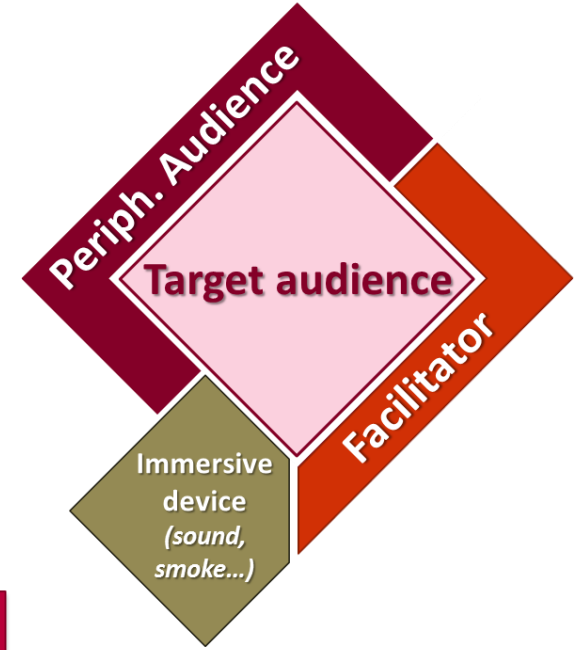
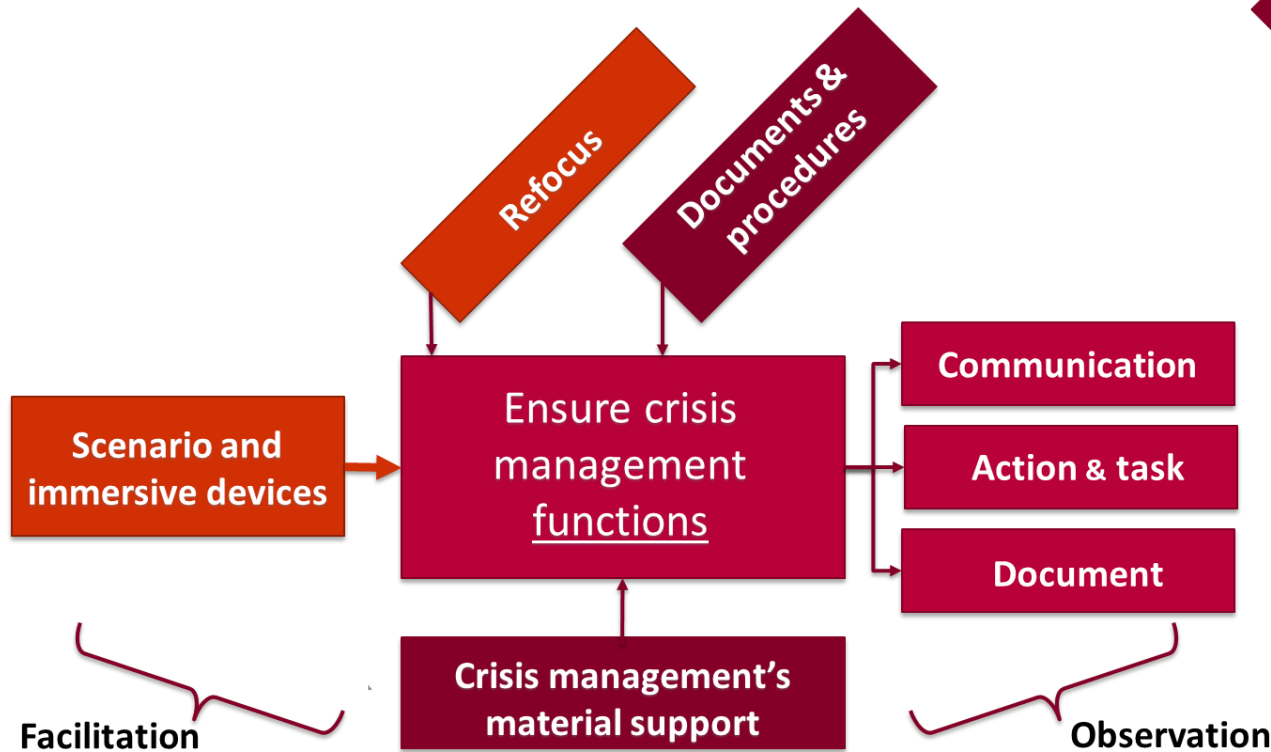


Expert'crise Project

First results

Exercises framework

Facilitators and observers



Expert'crise Project

First results

Exercises framework

Facilitators and observers

Facilitation

- Direct facilitation of peripheral audience more or less guided
 - Indirect facilitation (*phone, mail...*) of target audience by other organization simulation (*media...*)
→ **Directory** of organizations
-
- **Facilitation sheet** = part of the scenario associated to a facilitator
 - Immersive devices controled by facilitators
 - Coordination by a supervisor

Observation

- Observers over all publics but not individualized
- Camera support for later analysis
- Filming and live streaming for full vision on exercise with smartphone

Expert'crise Project

First results

First exercises results

Belgian Seveso plants emergency planning

> Similar emergency organization in the 5 companies

- 2 to 3 levels of crisis management (but slight and low efficient tactical level)
- **Min. 2 points of care** : crisis unit and disaster zone (+ control room, guard post, rally point...)
- Same emergency roles

Strategic : 2 to 6 pers. incl. Site and Communication Managers (+ Maintenance/Area Responsible, HSE, HR...)

Operationnal : up to 10 pers. incl. Operation Chief and operators

But variability in warning chain process

> Framework of proposed trainings

Expert'crise Project

First results

First exercises results

Trainees expectations and immersion difficulties

> Companies request

- Human management of the crisis unit and internal functioning
- External communication to medias
- Emergency operations (*considered by default*) hide other problematics (*even if these operations are virtual*)
- Resources **logistic** and **coordination** often hidden

> Highlighted themes and adaptation of exercises

- Propose **different topics**
- Anticipate **immersion difficulties** related to virtual emergency operation (immersive device, refocus...)
- Estimate **safety culture** of trainees company

Expert'crise Project

First results

First exercises results

Errors to avoid

- > Interface between companies and facilitators
 - **Other organizations** simulation using a directory neither user-friendly nor visible → **trainees briefing and poster/projection**
 - Peripheral public facilitation → Let go or redirect ?
Modulating facilitation based on **training level** or simulation habits
 - Facilitators spread on site → Risk of inconsistent information
Facilitators **coordinated** by a **supervisor** and feed-back
- > Facilitation interferences
 - Facilitator playing a role for the target audience
→ Interferences and Transfer : Target audience more passive
 - Emergency services collaboration in exercises → Same outcome
Need to teach roles and responsibilities of emergency stakeholders₉

Expert'crise Project

First results

First exercises results

Invariances in communication

- > Communication issues between operationnal and strategic level because shared exercises are uncommon
- > Equipement
 - Emergency telecom devices rarely used or tested / Poor knowledge
 - Mismatch between resources and needs
number, transmission quality (3G /radio), endurance and mobility
- > Form of communication
 - Repetitions, lack of information, misunderstanding and communication saturation

Projet Expert'crise

Premiers résultats

Conclusions and prospects

Development of a **methodology** for **conception, lead and analysis** of crisis management exercises

- Concepts and **pedagogical process milestones**
- Main **difficulties** and **errors to avoid**
- **Framework and limits** of these formations

Toolbox for HSE manager and consultants to plan such exercises

Questions ?