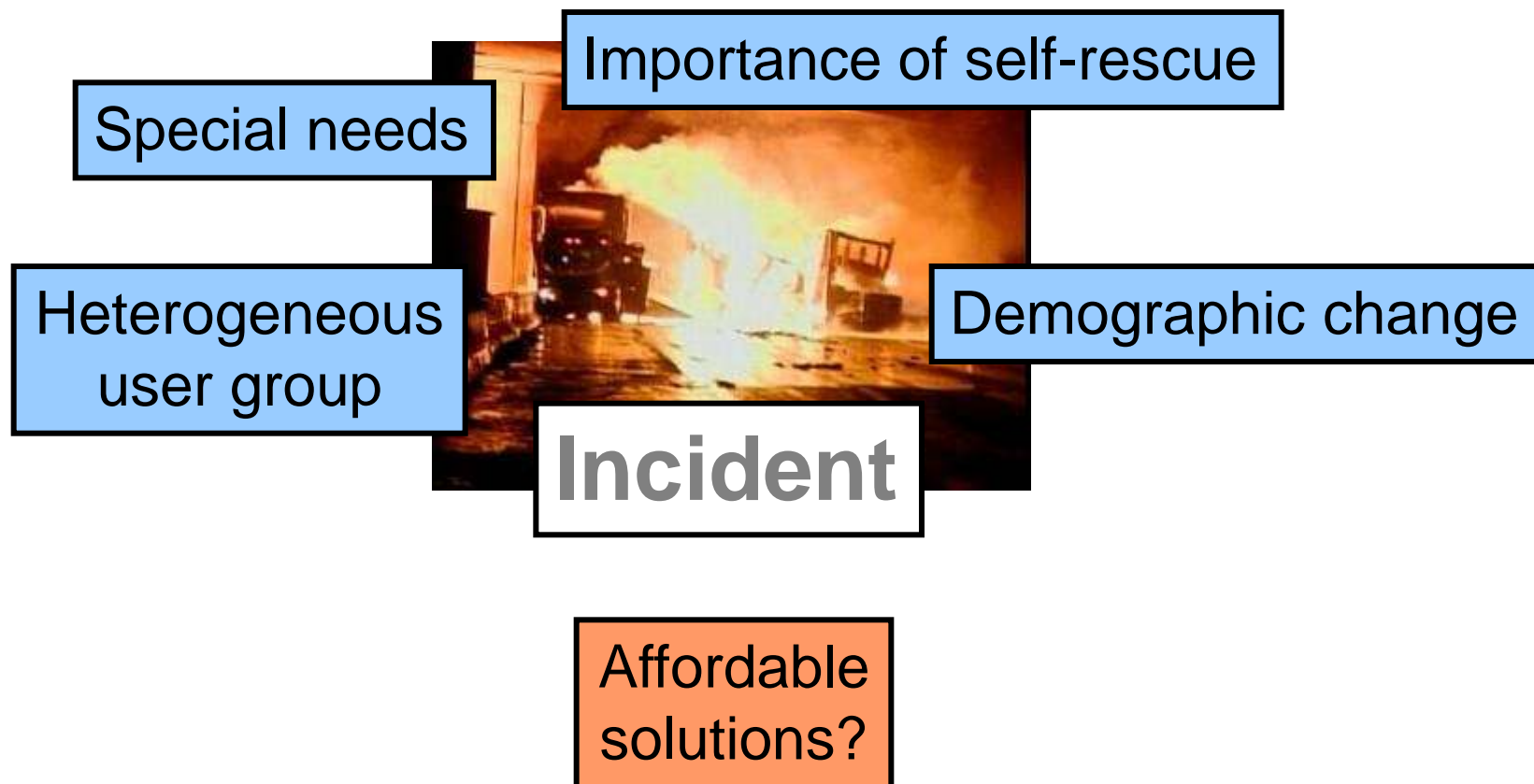


# User Interfaces and Strategies for Guidance of Elderly in Emergencies through Nomadic Devices

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- Co-funded by the European Commission
-  Framework programme
- Start: Oct. 2009
- End: Sept. 2012
- Consortium: 11 partners, 7 countries

Develop an integrated system to:

- Detect physical disasters
  - in public transport terminals
  - in Vehicles
  - in critical Infrastructure (tunnels, bridges)



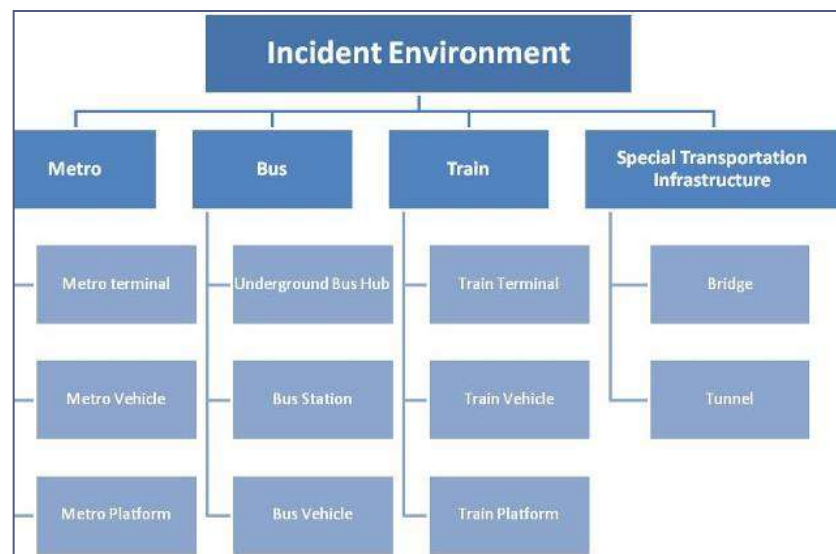
- Support traveller evacuation (self-rescue) via the mobile phone



- Support mitigation



- Ontological framework for
  - Recognition
  - Classification
  - Mitigation
 of hazards and physical disasters
- Decision support system
  - Monitoring incoming real time sensor data
  - supervising the mitigation action by constantly checking this data against its crowd behaviour models
- Sensor Network

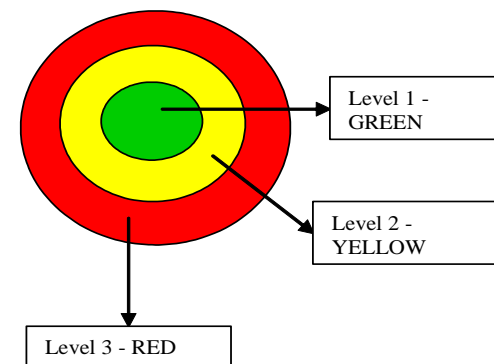


- Basic research on evacuee behaviour (VR)
  - Strategies
  - Information processing under stress
  
- Combined strategy
  - Mobile phone guidance
  - Collective herding guidance
  
- Personalised guidance
  - HMI (e.g. modality)
  - Strategy



Level	Classification	Activity	Information transmission
1 GREEN	Monitoring of dangerous conditions	<ul style="list-style-type: none"> <li>Information circulation among:                             <ul style="list-style-type: none"> <li>- operational headquarters,</li> <li>- peripheral stations.</li> </ul> </li> <li>The existence of excessive concentrations is verified, but not intrinsically critical.</li> </ul>	<ul style="list-style-type: none"> <li>display panels</li> </ul>
2 YELLOW	Imminent emergency	<ul style="list-style-type: none"> <li>Information circulation:                             <ul style="list-style-type: none"> <li>- from operational headquarters to field staff</li> <li>- among field staff.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>display panels</li> <li>nomadic devices</li> <li>head-up displays</li> </ul>
3 RED	Ongoing emergency	<ul style="list-style-type: none"> <li>Information circulation:                             <ul style="list-style-type: none"> <li>- among rescue teams,</li> <li>- to people located in the emergency area.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>panels</li> <li>display panels</li> <li>nomadic devices</li> <li>“speaking infrastructures”</li> </ul>

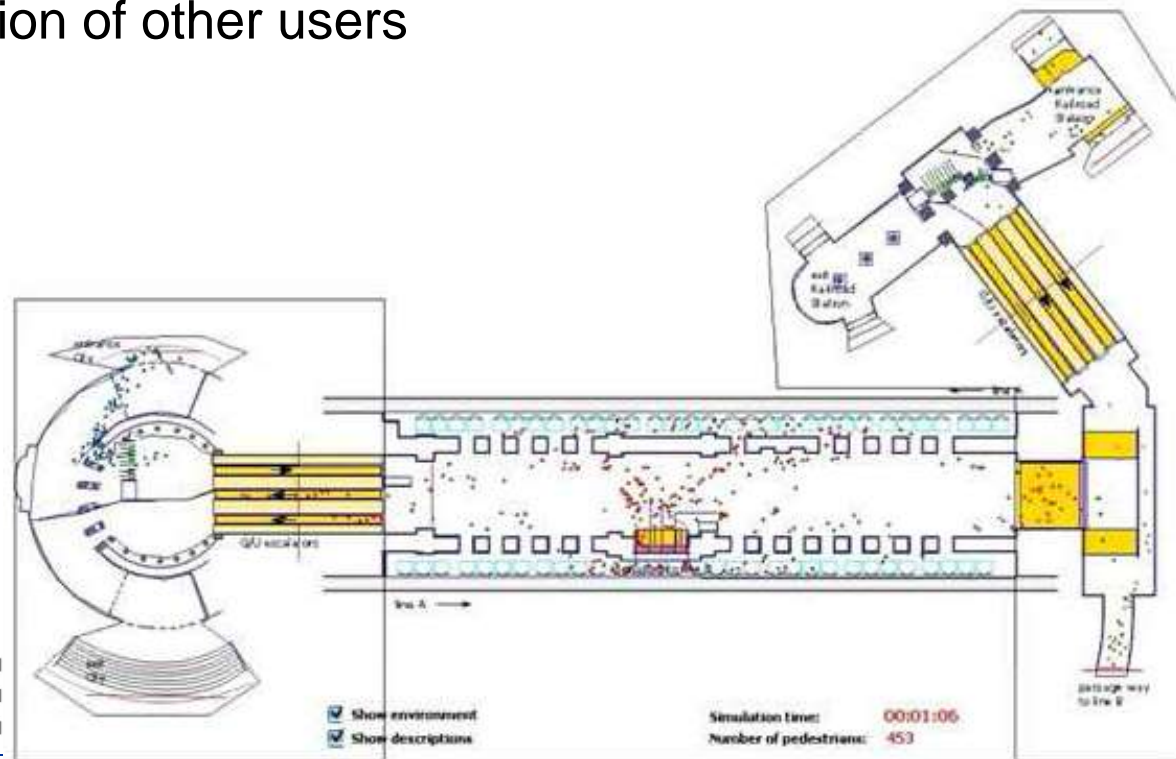
## A 3-levels approach for emergencies handling



- Generic mass guidance: e.g. through public terminals and announcements (placed in the waiting areas and exit points)
- Individualistic guidance through mobile phones: different travellers have different needs and preferences on mobility & on receiving and understanding information
  - E.g. an elder traveller might suffer from some degree of hearing loss, thus the evacuation information must be given in an alternative, non-acoustic way, e.g. simple visual information

- Service to be functional on all mobile phones
  - Key issue, especially for the application of the proposed system in countries under development, since the majority of the people are not expected to possess PDA's or intelligent phones, but simple mobile phones
- Guidance
  - Static maps on low-end devices (device limitations)
  - Dynamic routing on high-end devices
- Interface adaptation
  - On the device, without send profile information to the control centre
  - Taking into account the range of perception deteriorations
- The development of GIS map data for accessible pedestrian navigation in the areas of interest is among the first actions for the system development.

- Example of in-doors routing guidance design: the route that each trapped user that has to follow (e.g. in a metro infrastructure), according to their position, in order to reach the open exit
  - Of course, each user is able to see only his/herself in the schema, not the position of other users



- Mobile phone based guidance for traveller evacuation is a promising technology not only for the industrialised countries but also for transport hubs in Africa.
  - Low-cost technology
    - Mobile phones
    - Sensors and nodes
    - Computers
  - Low skills-requirements
- Partially language-independent: When thinking about applying this technology in some of the African countries, huge efforts for creating translations should be avoided.
  - Although the SAVE ME system is designed to adapt to the users language, special emphasis is put on the nonverbal communication.

