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The **KnowRISK*** project: tools and strategies for risk communication and learning

*Know your city, Reduce seismic risk through non-structural elements

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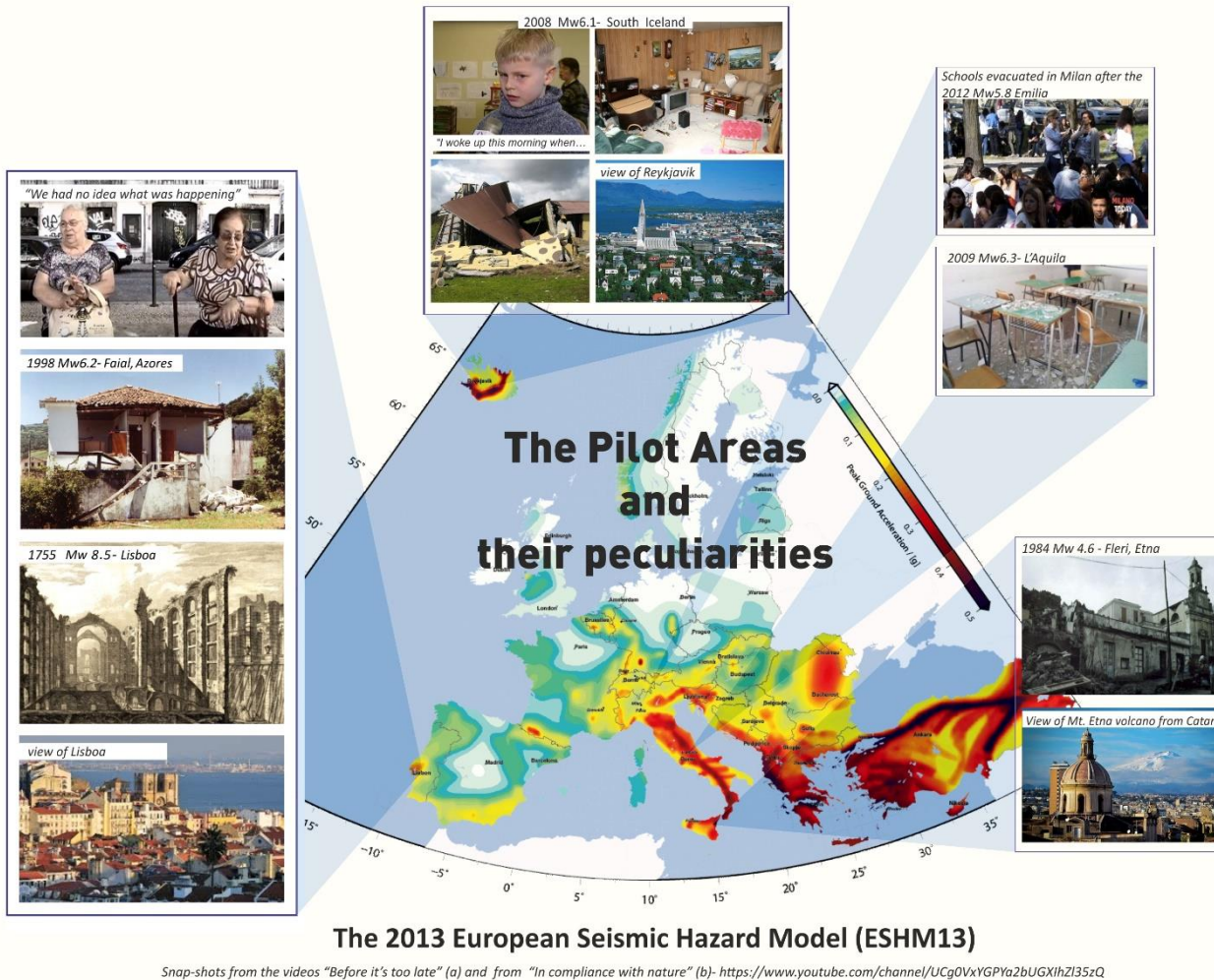


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The KnowRISK project: tools and strategies for risk communication and learning



Most of a building is non-structural. Damage of these elements can strongly influence communities' **ability to cope with** and **recover from** earthquakes.

KnowRISK will

- ✓ study **seismic scenarios** critical for non-structural damage
- ✓ produce a **Portfolio** of non-structural protection measures
- ✓ have a **community-based** disaster risk reduction **approach**

Know your city, Reduce seismic risk through non-structural elements

Do you know that...

small earthquakes can cause serious damage?

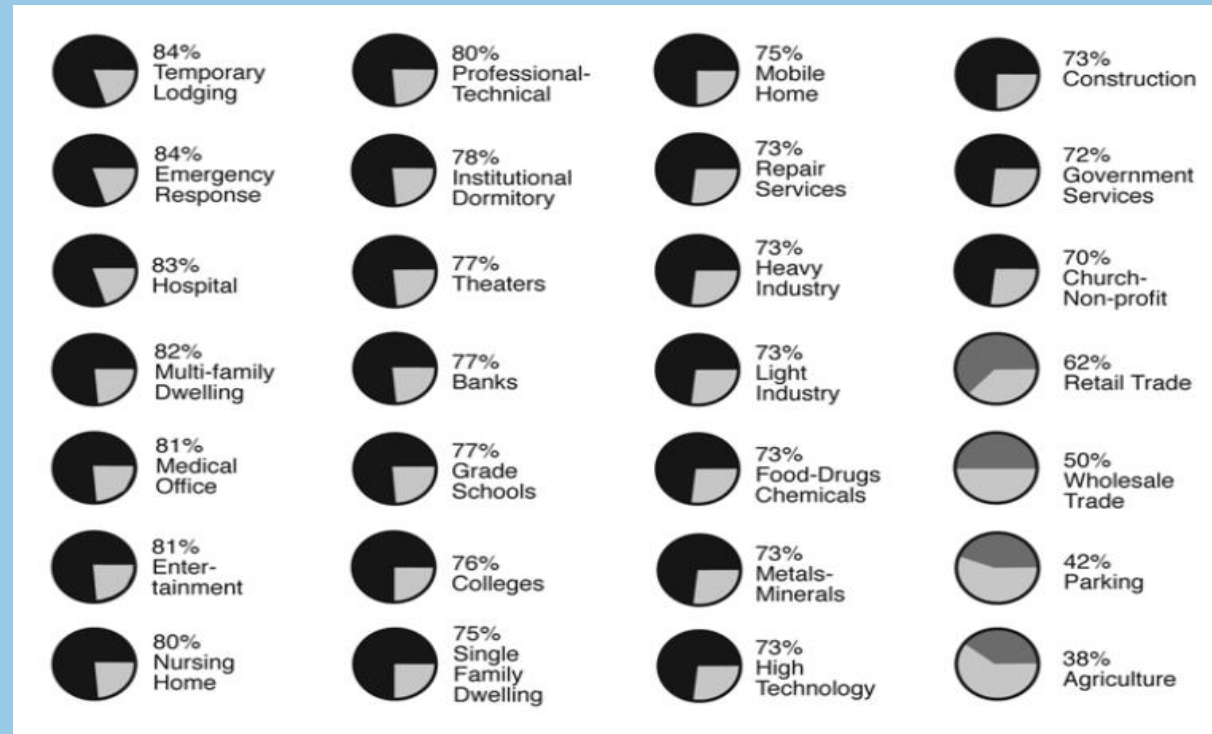
Damage is not just structural!

Almost all building occupancies, and at least 70% of the total cost is invested in non-structural components

Total building costs (structural and non-structural) for a different type of occupancy.

Shaded black highlights occupancies for which **non-structural costs is at least 70%** of total constructions costs

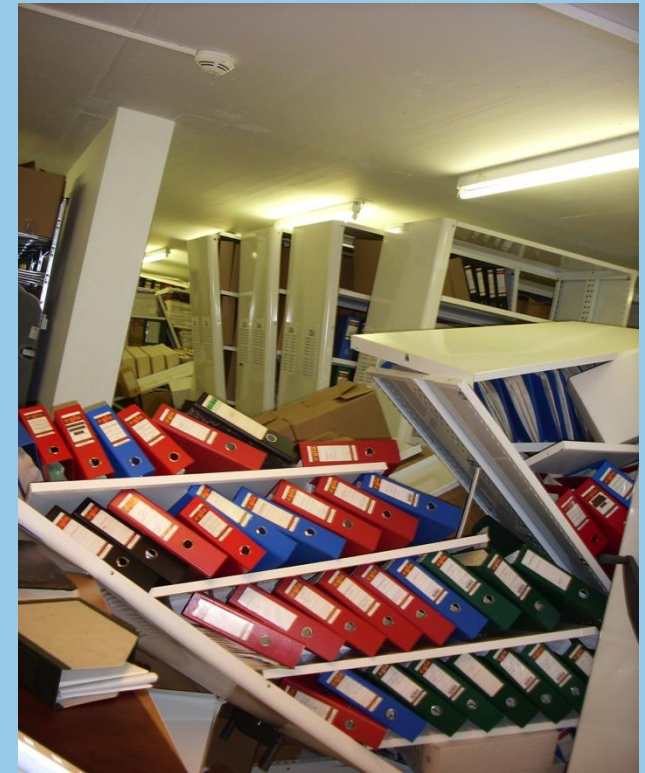
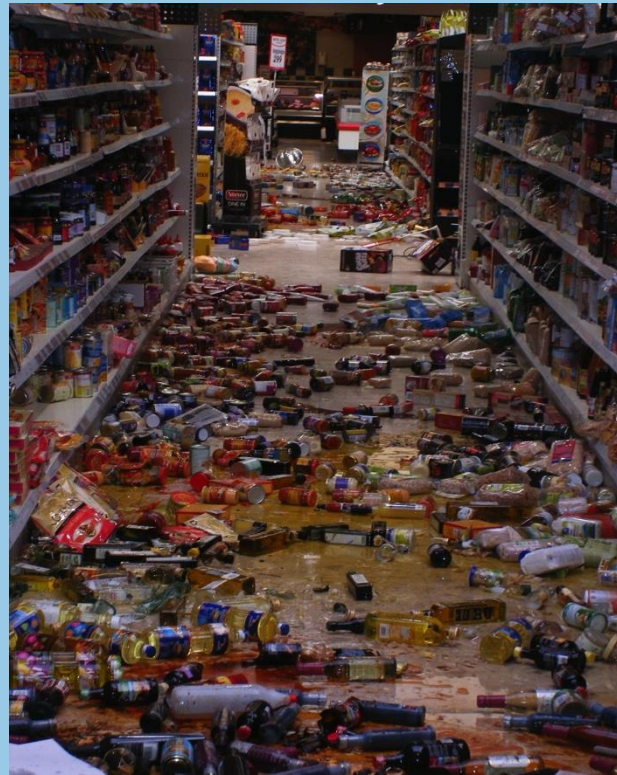
Labels specify the exact percentage of non-structural costs.



(HAZUS Technical Manual, 1997)

The kinds of risk posed by non-structural damage

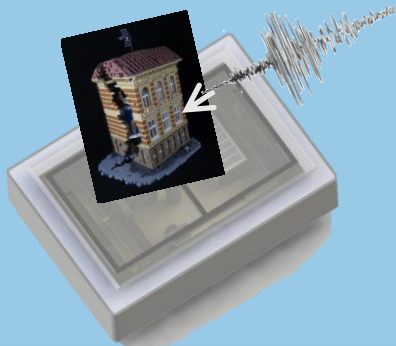
risk of injury, loss of property,
functional loss



Business can be seriously damaged (Mw 6.1, Iceland, 2008)

Tools and strategies...

Here is what we will do!



- **Perception** assessment of non-structural vulnerability by local communities
- **Impact assessment** *Ex ante* and *Ex post* surveys
- **Practical Guide** of non-structural risk reduction for lay-people: low-cost measures easily implemented, multilingual and user-friendly
- **Focus groups** and participatory actions to selected communities
- ***Know your school: be safe!*** campaign to students
- **Augmented reality** technology and applications to educational shake table
- **Dissemination of good practices**

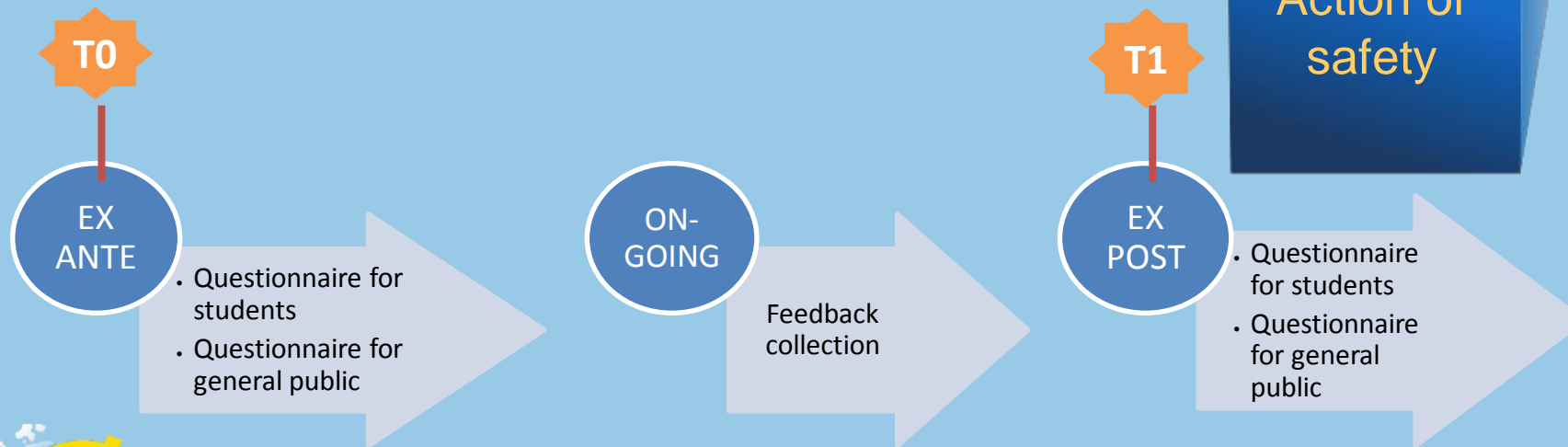
Tools and Strategies

• Perception assessment

of non-structural vulnerability by local communities

• Impact assessment

of risk communication activities: *Ex ante* and *Ex post* surveys



perception and impact
assessment

Knowledge

Awareness

Results

Action of
safety

Risk
reduction

The kinds of risk posed by non-structural damage

risk of injury, loss of property, functional loss

URM parapets can be a hazard due to inadequate bracing of the parapet walls, poor quality of the mortar and/or deterioration of the materials.



The kinds of risk posed by non-structural damage

risk of injury, loss of property, functional loss

Statues and appendages may fall if the metal anchors are weak or too short.



Storefronts are the most likely glazing to be broken during an earthquake.

The kinds of risk posed by non-structural damage

risk of injury, loss of property, functional loss

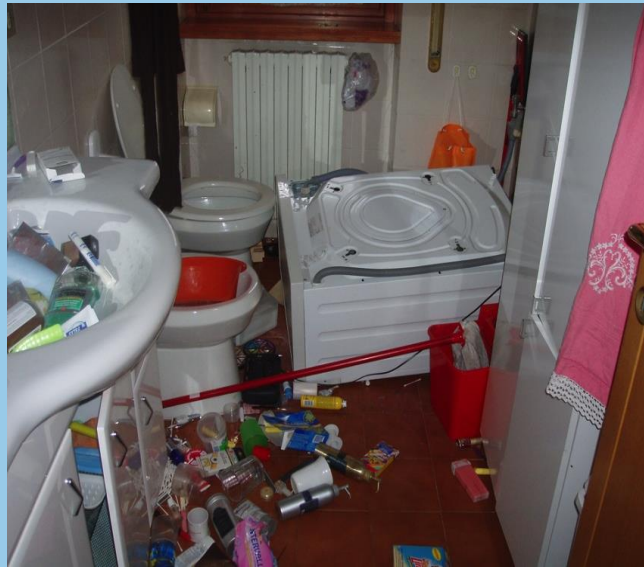
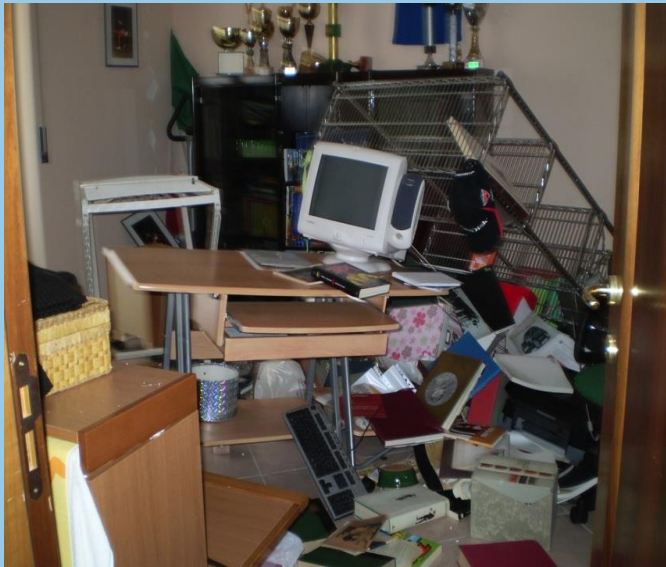


Large, heavy furniture - likely to overturn - should be fixed to a wall or bolted to the floor.

The kinds of risk posed by non-structural damage

risk of injury, loss of property,
functional loss

Houses contents and utilities can drop or tumble



(Mw 6.3 L'Aquila, Italy, 2009)

The kinds of risk posed by non-structural damage

risk of injury, loss of property,
functional loss

Schools are still among the most vulnerable places



Mw 5.8 Molise, Italy, 2002



Mw 6.3 L'Aquila, Italy, 2009



Mw 6.3 L'Aquila, Italy, 2009

Tools and strategies

Know your school:
be safe!

The main goal is raise awareness
in school communities through
ENGAGEMENT and
PARTICIPATION

spot the risk with

- videos
- rap-songs
- comics
- stories....



Tools and strategies

augmented reality

Augmented Reality (AR) allows users to be in the real world with «augmented» features in whatever field of application from games to science outreach.

This innovative technology combines: text, video, and 3D images, creating a multimedia tool accessible in real time by using any mobile device.



Tools and strategies

Practical Guide

The main goal of the Practical Guide is to remind safety tips even after the end of the project. A handy tool to be integrated in households.



Even unexpensive actions can increase safety



Think in terms of safety when you choose (what to buy, where to install, how to fix)



Practical hints on how to increase safety by small retrofitting, fixing, and proper placement



Reduce potential harms by learning how to behave in case of emergency

Education

Actions, prevention, preparation

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(Risk) Communication:

Whom are we
talking to?

