

## Presentation of the Ahead project

Advanced disaster damage and loss data information system for enHancEd impAct-based knowledge

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DABC and DICA, Politecnico di Milano

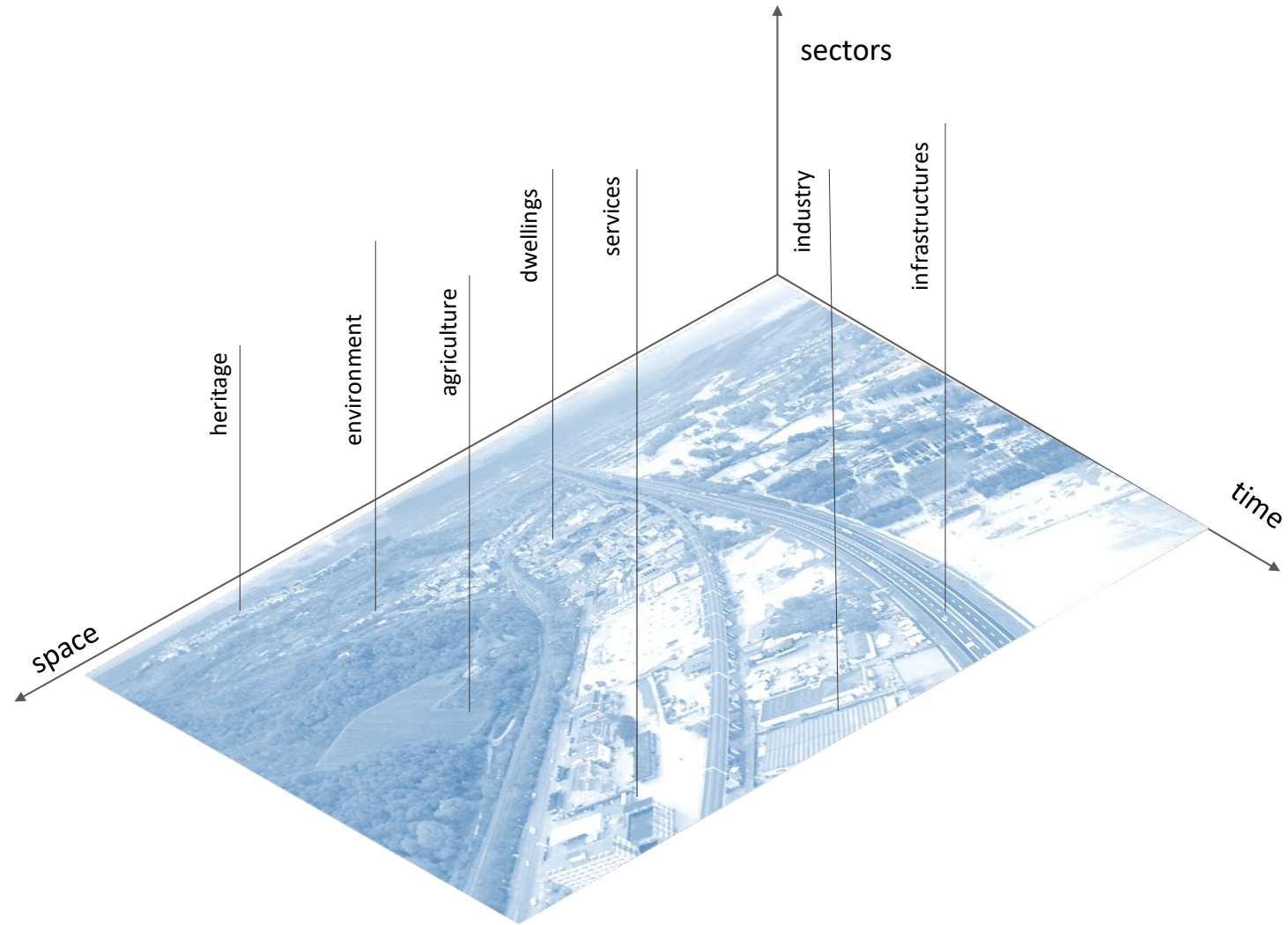
Funded by European Commission DG ECHO  
KAPP 2024



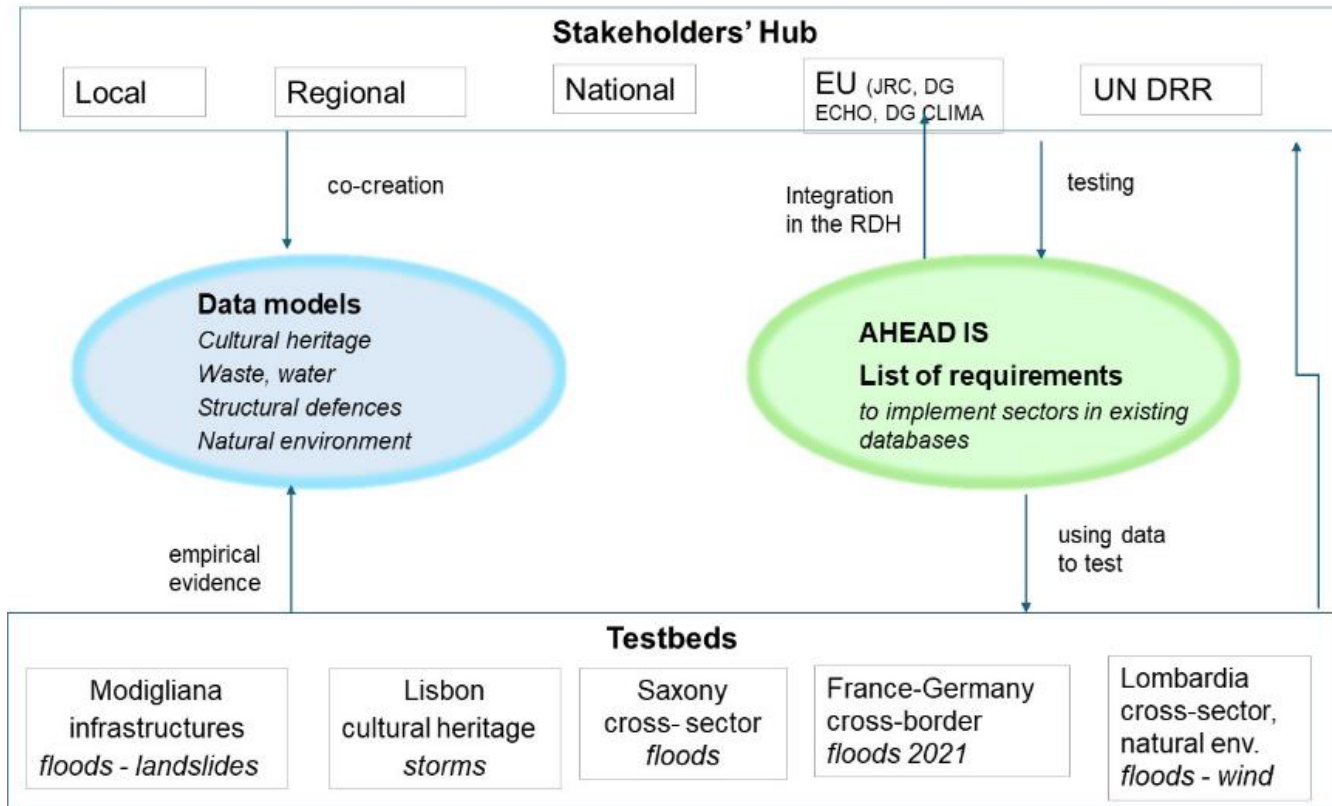
# The main objective of the Ahead project

Ahead aims at developing knowledge and an information system to collect, manage, and query post disaster damage data through multi-stakeholder engagement:

- Cross sector
- Cross spatial and temporal scales



# Main objectives of the Ahead project



## Develop an IT system to collect damage and loss data:

- cross sectoral
- at different spatial and temporal scales
- with some consideration of «indirect» damage

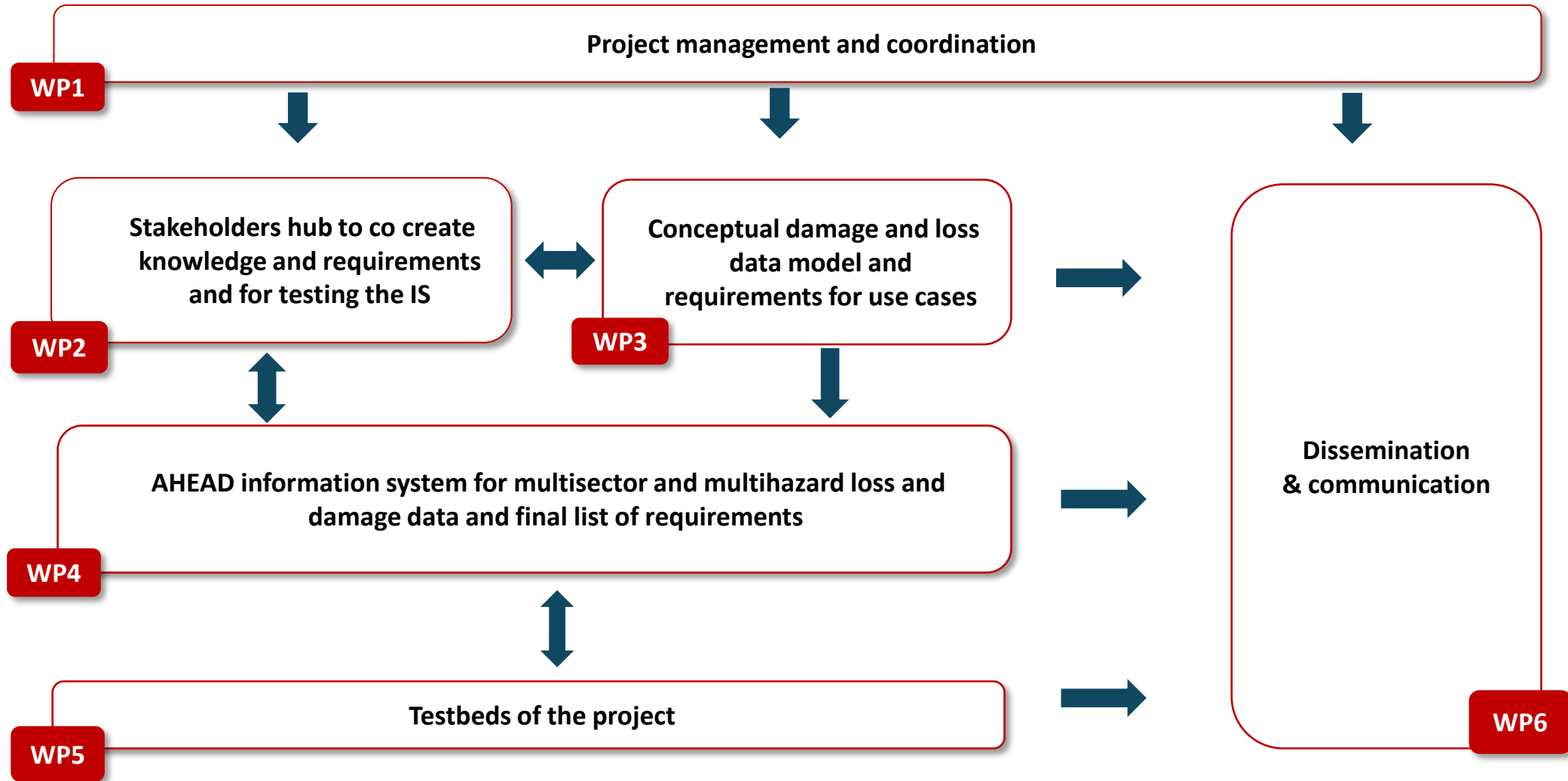
## Work with stakeholders to:

- Co-develop database fields for some sectors
- Define a list of requirements that can be used to improve systems in use
- Explore useful use-cases

## Testbeds:

- For testing the IS through its development
- Identify relevant use cases to develop ready-made queries

# The Ahead Work Packages

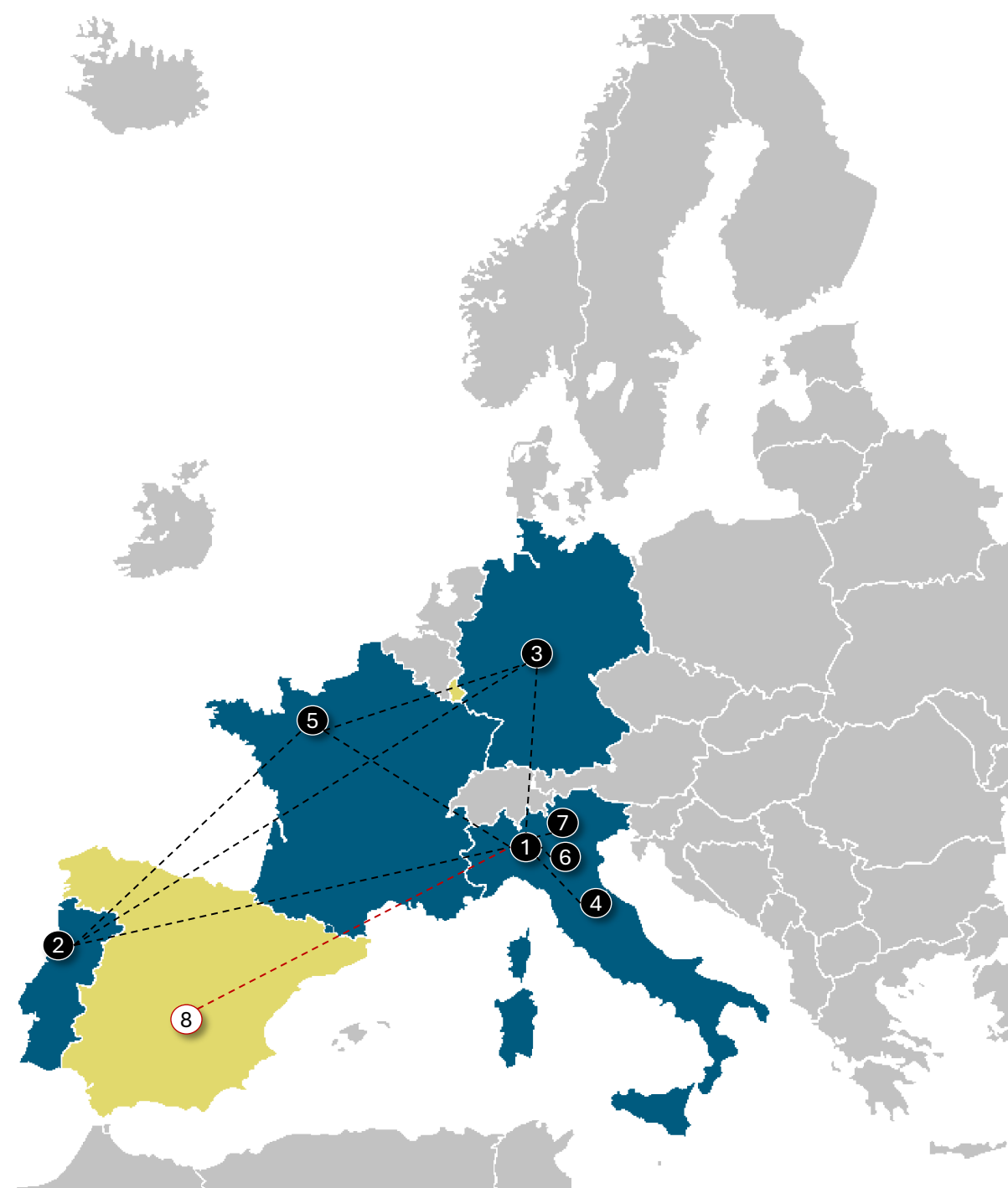


# Ahead's Partners and countries

- ① Politecnico di Milano, POLIMI (*Italy*)
- ② University of Porto, UPORTO (*Portugal*)
- ③ German Committee for Disaster Risk Reduction, DKKV (*Germany*)
- ④ Municipality of Modigliana (*Italy*)
- ⑤ Association Française pour la Prévention des Catastrophes Naturelles et Technologiques AFPCNTT (*France*)

## ASSOCIATED PARTNERS

- ⑥ JRC- European Commission
- ⑦ Regione Lombardia, Directorate Security and Civil Protection (*Italy*)
- ⑧ Members of the Advisory Board



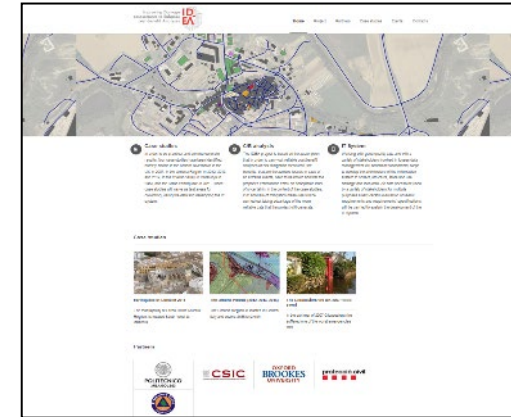
# Ahead building on the knowledge and experience developed over the last 13 years by now thanks to a number of initiatives



Challenges and need for a standardized reporting format



Working in the Technical Group of the JRC and also ECHO on damage and loss data



Conceptualizing damages in terms of data management and the development of a relational database



Service: Collecting and recording disaster damages and loss data according to European Directives and Guidance for responding to the Sendai Framework requests.  
Mandated by: The Disaster Risk Management Knowledge Centre at JRC-European Commission  
Requesting Authority: Regional Civil Protection Directorate of Catalonia (Spain)



First attempt to produce a relational database

Deliverable 2.1: Identifying gaps and needs for the Catalonia Region in the national and international contexts

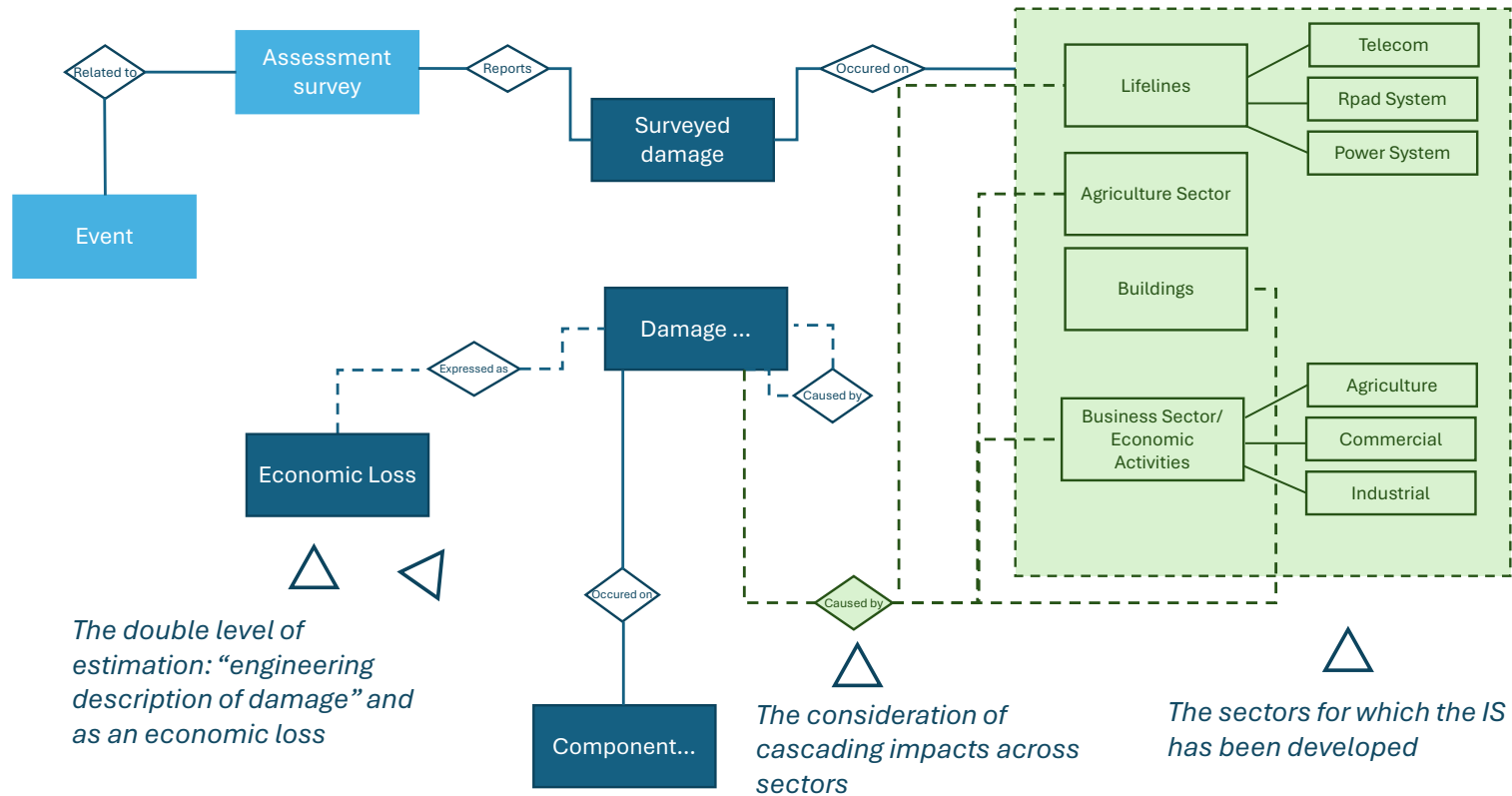


Systematic development of a relational database for a number of sectors



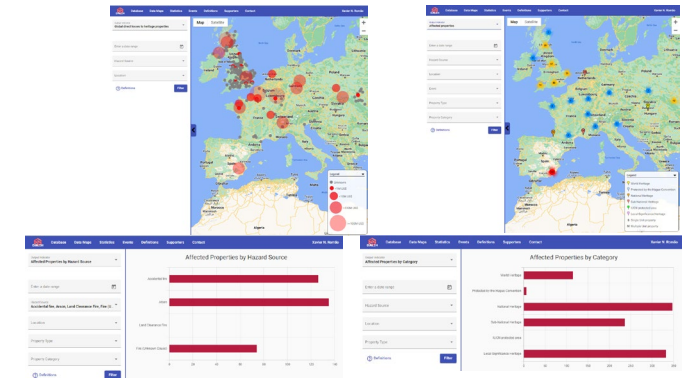
Applying the standardized damage and loss reporting to the Central Italy earthquake.

# We aim at completing the development of the IS and its relational database



Develop knowledge and records for the following sectors:

- CI: waste, water, structural defence
- Natural systems
- Cultural Heritage



# The process to complete the IS development

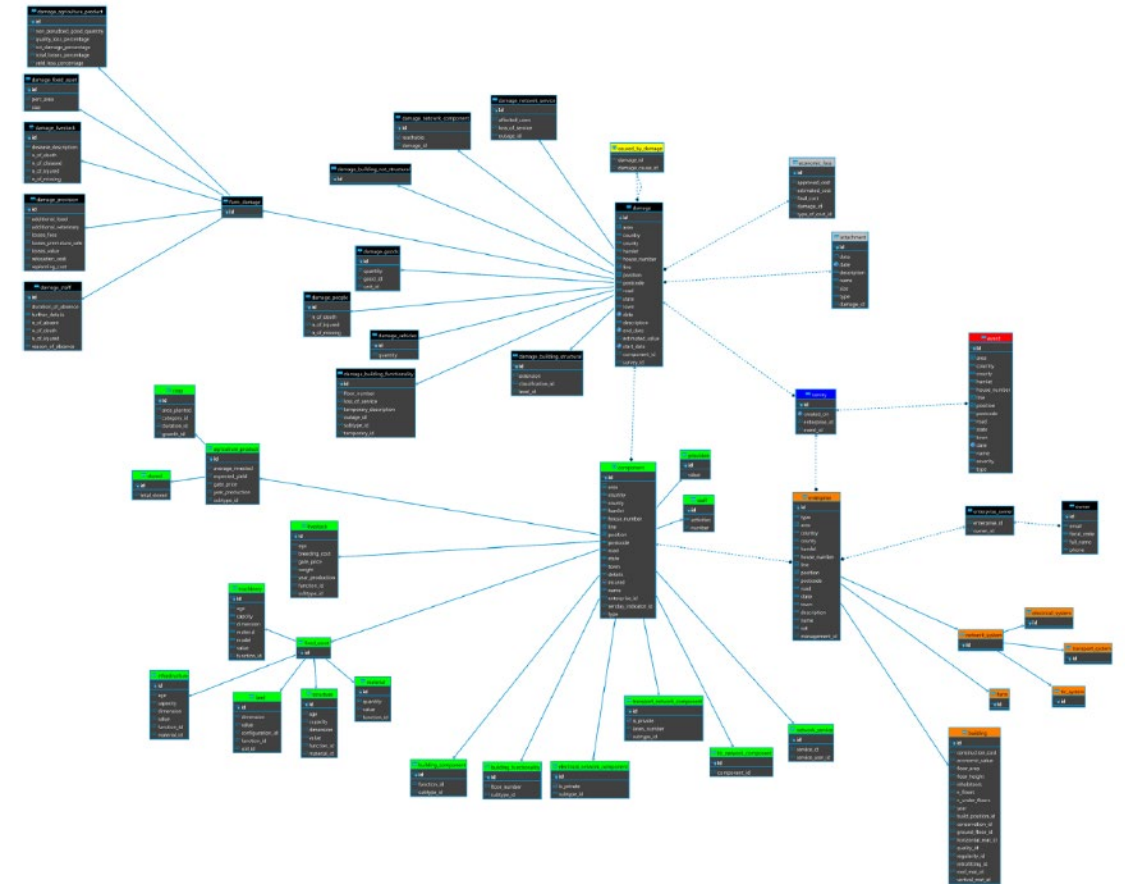
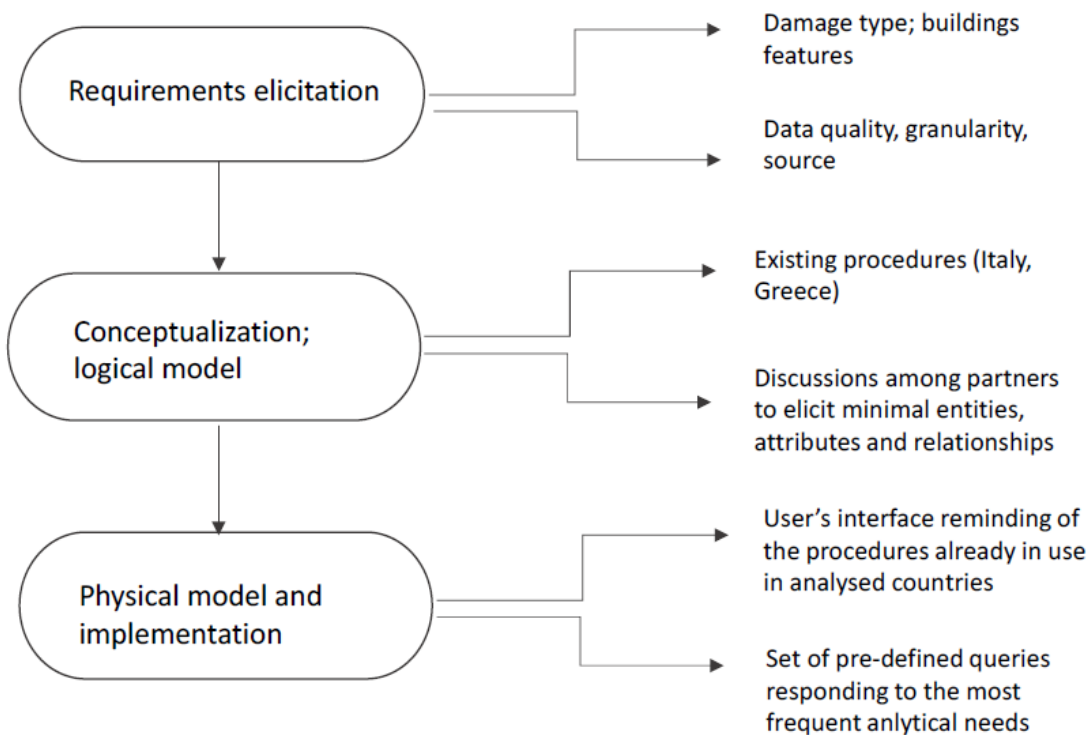


Figure 8. Process followed to design and implement the Database for damage data to the built stock.



# The Stakeholders Hub

- Starting from the testbeds, considering multiple levels of engagement
- With the aim of capturing further stakeholders through interesting use-cases
- Eliciting knowledge on sectors that still have to be developed
- Co-developing requirements to be used in systems in use



# Kick-off meeting in Milan, 22-24 Jan 2025

We also had a preliminary workshop with stakeholders and members of the Advisory Board:

- To discuss **expectations** of Partners (*POLIMI, UPORTO, DKKV, AFPCNTT, Modigliana Municipality*) e Associated Partners (*JRC, Lombardia Region*) on the Ahead project
- To assess **gaps** and **opportunities of existing databases** currently in **USE** (*such as the Lombardia Region RASDA*)
- To define **use cases** with the engagement of **stakeholders** for:
  - data modelling for sectors that have not been developed yet: CI (waste, water, structural defences), Cultural Heritage, Natural environment
  - align terminology with other initiatives (OECD for damage to economic activities)



## Advanced disaster damage and loss data information system for enhanced impact-based knowledge

Kick off Workshop of the Ahead project funded by EC DG ECHO

January 23 2025, 14:30 – 17:30

Educafé, Politecnico di Milano, Piazza Leonardo da Vinci 32 & On air

Link in Teams:

Meeting ID: 385 777 163 064

Passcode: WF7dZ30f

14.30 Welcome and presentation of Ahead- Scira Menoni – Polimi

14.50 Tour de table

15.00 The background of Ahead: past projects and operational IS for damage data collection and analysis - Anna Faiella and Jacopo Bambini- Polimi

15.45 Coffee break

16.00 Invited Stakeholders' opinion and experience on advantages, gaps and needs for improved damage data management - Moderating: Reimund Schwarze - DKKV

17.15 Concluding remarks and illustration of the future steps for engaging stakeholders to the Ahead project – Frédéric Tatout - AFPCNTT

17.30 End of workshop

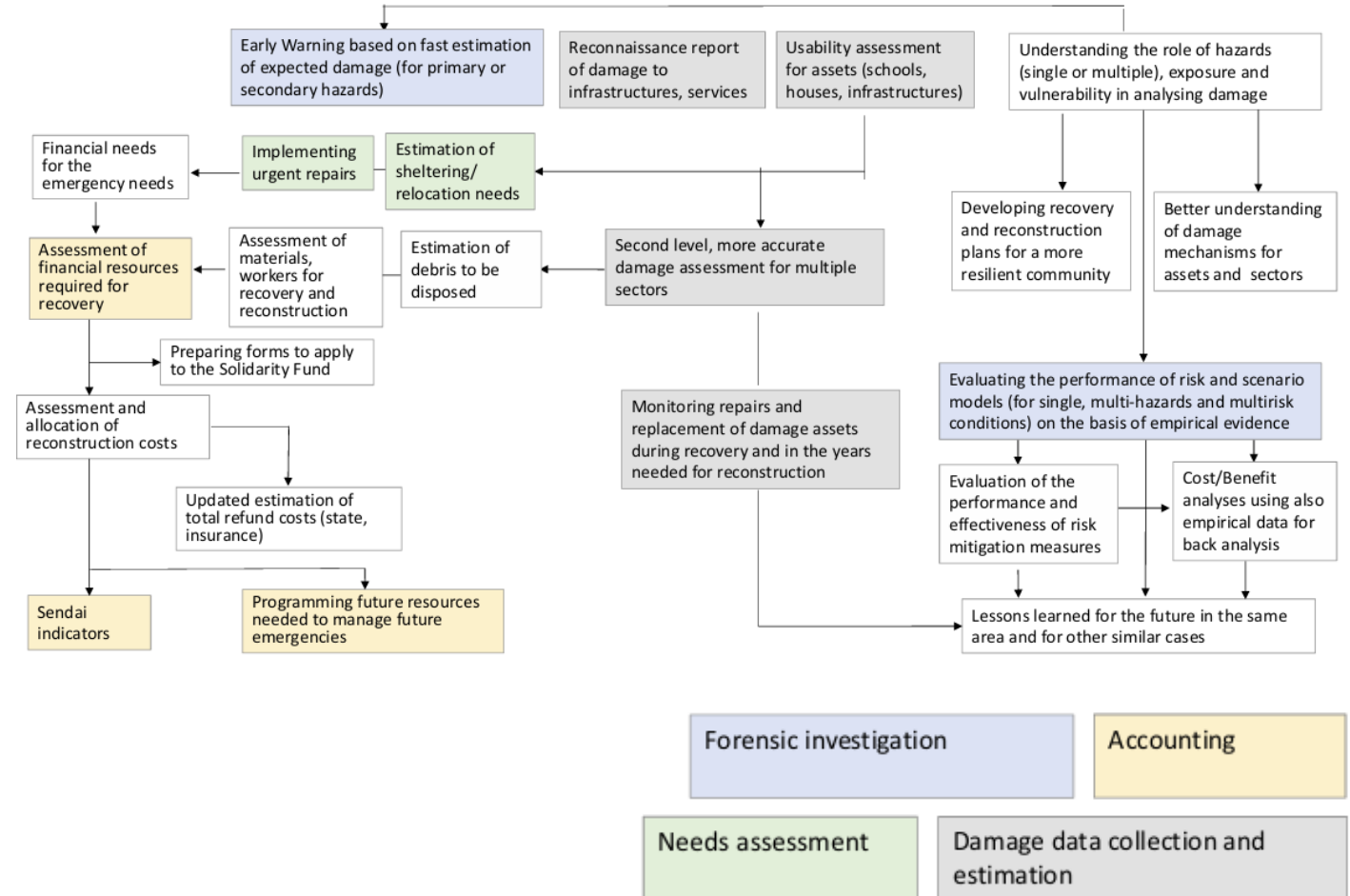


# Use cases that have been already explored

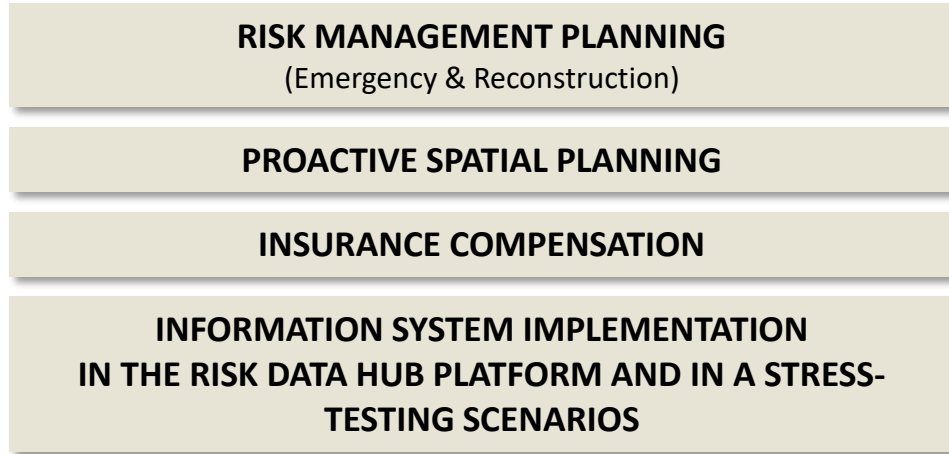


## Uses of post disaster damage data and their interconnection

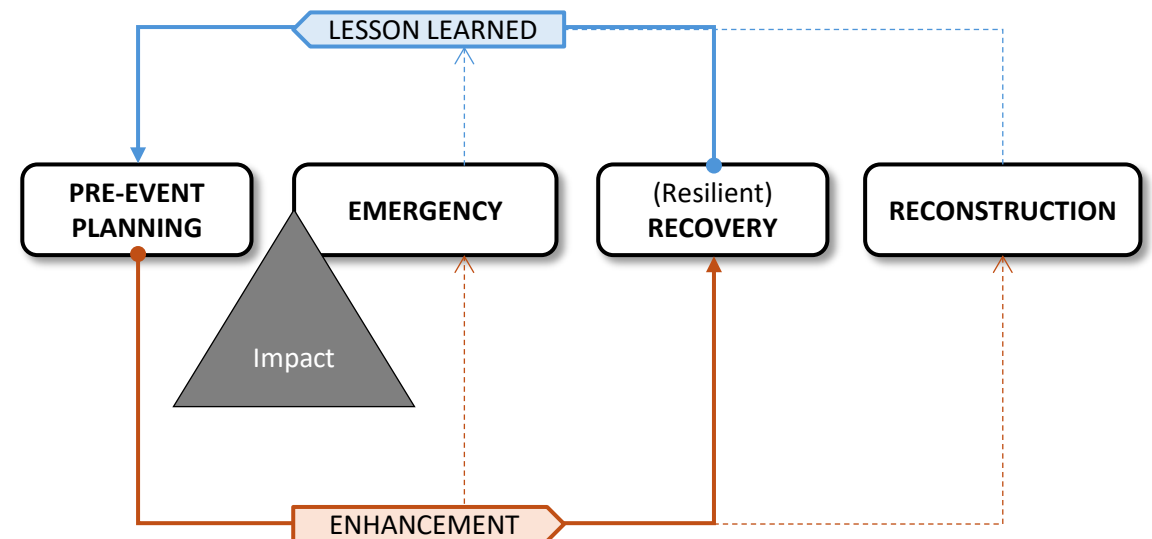
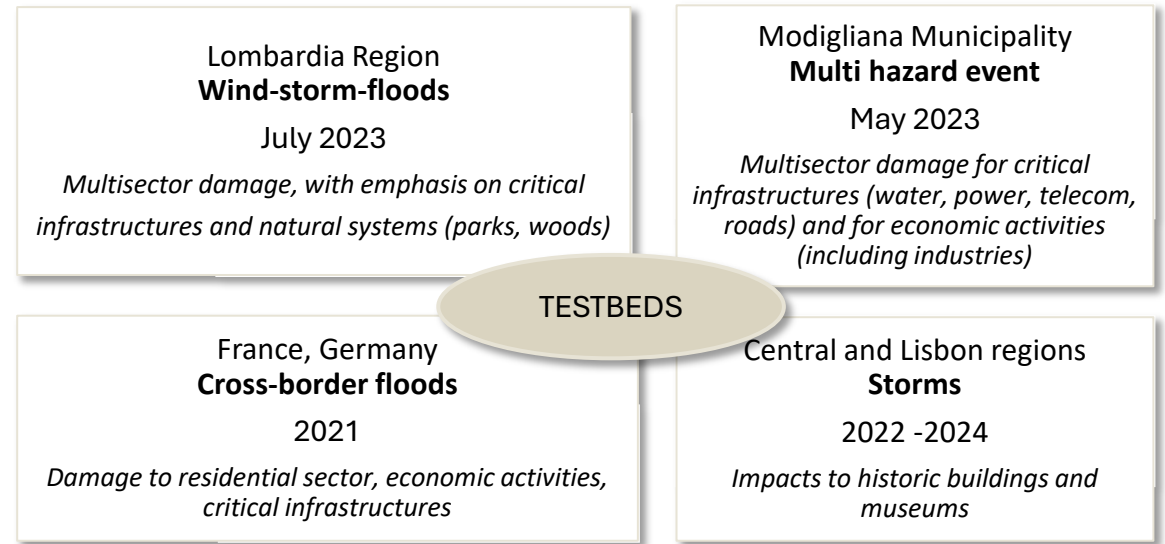
Source: Walia and Menoni et al., 2020



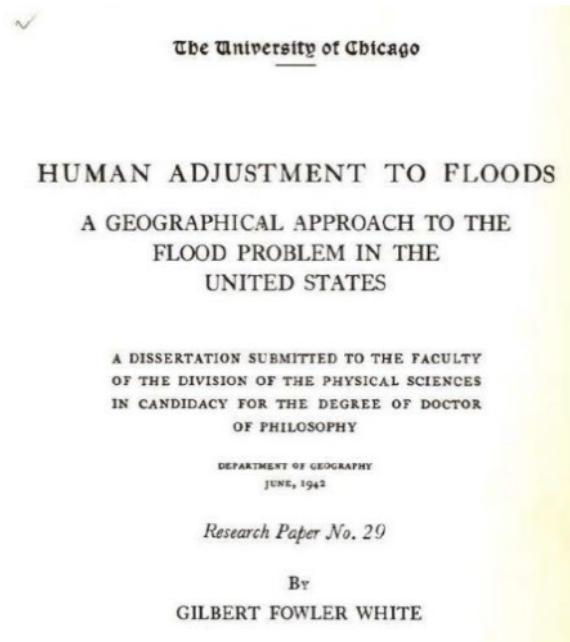
# Use cases that we wish to explore



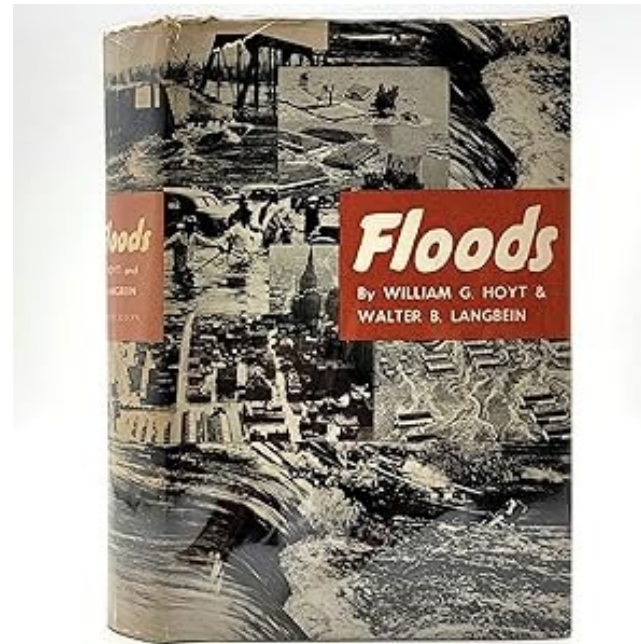
- ▶ RESILIENCE MANAGEMENT
- ▶ CLIMATE CHANGE ADAPTATION
- ▶ SUSTAINABLE DEVELOPMENT



# Relevance of the Ahead project



1942



1955

## How would we know if disasters are becoming more costly due to climate change?

Part 4 of the series, making sense of trends in disaster losses

ROGER PIELKE JR.  
FEB 21, 2023

34 9

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2023

- Since long time issues in available databases have been highlighted but proved difficult to tackle and overcome:
  - Fragmentation of data and collectors
  - Reliability of figures due to missing data
  - Inconsistencies between different sources

- Reliable and complete data held in disaster databases are imperative to inform effective disaster preparedness and mitigation policies. Nonetheless, disaster databases are highly prone to missingness.

# Relevance of the Ahead project

## Technical

- Experience in the field
- Understanding of damage in different sectors
- Developing the data model
- Develop the appropriate coding

## Organisational

- Awareness of the additional value of damage data
- IT systems that are fit for the activity in the field
- In line with already used tools
- Integrability with existing norms and procedures

## Temporal factors

- Enough time to train on the new tools
- Use the tools in peace time
- IS that keeps the memory of data (history)

## Data management/sharing/ownership

- Need of a data coordinator
- Willingness of actors to share data
- Cybersecurity conditions for data (especially sensitive)

Several factors must be considered while developing an IS to collect and manage post disaster damage data



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