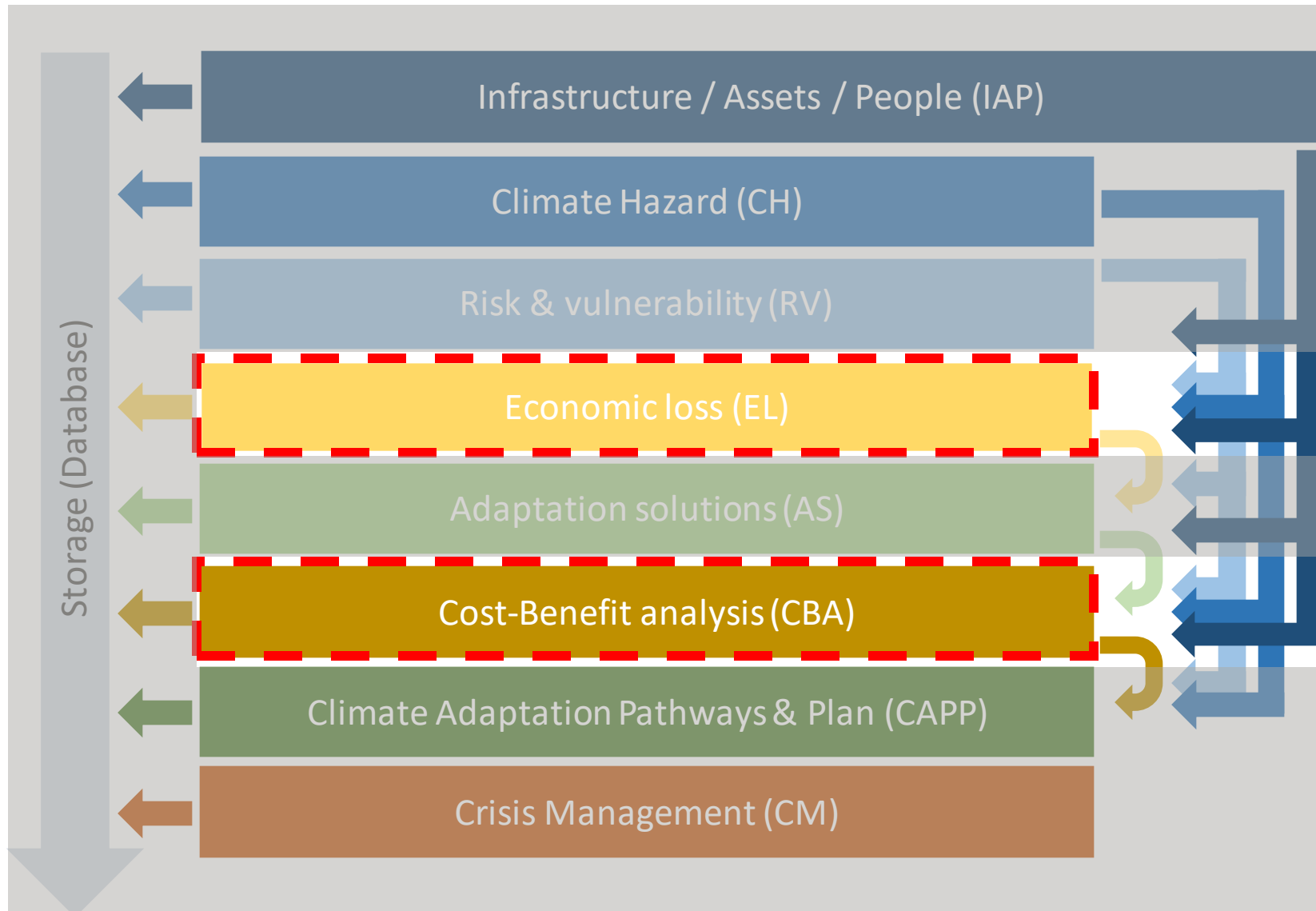


# MODULE 3, 6

Ruben VALSECCHI



## Economic loss (EL)

### In a nutshell

Estimation of the economic losses related to the occurrence of a certain hazard on a specific asset.

The aim of M3 is to assess the actual situation of the assets. The actual losses are defined through the evaluation of the Expected Annual Loss (EAL) by the combination of the three main aspect of the risk assessment, such as hazard, vulnerability, and exposure.

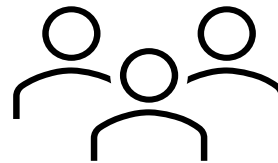
# TERMINOLOGY

Determining “losses” means to estimate the scale of the consequences of an event

Impact on **PHYSICAL SYSTEM**



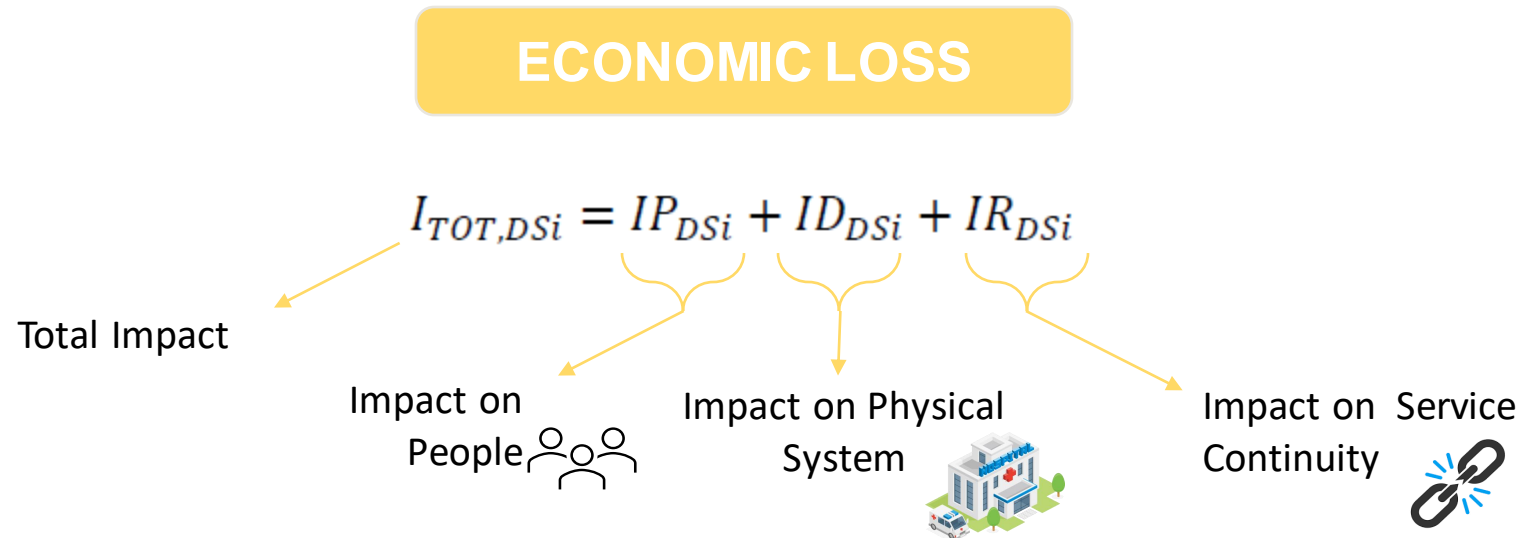
Impact on **PEOPLE**



Impact on **SERVICE CONTINUITY**



# TERMINOLOGY



The economic loss is a function of several data:

- **Physical characteristics** (Asset dimension, Year of construction, Construction cost, Avg. people inside the asset, etc...)
- **Context data** (Closest asset, Influence area, Regional GDP, Regional population density, etc...)
- **Resilience indicator** (Preparation, Internal resourcefulness, External resourcefulness)

## Cost-Benefit analysis (CBA)

### In a nutshell

Estimation of the economic losses related to the occurrence of a certain hazard on a specific asset, considering the implementation of different adaptation pathways.

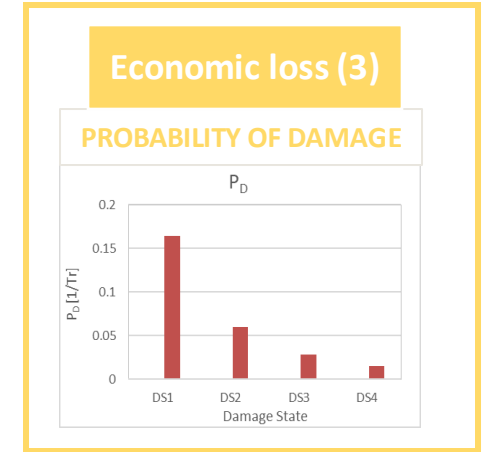
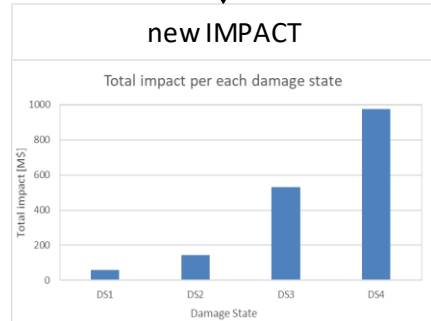
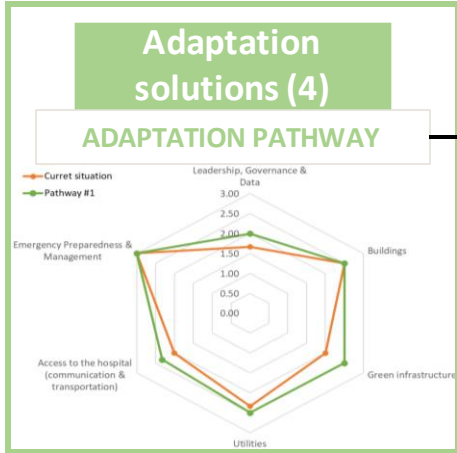
This module is closely linked to the Economic Losses module.

If module 3 is able to the actual situation of the assets in terms of Expected Annual Loss (EAL) the aim of M6 is to consider the implementation of different adaptation pathway and asses the new situation of the assets, returning back the new EAL values

# METHODOLOGY – MODULE 6

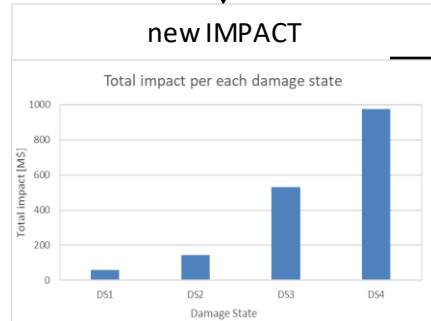
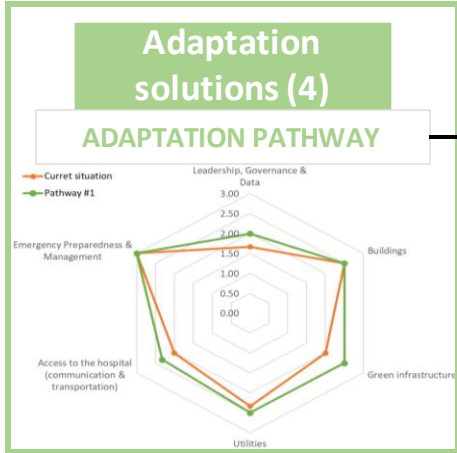


# METHODOLOGY – MODULE 6

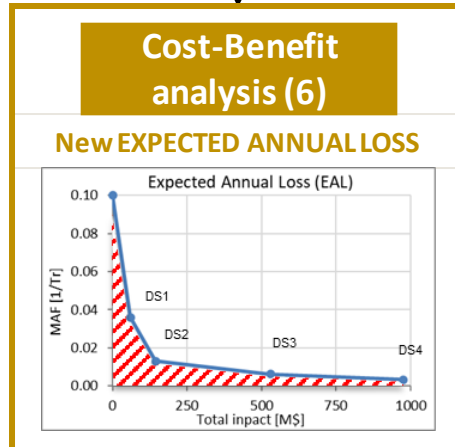
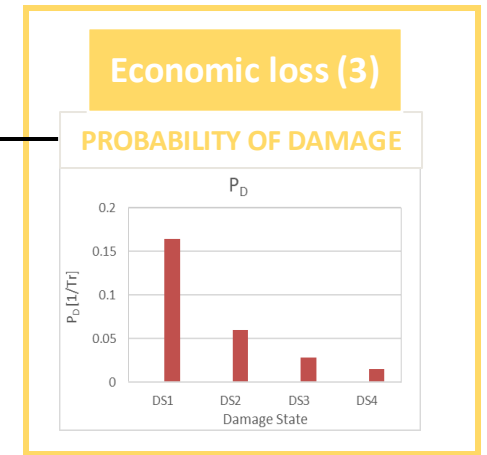




# METHODOLOGY – MODULE 6



$$\sum_{i=1}^n \frac{(I_{TOT,DS(i+1)} - I_{TOT,DSi})(P_{Di+1} - P_{Di})}{2}$$



**Infrastructure /  
Assets / People (0)**

These modules take the asset characteristics and context information from M0

**Climate Hazard (1)**

These modules take the hazards characterization from M1

**Risk & vulnerability  
(2)**

These modules consider the asset vulnerability defined in M2

**Adaptation  
solutions (4/5)**

These modules gives back to M4/5 the information regarding the economic efficiency of the different adaptation pathway

**CONNECTIONS WITH OTHER  
MODULES**

# MODULE 6 I/O

## INPUT

Infrastructure / Assets / People

Climate Hazard

Risk & vulnerability

Adaptation solutions (AS)

1. Asset Characteristics list
2. Hazard type & characterization
3. Asset Vulnerability information
4. Adaptation pathway typology

## OUTPUT

1. New EALs for the new pathways (From M6)

