



*Integrated Climate Adaptation Service Tools  
for Improving Resilience Measure Efficiency*



## CLARITY 1x1

Resccue workshop (Madrid 2017)

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[www.clarity-h2020.eu](http://www.clarity-h2020.eu)



H2020-SC5-2016-TwoStage  
Grant agreement no.: 730355



- 1. The call**
- 2. The Project**
  - Numbers
  - Partners
  - Idea
  - Background
- 1. Workplan (today & next few months)**

## TOPIC : Exploiting the added value of climate services

**Topic identifier:** SC5-01-2016-2017

**Publication date:** 14 October 2015

**Types of action:** IA Innovation action

**DeadlineModel:** two-stage

**Opening date:** 10 November 2015

**Deadline:** 08 March 2016 17:00:00

**2nd stage Deadline:** 06 September 2016 17:00:00

**Types of action:** RIA Research and Innovation action

**DeadlineModel:** single-stage

**Opening date:** 08 November 2016

**Deadline:** 07 March 2017 17:00:00

Time Zone : (Brussels time)



Horizon 2020

Pillar: Societal Challenges

Work Programme Year: H2020-2016-2017

Work Programme Part: [Climate action, environment, resource efficiency and raw materials](#)

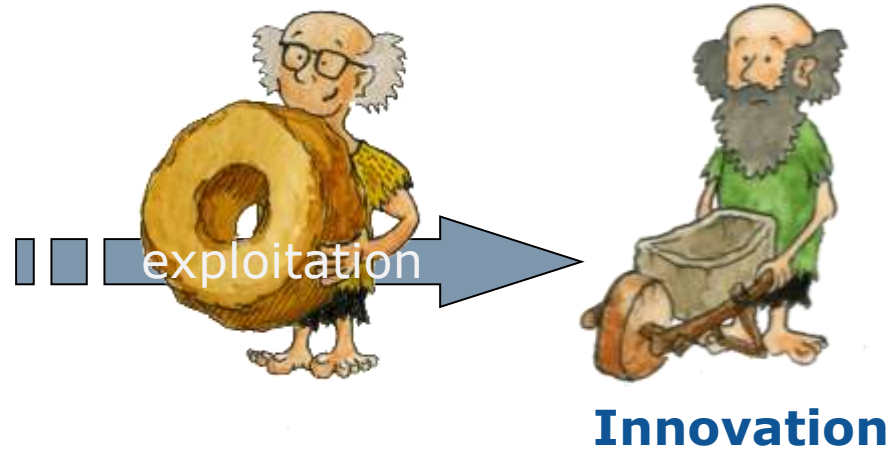
Call : [H2020-SC5-2016-2017](#)

[H2020 website](#)

[Call budget overview](#)

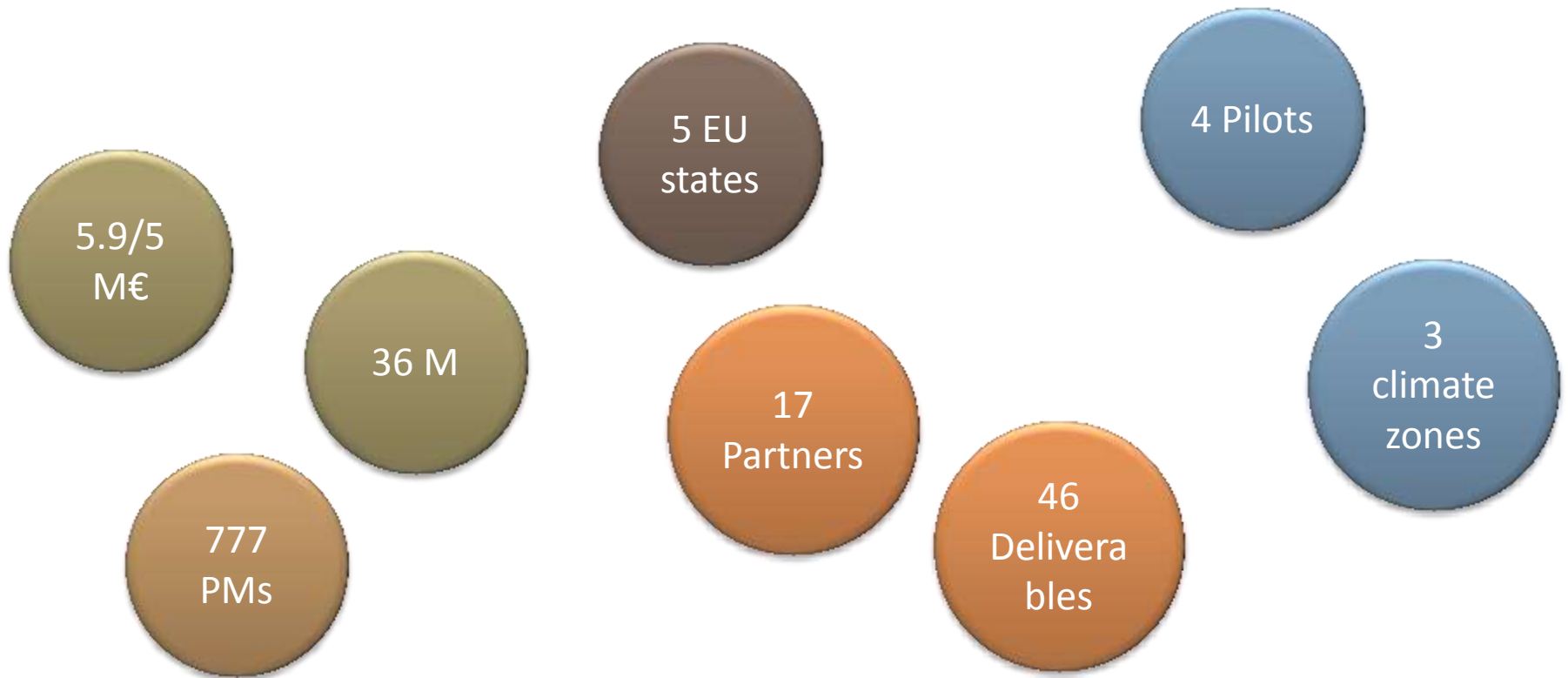
# Key implementation features in H2020

**INNOVATION:** *The successful exploitation of new ideas to produce **tangible benefits**, satisfying **needs** and **wants***



***Invention IS NOT Innovation***  
*Integration of users in the project is crucial*

# The Project



# CLARITY partners



# SMHI



Länsstyrelsen  
i Jönköpings län



City of Linz



ZAMG



Centro Studi  
P.LIN.I.V.S.



COMUNE DI NAPOLI



EUREKA

www.xxxxxxxxxx.e **Atos**

# Critical Path (initial work)



QM, ethics,  
project  
infrastructure...



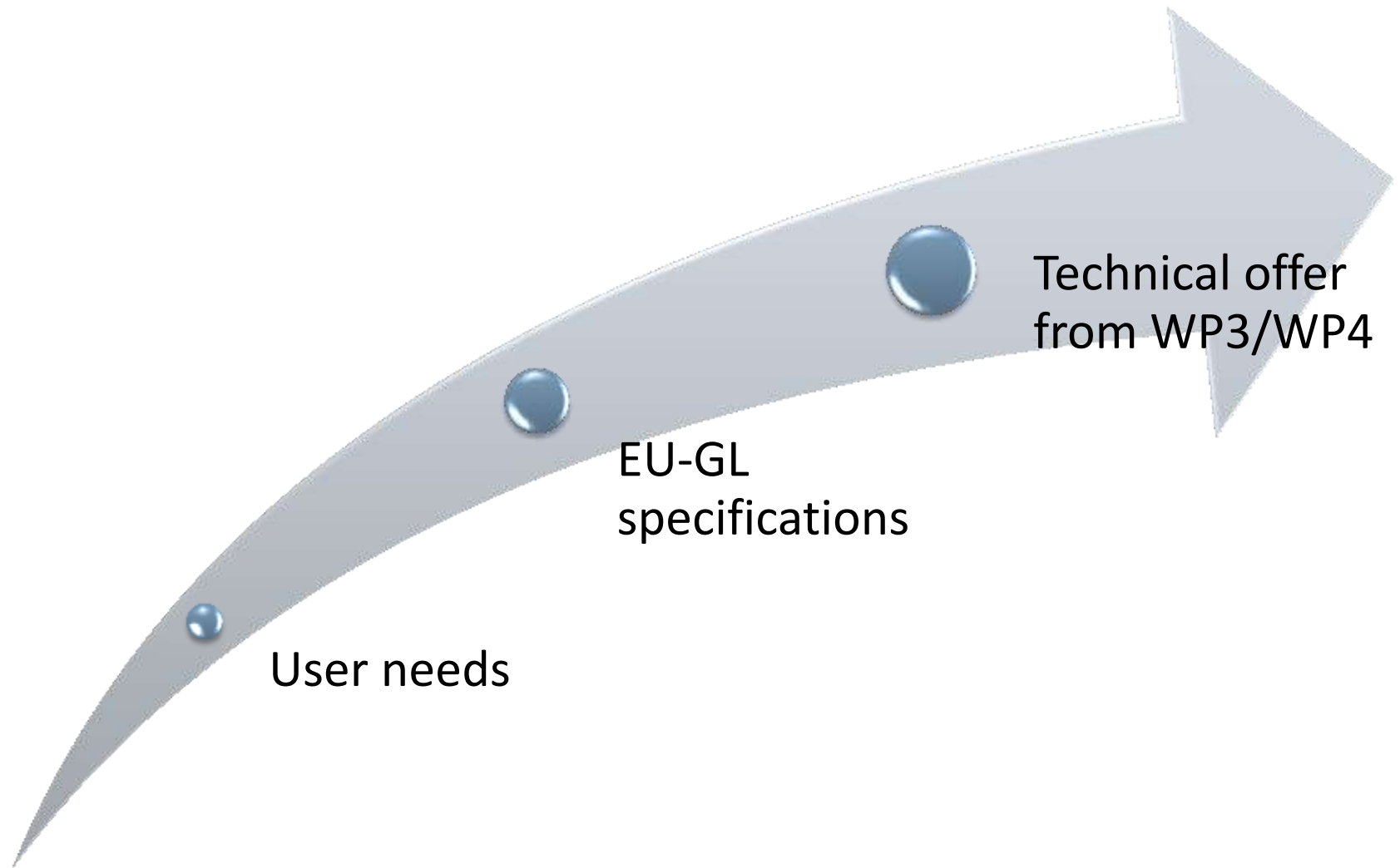
Design baseline  
architecture

Design initial use  
cases

Understand the end user  
„needs“, WP3/WP4  
„offers“



Organise  
exploitation,  
dissemination

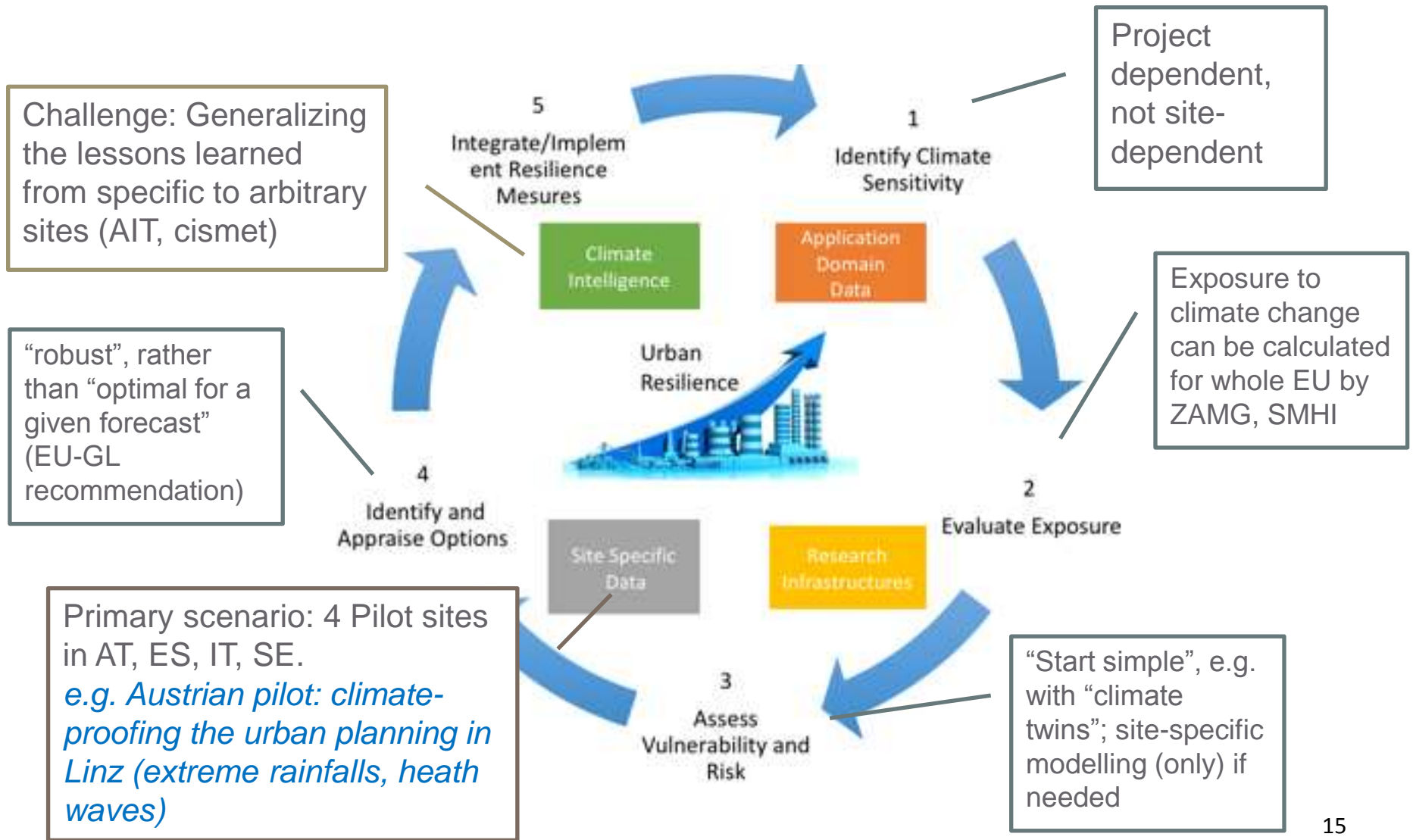




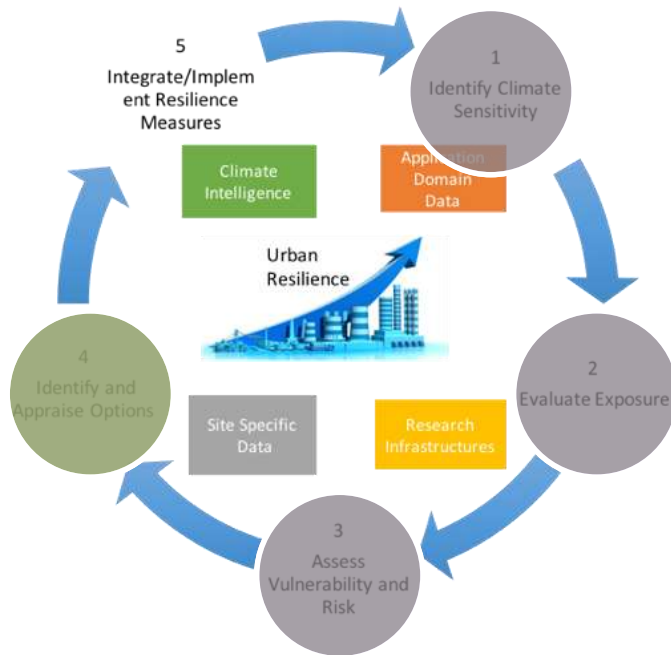
# EU-GL & CLARITY



Clarity



# CLARITY Climate Services Vision



ICT CS

tool-supported **(ultra)high-level** strategic pre-feasibility risk **screening** and general adaptation options



simple risk **screening report** and recommendations for Expert CS

Expert CS

**professional** scenario-driven risk assessment and adaptation strategy studies



detailed **standardised reports** + impact & adaptation scenario **data**

ICT CS

tool-supported indicator-based decision support and **multi-criteria analysis**

# What the CSIS *should* be about

- **Products**
  - free, generic, simple, easy-to-use and data-driven **software tools** that leverage the uptake of Expert Climate Services and related data standards
- **Services**
  - commercial **Expert Climate Services** for individual project- and site specific scenario-based climate change risk analysis and adaptation strategies that follow a transparent and standardized methodology
- **Platform**
  - a platform for supporting standardized adaptation planning and a marketplace for promoting related products and services



- 1. ACCIONA Profile**
- 2. ACCIONA Expertise**
- 3. ACCIONA Needs**
- 4. ACCIONA Expectations from the demonstration activities**
- 5. ACCIONA Exploitation intentions**
- 6. ACCIONA Expectations – Summary**

# ACCIONA Profile



## ACCIONA – ACCIONA Construcción S.A.

Type	Large Enterprise
Size	Ca. 28,000 employees, ca. €3,611M revenues (2019) <sup>(1)</sup>
Headquarters	Alcobendas (Madrid), Spain
Competences (ACCIONA depts.) <sup>(2)</sup>	New Technologies for Construction ( <b>ICT</b> , Energy Efficiency) Materials (Concrete, <b>Roads...</b> ), Infrastructures (Railways, Tunnels...),



<sup>(1)</sup> Figures from ACCIONA Infrastructure

<sup>(2)</sup> Research areas from R&D Technology Centre of ACCIONA Construcción <sup>19</sup>

## Overall project cycle



### Engineering

- Civil and Environmental engineering, Industrial Infrastructure and Architecture

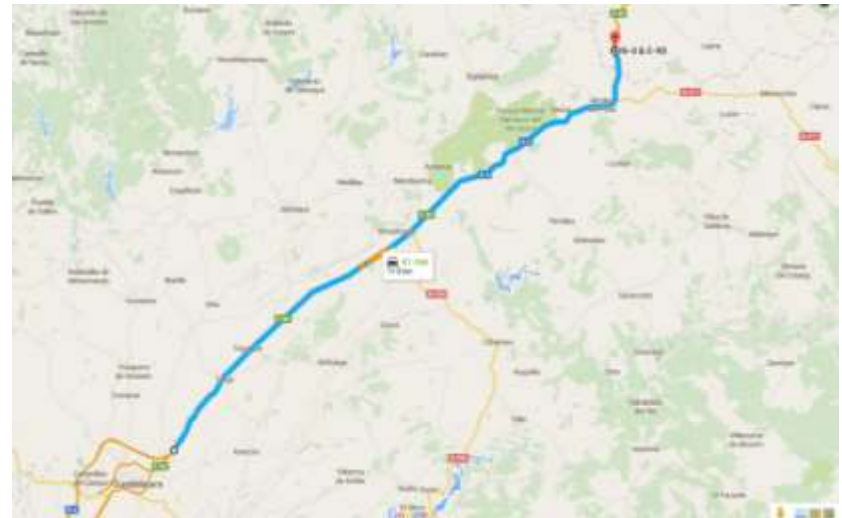
### Construction

- Civil and Construction works

### Concessions

- Financing, management, operation and maintenance in social and transport infrastructure

- What we bring in the project
  - **End user role:** road operator and maintenance company
  - **Use case:** maintenance activities planning for critical transport infrastructures based on CLARITY's climate information services
  - **Selected pilot:** A stretch of A2 Highway
    - Climatea area with wide range of temperatures → Mediterranean Continental
    - Dry and Hot Summers
    - Long and Severe Winters



- **ICT integrator (if needed)**
  - Connection with pilot infrastructure legacy systems (e.g. weather stations)
  - Integration of new monitoring equipment for measuring any other needed parameters
- **Previous experience** with pilot development in the framework of FP7 project ZONeSEC

## Infrastructure operation & Maintenance





- What are our specific needs related to climate change adaptation planning and mitigation?
  - Assessment of weather/climate impact for optimized infrastructures operation & maintenance planning
  - Short term needs: more accurate planning of where, when and how to activate maintenance strategies:
    - To avoid/mitigate damage to the infrastructure and drainage systems
    - To guarantee operational safety of the infrastructure
    - To minimize operational costs (e.g. salt for winter maintenance)
    - To minimize environmental impact (e.g. impact of salt on aquifers)
  - Long term needs (30-40 years): integration of climate evolution forecasts for more accurate resources/expenses estimation when bidding for new contracts (need of erosion control measures, herbicides)

# ACCIONA-Expectations from the demonstration activities



- In terms of four user stories:
  - More precise tool for **winter maintenance activities:**
    - P1. Ice on the road, safety, road degradation
    - P2. Low visibility due to fog (not necessarily associated to winter).
    - P3. Snow on the road, safety, road degradation.
  - Tools for evaluating **hydric risks:**
    - P1: Landslides (erosion)
    - P2: Volume and frequency of precipitations.
    - P3: Probability of big storms; Expected evolution.
    - P4: Safety, water level on the road.

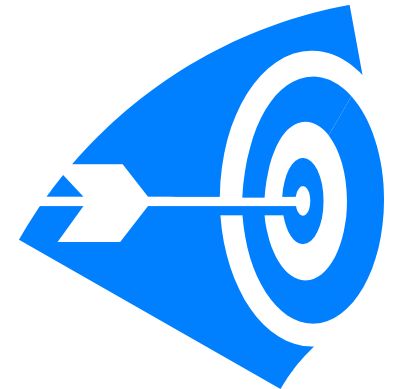
# ACCIONA-Expectations from the demonstration activities



- In terms of four user stories:
  - Tools for evaluating **heat waves**:
    - P1: Road degradation (asphalt and painting).
    - P2: Safety.
    - P3: Temperature: expected evolution.
  - Tool for controlling the **growth of vegetation**:
    - P1: Reduction of fire risks.
    - P2: Visibility. Progression of vegetation growth.
    - P3: Safety.

- How are we planning to use such results after the project?
  - Information provided by the tools shall be adapted to different user profiles
    - At the lowest level, information provided by the Clarity tools shall support real-time Yes/No decisions for maintenance staff (e.g. Continue/Stop spreading salt)
    - At a higher level, information provided by the Clarity tools shall be integrated with infrastructure Management Decision Support Systems, and shall support optimized short term planning of maintenance activities
    - Also at a higher level, information provided by the Clarity tools would be used by estimators of our bidding departments in order to analyze different scenarios and minimize the risk of the future contract

- What we expect to gain from the project?
  - Useful climate-based information tools for optimized maintenance of transport infrastructures (short term and long term)
  - More accurate decision-making: where, when and how to apply maintenance strategies
  - Integrate climate evolution predictions into maintenance costs calculations for future bids
  - **Final goal:** to be a more competitive transport infrastructure operator & maintenance company: increase profitability of current and future concessions





Thank you for your attention

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