RESIST

Regions for climate change resilience
through Innovation, Science and Technology

WHAT WE WILL DO AND HOW

RESIST project overview

Dr. Vilija Balionyte-Merle

Senior EU Business Developer

RESIST coordinator

Sustainable Communication Technologies, SINTEF Digital

29 November 2022


FOTO: SHUTTERSTOCK

Facts

- **Funded**: EU Mission Adaptation to Climate Change
- **Total budget**: ~ 26.5 m€, EU funding ~ 25.0 m€
- **Consortium**: 56 partners from the EU, Norway and Ukraine
- **Planned start date**: 1 January 2023
- **Duration**: 5 years

Management

- **Strategic Coordinator**: SINTEF Digital , Norway
- **Operational Coordinator**: INOVA+, Portugal
- **Ethics requirements management**: ESF, France
- **External relations management**: ERRIN, Belgium

RESIST CONCEPT

RESIST will strengthen the resilience, accelerate the transformation and increase adaptive capacity of 12 climate-vulnerable regions in Europe, implementing **4 Large-Scale Demonstrators** of resilient innovations for Climate Change Adaptation at air, water and soil level with quintuple-helix partnerships, and promote transfer of know-how and innovative solutions to **8 Twin Regions** through both **physical mutual-learning activities** and innovative **immersive digital twins.**

RESIST concept

LSD Southwest Finland

Droughts, floods, soil erosion

- **NBS demonstrations for stormwater retention** in 3 major demonstration sites**:**
  - the Rauvola bay - a nature reserve
  - the Oriketo industrial area – technical solutions and analyses of stormwater quality and quantity
  - a rural sub-catchment of the Paattistenjoki river – implementation of NBS and water management practices
- **Regulatory measures -** requirements for buildings, green spaces, etc.
- **Digital applications -** Graphical Digital Twin
- **Capacity, engagement and motivation of multiple stakeholders**

Normandy (France)

Floods, droughts, heatwaves, soil erosion

- **Water management solutions** at the level of the river basins, including an upstream-downstream and a land-sea logic
- **Cost-benefit analysis of NBS**
- **Digital applications -** decision-making tools, Graphical Digital Twin

Eastern Macedonia and Thrace (Greece)

Floods, soil erosion

- **Collection costs-benefits data** on NBS for water retention for hydrological modelling and scenario simulations
- **Application development** for flood warning systems and water quality status
- **Development of a roadmap** for using NBS in flood retention, water quality and scarcity management

LSD Central Denmark

Floods, soil erosion

- **Infrastructure demonstration in 4 demonstration sites**
  - Implementation of a dense network of IoT data loggers to measure the groundwater level in the coastal towns of **Juelsminde and Thyborøn** and in an **urban area** with summer houses
  - Construction of 2 demonstration buildings that can withstand flooding and use these installations for a dialogue with citizens in **Horsens**
- **Governance mechanisms -** learning, adaptability, barriers, etc.
- **Digital applications –** decision making tools (early warning), Graphical Digital Twin
- **Capacity, engagement and motivation of multiple stakeholders**

Blekinge (Sweden)

Floods, ground water, marine ecosystem

- **Capacity, engagement and motivation of multiple stakeholders**
- **Data collection, development of decision-making tools and increased policy coherence**

Zemgale (Latvia)

Floods

- **Capacity, engagement and motivation of multiple stakeholders**
- **Data collection, development of decision-making tools and increased policy coherence**

LSD Catalonia (Spain)

Floods, droughts, heatwaves, wildfires

- **Disaster management solutions demonstrated in Blanes and Terrassa municipalities**
- **Digital applications**
  - Multi-hazard early warning system
  - Impact-based Site-Specific Warning services
  - Training modules – visualisations, Graphical Digital Twin
- **Capacity, engagement and motivation of multiple stakeholders**

Puglia (Italy)

Floods, droughts, heatwaves, coastal erosion

- **Impact-based Site-Specific Warning services**
- **Innovative solutions applied in tourism sector**

Baixo Alentejo (Portugal)

Droughts, heatwaves, wildfires

- **Water and forest management solutions**
- **New energy sources**
- **Reskilling of the regional workforce**

LSD Central Portugal

Droughts, heatwaves, wildfires, soil erosion

- **Demonstrations implemented** in **Coimbra** and **Medio Tejo** municipalities
- **Novel solutions** for promoting better land use, forest management and the bio-circularity of green bio-waste
- **Collection and transportation of local biomass** and **conversion** of it to renewables gases, including hydrogen in **Medio Tejo**
- **Digital applications -** Graphical Digital Twin
- **Capacity, engagement and motivation of multiple stakeholders -** participatory and governance models in landscape management

Vesteralen (Norway)

Floods

- **AR and VR** technology to showcase the impact of climate change and impact of planned solutions
- **Graphical Digital Twin**
- **Capacity, engagement and motivation of multiple stakeholders**

Extremadura (Spain)

Droughts, heatwaves, wildfires

- **Fire management solutions**
- **Capacity, engagement and motivation of multiple stakeholders**

Factcheck

- **4 demonstrators in 4 more experienced and vulnerable EU regions in terms of Climate Change Adaptation (Southwest Finland, Central Denmark, Catalonia and Centro Portugal, the latter a ERDF less developed region)**
- **8 less experienced regions as Twinning Regions (2 per demonstrator, out of which 1 per demonstrator from less developed regions)**
- **16m€ allocated for regional demonstrators and twinning regions**
- **12m citizens directly outreached in demonstrators and another 10m citizens outreached through 8 twinning regions**
- **3% of EU territory covered by novel Digital Twins in line with DestinE**
- **12 letters of intent from 12 regional authorities in the EU to continue to fund project activities beyond its end**
- **+100 new and innovative solutions - adaptation products, regulations, policies and methods validated in one Sustainability Plan**
- **25m€ of private venture capital funding available within the project partnership to fund business results from start-ups**
- **50% gender balance in terms of allocated staff resources**

LSDs & links between them

- Relations between the LSD and envisaged level of collaboration / synergies and mutual contributions
- Three level collaboration model:
  - A) Internal between quintuple-helix members at LSD, and with target groups
  - B) Vertical, with twinning regions
  - C) Horizontal, with other LSDs, and with support from transversal partners

All 3 are essential for success!

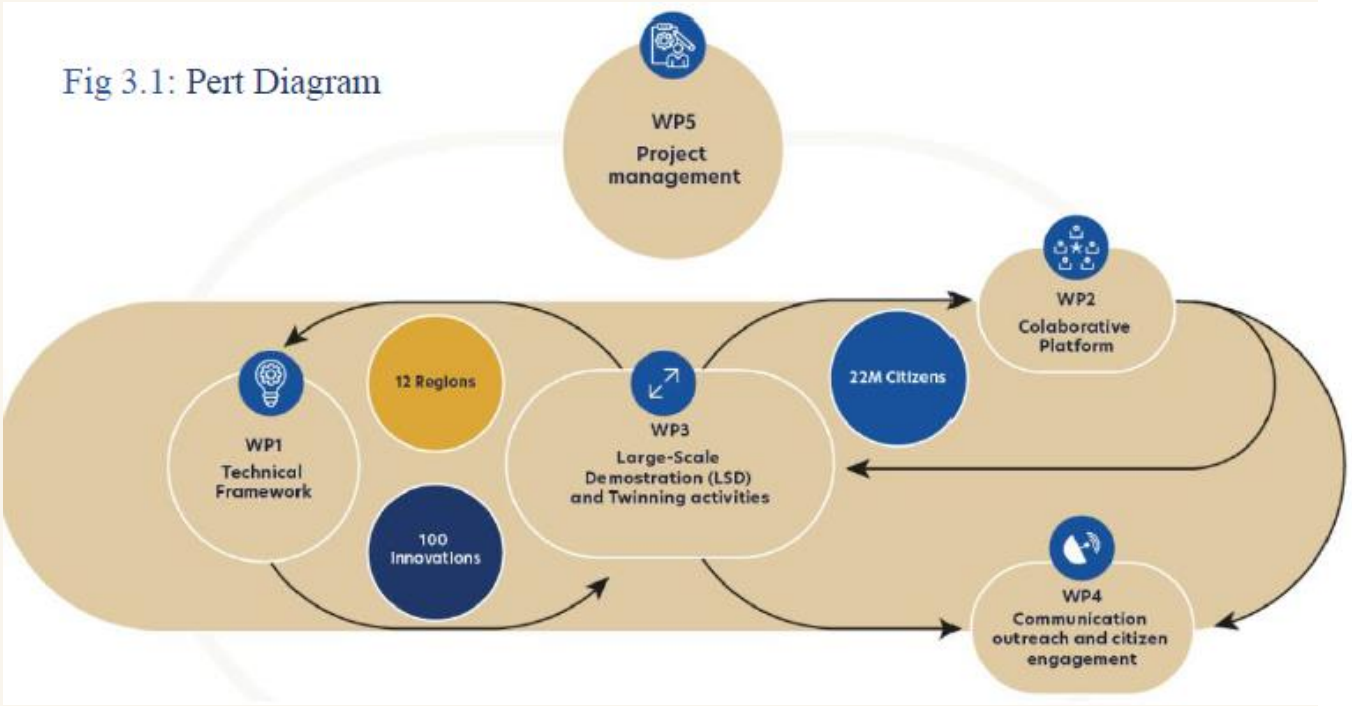
Links between WPs

WP1
-Climate Adaptation Framework, Ethics and Gender Framework, Graphical Digital Twin

WP2
-Networking and mutual-learning, innovation and exploitation activities, scalability plans for demonstrated solutions, generation of public and private funds and collaboration with entrepreneurial ecosystems

WP4
-Promotion of wide stakeholder engagement and increase of region's massive community resilience to climate change

Fig 3.1: Pert Diagram



Graphical Digital Twin

Augmented City (Norway)
SINTEF Digital (Norway)

Gender & Ethics Framework

European Science Foundation (France)

GDT made for all LSDs and Twinning regions

Climate change and gender inequalities

Women, gender-diverse and trans people are more likely to be affected by CC-caused hazards than men, particularly in rural, vulnerable areas where they may have **less access to resources and assistance and are less likely to actively participate in policy planning and recovery efforts**

RESIST adopts an **intersectional approach** to gender, understanding it as non-binary and intersected with other social, cultural, and economic dimensions

Contact:

Vilija.Balionyte-Merle@sintef.no
+47 480 99794