

# RenovAlte

## Boosting renovation industry with AI



**Motivation** The impending changes due to climate change present us with major challenges. In order to mitigate the effects as well as reduce energy demand, buildings and roads are already being renovated on a large scale. Renovation projects should be designed in such a way that environmental changes have as little impact as possible on the sustainability and feasibility of such measures.

**Goal** The aim of this project is to develop an AI-based system for resilient planning and design of building-related renovation projects. It also aims to enable intelligent planning of renovation measures and monitoring of roads. The system should make it possible to detect delays at an early stage and avoid renewed renovations due to changing environmental conditions.

**Intended Outcomes** Main result is a decision support and impact analysis tool that creates resilient renovation plans, taking effects of the climate change, cost effectiveness, and potential material shortages into account. A simulation model is generated on the basis of historical and current data in order to provide calculations that are as close to reality as possible. With the help of the AI methodology "Adversarial Resilience Learning", various configurations will be examined, considering critical factors such as environmental influences or supply bottlenecks, in order to optimize the plans.

**Impact** The project addresses a research and development gap in the planning and implementation of renovation projects, which until now have been based primarily on human assessment and experience as well as unstructured data. It makes an important contribution to achieving climate protection goals and helps to secure Germany as an AI location.

**Tags** ARL, Adversarial Resilience Learning, Reinforcement Learning, Simulation, Data Science, Resilience, Sustainable Construction

### 3 YEARS DURATION



March 2022 - February 2025

### 5 PARTNERS



**France:** Leonard (lead)  
Action Logement,  
ALEIA

**Germany:**  
OFFIS e. V. - Institute  
for Information  
Technology (lead),  
VIA IMC GmbH

### € 3.8 MILLION FUNDING



The total cost of the project is €7.8 million, of which €3.8 million will be funded.

### CONTACT



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