

# ADAPTATION OF INFRASTRUCTURES, CITIES, TERRITORIES AND THEIR USES TO CLIMATE CHANGE: THE “RESALLIENCE” APPROACH

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## **Abstract**

The damages regularly caused by the occurrence of natural hazards to the systems that composed a city are expected to increase due to the climate change. But, currently, dealing with the consequences of natural and climate hazards is a very difficult issue for all the actors of the cities: operators, infrastructures managers, etc. Thus, the current and expected effects of the climate change reiterate the crucial issue for speeding up and scaling up the resilience engineering principles.

Aware of this situation, RESALLIENCE was specially created in December 2018 as VINCI's design office dedicated to adapting projects, cities, territories, infrastructures and their uses to climate change. Based on a resilience-oriented approach, RESALLIENCE brings innovative technical solutions, integrated engineering and economic models adapted to climate change. RESALLIENCE is fully part of the speeding up and scaling up requirements in terms of resilience improvement through a 3-step approach:

- consulting: territorial diagnostics to macro-, meso- and micro-levels, technical and financial evaluations, training, audits and compliance;
- modelling: maintenance and predictive monitoring; weather and climate data services, functional engineering of infrastructures and territories;
- and business strategy: project management assistance, integrator of technical solutions, coordination and collaborative engineering.

From robust climate data provided by our own platform designed by partners in the fields of geospatial information and meteorological services, this 3-step approach has been already applied to different types of infrastructures from many sectors: the railway network, the road networks, the air transport infrastructures. The next step is to improve our platform by including interdependencies between infrastructures to fully assess the potential domino effects generated when a climate hazard occurs. Thanks to this new feature, RESALLIENCE will be able to provide a full model of a city or a whole territory with its own interactions during crisis situations due to climate hazards.