

France

National Institute of Geographic and Forest Information

Creating a Digital Twin of France and its territories to address 21st century challenges

“In a world increasingly confronted with the challenges of climate change and human activity, France is embarking on an ambitious project: the Digital Twin of France and its territories. This initiative aims to establish a public-private ecosystem and platform integrating a continuously updated dynamic virtual replica of French regions tied to strong simulation capacities in order to help informed decision making and improve the design, the management and the evaluation of projects, policies, and investments. While its scope is broad, a strong focus will be on sustainable development and ecological transition.”

Sébastien Soriano
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National Institute of Geographic and Forest Information (IGN France) is part of an innovative collaborative project to create a very high resolution and high-fidelity digital replica of France and its territories.

Following a hugely successful Call for Commons, which received more than 200 contributions, the Digital Twin project was launched by an unrivalled public-private consortium. It intends to establish a core infrastructure and platform that will support the development and use of advanced technologies such as artificial intelligence, augmented reality and high-performance computing. These tools will enable the visualisation, analysis and simulation of natural and social phenomena to meet challenges such as natural resource management, land management, or natural risk prevention.

A three-year national research program will complement these efforts, addressing technological challenges such as data interoperability and the development of robust 3D semantic meshes and models continuously updated with newest data. The aim is to provide an open, shared architecture, fostering innovation and the emergence of a new industry around digital twins.

The Digital Twin will serve as a foundation for addressing tangible challenges, including:

- Urban planning and ecological transition: Optimising urban densification, green planning and energy management.
- Natural risk management: Simulating floods, forest fires, coastal erosion and other climate-related phenomena.
- Public health: Modelling epidemic propagation and forecasting hospital demand.

These use cases will provide local authorities, decision-makers and citizens with precise tools for informed decision-making. At the same time, IGN-France and BKG are looking at cross-border use cases.

In addition, the digital twin platform will serve as a ‘Place of Science’, designed to host, develop, and promote more open, collaborative, evaluated and reproducible science and innovation.

Work to develop the core infrastructure and technological components of the platform started in 2025, with the first use cases set to be delivered by 2027. In the meantime, efforts will continue to unite public and private stakeholders around a shared vision: transforming and scaling-up territorial management using powerful, collaborative digital tools and making possible the global replication of local innovation experiments.

