

From Geospatial Data to Verifiable Evidence

In recent years, the geospatial sector has experienced an extraordinary expansion in the availability, quality and speed of digital data. Satellite imagery, GNSS positioning, mobile mapping, drones, sensors, cloud platforms and artificial intelligence have made it possible to observe, measure and interpret the territory with a level of detail that was unimaginable only a few decades ago.

Yet this abundance of data also raises a decisive question: how can we trust what we see, measure and share?

In an age in which images, videos, documents and digital records can be easily modified, reused or taken out of context, the value of geospatial information increasingly depends not only on its accuracy, but also on its authenticity, traceability and verifiability. The challenge is no longer simply to collect data, but to prove when, where and under which conditions that data was generated.

This issue of GEOmedia focuses on a particularly relevant direction for the future of geomatics: the creation of digital information that is natively linked to authenticated position and time references. The integration of Galileo GNSS authentication, EGNOS, high-accuracy positioning, cryptographic methods and certified workflows opens a new scenario in which geospatial data can become a reliable element of evidence.

The concept is powerful: a digital object — an image, a video, a document, a survey track, a field report — can be connected to a specific physical event, in a specific place and at a specific time. This connection makes subsequent alterations detectable and allows independent verification of the original conditions of acquisition.

For the geospatial community, this is not a marginal technical improvement. It represents a cultural and operational shift. Certified spatial-temporal data can support public administration, environmental monitoring, agricultural controls, infrastructure management, logistics, insurance processes, legal documentation and cultural heritage surveys. It can strengthen verifiability, compliance and accountability in all those contexts where the reliability of territorial information is essential.

The theme is also closely connected to the broader evolution of geomatics. Today, our disciplines are no longer limited to measurement and representation. They increasingly contribute to decision-making, risk management, digital transformation and the construction of trusted information infrastructures. In this framework, positioning technologies, authentication services and digital certification become part of a wider ecosystem of trust.

GEOmedia has always followed the evolution of geospatial technologies by looking not only at innovation itself, but also at its impact on professional practices, public policies and society. The transition from data to evidence is one of the most significant challenges of the current phase. It asks geomatics to play a central role in guaranteeing the credibility of digital information.

This is why technologies capable of certifying the spatial and temporal origin of data deserve close attention. They respond to a growing need for transparency in a digital environment where uncertainty, manipulation and misinformation are becoming increasingly complex issues. They also show how European space infrastructures, and in particular Galileo, can generate concrete value far beyond navigation, supporting trusted services for citizens, institutions and businesses. The future of geospatial information will be shaped not only by higher resolution, faster processing or more advanced algorithms, but also by the ability to demonstrate the integrity and origin of data. In this sense, the next frontier of geomatics is not only to describe reality, but to help certify it. With this issue, GEOmedia invites readers to reflect on this new dimension of geospatial innovation: a dimension in which data, time, position and trust converge to build more reliable digital ecosystems.

*Enjoy the reading,
Renzo Carlucci*