

Italy

Revenue Agency

Embracing modern aerial technologies to enhance accuracy in Italy

“The experimental use of innovative technologies in the cadastral field can enable us to improve the quality and the completeness of cartography. And, looking ahead, to offer an increasingly accurate and up-to-date service for experts and the wider community.”

Vincenzo Carbone
Italian Revenue Agency
General Director

Italy is elevating its national geospatial capabilities with a forward-thinking initiative harnessing modern airborne tools to advance spatial analysis.

Launched by the Central Directorate of Cadastral, Cartographic and Land Registration Services of the Revenue Agency, the experimental project carries out surveys from aerial photogrammetric products obtained by flights of Unmanned Aircraft Systems – drones. The aim is to investigate how these can be used to guarantee greater efficiency and high quality of data in cadastral applications on limited territorial areas

A preliminary process was initiated to acquire a fleet of drones and train several technicians from the Revenue Agency's Cartographic Services Sector to pilot drones in 'open' and 'specific' scenarios, which present lower and higher operational risks respectively.

Test flights were then conducted to produce orthophotos, 3D models, Digital Terrain Models (DTMs), and Digital Elevation Models (DEMs).

The products obtained demonstrated the possibility of deriving cadastral surveys from aerial photogrammetry which guarantee centimetric positioning accuracy.

Benefits

Compared to the use of traditional surveying methods (Total Station or GNSS systems), surveys obtained through drone aerial photogrammetry can offer undeniable advantages in terms of efficiency and cost-effectiveness, particularly for applications in limited territorial areas for:

- Professional users (chartered cadastral surveyors) who, after updating the procedures and normative documents in force concerning the geometric updating of the cadastre, might prefer to use this innovative method for drafting updating documents, particularly for complex operations.
- Office-based activities, particularly in areas such as special verifications, cadastral assessments of specific situations, massive cadastral map updates for limited territorial areas, and verification of complex updating documents submitted to the Agency by professional users.
- Activities aimed at improving the quality and completeness of cadastral cartography.
- Possible uses for ancillary and instrumental activities to the institutional mission of the Agency for the surveying and governance of the territory.

