Autonomous Geomatics in Governance: Reserving Work for Reliable Public and State Decision-Making

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SUMMARY

Abstract

The geomatics profession, governed by South Africa's Geomatics Profession Act No. 19 of 2013 (GPA), operates autonomously to deliver reliable geospatial intelligence vital for sustainable development, aligning with FIG 2026's call for innovation in land governance and equitable growth. This paper proposes a framework to reserve specific geomatics work for registered professionals, ensuring data integrity for policymakers, communities, and public institutions shaping governance beyond 2030. The state (and public) relies on geospatial data for critical decisions in policy, infrastructure, and resource management, yet lacks the expertise to independently verify its correctness, making autonomous professional oversight by geomatics professionals who are accountable to the public, essential for trustworthy information.

The analysis, based on the GPA's five core activities—Earth measurement, spatial positioning, planning and determination of rights, geographic information systems (GIS) management, resource measurement, and related tasks, proposes four reserved work types: public interest applications (e.g., land development, environmental assessments), government geospatial data utilization (e.g., policy planning, disaster response), statutory compliance (e.g., positional certification), and publicly funded geospatial data (e.g., national basemaps). These areas, pivotal to infrastructure, public safety, and legal frameworks, address risks from inaccurate data, such as flawed urban planning, environmental hazards, or land disputes, which undermine sustainability and equity. Autonomous execution by registered geomatics professionals ensures geospatial intelligence meets rigorous standards, addressing the state's dependence on data it cannot independently validate.

The framework demonstrates that reserving geomatics work for registered professionals delivers

accurate, legally defensible data, aligning with Section 195 of the South African Constitution's mandate for transparent public information. By preserving geomatics' autonomy, it ensures a secure chain of evidence for state submissions, enhancing accountability and trust. Excluding private, non-public interest activities (e.g., personal land measurements) balances flexibility with professional standards, while clarifying overlaps with other professions safeguards geomatics' distinct role. This approach supports FIG 2026's vision by enabling technological advancements and land governance innovations for resilient, equitable development. The framework's emphasis on professional oversight ensures decision-makers receive reliable geospatial intelligence, critical for effective policy implementation and risk reduction.

This scalable model, grounded in the GPA and global standards, positions geomatics as a cornerstone of innovative land governance and administration. The paper calls for collaboration among geospatial experts, policymakers, and stakeholders at FIG 2026 to refine and implement these reservations, ensuring geomatics drives sustainable, equitable progress through reliable data.