

Diffusion of Geographical Information Systems in local municipalities in South Africa

Edward Kurwakumire and Lydia Moukangwe (South Africa)

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SUMMARY

Municipalities in rural areas have been lagging in the utilisation of spatial information systems for performing land administration and development planning applications. This has been worsened by having parallel systems of administration where local municipalities and traditional leaders concurrently administer the same land and often at conflict. With the increase in diffusion of GIS in urban areas for cadastre related applications, this study seeks to investigate if utilisation has extended to local municipalities in rural areas and the end of diffusion. This study gathers empirical evidence to discuss the extent of use of GIS in local municipalities together with the different impacts that are being realised. The variables utilised were utilisation of digital land information in managing assets, in the improvement of public service delivery and in improving internal processes for land management. The results showed that despite high utilisation of GIS in urban municipalities, there is slow implementation in South African rural municipalities based on the Limpopo, Eastern Cape and Mpumalanga provinces study area. The factors influencing the low adoption include budget constraints, limited technical expertise, and data management and the lack of a GIS and Land Management unit in the structure of the municipality. The absence of standardized protocols and organisational policies interdepartmental collaboration and sharing of spatial data are additionally impeding the realisation of benefits from utilisation of spatial information systems. The adoption was measured against a systems development and benefits accrual model where the majority of systems were found to be in the grassroot stage. Addressing the issues being faced by municipalities can enhance the utilisation of GIS technology. Additionally, a framework for adopting Spatial information systems can assist based initially on cadastre and land management applications based on crowdsourced data sets and open source processing platforms can assist with increased utilisation.