Using GeoAI in Property Valuation

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SUMMARY

Property taxes fund government services that make a difference to society. In developing countries or transitional economies, such recurrent sources of funds are hard to generate or not fully optimized, often caused by lack of up-to-date data and related resources needed to generate tax valuation. However, advances in AI and related technologies such as remote sensing and big data offer potential solutions that may address such challenges. Current trends point to the increasing use of GIS- and AI-based approaches, and combination of both in mass appraisal. In developed countries, some organizations already begin to embrace the use of AI in property valuations as an alternative to traditional approaches. Al adoption in developing countries will be different, but these trends happening in both developed and developing countries present opportunity for formal deliberations and guidance for a tax valuation that incorporates AI. As shown in a case study for Lusaka, Zambia, the use of remote sensing and AI significantly reduced the time to update tax valuation yet maintains acceptable level of accuracy. If these trends continue for other countries, there will be a need later to establish guidance on the effective and efficient applications of AI and related technologies to property valuations, particularly in developing countries where resources are lacking for proper functioning of property tax systems. It is hoped that this paper, after presenting a consolidated view of AI trends on property valuations across different disciplines and demonstrating AI potential in a case study, will open serious deliberations on AI applications and hopefully result in a guidance or standard for wider adoption in the future.