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Research Article

Volunteered geographic information quality assessment using trust and reputation modelling in land administration systems in developing countries

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ABSTRACT

This article presents an innovative approach to establish the quality and credibility of Volunteered Geographic Information (VGI) such that it can be considered in Land Administration Systems (LAS) on a Fit for Purpose (FFP) basis. A participatory land information system can provide affordable and timely FFP information about land and its resources. However, the establishment of such a system involves more than just technical solutions and administrative procedures: many social, economic and political aspects must be considered. Innovative approaches like VGI can help address the lack of accurate, reliable and FFP land information for LAS, but integration of such sources

relies on the quality and credibility of VGI. Verifying volunteer efforts can be difficult without reference to ground truth: a novel Trust and Reputation Modelling methodology is proposed as a suitable technique to effect such VGI data set validation. This method has been applied to successfully demonstrate that VGI can produce accurate and reliable data sets which can be used to conduct regular systematic updates of geographic information in official systems. It relies on a view that the public can police themselves in establishing proxy measures of VGI quality thus facilitating VGI to be used on a FFP basis in LAS.

KEYWORDS:

Volunteered geographic information | trust and reputation modelling | thematic accuracy | semantic accuracy | volunteer reputation

Disclosure statement

No potential conflict of interest was reported by the authors.

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