Mobile Crowdsourcing in 3D Cadastral Surveys: Exploring Publics' Reaction and Data Quality

Maria Gkeli, Chryssy Potsiou and Charalabos Ioannidis (Greece)

Key words: Cadastre; Digital cadastre; e-Governance; Geoinformation/GI; Land management; Low cost technology; Positioning; Security of tenure; Standards; 3D Cadastre; LADM; Crowdsourcing; Quality Control; 3D Spatial Data; Data Capture

SUMMARY

During the past decades we are witnessing an ongoing urbanization, leading to the emergence of several complex constructions and multi-dimensional property rights. The establishment of a modern land administration system (LAS) able to manage various types of rights in a uniform, standardized and reliable way, throughout the three-dimensional (3D) space, is imperative. As traditional cadastral surveys often lead to delays, increasing gradually the cost of the cadastral procedure, the solution is sought in modern methods and technological achievements. Utilizing the latest technology, Information and Communication Technology (ICT) tools, low-cost equipment, crowdsourcing techniques, mobile services (m-services), web services, open-source software (OSS) and the international standard of Land Administration Domain Model (LADM ISO 19152), the development of a reliable, qualitative and affordable solution for the implementation of 3D cadastre, is feasible. Despite the progress achieved so far, regarding the development of innovative modern solutions for 3D cadastres, there are several challenges and questions that have to be answered. Is the quality of crowdsourced data sufficient for the implementation of 3D cadastral surveys? How citizens will be recruited in the cadastral process and what will be motives in order to enhance their participation? The answer to these questions is of utmost importance, in order to provide an effective, qualitative and reliable outcome, regarding 3D cadastre.

In this paper an evaluation of a LADM-based technical solution for the initial acquisition, registration and representation of 3D crowdsourced cadastral data, presented in our previous work, is conducted. A practical experiment for testing the examined technical solution is conducted for a multi-storey building in an urban area of Athens, Greece. A group o volunteers is organized, trained and reviewed, respecting the crowdsourced 3D cadastral survey. The main scope of this study is focused on investigating the usability, quality, reliability and potentials of the examined technical system. The main conclusions referred to the potential of this current crowdsourced solution for the initial implementation of a fit-for-purpose 3D cadastre, are presented.

Mobile Crowdsourcing in 3D Cadastral Surveys: Exploring Publics' Reaction and Data Quality (10312)
Maria Gkeli, Chryssy Potsiou and Charalabos Ioannidis (Greece)

FIG Working Week 2020
Smart surveyors for land and water management
Amsterdam, the Netherlands, 10–14 May 2020