

# A BIM-based Approach for Swedish 3D Cadastral Management

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## SUMMARY

Currently, cadastral management in most countries is 2D-based by using a national land administration system. However, with the development of high-rise buildings and densification of built-up areas, the complexity of ownership spaces in multi-storey buildings pose challenges to the 2D index map. It is difficult to effectively represent, visualize and manage complex cadastral situations by a national land administration system that registers 3D property formation by 2D documentation and presents the legal property boundaries in 2D maps and verbal descriptions. Building Information Modelling (BIM) is a digital representation of a building in the life cycle phases from design through construction to operation and maintenance. BIM can be used as a physical model to integrate with legal model in order to visualize 3D cadastre. At the same time, BIM can extend throughout the whole building development lifecycle and provide powerful functions for owners, managers, designers, engineers and contractors, which acts as an efficient method to manage 3D cadastral information sustainably. Therefore, to handle these issues, we propose a BIM-based approach for 3D cadastral management to share, exchange, store, standardize, visualize and manage 3D cadastral information legally and technically through all actors in the lifecycle phases. The Information Delivery Manual (IDM) as an international open standard developed by BuildingSMART can capture and specify processes and information flow during the lifecycle of a facility by bringing many different stakeholders together in a project-specific organization. In the study, we will use IDM to manage and improve 3D cadastre efficiently and collaboratively with a Swedish case study in practice.