

# 3D Description of Condominium Rights in Turkey: Improving the Integrated Model of LADM and IFC

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## SUMMARY

Efficient management of land is vital for sustainable development. The growing densification in the built environment however makes difficult the job of administration. In addition, the built environment now contains a large number of buildings and facilities that are complex and multilayered. In this sense, Land Administration Systems (LASs) are of great importance to cope with emergent problems that should be paid attention for economic, social, and environmental aspects. It is for this reason that three-dimensional (3D) LASs that enable to unambiguously delineate the cadastral Rights, Restrictions, and Responsibilities (RRRs) with their physical counterparts are the current topic. On the other hand, digitalization has gained a lot of attention all around the world for improving and facilitating the processes regarding both public services and different sectors such as Architecture, Engineering, and Construction (AEC) industry. Considering the AEC industry is one of the primal sectors that implement the alterations in the built environment, there exists a close relationship between this industry and the land administration sector that deals with efficient management of the built environment. Today's AEC industry is performing a vast amount of effort for adaptation of Building Information Modeling (BIM) that allows to create highly detailed models of buildings and their immediate surroundings with semantically and spatially rich information. Whereas the Land Administration Domain Model (LADM) provides a conceptual model for land administration practices, Industry Foundation Classes (IFC) enables the interoperability in terms of modeling through its comprehensive schema that contains a great number of entities. It is thus important to benefit from the as-built building models for registration and depiction of condominium rights in Turkey. This paper, therefore, improves the previous conceptual model that links the classes of LADM and entities of IFC schema such that it covers detailed delineation of condominium rights. The models that cover packages of LADM and the related code lists are presented. This study contributes to 3D LASs transition in Turkey by providing a significant basis for IFC-based modeling of condominium rights.

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