

# Automation of Topographic map from CAD to Geo Database in GIS \*

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## Abstract

GIS software provide manual import tools to maps produced on CAD software to be transformed to geo-database. This operation consumes time and effort. The "transformation" however will not be adequate unless we analyze the relation between CAD and GIS software in preparing maps. The question raised here if this relation competitive or integrative? This research tries to answer this matter by studying it from different angles: modeling, spatial feature, scale, spatial analysis and data management. Analyses reveal that this relation isn't competitive at all, but rather integrative, as CAD software produce technical\design plans, whereas GIS software are dedicated for the production of general and thematic maps. Thus, CAD based spatial data (topographic, cadastral, master plans) could be "up-graded" to be efficient in GIS environment. However available tools to make this are basically manual, and for that, an automated approach was developed to execute this upgrade from CAD to GIS. This new approach was applied and evaluated and the output results were satisfactory accurate, time\effort saving, and indeed didn't miss any of CAD layers. This all could be achieved if being conditioned with the approach constrains.

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### Keywords:

GIS, CAD, Modeling, Topology, Thematic, Spatial analysis, RDBMS, Vector, Raster, SQL, PLine

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- For the paper in Arabic see pages (81-94).

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