

# **ASSESSING THE CULTURAL SIGNIFICANCE OF ARCHITECTURAL HERITAGE IN EGYPT**

**AN INTELLIGENT MULTI-CRITERIA  
DECISION SUPPORT SYSTEM**

**By:**

**Mohamed Ali Maher Metwally**

**A Thesis Submitted To The  
Faculty Of Engineering At Cairo University  
In Partial Fulfillment Of The  
Requirements For The Degree Of  
DOCTOR OF PHILOSOPHY  
IN  
ARCHITECTURAL ENGINEERING**

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**Title of Thesis:**  
“Assessing The Cultural Significance Of Architectural Heritage In Egypt:  
An Intelligent Multi-Criteria Decision Support System”

**Key Words:** MCDA – Cultural value – Architectural Heritage – FDM – AHP

**Summary:**

The research represents a model for evaluating the intrinsic value of architectural heritage. It brings together the key literature in relation to both the principles of values related to Architectural Heritage, the methodologies for assessing architectural heritage values and the various practical assessment approaches that exists in the literature, into an integrated framework.

According to the literature review and gathering expert opinions, six criteria for intrinsic value assessment were identified to evaluate the intrinsic values of architectural heritage using fuzzy Delphi method (FDM) , the group decision making (Expert Choice) was used to determine the relative importance of evaluation criteria and identify criteria indicator relative weights and the relationship between them. The Expert choice is based on Analytical Hierarchy Process (AHP), criteria and its indicators were judged against three alternatives for conservation decision.

Statement of significance flows directly out from the assessment decision model, through scoring the pre-weighted criteria evolved from the list of standardizing judgments that were based on professional experience using (FDM) and aggregated through a multi-criteria decision analysis method (AHP).

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