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COURSE OF ARCHITECTURE CONSTRUCTION
CITY

Abstract

**MULTICRITERIA-SPATIAL DECISION SUPPORT SYSTEMS
(MC-SDSS): an integrated evaluation for site selection of
"Parco della Salute" hospital project in Turin.**

Tutor

Marta Carla Bottero
Stefano Capolongo (PoliMi)
Giulio Mondini
Franco Vico

by

Caterina Caprioli

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The construction of a new hospital has a strategic role in an urban city both for the public and social part it plays both for the dimension of its territorial impact. At the same time, the latest healthcare projects have highlighted the increasingly rapid obsolescence of hospital buildings: so, it becomes necessary make structures and find areas even more flexible.

Therefore, the selection of an appropriate hospital site can be viewed as a complex multicriteria decision-making problem in which the localization potential joins with factors as diverse as economic, technical, social or environmental. Moreover, spatial multicriteria analysis provides significant support for an active participation of the stakeholders involved in the decision-making process. Multicriteria-Spatial Decision Support Systems (MC-SDSS) (Malczewski, 1999) seems to be a powerful approach in supporting decision-making process. MC-SDSS allows to combine and transform geographical data and represent stakeholders' preferences and / or uncertainties (value judgments), to obtain helpful information for location problems and for decision alternatives.

In the thesis project, a methodological framework is proposed to solve the site location problem of the new medical center of Turin: the approach provides for an integration of geographical information systems (GIS) with a specific multicriteria analysis technique, named Fuzzy Analytical Hierarchy Process (FAHP) (Zadeh, 1965), compared with the most popular Analytical Hierarchy Process (AHP). The political debate about this project has lasted more than ten years and only now seems to have found an agreement that satisfies all the stakeholders involved.

Thus, a repeatable model was created to support decision-makers in identifying the area to locate the hospital, and to show the most suitable alternatives among those proposed by government in the last years. Based on these results, interesting reflections have been carried out to improve and transform those areas.

The text is composed of five different sections:

- in the first chapter, the evaluation problem is illustrated with reference to the flexibility issue of the hospital structures and to the complexity of the decision process;
- in the second chapter, a detailed description of the two systems integrated in the MC-SDSS is given, first describing multicriteria analysis, then geographic information systems;
- in the third chapter, we focused on the methodology, describing step by step how to conduct a spatial multicriteria analysis;
- in the fourth chapter, we describe the case study and the way to obtain the final results;
- in the fifth chapter, the previous results are compared to the scenarios proposed since the early 2000s as sites of the project named "Parco della Salute".

For further information please contact:

Caterina Caprioli, caterina.caprioli@gmail.com