



# Decision making on business issues with foresight perspective; an application of new hybrid MCDM model in shopping mall locating



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## ABSTRACT

Shopping malls are one of the glories of metropolises with their attractive shops and a wide variety people who are walking in order to purchase goods. Location of a shopping mall is one of the critical criteria, because it can influence the success of the project. In addition, selecting an appropriate location to establish a new shopping mall is a sophisticated, time consuming and risky decision. Commonly multi-factors should be considered in the decision making model. Thus, a comprehensive model should be considered for similar studies. Moreover, the foresight perspective can be necessary for the future competitiveness of the project. Decision makers need powerful tools for the process of the decision making, for this aim two Multiple Criteria Decision Making (MCDM) methods are applied in our model. Stepwise Weight Assessment Ratio Analysis (SWARA) is applied to decision making in order to prioritize and calculating the relative importance of the criteria. Then, Weighted Aggregated Sum Product Assessment (WASPAS) methodology is used to evaluate potential alternatives. Tehran is considered as a real example of this research and potential places for this mean considered in research. This brand-new hybrid MCDM method is presented in this research as a powerful framework is decision making. This framework can be useful as an appropriate framework for solving locating issues in other companies.

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## 1. Introduction

Modernization has changed our shopping habits from local small autonomous shops to large regional shopping malls. We can find large shopping malls that introduce diverse products (e.g. supermarkets, boutiques, household goods) and services (e.g. banks, cinemas). Also, they can be considered as an excited place (e.g. Disneyland), modern and attractive for alluring consumers. According to Webster dictionary shopping mall describes as follows: collection of independent retail stores, services, and parking areas constructed and maintained by a management firm as a unit. It is a 20th-century adaptation of the historical marketplace. In the U.S., the post-war migration from cities to suburbs and increased automobile use created the perceived need for centralized shopping facilities. The urban shopping arcade was developed out of

the need for shelter from the weather; Buffalo, N.Y., and Cleveland, Ohio, have charming trussed and glass-roofed examples. The next generation of shopping malls, the large regional center sited in a vast sea of parking lots, bears little resemblance to its small, arcaded ancestors (Merriam-Webster Online Dictionary, 2013).

Based on studies in this field, the community desires to purchase their requirement from the malls which emphasis on self-actualization and social affiliation values (Shim & Eastlick, 1998). Besides, some papers referred to this matter (Burns & Warren, 1995; Cheng, Li, & Yu 2005).

According to (Cheng, Li, & Yu, 2007) dissatisfaction of people from discount department stores in feature, option, service and updating in contrast with major department stores, shoppers prefers shopping malls, besides high quality of goods and services giving a wide-spreading range of choices and being fashionable are diversity between malls and small or department stores. In addition, construct a huge shopping mall promotes quality of life and develop retail industry (Cheng et al., 2005; Finn & Louviere, 1990).

In recent years, retailing business has been influenced by general and serious changes. Technical extension and market situation have a significant function in affecting retail change that the two

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mentioned factors jointed with almost abundant, extremely changeable and progressively time-scarce consumer (Anderson, Palma, & Thisse 1998; Yu, Yang, & Cheng 2007). Increasing competition between regional malls affected on the design and the renter of shopping malls to captivate both retailers and consumers, due to shoppers attend to aesthetic sensibilities same as their shopping needs (Burns & Warren, 1995; Carlson, 1991).

One of the important factors of shopping malls is location and this factor has the most influence on success in this business. Suitable location is a general term which includes many factors in it to achieve success. For receiving satisfying location some factors should be provided including, accessibility, total cost of initial investment, environmental consideration, potential continuous development, etc. The key decision on shopping mall project investment is the selection of a correct location to progress a right project (Cheng et al. 2005). Also, being profitable or loss of income connected with choosing a suitable selection of trade location. Besides, the accurate selected site can help management to plan essential strategies that can extend market development and rise demands. Appropriate location is able to attract a large number of consumers and a large number of customers can improve profitability. Furthermore, appropriate location has the highest priority for making decisions. Therefore, inappropriate location has negative effects which are so arduous to balance (Craig, Ghosh, & McLafferty 1984; Jain & Mahajan, 1979; Kuo, Chi, & Kao 2002).

The mall location selection problem is a decision making problem with multiple criteria and with this kind of problem, in conflict criteria play a significant role. Many criteria should be considered in the decision making process such as, population & Economical Characteristics, environmental consideration, attractiveness, accessibility & transportation, etc. Therefore, the shopping mall location problem can be viewed as a multiple criteria decision making problem. But this research has a new perspective to solve this problem. MCDM methods are powerful tools for solving managerial decisions but it seems there is a gap between reality and decision making and that is foresight perspective. There are many important criteria but future is the topic that should be considered.

This research is based on foresight perspective in presenting the best framework based on MCDM methods for decision making about shopping mall location. If investors want to consider important issues about the now and future they should have a flexible tool in their decision making process. Priority should be based on decision makers and for this mean SWARA method is applied for decision making about the priority and the relative importance of the important criteria of this research. WASPAS is the new methodology that developed in 2012 with a high degree of reliability and for this positive advantage WASPAS is applied for evaluating and ranking potential alternatives. Tehran (Iran) is selected as the real example of this research and the rest of the paper is structured as follows:

Section 2 briefly reviews the previously related researches. Section 3 presents the proposed integrated SWARA–WASPAS methodology, and SWARA and WASPAS methods are elaborated as well. The paper follows in Section 4 on a real example study to validate the proposed model. Also, the proposed decision-making SWARA and WASPAS results are presented in Section 4. Finally, some remarks and future research directions are provided in Section 5.

## 2. Literature review

In the literature review section, we are going to discuss the significance of the mall, location and site selection of mall, from the other researcher's viewpoint. The research on location theory has

started nearly a century ago (Weber, 1929). He has minimized the distance between customers and warehouse by selecting a proper warehouse location. Besides, a model has developed as intercity shopping-oriented movements that have considered population circumstances and distance (Reilly, 1931). As the Reilly (1931) model was imperfect, a more basic model has developed which considering customer preferences (Huff, 1964). Over the past decades with proliferation in location selection models, choosing a new site for a retail shop, a facility, or so forth in lots of different projects has been developed (Current, Ratick, & ReVelle 1997; Owen & Daskin, 1998). These models are chiefly mathematical models that can be categorized into two classes: 1. Static and deterministic and 2. Dynamic and stochastic (Owen & Daskin, 1998). The concentration on end user's demeanor was the goal of retailer choice and shopping mall administration internalization (Brown, 1991; Cheng et al. 2005; Roy, 1994; Severin, Louviere, & Finn 2001; Wakefield & Baker, 1998).

Recently, models for selection of a proper location of shopping mall have been changed. These models discuss shoppers would not always choose the mall that is nearest to their lodging, but the elements which important from their standpoint are being attractive and able to support their needs. Dasci and Laporte (2005) proposed a model for choosing a mall from the customer's viewpoint in which some factors have high significance as well. These factors were presented as follows: distance, kind of service and the consumption features. By comparing the three retail shop location selection methods, a research could propose an anticipated-delay method (Kaufmann, Donthu, & Brooks 2000). Evaluation of this method has done by using game-like two-party simulation. Also a model has presented for increasing profit of both the parent company and the trader for selecting a single facility location by (Fernandez, Toth, Plastria, & Pelegrin 2006). They developed a model that solves the facility location selection problem and routing problem in parallel (Nagy & Salhi, 2007). They have studied on negative viewpoint of customers from shopping malls and competitors of them by using Huff's model (Aboolian, Berman, & Krass 2007).

Regarding site selection of mall, some points of views have focused on different things. For example, a study leded a spatial analysis based on data that gained from shopper behaviors report,

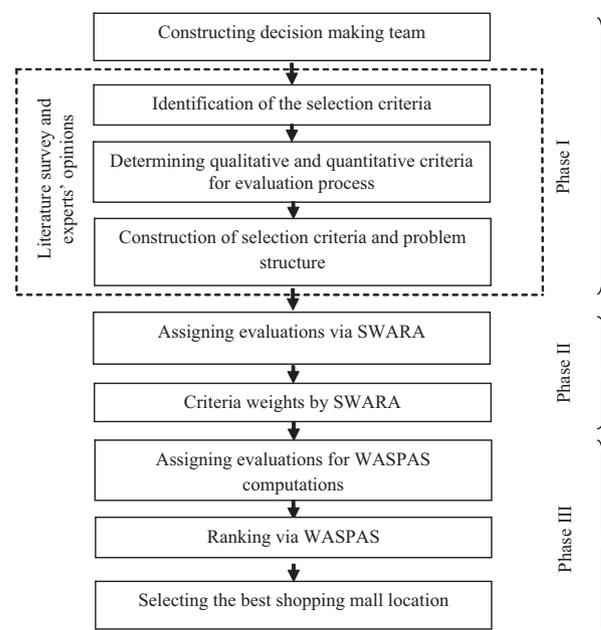


Fig. 1. The evaluation procedure.

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