

**UNIVERSITI TEKNOLOGI MARA**

**TECHNICAL REPORT**

**THE APPLICATION OF INTERVAL TYPE 2  
FUZZY ANALYTIC HIERARCHY PROCESS TO  
SOLVE PERSONNEL SELECTION PROBLEMS**

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## ABSTRACT

Personnel selection is a phase of human resource management which is selecting the best personnel from a pool of candidates suitable for a vacant position in an organization. This paper aims to present a comprehensive multi-criteria decision making (MCDM) method extended by Interval Type-2 Fuzzy Sets (IT2 FSs) which is Interval Type-2 Fuzzy Analytic Hierarchy Process (IT2 FAHP). Then, the weight priority obtained by IT2 FAHP will be compared with the Analytic Hierarchy Process (AHP) method and it illustrated that the weight priority of AHP is higher than IT2 FAHP. This paper also formalizes several important issues on sensitivity analysis and derived some critical theoretical results. Finally, it can be concluded that the final evaluation made by the decision makers has a significant consistency shown by sensitivity analysis results. Fuzzy sets of type-2 can be used to cater the problem of the inability of Interval Type-1 Fuzzy Sets (IT1 FSs) to deal with membership grade even with an exact number in  $[0,1]$ . Six criteria (work experience ( $C_1$ ), education ( $C_2$ ), analytical thinking ( $C_3$ ), communication and problem solving skills ( $C_4$ ), time management ( $C_5$ ) and core ability ( $C_6$ )) were identified by the organization on selecting the right personnel among five candidates ( $A_1, A_2, A_3, A_4$  and  $A_5$ ). The results show that  $C_6$  and  $A_1$  is the most preferred criterion and alternative respectively. Thus, the implementation of the proposed methodology is further demonstrated by several illustrative examples.