

## ABSTRACT

*XYZ company in Indonesia is a company paper board production called coated duplex board (CDB) with a variety of grams from 250 gsm to 500 gsm. With a capacity of around 50,000 tons per year. XYZ company uses an open supplier system, which has 8 suppliers to supply used paper. The large number of attribute and objective makes decision makers choose suppliers find it difficult to determine suppliers and the absence of supplier selection methods in XYZ company, other than that XYZ company has not weighted supplier selection criteria and sub-criteria that are tailored to the business process. This study is proposed solve supplier selection problem using the fuzzy analytical hierarchy process(FAHP) and weighted sum model(WSM) method by considering various criteria, sub-criteria and alternative supplier. FAHP is used to reduce the concern of qualitative elements on the assessment of critical factors for selecting suppliers and WSM is used to standardize supplier performance on all sub-criteria and get supplier ranking. The results of this study are the decision support system design based on the results of the FAHP method that considers the criteria, sub-criteria and capabilities of each supplier to get the best supplier ratings of all available alternatives using the CodeIgniter framework with the PHP and MySQL programming languages.*

*Keywords: decision support system, fuzzy analytical hierarchy process (FAHP), pemasok, multi criteria decision making (MCDM), weighted sum model(WSM).*