

MULTI-ATTRIBUTE DECISION MODELS FOR OIL EXPLORATION SYSTEMS USING TECHNOLOGICAL, FINANCIAL AND MARKET ATTRIBUTES

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The firms should have an adequate decision tool for evaluating the benefit/cost impacts from technology, finance, and market variables. The multi-attributes method for decision analysis (MAUT) provides a logical mean of decision for conflicting objectives. The MAUT is based upon the firm risk preference and combines the objectives in the unique additive or multiplicative model. This paper presents a framework for evaluating the weights of such multi-criteria decision models, using a high dimensional sensitivity analysis. The main advantage of this approach is that it allows a better simultaneous change of the weights and provides indications for a robustness control of the weights. The weights are obtained by a random process and hierarchically adjusted using the analyst preferences. The simulation procedures were applied in a hypothetical study case of a petroleum exploration system in an offshore project. The model permits to simulate several alternatives, as well as a rational tool for managers and policy decision-makers choose between oil exploration systems and taxations revenues options according to firm preferences and objectives