Applying a Direct Approach in Linguistic Assessment and Aggregation on Supply Performance

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Abstract⎯The supply performance has the dynamic continuity behaviors which cover the past, present and future of time horizons. The assessment of supply performance possesses properties of uncertainty and inaccuracy, and is associated with multiple dimensions of supply behavior. Given the difficulty of executing the assessment with quantification, this study uses linguistic variable to assess supply behavior. Linguistic variables then are aggregated using a linguistic ordered weighted averaging operator with maximal entropy to enhance the tolerance and maximize information gathering from the individual behaviors in the aggregation process. In addition, the assessment embeds the product strategy by fuzzy linguistic quantifier for emulating mental decision making in humans, and to ensure the assessment results meet the enterprise strategy. The viewpoint of this paper is to offer a method different from numeric environment (Chang et al. (2006), Wang et al. (2006)) for decision maker to deal with pure linguistic information on the aggregation of decision making.

Keywords⎯Supply performance, Fuzzy linguistic quantifier, Linguistic ordered weighted averaging operator, Product life cycle

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