









Assessing the Efficiency of Collective Decisions in Corporate Context

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Abstract. This study evaluates the effectiveness of the corporate collective decision-making process in daily operations, using a unique blend of Mathematical Logic and Entropy in the representation and processing of knowledge. This approach aims at boosting system management and the performance of decision-makers both individually and as a group. The corporate collective decision-making process is inherently intricate, with its complexity amplified in a business setting due to various constraints. Factors such as the process's complexity, the organization's structure, the number of involved parties, and the centralization level are crucial in determining the efficacy of the collective decisions within a corporation. The research was conducted as a case study, based on a qualitative methodology, involving 24 managers from Portuguese Small and Medium-sized Enterprises who participated by completing questionnaires. The questionnaire was divided into two parts: the first part collected general demographic information, such as age, gender, academic background, and job tenure; the second part focused on capturing data for the Mathematical-Logic based evaluation of the efficiency levels in collective decision-making through an assessment of entropic conditions. The findings indicate that by identifying trends through this methodology, businesses can take both preventive and corrective measures to enhance the efficiency of collective decision-making. This, in turn, could lead to increased profitability and sustainability for the organizations involved.

Keywords: Artificial Intelligence · Collective Decision-Making · Efficiency · Computational Sustainability · Entropy · Logic Programming · Knowledge Representation and Reasoning · PROLOG