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TITLE OF DIPLOMA THESIS:

Risk analysis and evaluation via Game Theory

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ABSTRACT

Throughout its operational existence, an organization will make risky decisions. This risk is distributed among the manpower components of the said organization, influencing them accordingly. The question of which is the probability of cooperation inside the organization, in the perspective of a risk-based decision, taking into consideration the possible maximization of individual, group and collective profits as they accrue (or not) from the aforementioned cooperation, has not been investigated yet in the current bibliography. In this dissertation, an approach to a possible answer to the question above is attempted, using the tools of Game Theory, Decision Theory, Probability Theory, Organizational Theory and HRM Theory. Firstly, an introduction to the core concepts of organizational discretization, HRM, decision making, uncertainty and risk and the key definitions of Decision Theory and Game Theory takes place. Afterwards, former applications and research topics, in which Game Theory was used individually or in collaboration with other tools, are reviewed. Conclusions and findings accrued from the said topics are used and applied consecutively to the rest of the dissertation. Finally, an exemplar organization is modeled via Game Theory. The context, frame and organizational, mathematical etc conditions of the problem, emanated from the precedent theoretical and bibliographical analysis. The results taken from the said modeling are processed using a probabilistic approach and the Pareto distributions. Thus, the processing methodology concludes with an estimation of the probability whether a co-operational solution can be adopted. This co-operational solution can be the answer to the fundamental question inspiring the topic of this dissertation. The research conducted in the dissertation is unique, original and can shed some light on the field of the evaluation and estimation of risky situations that can cause entropy phenomena inside an organization, endangering its robustness. It can also be subjected to future improvement and expansion.

KEYWORDS

Decision making, risk, Game Theory, Pareto distribution, organizational groups theory by Mintzberg