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TITLE OF DIPLOMA THESIS:

Risk based decision making

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ABSTRACT

The concept of risk has been a wide concern of analysts, especially in the fields of engineering, environmental, economic and medical sciences. The processes of planning, identification, qualitative and quantitative risk assessment, planning risk responses and monitor and control risks are necessary and repetitive for every project. The rising issue is the management of the results of the process of risk assessment. The total management of a project must provide one process with the necessary information which proceeds from the previous one. The results of qualitative and quantitative risk assessment can be used as one component of the process of the decision making between the available risk responses, which is the next step of the procedure. Decision theory deals with decisions under certainty or risk. Decision making theory provides with a wide range of methods and tools, among which the analyst can choose the appropriate method and tool for each problem. In the present thesis, the focus is on the consideration of the results of qualitative and quantitative risk assessment in decision making. This data is not the only component of the decision making, but is part of a wide consideration set of factors and criteria which exist in interaction. In this thesis, the goal is to study the decision making between the four risk responses as defined in the PMBOK Guide (Project Management Institute, 2004), acceptance, mitigation, transfer and avoidance. A theoretical framework is proposed and a decision making method is developed, aiming in standardizing the decision making between the four risk responses. This method could potentially constitute an important and quantitative step in the process of risk management.

KEYWORDS

Risk, Decision, Method