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Predicting Cost-Overruns by Employing Evaluation of the Solution Spaces Generated from Crucial System Requirements

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Abstract: The purpose of this paper is to propose a new methodology for reducing acquisition costs resulting from shortcomings in the requirements engineering process. The approach maps key technical requirements to a solution or feasible space, based on the assumption requirements possess dimensions that can be plotted to a Cartesian coordinate system. Once these feasible spaces are generated, critical solution spaces are evaluated to determine the degree of alignment existing between all of solution spaces and its correlation to overall cost. The requirements solution space results from the interpretation of system's requirement. The potential advantage to employing this approach is that it is potentially easier to anticipate failures related to the requirements generations and tracing via a graphical view. This graphical perspective is easier to disseminate, evaluate, analyze and forecast potential issues to individuals of with an extremely wide requirement experience skillset. The intention of employing this technique will allow for earlier identification of issues relating to cost, schedule and quality based on misaligned requirements.

Keywords: Requirements, Degree of Freedom, Complex Systems, System Boundary, Feasible Solution Space