

Summary

This dissertation introduces the Goal-Based Requirements Analysis Method (GBRAM) for the identification and refinement of goals into operational requirements for software-based information systems. The method evolved as a result of its application to real world systems and processes, and was validated through its application to the redesign of a large commercial system. Further validation of the method was performed via an empirical evaluation. From these evaluations it was concluded that the method's straightforward, methodical approach to identifying system and enterprise goals and requirements suggests goal identification and refinement strategies and techniques through the inclusion of a set of heuristics, guidelines, and recurring question types. Four sets of heuristics are presented: identification heuristics, classification heuristics, refinement heuristics, and elaboration heuristics. The heuristics and guidelines are shown to be useful for identifying and analyzing specified goals and beneficial for the refinement of these goals. The heuristics and supporting inquiry include references to appropriate construction of scenarios and the process by which they should be discussed and analyzed. A set of recurring question types is presented to assist analysts in applying an inquiry-driven approach to goal-based analysis. Formative and summative case studies serve as both the origin and validation of the method presented.