14 ENTERPRISE MODELLING AND BUSINESS PROCESS REDESIGN

14.1 INTRODUCTION

Applications of the NFR Framework are not limited to the development of software systems. In this chapter, we apply the NFR Framework to enterprise modelling and business process redesign.

This application makes use of several concepts from the NFR Framework. It uses the concept of softgoal, and reasoning techniques that are based on satisficing. The softgoal interdependency graph is used to capture and support the design process and reasoning. In addition, methods and correlations are catalogued and applied as a developer faces particular design decisions.

The approach is illustrated with an hypothetical example, taken from the literature.

Effective processes are crucial to the success of any organization. There has been ongoing effort to find better ways to improve work processes in organizations, e.g., to achieve faster cycle times, better quality products, high customer satisfaction, lower cost, and greater flexibility. The availability of advanced information technologies has provided a major impetus to many organizations to rethink their work processes. Instead of making incremental, quantitative improvements and optimizations, it has become common to seek dramatic improvements in performance by making major, structural changes, often involving the use of information technology. This has come to be known as business process reengineering [Hammer90, 93] [Davenport93].
To achieve these changes, Hammer advocates asking fundamental questions about how work is currently done, possibly challenging long-held assumptions, and understanding why things are done the way they are. A lack of care during design can cause a great deal of upheaval in an organization, without achieving the desired gains [Davenport94] [Hammer95].

One of the challenges is therefore to understand the implications of target techniques (operationalizations). The use of appropriate kinds of models can assist the formulation of suitable questions and answers. This can help to systematically guide developers towards beneficial techniques.

The i* Framework

The i* Framework has been developed to support the modelling, analysis, and redesign of organizations and business processes [Yu94d]. The name i*, pronounced “i-star,” stands for distributed intentionality. In the i* Framework, organizations are viewed as consisting of social actors who depend on each other for softgoals to be satisficed, goals to be achieved, tasks to be performed, and resources to be furnished. The i* Framework includes a Strategic Dependency Model for describing the network of relationships among actors, and a Strategic Rationale Model for describing and supporting the reasoning that each actor has about its relationships with other actors.

The i* Framework makes use of the NFR Framework's concepts, notably softgoals, which are used both in the description of business processes, and in assisting the redesign of processes.

Intentional elements consist of softgoals, goals, tasks and resources.

Enriching Process Descriptions with Strategic Relationships and Dependencies

Many kinds of models have been proposed and used for describing (or “mapping”) business processes [Curtis92] [Mylopoulos98]. For example, it is common to use systems analysis techniques such as structured analysis (e.g., SADT [Ross77], DFD [DeMarco78]) and Entity-Relationship Models [Chen76], which focus on the modelling of activities and entities. While these are important for systems development, they offer little help in the search for target techniques to address business problems. Most existing process models have been designed for describing what an organization is like, but they cannot express why the organization is the way it is. The motivations, intents and rationales behind the activities and entities of the organization are missing from these models.

In particular, these models fail to capture the strategic relationships among organizational stakeholders. The i* Framework focusses on the modelling of strategic relationships. It considers such relationships to be “strategic” in the sense that each party is assumed to be concerned with opportunities and vulnerabilities, and seeking to protect or further its interests. Of course, in reality there are different possible strategic relationships. For example, one may seek to protect the interests of others, or not take advantage of others.