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A SIMULATION TEST BED FOR COMPUTATIONAL MODELING OF BUSINESS PROCESSES

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Business process reengineering has been the focus of attention of businesses since the early 1990s (Hammer and Champy 1993). To an extent, existing business process modeling tools (Spurr et al. 1994) provide features to analyze business processes. However, the decision support provided by these tools is often too limited (Yu et al. 1996). For instance, many modeling tools based on IDEF, DFD, etc. lack the necessary means to support the representation of time and resource constraints and most ignore the human and behavioral aspects of reengineering (Davenport and Stoddard 1994).

This research depicts the critical aspects of business processes in terms of a four dimensional framework composed of workflow structure, decision structure, information structure, and agency structure. The framework is used to develop a simulation test bed that allows computational modeling of interdependencies among agents, activities, and resources in a business process.

The research proposes an approach to business process modeling using the concepts of coordination in organizational processes (Malone and Crowston 1994; Malone and Smith 1988; Raghu et al. 1997 Rao and Chaudhury 1995). The American Heritage dictionary (1985 edition) defines coordination as “to arrange or organize so as to achieve a desired or effective combination.” The basic concern from a coordination perspective is how to understand interdependencies in the objectives and functions of agents, activities, and resources in a complex system. The research develops an approach to business process modeling that explicitly considers the workflow relationships, decision structure, information structure, and incentive and motivational concerns inherent in a business process. The approach focuses on members or entities of business processes, each with varying degrees of autonomy and individual objectives.

The following issues will be investigated in the research:

- Presentation of a process modeling methodology based on concepts of coordination in business processes.
- Building a prototype simulation test bed based on this methodology.

- Investigation of the end-user computing and visual interfacing issues related to the use of such a simulation test bed.
- Investigation of related issues in enterprise modeling and coordination mechanisms.

The simulation test bed is being developed using Java on a SUN–SPARC platform. The proposed simulation test bed is intended

1. to provide facilities to model information on the following components: agents, resources, decision structure, incentive and motivational aspects, activities, and information structure. A template-based approach is used for capturing information on these components.
2. to provide a visual interface that enables the user to input information on the business process in an efficient manner.
3. to allow analysis and to facilitate an understanding of the working of the business processes being modeled under different scenarios.

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