



## Chapter VI

# Integrating Business Processes and Information Systems in an Interorganizational Context

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### Abstract

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*When organizations engage in close cooperation they usually need to reorganize the business processes that serve the interface between them. This reorganization is often done with the help of business process models. As a result, the underlying information systems have to be adapted, too. The changes to the latter can be supported by information system models which are typically “written” in a different language from that of the business processes. Here we suggest an approach to facilitate the development of information system models based on the models of the respective business processes. This is achieved by mapping a suitable business process language to the Unified Modeling Language. We apply this approach in the context of an interorganizational business process.*

## Introduction

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Today we can witness two seemingly opposed trends in the cooperation between businesses: On the one hand, companies are forced to concentrate on their core competencies and to outsource all activities that lie outside the core. On the other hand, customers demand that a supplier should cover an increasing range of products and services. They want to buy a complete solution from only one supplier instead of buying bits and pieces from many. This latter point seems to suggest an increased amount of “insourcing.” The solution to both is that companies have to engage in closer cooperations, each concentrating on its area of expertise, but jointly offering a complete suite of related products and services that are well matched (one face to the customer). But this scenario represents an enormous challenge both in terms of organization and regarding the information system support.

Companies that want to engage in a closer cooperation, for example, a value network, a virtual enterprise, or the like, bring into this cooperation not only their different organizational cultures, but also different, often incompatible, information systems. A successful cooperation therefore requires the alignment or integration of both the business processes and the information systems to a certain degree. In some industries, such as the automotive industry, this can go as far as the customer forcing the suppliers to introduce the ERP system of the customer’s choice (e.g., SAP). But on the whole, it is more common that the organizations involved will strive for some kind of mutual adaptation of their business processes and information systems. In a very simple case, this could be the introduction of a file transfer accompanied by suitable import and export functionalities and some organizational measures for providing and handling the new data. In more advanced cases, it will imply substantial reorganization of business processes and changes to existing information systems and/or introduction of new ones.

In order to tackle such a problem, we first need to analyze the interorganizational business process, that is, the process that involves both partners. This process is situated at the interface between the participating organizations and is therefore of a highly communicative nature. This suggests the use of a modeling approach that views organizations as networks of communicating actors. The language-action perspective (LAP) offers precisely this view. It is based on the communicative-action theory by Habermas (1984) and the speech-act theory by Austin (1962) and Searle (1969). According to LAP, each language utterance is an elementary social activity called a speech act. Speech acts often come in action-reaction pairs, such as a request and an ensuing promise (to fulfill the request). These action pairs are used to create commitments in the social world which form the fundamental building blocks of an organization. They are also the simplest conversational pattern.

Patterns of a higher order describe purposeful conversations for achieving results in the real world. An example of such a pattern is the transaction, or action workflow (Denning & Medina-Mora, 1995; Medina-Mora, Winograd, Flores, & Flores, 1992), which embodies the principle of delegation of some action by an initiator (I) to an executor (E). It consists of two conversations and the action. The first conversation is called actagenic. It aims at reaching an agreement regarding the execution of the action. The second conversation is called factagenic, and it has the purpose of coming to an agreement regarding the outcome

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