

# Modeling Business Actions

**Peter Rittgen**

*University College of Borås, Sweden*

## INTRODUCTION

The effective use of information and communication technology, or ICT (Barua, Kriebel, & Mukhopadhyay, 1995; Burn & Szeto, 2000; Mahmood & Mann, 2005; Mukhopadhyay, Kekre, & Kalathur, 1995; Sircar, Turnbow, & Bordoloi, 2000; Zammuto, 1982), requires a careful design of information systems and the business processes they support from a communicative perspective (language-action perspective). The literature on language action provides a broad spectrum of frameworks for modeling business processes, for example, business action theory (BAT; Goldkuhl, 1996, 1998; Goldkuhl & Lind, 2004), dynamic essential modeling of organizations (DEMO; Dietz, 1999; Dietz & Habing, 2004; Liu, Sun, Barjis, & Dietz, 2003; van Reijswoud, 1996; van Reijswoud & Dietz, 1999), action workflow (Denning & Medina-Mora, 1995; Kethers & Schoop, 2000; Medina-Mora, Winograd, Flores, & Flores, 1992), action-based modeling (Lehtinen & Lyytinen, 1986), and conversation for action (Winograd & Flores, 1986). Among these frameworks, BAT can be seen as the most general because it does not commit the modeler to any specific methodology allowing for a free choice of the most appropriate one in the context. A possible choice would be that of the situation-adaptable work and information systems modeling method (SIMM; Goldkuhl, 1996).

But the lack of a dedicated methodology also is a disadvantage because it forces the modeler to use one that was not tailored for BAT and hence does not support the application of BAT. The methodology might lack essential BAT concepts or it might even be partially in conflict with BAT. These issues have been explored in several papers comparing BAT with DEMO (van Reijswoud & Lind, 1998; Verharen, 1997) and action workflow (Goldkuhl, 1996; Verharen, 1997). It can therefore be argued that the introduction of a BAT methodology is worthwhile. A first step in that direction is explored here by developing a rich set of concepts for a business modeling language that is inspired by BAT.

The following sections are structured as follows: We first introduce the BAT framework and the generic layered patterns for business modeling. In the section "Refining the Framework," we combine phases and layers into one coherent framework and suggest a possible classification of business acts based on a material and speech-act analysis of the basic activities of BAT. We proceed by specifying the notational elements of a potential language; we finally present an application of such a language for the purpose of commitment analysis.

## BACKGROUND: BUSINESS ACTION THEORY

Business action theory has been introduced by Goldkuhl (1996) and was refined and adapted on the basis of further empirical evidence in Goldkuhl (1998) and Goldkuhl and Lind (2004). It is based on socio-instrumental pragmatism (SIP; Goldkuhl, 2002) that combines communicative (social) and material (instrumental) aspects of actions. The roots of BAT are speech act theory (Austin, 1962; Searle, 1969) and the theory of communicative action (Habermas, 1984).

According to BAT, business interaction involves two principal players, the supplier and the customer, where the former sells to the latter. At the core of BAT is the so-called business transaction that consists of six phases. Table 1 shows these phases and the generic business actions that constitute the phases on the respective side of the transaction (i.e., supplier or customer).

Orthogonal to the phases BAT offers another dimension, layers, that was introduced in Lind and Goldkuhl (2001). They extend and modify the layers originally suggested by Weigand and van den Heuvel (1998). Layers refer to the granularity of an action and in BAT they are, from fine grain to coarse grain: business act, action pair, exchange, business transaction, and transaction group.

*Table 1. Generic business actions*

Phase	Supplier	Customer
Prerequisites phase	Product/offer development	Identification of problems/needs
Exposure and contact search phase	Offer exposure	Contact search
Proposal phase	Offer	Inquiry
Commitment phase	Order confirmation	Order
Fulfillment phase	Delivery, Invoice, Receipt of payment	Receipt of delivery, Payment
Assessment phase	Acceptance, Claim	Acceptance, Claim

**REFINING THE FRAMEWORK**

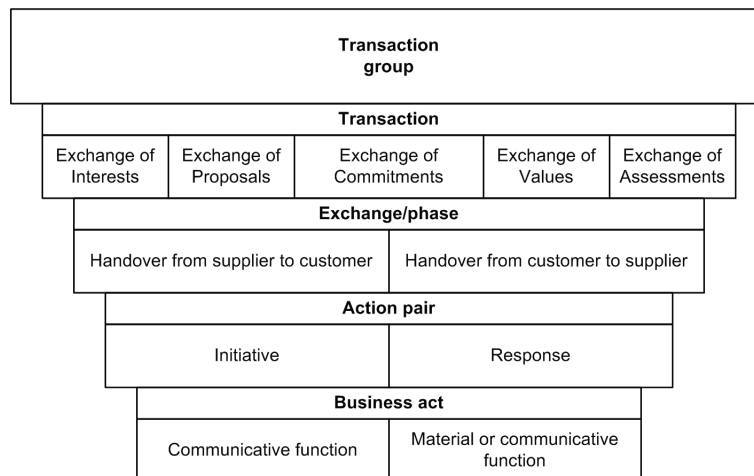
To develop elements of a business action language, the BAT framework is refined as shown in Figure 1. The transaction layer is divided into the exchanges (or phases) that have already been mentioned. An exchange consists of two hand-over actions: One is directed from the supplier to the customer and the other vice versa. These hand-overs usually happen one after the other where the second happens in return for the first, but the order is not predefined; that is, in some cases, the supplier hands over first and in others the customer hands over first.

An action pair consists of two business acts, an initiative and a response. They have already been introduced as trigger and response in Lind and Goldkuhl (2001). On the lowest layer, a business act consists of one or more functions. The importance of these func-

tions was already recognized in Goldkuhl (1996) where they were named mixed communicative actions. If we apply a so-called material and speech act analysis to the remaining generic business actions, we get the results shown in Table 2.

These results show that a business act typically has one or two functions. The communicative function is always present but there might also be another function of either type (see also Figure 1). We are aware of the fact that such a list of generic actions cannot be a prescriptive template for all business interactions, but it shows how material and speech act analysis can identify material and communicative functions. The results of this analysis can help us in finding a set of recurring functions that can be used as a pattern for a modeling language for the analyzed domain. If we compile the identified material and communicative functions and sort them according to the illocutionary

*Figure 1. Structure of the layers*



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