

Continuing the dialogue: Generic layers for business interaction

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1 Introduction

Understanding the business of organizations is a crucial point for developing good information systems supporting the organizations. Different generic business models have been developed based on the language action perspective. There are the models of Action Workflow (Medina-Mora et al, 1992; Denning & Medina-Mora, 1995), DEMO (Dietz, 1999) and BAT (Goldkuhl 1996; 1998). Inspired by these different models, Hans Weigand and his colleagues developed a layered pattern architecture where they tried to incorporate different constructs from the models mentioned above (Weigand et al, 1998). We found their layered model interesting and promising, but containing some conceptual obscurities. To the LAP Workshop of 2001 in Montreal we wrote a paper "Generic Layered Patterns for Business Modelling" (Lind & Goldkuhl, 2001a). In this paper¹ we pursued a critical analysis of the layered architecture by Weigand et al. Based on this analysis we presented an alternative model (see figure 1).

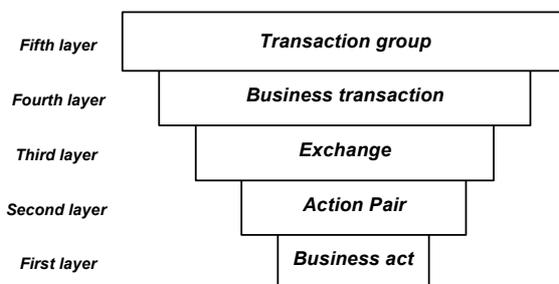


Figure 1: Layers of generic patterns for business modelling (Lind & Goldkuhl 2001a)

As a response to our work and the work by Weigand et al, Jan Dietz has presented a third layered model (see figure 2) in his paper "The Atoms, Molecules and Matter of Organizations" (Dietz, 2002). Dietz bases his model thoroughly on DEMO's underlying theory. In his paper he has criticized and raised some critical questions concerning the other models. There is a need for continuing this dialogue. We will in this commentary paper try to make some elaborate answers to his questions and further discuss the model that he presents. When doing this we will also elaborate on our model and its underlying theory.

There are matters where we seem to disagree with both Dietz and Weigand et al. But there are of course matters where we agree. The basic premise for the dialogue, the need for generic layered models, is a common ground for the efforts for all of us. The focus in this commentary paper will be

¹ A shortened version can be found in Lind & Goldkuhl (2001b)

on matters where we seem to disagree. In this paper we especially focus on the model proposed by Dietz (Dietz, 2002) since we already have critically analyzed the layered pattern architecture proposed by Weigand and his colleagues (see Lind & Goldkuhl, 2001ab).

<i>matter layer</i>	Business Process	
<i>molecular layer</i>	Interaction	Actor
<i>atomic layer</i>	Coordination Act	Action Rule

Figure 2: Framework proposed by Dietz (Dietz, 2002)

This paper will be organized as follows. First we will discuss the scope of the different generic models (section 2). Then we will discuss some basic prerequisites and fundamental issues concerning the basis for the generic models (section 3). After that we have a discussion concerning the different layers in the two generic models (section 4) followed by a discussion concerning the number of and relationships between different layers (section 5). Some of the critique that is stated in Dietz' paper about our generic layered pattern reveal that there is a need for some clarifying descriptions. Therefore we have also provided an illustrative example applicable to each layer (section 6) in our generic layered pattern. This paper will be summarized by some concluding remarks (section 7).

2 Scope of generic models

There are differences between our generic model and the one presented by Dietz. This is shown by Dietz and we will below analyse several differences. It is possible that some of the differences are due to differences in scope between the two models. The initial model made by Weigand et al was designated to be a generic model for electronic commerce. Electronic commerce is to be seen as electronic communication between business parties. When we studied the model of Weigand et al, we conceived it to be a generic model for business interaction (between customer and supplier as business parties) and not only restricted to electronic commerce situations. *The idea behind our model is to describe, through different layered patterns, the generics of business interaction between customer and supplier. Our focus is on what goes on between business parties.* We delimit ourselves in this model from what goes on internally in the organizations. For understanding the internals of organizations we need other models (e.g. Goldkuhl & Röstlinger, 1999; Lind & Goldkuhl, 2002). In our discussed model we focus on the *externals and the interface between trading organizations*. We describe *business acts*, which are *directed towards another business party*. We do not describe any business act, which is performed by one member of an organization and only directed to other members of that same organization. It is also important to notice that our focus is on *commercial interaction*. Our model is dedicated for such settings. For non-commercial settings, parts of our model may be applicable.

Dietz (2002) talks about the atoms, molecules and matters of organizations. This use of terminology together with some other comments by Dietz, has triggered us to wonder if there is a difference in scope between our models. Our purpose, with our model, is not to describe different layers of what goes on inside an organization. We suspect that Dietz might have an ambition of this kind; i.e. this is a slightly different purpose and scope than we have. We have a focus on *inter-organizational commercial interaction*. Dietz might include intra-organizational issues as well as non-commercial settings in his focus. These possible differences in scope will of course lead to some differences between our two generic models.

3 Basic prerequisites

Differences between Dietz' and our model seem to depend on differences in underlying conceptual frameworks. Therefore there is a need to discuss some basic concepts in the models before we go into a detailed discussion concerning the models.

3.1 Different underlying action models

The starting points for the two layered models are both similar and dissimilar. Our first layer consists of "business act" and Dietz' first layer consists of "coordination act" (and "action rule"). Thus, action is a central concept, but there seem to be differences in the comprehensions of this concept. Later in this paper, when we will treat the first layer (section 4.1 below), we will discuss the choices of business act vs coordination act as the first layer. Now we will we make a general elaboration on Dietz' action concepts vs our action concepts.

Dietz (2002) makes "a strict distinction between coordination acts and production acts". Coordination acts are exercised through the performance of communicative acts. "The term 'coordination acts' actually refers to the role communicative acts play in organizations. So, technically spoken, coordination acts may be equated to communicative acts." (ibid). Production act is described in the following way: "By performing *production acts*, the subjects contribute to fulfilling the mission of the organization. A production act can be material or immaterial. Examples of material acts are all kinds of manufacturing acts as well as storage and transportation acts of goods. Examples of immaterial acts are the judgement by a court to condemn someone, the decision to grant an insurance claim, and appointing someone president." (ibid). Dietz states that what is performed in an organization are basically the two kinds of acts: Coordination acts and production acts. He does not name this common category, but we conceive it as equivalent to our notion of business act, so we will use that one below. Then, if we summarise Dietz' action typology we consider it to be in the following way:

Business act

- Coordination act (=communicative act)
- Production act
 - Material act
 - Immaterial act

We use, in our model, business act as common category and sub-class it into communicative acts and material acts. This distinction does not map directly to Dietz' typology, which he has recognised when discussing the basic building block: "if material acts should be included as atomic building blocks, why not also immaterial acts, like making a diagnosis by a physician or passing a sentence on a defendant by a judge, or some other expert decision or judgement? Such an asymmetry in dealing with material acts and immaterial acts seems to be unjustified, as we have demonstrated in section 3. What Lind & Goldkuhl apparently do, is to consider immaterial (production) acts as a kind of communicative acts. They do not provide an explicit account of this position, however." (ibid).

Dietz has introduced the concept of immaterial act. He states that he is missing this in our model. It is correct that we have not used this concept in our analysis. If we shall introduce it, we will do it by introducing another important action concept: *Covert actions*. In the theory of actions there is sometimes made an explicit distinction between *overt and covert* actions (e.g. Schutz, 1962; cf also Goldkuhl, 2002). Overt actions are actions directed to the external world. Covert actions are actions directed from the external world as interpreting or reflecting about the world (ibid). An actor's overt actions aim at changing the external world. This can be done either by material intervention or by communication. An actor's covert actions aim at changing his inner world; i.e. his own knowledge about some part of the world. Thus if we use the concept of immaterial act we would do it with the following meaning: An immaterial act can be an overt act of communication or a covert act of interpretation or reflection. This means that all that is not a material act counts as immaterial acts.

In the description of our layered model (Lind & Goldkuhl, 2001ab) we did not use the concept of immaterial act, since we did not find necessary. Actually we are concerned only with overt actions, and this will be explained in section 4.1 below. Our basic model (business act = communicative act and/or material act) can however easily be expanded (by inclusion of covert actions) to this typology:

Business act

- Interventionist/overt
 - Communicative act (immaterial)
 - Material act
- Covert (immaterial)
 - Interpretative act
 - Reflective act

Based on the above interpretations and refinements we have below made an attempt to map the two action typologies onto each other (table 1).

Table 1: Comparison of action typologies

Action typology of Dietz	Action typology of Goldkuhl & Lind
Material (production) act	Material act
Coordination (communicative) act	Communicative act (= immaterial act)
Immaterial (production) act	Covert act (= immaterial act)

We can understand Dietz' use of the concept of coordinative act, although we find it problematic in certain senses. He equates coordinative act to communicative act, as stated in quote above. This means that he excludes material production acts (as well as immaterial production acts) to be acts of coordination. We claim that such acts can have a coordinative force, and thus might be labelled coordinative acts². We take the delivery of physical goods from a supplier to a customer as an example. The primary importance of this act is that the customer shall arrive at a possession of the goods for a subsequent usage of them. The delivery act is, however, as many other kinds of acts, multifunctional. The customer's recognition of the delivered goods (which is one intended effect of the delivery act) will govern the customer's future behavior in relation to the supplier. The customer will not remind the supplier about delivering the goods, which the customer otherwise probably would have done (if the goods did not turn up). We define coordination to be an important aspect of social action, in the sense that the actors adapt their future behavior in relation to the others dependant on the specific coordinative force of the act. This definition follows from Max Weber's definition of social action: "That action will be called 'social' which in its meaning as intended by the actor or actors, take account of the behavior of others and is thereby oriented in its course." (Weber, 1978 p 4). When an actor takes into account the behavior of other persons in the course of his actions, then this actor behaves in a coordinated way, even if there is no explicit agreement on this matter. We refer also to classical organization theory. Mintzberg (1979) has described several coordination mechanisms in his theory. One of these mechanisms is mutual adaptation. This kind of coordination mechanism can be exerted without any explicit communication. One actor's physical conducting can be regarded by another actor, who adapts his behavior in relation to the first actor. This is similar to what has been said above concerning the delivery of goods.

3.2 Actors and roles

The notion of actor is central in Dietz' model. We use it in our model also, but probably with different meanings. Dietz (2002) describes his actor concept in the following way: "In order to abstract from the particular subject that performs an action and to concentrate on the organizational role of the subject in performing that action, the notion of *actor* is introduced. It is defined as a particular 'amount' of

² More background for this argumentation that material acts have coordinative as well as other social impact can be found in Goldkuhl (2001).

authority, viz. the amount that is needed to perform precisely one kind of production acts. In general, actors do not coincide with or map straightforward to organizational functions. Usually, an actor role may be fulfilled by a number of subjects (concurrently, i.e. the subjects do the same kind of work, as well as collectively, i.e. only together the subjects are able to play the role of actor), and a subject may fulfill concurrently, and of course successively, a number of actor roles.” (ibid). As can be seen from this quote Dietz uses the concepts actor and actor role interchangeably, which makes us a bit confused.

Dietz’ use of the actor concept is closely linked to the concept of agendum (a “to-do-list”). When reading Dietz’ text and his DEMO models we get an impression that actor is delimited by a particular agendum directed to this actor. Actor is thus a concept much more restricted than the concept of a role. A role has, according to our comprehension, a great variety in its action repertoire. We use two generic roles in our model of business interaction. The role of a customer and the role of a supplier. Since our model is a model of dyadic business interaction, we do not need any more roles. We acknowledge customer and supplier to be actors, i.e. they have capacities for performance of intentional actions. We use the actor concept in relation to the role concept in the following way: An actor is comprehended to be an actor due this “unit’s” action capacities. A particular organization can thus be seen as being an actor (cf e.g. Taylor, 1993). In one type of situations, this organization can act in the role of being a supplier; i.e. when selling products to actors demanding them. In other situations, the same organization can act in the role of being a customer. This is when buying products. The organization as such is seen as an actor and it can possess different business roles depending on the situation at hand.

As we understand Dietz’ model, the concept of actor is much more restricted than our concept of (business) roles. Dietz claims that there is a direct link from every agendum to a specific actor. An actor seems to be an abstract coordination role. As we conceive this, there is no place for role concepts with broad action repertoires as customers and suppliers in his model.

Anyhow, his action concept seems to be more of “role character”, as it is delimited from actual organisational performers (cf quote above: “not coincide with organizational functions”). If we should label Dietz’ actor concept we should call it “a sharply restricted coordination role”. Thus we miss both an actor concept (referring to a specific acting unit; i.e. an organization, a group of people or specific person) and a broad role concept (covering a not too restricted action repertoire).

4 The different layers

4.1 Basic unit of analysis

One of the most important issues concerning these three models is the unit on the first layer. In Weigand’s model it is the “speech act”, that is the basic building block. We have reacted to this and suggested “business act” to be the smallest unit. A business act can be a communicative act or a material act. Our main argument for business act instead of speech act is that business interaction between supplier and customer includes exchange of value; i.e. the exchange of products vs money. The delivery of goods are material actions and these kinds of acts cannot be left out in a comprehensive model of business interaction. For more detailed argumentation confer Lind & Goldkuhl (2001a).

Dietz (2002) uses “coordination act” as the smallest building block, i.e. the element on the first layer³. A coordination act is equated to “communicative act”; see quote in section 3.1 above.

Dietz acknowledges the existence of (what he call) production acts, although he rejects to incorporate this type of acts in his layered model explicitly. He is very clear about the importance of production

³ Dietz uses actually two concepts on the first layer, “action rule” besides “coordination act”. We concentrate our analysis on the concept of coordination act since this is comparable to our model. We do not fully understand his use of the second concept (action rule).

acts in organisations: "By performing *production acts*, the subjects contribute to fulfilling the mission of the organization. A production act can be material or immaterial." (ibid). Based on this statement it is a bit astonishing that he does not incorporate production acts in his layered model.

His arguments for choosing conversational act as the atomic building block reads as follows: "The conclusion so far is that there is a principal distinction between communicative acts (coordination acts) on the one hand and material and immaterial acts (production acts) on the other. There is not so much a principal distinction between material and immaterial acts. Therefore, we consider the coordination acts (which lead to the according coordination facts) as the *atoms* of organizations." (ibid).

We can understand the distinction⁴ between communicative/coordination acts and production act. But we cannot understand why this distinction leads to a conclusion that production acts should be excluded as a possible atomic building block. We have made a similar (but not identical) distinction between communicative act and material act (cf discussion in section 3.1 above). Our conclusion is that the recognition of material acts as important business act must imply that they should be included fully in the model. Dietz refers also to the distinction between material and immaterial acts. We cannot understand what role this distinction has for not choosing to incorporate production acts or material acts in the model.

Dietz' arguments refer to our omission of using immaterial act explicitly. We quote from Dietz (ibid): "if material acts should be included as atomic building blocks, why not also immaterial acts, like making a diagnosis by a physician or passing a sentence on a defendant by a judge, or some other expert decision or judgement? Such an asymmetry in dealing with material acts and immaterial acts seems to be unjustified, as we have demonstrated in section 3. What Lind & Goldkuhl apparently do, is to consider immaterial (production) acts as a kind of communicative acts. They do not provide an explicit account of this position, however." We have commented the distinctions between material and immaterial acts in section 3.1 above. Now we focus on how to define and delimit the basic building block.

When describing business interaction (which is actions explicitly directed towards another business party) only overt action can be included. Covert (immaterial) actions are not directed towards other persons/organizations and hence they cannot be accounted for. As an explicit answer to Dietz, we mean that we include immaterial acts of communicative character in our model. This is done under the heading of communicative act. A physician making a diagnosis, that is directed to a patient, is performing a communicative act. In the BAT model this is recognized as a part of the fulfilment phase; a supplier delivering a "product" to the customer (Goldkuhl, 1998). In Dietz model, we understand it, with his terminology, to be an immaterial production act. We do not find it problematic to use this terminology, although we have used another one. We do claim that we consider this kind of actions in our model. We acknowledge that we did not use any examples of service delivery in our model, but it can easily be included (e.g. Goldkuhl & Röstlinger, 2000). Dietz is criticizing us for not including this in our model (which we claim that we do), and we cannot see other than this kind of critique falls back on Dietz himself. Dietz has not included these actions in his model. Why is he asking us to incorporate them, when he does not make this himself?

4.2 Action pair

The second level in our generic layered pattern is called action pair. Action pairs are patterns of triggers and responses. Here we base ourselves on the notion of adjacency pair (Sacks, 1992), which means that actions are related to each other through initiative (trigger) and response (cf also Linell, 1998). Two inter-related business acts (from the first layer) constitute the layer of action pairs. Since Dietz claims that C-acts come into pairs (action and re-action) Dietz rejects the idea that action pairs justifies a new framework layer because these pairs cannot occur in isolation. "They always occur as

4 There might be one problem with the distinction made by Dietz. The immaterial production acts might of course be communicative acts (confer e.g. his own examples). And as such they might have coordinative force. This could also be the case of material acts.

parts of a larger pattern, viz. a complete interaction”. Is it not the purpose with a layered pattern model to derive constructs on higher layers from constructs on lower layers? This means that the two layers (the molecular layer according to Dietz and action pairs according to Lind & Goldkuhl) are not comparable. We interpret it as Dietz includes this dimension in his first layer (the atomic layer). “It is the notion of a C-act resulting in a C-fact that serves as an agendum for some actor. When dealing with this agendum, this actor responds by performing a C-act that results in a new C-fact”.

Dietz argumentation is however inconsistent since Dietz also means that “the action pair of Lind & Goldkuhl, and, for that matter, the transaction of Weigand et al., is not a smallest possible building block”. We fully agree with Dietz in this matter! Action Pair cannot be regarded as the smallest building block since *the* business act need to be regarded as *the* basic unit of analysis. We have severe problems in understanding how a layer constituted by a *single* (business) act, regardless of the underlying theoretical model for understanding actions, also can include related (business) acts.

Further Dietz claims that the notion of action pairs (according to Lind & Goldkuhl) and the notion of transaction (according to Weigand et al) are equivalent to a high extent. According to Weigand et al a transaction is defined as the smallest possible sequence of actions (speech action) that lead to a deontic state change. We do however not restrict action pairs to be grouped together dependent on deontic state changes as in the framework of Weigand et al. Such restriction is important to avoid since we need to make it possible to constitute other (“higher”) generic layers for business interaction that consists of business acts not leading to deontic state changes. We therefore do not agree with Dietz’ statement that the concepts are equivalent.

The second layer (the molecular layer) in Dietz framework consists of proactions and transactions. These are collectively referred as interactions consisting of recurrent patterns of atoms. The second layer (the molecular layer) in Dietz framework also consists of actors. “An actor is fully and uniquely specified by the set of action rules that pertain to the kinds of agenda he is authorized to. Proactions and transactions are the possible patterns of interaction between actors”. It therefore seems that Dietz includes a similar notion as action pairs (among other things) on the molecular layer even though such a statement has not been made.

4.3 Exchange

Dietz rejects the idea that the notion of exchange constitutes the third layer in our generic layered pattern (layer #3). This rejection is based upon that “Lind & Goldkuhl don’t like ‘assymetry’ in the sense that (our) transactions could take place without a ‘counter’ transaction” and that this is quite common practice. Dietz refers to free services. Our generic layered pattern aims however at conceptualizing *commercial* business interaction (confer section 2 concerning possible differences in scope).

Important to notice is that an exchange means that one actor gives something in return for something given by another actor. We claim that there occur a lot of different types of exchanges in a business interaction (see section 2 concerning the scope of the generic models). Examples of such exchanges are exchange of interests, proposals, commitments, values and assessments. An exchange consists of one or several action pairs dealing with the same type of exchange. We believe that Dietz only acknowledge one type of exchange, namely the exchange of value, and thereby he does not see the need for such a generic layer. This is a limited view on business interaction. Our basis for determining such acknowledgement from Dietz is among other things that he claims that “the notion of contract (according to Weigand) equals more or less the notion of exchange according to Lind & Goldkuhl”.

Our generic layered pattern is based on the idea that business interaction during a business transaction (as well as during a transaction group) can be grouped into a number of phases. A certain type of exchange constitutes a phase of business interaction. Since not all actions within the scope of business interaction are about exchanges there must be actions of initiative and response, i.e. action pairs that are not oriented towards exchanges. Important to note is that there are also action pairs in business

interaction concerning different types of exchanges since different phases of business interaction occur in a certain pattern.

4.4 The upper layers

On the fourth level we introduce a business transaction layer. This layer is constituted of different types of exchanges (derived from the exchange layer). The business transaction is further conceptualized in Goldkuhl (1996; 1998). Dietz claims that there are insufficient precise definitions and/or explanations to proceed the discussion of the framework. The same holds for the fifth layer on which we introduce the notion of transaction group (frame contracting).

Such claim from Dietz is however unfortunate since the upper layers intend to describe meaningful constructs concerning business interaction. For us it has been important to construct “lower” layers of generic patterns as a basis for conceptualizing these upper layers (layer #4 and #5), i.e. the content of the lower layers are building-blocks for upper layers and has thereby been influenced by the content of the upper layers. The upper layers describe “common” phenomena (business transactions and frame contracting) why we find it strange that Dietz does not acknowledge these. This drives us to state that Dietz does not acknowledge:

- the logic of interaction between supplier and customer based on different types of exchanges
- different phases of business interaction
- the establishment, sustainment and development of actor relationships, covered by business interaction patterns for long-term agreements

The business transaction layer (according to our model) is oriented towards conceptualizing a pattern of different types of exchanges related to each other. The logic of interaction between the supplier and customer when doing business is the pattern covered by the business transaction. By going through a number of phases consisting of exchanges the goal is to arrive at a state where both supplier and customer have satisfied (parts of) their needs.

The transaction group layer (according to our model) is oriented towards conceptualizing the doing of business between the same supplier and the same customer through a number of business transactions over time. Through long-term based business interactions, actor relationships are established, sustained and developed. One key issue for many businesses of today is to stay competitive through developing powerful relationships to suppliers and customers.

The notion of business process (the matter layer) according to Dietz framework is defined as a composition of connected interactions. Apparently several transactions, proactions and actors constitute a business process. Here we have some problems in understanding whether a business process just covers the business interaction, i.e. the interaction between customer and supplier through a series of inter-related actions, or also covers actions “internally” in the organization (confer section 2). Since there exist such a hesitation we believe that the frameworks (our model vs. Dietz’ model) in some sense are hard to compare. Our hypothesis is however that there might be some similarities between Dietz third layer (the matter layer) and the fourth and the fifth layer in our generic layered pattern. Our generic layered pattern does however advocate for a higher degree of conceptualization (explanation). Our model consists of conceptualizations of interactional patterns for business transactions as well as for transaction groups. Such conceptualization can not be found in Dietz model.

5 Principles of layered models

Dietz claims, with reference to Ockam’s razor, that as few concepts as possible should be used for explaining things. Following this principle he has restricted the layers to three. We agree that we should not use more concepts than possible, but if it is necessary to introduce concepts in order to clarify distinctions which are considered important and meaningful, we must do so. The number of layers should not be reduced in ways that we miss certain meaningful distinctions. For each layer we have clear criteria of what is included. We repeat these criteria here in an explicit way:

On the first layer, there is *one single business act*. On the second layer, there are two business acts, which belong together as *being initiative and response* in relation to each other; i.e. a meaningful action pair. On the third layer, there are business acts, which belong together as being concerned with the *same type of exchange* (e.g. all being proposals). On the fourth layer, there are business acts, all belonging to the *same business transaction*. On the "layer" between the fourth and fifth, there are business acts belonging to the *same frame contracting process*. On the fifth layer, there are business acts, all belonging to the *same transaction group*, i.e. they are all concerned with the same frame contract. The italicized parts are to be interpreted as our criteria for division of layers.

Relations between the layers are ensured by that abstractions acknowledged on higher layers are derived from constructs on lower layers. Dietz claim that the second and third layer of our generic layered pattern are not truly hierarchical, but instead contain typologies of Dietz notion of interaction. We believe that insufficient evidence is provided for such a statement. Further Dietz states that a true hierarchy of layers should consist of components that are compositions of concepts of the lower layer (except for the bottom one). We fully agree and claim that our layered model consists of such a true hierarchy. Dietz however claims that such property for hierarchy of layers does not hold for our layered model, but it does for Dietz model.

We have shown the relations between different generic layers through used concepts (see figure 3 below). Dietz shows such relationships through the use of EBNF-notation. We do however not claim that Dietz framework is inconsistent - it is built upon concepts that are identified on the lower layers. We do however claim that concepts used on different layers are unfortunate for understanding and describing business interaction. This critique can be summarised as follows:

- The lowest layer in Dietz framework is too complex, which have the consequence that it is hard to understand abstractions on higher layers. As an opposite we start from the simple case, the notion of a business act and use this as a basis to derive higher layers.
- The basic unit of analysis used in Dietz framework does not acknowledge that an organization actually performs something for somebody. The actual doing must be taken into consideration when constituting the atoms of organizations.
- The way to relate different business actions to each other is not conceptualized sufficiently in Dietz framework.
- Essential business interaction characteristics, such as exchanges and frame contracting, are not acknowledged

Note that we have further developed the figure (see figure 3) describing the relations between the different generic layers (compared to the conceptual diagram provided in Lind & Goldkuhl, 2001a). In figure 3 we have renamed the category of "relationship management" to frame contracting and that this kind of activity consists of three or four phases of exchanges (possibly exchange of interests, exchange of proposals, exchange of commitments as well as exchange of assessments).

As a further explanation of the content and the relations between the different layer we have also put forward a table (see table 2) that gives an explanation of the different categories used on the different layers. The explanation of the category reveals the relation to lower (except for the first layer) and higher layers (except for the highest layer). Example of the content on each layer is given in the next section (section 6) in table 3.

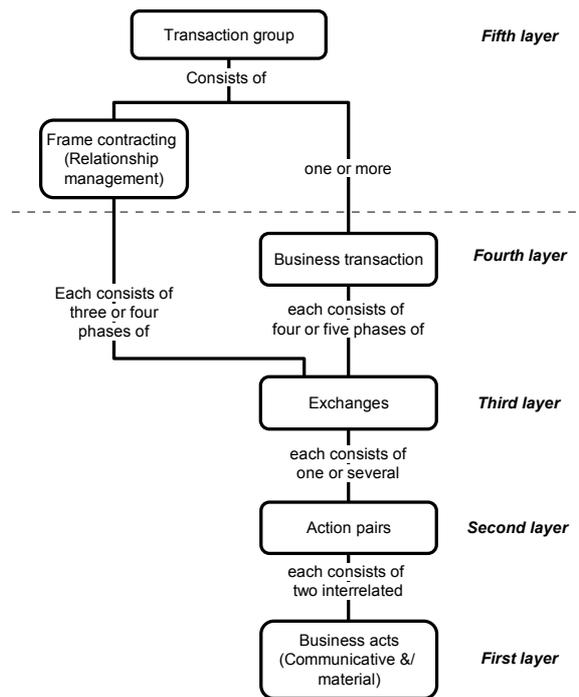


Figure 3: Conceptual relations between different generic layers (further developed from Lind & Goldkuhl, 2001a)

Table 2: Categories on different layers and their explanation

<i>Categories on different layers</i>	<i>Explanation</i>
Business Act	Communicative act or Material act or a combined act of those types
Action Pair	Two inter-related business acts; one is functioning as an initiative and the other as a response
Exchange (Business phase)	One or several action pairs (business acts) regarding the same exchange type (see above for different exchange types)
Business Transaction	Three to five business phases (each representing a particular exchange type). The five exchange types are: exchange of interests (possibly), proposals (possibly), commitments, values, assessments
Frame Contracting (Relationship Management)	Three or four business phases (each representing a particular exchange type). The four exchange types are: exchange of interests (possibly), proposals, commitments, assessments
Transaction Group	Frame contracting and one or several business transactions within the frame contract

6 Clarification through example

Since there are some conclusions about our framework of generic layered pattern that is based upon a need for clarification we have chosen to illustrate it by the use of an example. This example is derived from a case study performed at the steel-company Structo (c.f. Lind & Goldkuhl, 1997). In this case study we performed process modeling of several business processes that constituted the company's different ways of performing business. In figure 4 we have shown the business interaction that occur in the business process long-term agreement customer. This business process includes frame contracting with recurrent business transactions. Since the scope for our generic layered pattern is commercial business interaction (see section 2) we have chosen to use an interaction diagram (c.f.Christiansson, 1998) to illustrate this business interaction.

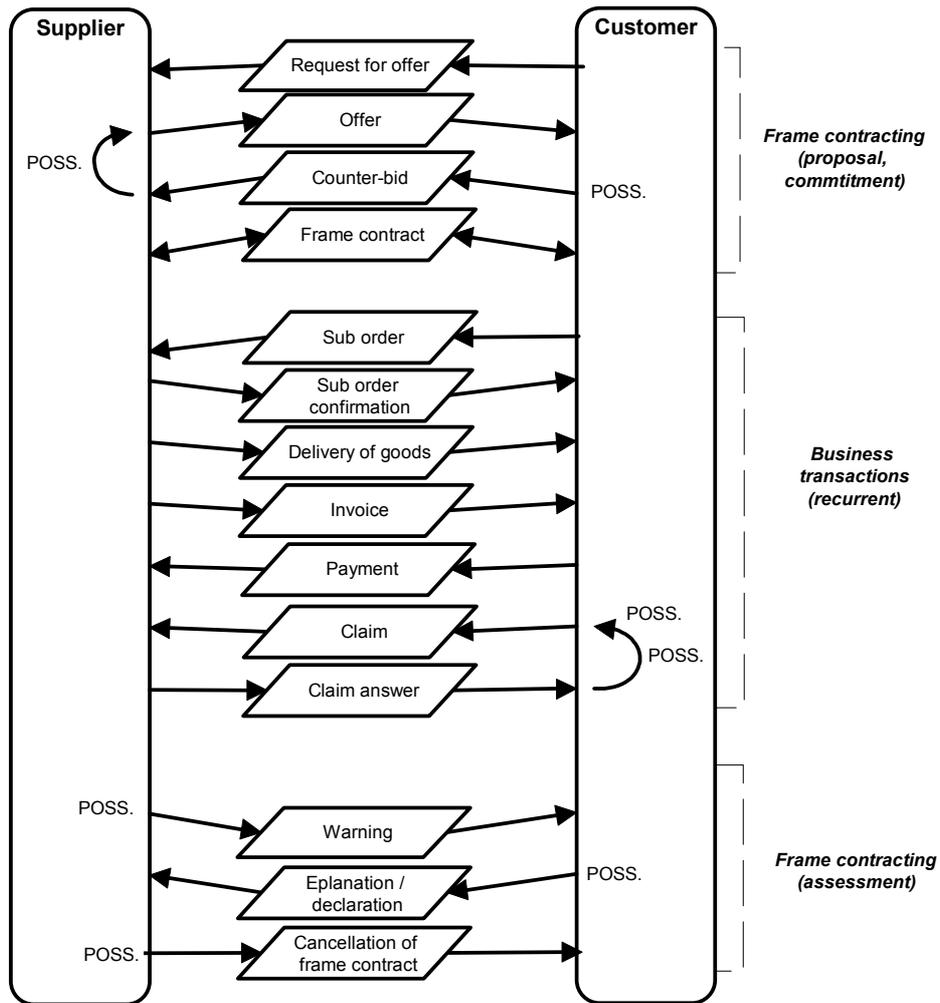


Figure 4: Business interaction in the business process long-term agreement customer at Structo

The example illustrated in figure 4 shows all generic layers advocated for in our generic layered pattern. In table 2 we have given examples of all categories for different layers in our framework based upon the example illustrated in figure 4. Note that we have expressed action results as the example of used category.

Table 3: Examples of the different categories on different layers

<i>Categories on different layers</i>	<i>Examples</i>
Business acts: Communicative acts	<ul style="list-style-type: none"> • Request for offer, Offer, Counter bid, Suborder, Suborder confirmation ...
Business Act: Material acts	<ul style="list-style-type: none"> • Delivery of goods, payment
Action Pair	<ul style="list-style-type: none"> • Request for offer + Offer • Offer + Counter bid • Suborder + Suborder confirmation • Suborder + Delivery of goods • Invoice + Payment • Delivery of goods + Claim • Claim + Claim answer
Exchange	<ul style="list-style-type: none"> • Proposal within Frame Contracting: Request for offer + Offer; Offer + Counter-bid • Commitment within Business Transaction: Suborder + Suborder confirmation • Fulfillment within Business Transaction: Delivery of goods + Payment
Business Transaction	<ul style="list-style-type: none"> • Commitment exchange (suborder, suborder confirmation) • Value exchange (Delivery of goods, invoice, payment) • Assessment exchange (Claim, Claim answer)
Frame Contracting	<ul style="list-style-type: none"> • Proposal exchange (Request for offer, offer, counter bid) • Commitment exchange (frame contracts) • Assessment exchange (warning, explanation/declaration, cancellation of frame contract)
Transaction group	<ul style="list-style-type: none"> • Frame Contracting • Business Transactions (recurrent)

We see an example, as the one used in this section, as a good way to illustrate the application of our generic layered pattern. It is also a way to further specifying the generic model. This in order to avoid misunderstandings. A good way to compare the different generic models referred to in this paper is to use the same example. We would therefore like to encourage Jan Dietz as well as Hans Weigand and his colleagues to test this example for their generic models.

7 Conclusions

There are important differences between our model and Dietz' model for generic layers of business interaction. This has been shown and commented in this paper. There is not only the case of nominal differences, as Dietz partially explains. There are important conceptual differences, which should be further discussed. We have tried to articulate our view here.

In this commentary paper we have

- formulated answers to Dietz' questions
- compared Dietz' model to our model both concerning the different layers and the underlying conceptual frameworks
- commented on several matters in Dietz' model which we do not agree upon
- further elaborated our model

Scientific progress is dependant on dialogues between researchers. The social discourse on concepts, definitions, interpretations and explanations is in the core of science. We find this dialogue concerning different generic business models very interesting and valuable. The critique in the paper of Dietz (2002) has provided us with many important questions and reflections. Through his paper we have got

the opportunity to elaborate our positions further. We are grateful for this. We are looking forward to a continuation of this dialogue.

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