DEVELOPING E-INTERACTIONS
– a framework for business capabilities and exchanges

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Abstract: *The development of e-interactions (IT supported business interaction) need to be facilitated by comprehensive frameworks for business interaction. Existing frameworks cover fragments of the important constituents of business interaction. Based on a review of existing frameworks a more comprehensive one is presented in this paper. This comprehensive framework builds upon a symmetric focus on a supplier and on a customer. Attention is directed towards both communicative and material/financial exchanges. It distinguishes between different levels (markets level and dyadic level) of business interaction and acknowledges the dynamics of business interaction as the continual development of capabilities and business relations. On the dyadic level a distinction is made between frame contracting and business transaction. The proposed framework should be and has been used for evaluating, modelling and designing e-interactions.*

1   INTRODUCTION

There are many IT applications concerning electronic commerce. Such applications differ from traditional intra-organisational information systems. When developing IT-systems for business interaction there is a need for support that goes beyond traditional ISD methods. Our interest in this paper is business interaction and how IT can support this interaction between suppliers and customers. We call this IT supported business interaction for *e-interaction*. Beyond ISD methods, when developing e-interactions, there is a need for appropriate conceptual frameworks. Frameworks for business interaction have been presented by a number of scholars; confer e.g. Ahlström (2000) for an overview of some frameworks. A well-known reference model for electronic markets has been presented by Schmidt & Lindemann (1998). Within the language/action (L/A) tradition there are several business interaction frameworks, see for example Dietz (1999), Goldkuhl (1998), Weigand & van den Heuvel (1998), and Medina-Mora et al (1992); all building on the speech act insights from Searle (1969). These L/A approaches are important since they emphasise actions, communication and interactions in the relations between customer and supplier.

These different frameworks cover a lot of important aspects of business interaction, but unfortunately, none of them seems comprehensive enough. In this paper we will critically review some existing frameworks for business interaction in order to present a more comprehensive one. The development of this framework is based on our analysis of existing frameworks and also learnings from theory and empirical studies. We will especially concentrate on a conceptual framework originally presented by Goldkuhl (1996, 1998), the so-called BAT-model. BAT stands for Business Action Theory. This BAT-model is oriented towards exchange between customer and supplier and different business actions performed by these parties. We find this exchange and action orientation as fundamental for e-interactions.

The purpose of this paper is to investigate possible frameworks for business interaction and assess their merits and shortcomings. This investigation is the basis for proposing a more comprehensive

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conceptual framework for business interaction. The investigation has led us to focus on the BAT-model, which will be used as the main source, but not the only one, in formulating a revised framework.

We will have a *business dyad focus* in our analysis. This means that we will mainly focus on the interplay between a customer and a supplier. However some other aspects in the dyadic context need to be taken into consideration. We are aiming for a generic model covering both B2B and B2C interaction. We also cover different types of products; both goods ands services, and both standardised and tailor-made products.

Our dyadic focus means that we do not cover third-parties or other actors in the business exchange process as appearing in some frameworks (e.g. Timmers, 1999). This should not be interpreted as a denial of the importance to include other type of actors in interaction frameworks. In order to include other parties we need, however, to have a clear conception of the dyadic interaction between a customer and a supplier. This is complex enough for a starting point.

2   FRAMEWORKS FOR BUSINESS INTERACTION

Within the language/action (L/A) community there is an interest for business interaction. The strength of the language/action perspective is that it is based on the idea that communication is not just transfer of information. When you communicate you also act (Searle, 1969). Actions are performed including building commitments and agreements between business parties. Agreements are to be regarded as the backbone of L/A-approaches. Both agreements on what to do and agreements on performed actions are accentuated. Such emphasis on agreements causes a division of the communication process into three or four phases.

Action Workflow (AW) (Medina-Mora et al, 1992) and DEMO (Dietz, 1999) are two frameworks founded in the language/action tradition. Action Workflow (Medina-Mora et al., 1992) regards the conversation flow in an action workflow loop. The basic sequence of actions in the action workflow loop bears on the idea of the two interacting roles of customer and performer, and the loop deals with a particular action that the performer agrees to complete to the satisfaction of the customer. The action workflow loop is divided into four phases; preparation, negotiation, performance and acceptance.

In DEMO (Dietz, 1999) the core concept is the transaction. A transaction is a pattern of activity performed by two actors; the initiator and the executor. A transaction is composed of three phases: the Order phase in which two actors come to an agreement about the execution of some future action; the Execution phase, in which the negotiated action is executed; and the Result phase in which the actors negotiate an agreement about the result as brought about in the execution phase.

Criticism that can put upon AW and DEMO are:
- These frameworks have been used for describing interaction between customer and supplier for inter-organisational issue. However, they are based on an understanding of how performer and customer interact and how *one* part satisfies the other party's need. The frameworks are one-way around models (from customer via performer back to customer) (cf Goldkuhl, 1996). Such asymmetric focus is inappropriate for business interaction. One flaw in these one-sided models is that the act of payment becomes suppressed. Business interaction is more complex than these loop models show.
- These frameworks have a domain of application that cover all kinds of work. AW and DEMO claim that they can be used both in both intra- and inter-organisational settings. Action patterns however differ in these different contexts.
- A business interaction consists of exchanges – both communicative and material exchanges. In AW material acts (such as delivery) are excluded.
- These frameworks build upon an underlying assumption that interactional patterns can be *pre-defined*. It has however been proven (ibid) that such assumption can obstruct the analyst in reconstructing how business is performed.

As a reaction towards these deficiencies, the BAT-model was introduced (c.f. Goldkuhl, 1996; 1998). BAT is a six-phase model describing generic business interaction logic. The model describes interaction between a supplier and a customer. It starts with business prerequisites of customer and supplier and goes through business communication (with e.g. offers, inquiries, negotiation and contract) to fulfilment (through delivery and payment) and ends with the satisfied product usage or discontent and possible claims. The phases are 1) business prerequisites phase, 2) exposure and contact search phase, 3) contact establishment and proposal phase 4) contractual phase, 5) fulfilment phase, and 6) completion phase. The BAT model describes generic business actions between a customer and supplier. Such business actions can be both communicative acts (e.g. offer, order, and confirmation) and material acts (such as delivery of products or transfer of money). The character of these business actions is interactive. This means that one action performed by one business party is directed towards the other business party. These actions are grouped within different exchange types, which constitute the different phases described above. This means exchanges of e.g. proposals, commitments and fulfilments. The concept of business action is an important building block for conceptualising business interaction. Lind & Goldkuhl (2003) have shown how business actions can be grouped to larger units of business interaction in a layered framework. The different layers are business action, action pair, exchange, business transaction, and transaction group.

The BAT-model has been applied in different studies (e.g. Axelsson et al, 2000; Goldkuhl & Melin, 2001; Lind, 2002). Experiences from these studies suggest different extensions and modifications of this model. We will go through and discuss some of these experiences in section 3.1 below.

As mentioned in the introduction, there is a need for more comprehensive frameworks. One promising attempt to create such comprehensive framework has been made by Weigand & van den Heuvel (1998). Inspired by the L/A-oriented approaches Weigand & van den Heuvel (ibid) propose meta-patterns for electronic commerce in a framework consisting of five layers; speech act as the first layer and the basic unit of analysis. The other layers are transaction, workflow loop, contract, and scenario. The meta-patterns rely on the idea that the speech act is the basic unit of analysis that should be used. The five layers are built on L/A-oriented approaches, such as DEMO, Action Workflow and BAT for business modelling. The meta-patterns proposed by Weigand & van den Heuvel (ibid) can be interpreted as an attempt to integrate these different approaches into a coherent wholeness.

The layered pattern architecture presented by Weigand & van den Heuvel is an important step towards relating different L/A-oriented frameworks for business interaction. There are however some flaws in their architecture (cf. Lind & Goldkuhl, 2003). The different approaches integrated in the framework build upon different assumptions and use different conceptual constructs, which means that the approaches and their constructs are not always compatible and thus possible to integrate. In their layered framework there seems to be an insufficient exchange orientation. They do neither acknowledge material actions as building blocks for business interactions. Lind & Goldkuhl (2003) have also identified consistency problems in the layered framework and they have presented an alternative layered pattern (ibid) as one part of the BAT framework; see above for description of these layers. These two layered frameworks have been studied by Jayaweera (2002), who presents a third one consisting of four layers: Economic event, economic commitment, economic contract, agreement (ibid). He has tried to adapt the UN/CEFACT framework for e-commerce (UN/CEFACT TMWG, 2002) to this language/action thinking. When doing this, unresolved inconsistencies unfortunately appear. A non-L/A terminology (using concepts as economic event) is mixed with L/A concepts.

Language/action based frameworks for business interaction are promising since these focus communication and the creation of commitments between different business parties. In business interaction communication cannot be restricted to mere information transfer. These communicative aspects are not focused in many transformation-oriented approaches for business process modelling.

Originally outside the language/action tradition, Schmid & Lindemann (1998) have presented a reference model for electronic markets. This reference model consists of two dimensions; the horizontal and the vertical dimension. The horizontal dimension contains of three identified phases of

market transactions. These are the information phase, agreement phase and the settlement phase. The vertical dimension consists of four views; the business view, the transaction view, the services view, and the infrastructure view. We interpret these four views as different levels of abstraction, in which different aspects of the business transaction consisting of the three phases are focused on each level.

This reference model has in later works (Lechner & Schmid, 2000) been expanded to a more general framework - a media reference model. The first phase has been expanded to two phases; the knowledge phase and the intention phase. In this later development there has also been steps towards a L/A-orientation by having the phases designed to distinguish the illocution of the message (Searle, 1969). This is a promising step, but the language/action orientation has not been fully accomplished in their framework. Further we recognise that the aspects represented by the different views are important aspects to take into consideration, but the description of the different views are unfortunately not sufficiently clear.

Building on an explicit L/A-orientation Schoop (2002) has presented a framework for complex negotiations. This framework is based on the idea that business interaction consists of three phases; the search phase, the negotiation phase and the fulfilment phase. Schoop (2002) also relates this framework to the reference model of Schmid & Lindemann (1998). Schoop's framework has been operationalised in an e-negotiation tool called *N*egoisst that combines efficient communication management with document management (Schoop et al, 2003). This is an important step to show that the language/action concepts are possible to operationalise into in IT-tools and to be useful for supporting business interaction. At the moment this does only cover one part of the business interaction; the negotiation phase.

Business interaction is about exchanges between supplier and customer as Glynn & Lehtinen (1995) and Håkansson & Snehota (1995) say. Such exchanges are constituted by communicative as well as material acts. This emphasis on exchange does also entail a symmetric view of customer and supplier. This view means that both business parties should be acknowledged as active business parties (ibid). All their relevant business actions should be taken into account. This does of course not entail that the power balance between the business parties is symmetric.

None of the above described frameworks seem to be comprehensive enough. The explicit business action character and the exchange orientation within the BAT-model seem to be important basic features of a framework for business interaction. We will therefore focus on the BAT-model as a basis for further development.

3 A COMPREHENSIVE FRAMEWORK FOR E-INTERACTION: NEW BAT

3.1 Unresolved issues in the BAT-model

The BAT-model has been applied in many research studies and development projects. Different observations concerning its applicability have been made. These show some different conceptual uncertainties and flaws. The BAT-model is thus not sufficiently comprehensive. We will comment upon some unresolved issues below.

The fourth phase in the BAT-model is the contractual phase. This phase implies the exchange of mutual commitments by customer and supplier. When applying the BAT-model in a wood-industry context Axelsson et al (2000) identify the need for two contract levels. In B2B interaction it is common to have long-term contracts. Such a contract defines recurrent deliveries. There is a need to distinguish between the frame contract level and the level of sub-orders within such a frame contract. This means that in a framework for business interaction there should be a possibility to distinguish between such different contractual levels.

The BAT-model shows only the interactive flow within a business transaction. It does not show the dynamics of recurrent business transactions. The development of business relations over time is not

described in the BAT-model. Based on empirical findings Goldkuhl & Melin (2001) propose modifications in the BAT-model in order to cover different types of business relation developments. The business interaction between suppliers and customers develops and changes over time dependent on continuous interaction and strategic decisions (Håkansson & Snehota, 1995).

The BAT-model identifies the need to take the pre-requisites of each business party into consideration prior the business transaction. This is done through the first BAT-phase. However, there is no recognition of a continual learning and development of business capabilities (Goldkuhl & Melin, 2001; Goldkuhl & Röstlinger, 2003). The dynamics of business interaction implies such development of business relations and business capabilities. The business pre-requisites phase of BAT is not a phase of interaction. It is rather continuous activities performed as a basis for business interaction.

In several studies, Lind (2002) has observed the need to distinguish between supplier's actions performed towards potential vs particular customers. There are some marketing actions like advertisements and sales promotion that is directed towards the market rather than individual customers. Product development and procurement are other examples of actions often performed towards potential customers. This means an establishment of business conditions and capabilities. When a business contact is established the supplier's actions are adapted to the specific needs and requirements of this particular customer.

The BAT-model is a generic framework for business dyads. The relations to other parties in value chains (Porter, 1985) and value constellations (Normann & Ramirez, 1993) are not expressed. The capability of the supplier is usually highly dependent of the capabilities of its different business partners (sub-contractors and co-producers) and the relations to these partners (c.f. Håkansson & Snehota, 1995; Hedberg et al, 1997). A dyadic framework, in order to be contextual, must recognise larger parts of the value transformation context, i.e. what happens before and after the actual business transaction.

In a comparison of BAT to other theoretical frameworks, Goldkuhl & Röstlinger (2003) identify a vagueness concerning the relation between the organisation and its agents. The BAT-model acknowledges organisations as actors (Ahrne, 1994). The organisation can however not act by itself. It must always act through its human agents (ibid) and nowadays to a large extent through its artificial agents as for example IT-systems (Goldkuhl & Röstlinger, 2003).

The BAT-model has a strong orientation towards business phases. Many other aspects, as the ones discussed above, have not yet been recognised or emphasised in the BAT-model. Besides phases of interaction there is a need to recognise the dyadic context, business dynamics, business relationships, capabilities, and different business levels. We present a revision of the BAT-model below. The revision includes a differentiation into three sub-models. This has also led us to rename BAT to "Business interAction and Transaction model".

3.2   Different levels of business interaction

From the discussion above we can see that business interaction is complex and involves many important issues. Exchange between business parties (customer and supplier) must form the core of a business interaction framework. Exchange can however be performed in different business interaction contexts. The BAT model (and also other frameworks) does not acknowledge more than one interaction context.

We first distinguish between interaction on a market level vs interaction on a dyadic level (see figure 1). On a market level a supplier interacts in relation to potential customers and vice versa. We call this interaction knowledge/contact search and exposure. A supplier investigates the market in order to obtain important strategic knowledge. Such investigation can concern product requirements, possible customers, important market considerations as competitors, and different infrastructural and institutional issues. Such knowledge can be a basis for development of supplier's business capability. Development of business capability can include product development, acquisition of new production

equipment, and development of new forms and instruments of business interaction (such as e-commerce systems). This means that such capability development also is a design of the dyadic business interaction. Development of capability may many times also include the establishment of a readiness to participate in particular business interactions. This means for example procurement, production, and establishment of a standard stock of products.

As said above, the supplier searches for knowledge. However the supplier also search for contacts. This is done through an exposure of the supplier, its existence as a supplier and its capability and product repertoire. Advertisement and other marketing activities are important in this general exposure. On this market level the supplier directs its efforts towards potential customers. These potential customers can be known or unknown to the supplier. The customer is potential as long as this customer is not engaged in a business transaction relevant to a particular product type.

We have now viewed this market interaction from the supplier's perspective. We now turn to a customer perspective. The role of a customer arises from a lack of capability. There is something in the customer's activities, which need to be resolved, and this may be done through purchase of a product. The customer searches for knowledge about potential products and potential suppliers to meet the demands. Through this knowledge search activities, the customer's understanding of the product requirements may emerge. The customer may more directly expose the desire to get into contact with potential suppliers. This market interaction is driven by general business interests of both suppliers and customers. When a contact is reached between a supplier and a customer this interaction may proceed to the dyadic interaction. The general business interests (of the market level) are now turned into particular business interests.

On the dyadic level we distinguish between frame contracting and business transactions (figure 1). Sometimes frame contracts govern business transactions. Many times business transactions are instead governed by separate (single) transaction orders and no frame contracts exist. Frame contract means a contract concerning several subsequent business transactions that can be different sub deliveries. The frame contract level as well as the business transaction level consists of different type of exchanges between a particular supplier and a particular customer. The frame contract concerns establishment of long-term agreements. These agreements govern recurrent business transactions in which the frame contract is gradually fulfilled. A business transaction is exchanges concerning agreements and fulfilment of these agreements. On the frame contracting level there is no exchange of value (products vs money). This occurs on the business transaction level. Interactions on the dyadic level contribute to the development of the supplier's and the customer's different capabilities.

In figure 1 the different levels of business interaction is depicted. The market level is distinguished from the dyadic level. The dynamic of business interaction and the relations between the different levels are described. The two levels of business interaction (frame contracting vs business transaction) in the dyadic level are also distinguished. All these interactions are governed by the parties' capabilities and they influence the development of these capabilities. The model (figure 1) thus emphasises a gradual learning process through business interactions. Business capabilities are used and developed.
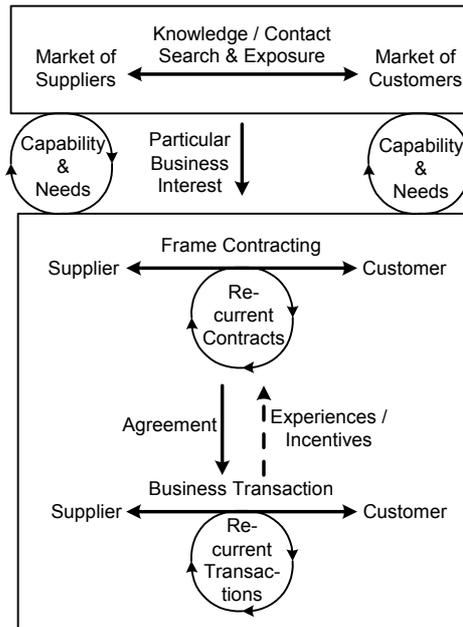
Figure 1: Levels of business interaction

3.3   Frame contracting

Moving into the dyadic level two different levels of business interaction can be identified; frame contracting and business transaction (see figure 1). Frame contracting occurs between a particular supplier and a particular customer. A frame contract is a long-term agreement. Such an agreement is established through exchange of proposals and commitments (figure 2). Exchange of proposals means negotiation between the two parties. Bids and counter-bids concerning particular products, prices and adjacent conditions are exchanged. Proposals may also include exchange of knowledge concerning other conditions relevant to the business interaction, i.e. different aspects of the parties' capabilities. Exchange of commitments means the establishment of each party's obligations within a frame contract. These obligations concern the expected future business actions of each party. The frame contract is an agreement that governs the subsequent recurrent business transactions. There will of course be situations where the business parties do not come to an agreement. In such a situation no contract is settled and the business interaction is terminated.

Experiences from the performance of business transactions may be a basis for an assessment of the frame contract and its fulfilments. Assessments can be made by each party and some of these can be exposed to the other party, i.e. assessments may be exchanged. When a discontent exists and a change is desired this need to be expressed as a claim for improvement to the other party. Of course satisfaction may also be expressed as compliments. A new frame contract should build on experiences and performed assessments.

As shown in figure 1 there may be a recurrence of frame contracting over time. This means also a continual development of business relations. Before the frame-contracting interaction begins there exists some type of business relation between the two parties. If the parties have traded earlier experience-based business relations exist and these form pre-contractual relations giving expectations for the next turn of business interaction. This also means that post-contractual relations become pre-contractual when a new frame contracting process is executed. In cases where no prior business interaction has occurred, the business relations are thin. This means that the parties are rather unfamiliar to each other. This will of course influence the behaviour in the negotiation process. As Keen et al (2000) state, trusting relations are of key importance in e-interactions.

The frame contracting will be based on each party's capabilities and through the process these capabilities will usually emerge. For example the negotiation can include development of new products. Based on the supplier's general existing capability, new products might be specified which might lead to a development of the supplier's capability. Such a new product might also influence the customer's production process, which is part of the customer's capability.
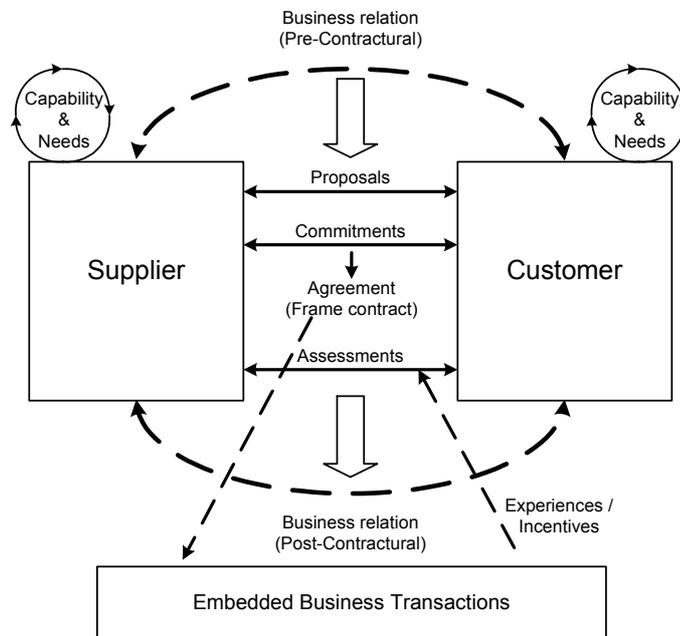

Figure 2: The constituents of frame contracting

Establishment of a frame contract might also initiate procurement and production processes in order to ensure a readiness for future sub-ordered deliveries. Such readiness, in contrast to the one established on the market level, is thus established for a particular customer.

In figure 2 the exchanges of frame contracting are depicted. In this figure we also include an important part of the context – the relation to the business transaction level.

3.4   Business transaction

Besides frame contracting the other level of business interaction on the dyadic level is the business transaction (see figure 1). Business transactions occur between a particular supplier and a particular customer. A business transaction comprises the establishment, fulfilment and assessment of a business agreement (see figure 3) in order to satisfy one or several related product needs of the customer. This means exchanges of proposals, commitments, fulfilments and assessments. A business transaction concerns a particular transaction occasion. This can include several products within the same contract. During the execution of a business transaction, new product needs can be discovered and/or other product supply can be exposed leading to more products included in the business deal.

The exchange of fulfilments means the exchange of value. It is only on this level that the exchange of value (goods and/or services in the exchange for money) occurs. If either part is not satisfied with the fulfilment, a reclaim might be directed to the other party, which occurs during the assessment phase. Of course, appreciative assessments may also be exchanged.

The business communication prior to the fulfilments will differ dependent on the contractual situation. In business transactions there can be either a frame contract based sub-order or a separate (single) transaction order. If there exists a frame contract there will thus be a sub-order from the customer in

accordance with this frame contract. In a frame contracting situation the need for exchanging proposals will decrease and be determined by the specifications in the frame contract. Many times the proposal phase will be short-circuited when there exist a frame contract. One of the main intentions behind frame contracting is to decrease transaction costs through decreased interaction. Usually the contents and the transfer of the sub-order is standardised in ways to decrease transaction costs. Frame contracting is also used to reduce uncertainties and to ensure future procurement, production and sale.

If no frame contract exists we have the case with separate transaction order. In such a case the proposal and the commitment phases often need to be more elaborated compared to sub-orders within frame contracts. This is of course dependent on the character of the product and other important business circumstances. The strive for minimising transaction costs leads to standardisation of these types of transactions as well. This can be seen as one driving force for the development of e-commerce applications; transaction standardisation for transaction cost reduction.

Even single transaction orders can include development of new products or adaptations of existing products to specific customer needs. Such specification will be performed within the proposal and commitment phases. The results of these development efforts will improve the capabilities of the business parties and these improved capabilities can be used and exploited in future situations.

The business interaction between the particular supplier and the particular customer are performed within an inter-actor business process, which consists of different sub-processes. The delivery of products as part of the fulfilment is one stage in a value transformation process. The supplier part of this value transformation process consists of activities for sales and delivery as well as product provision. It is essential to acknowledge the flow of products within and between different organisations. Each organisation performs value-adding activities to the particular product (Porter, 1985). A supplier must usually procure pre-products as basis for their production. This is obvious when we talk about physical goods. But even in service product situations there is often a need to acquire pre-products in order to produce and distribute the desired services. The provision and delivery processes may be performed differently dependent on if one is dealing with a standardised or a tailor-made product. Sales of standardised goods imply the possibility of using a stock of such products in order to shorten the time between order and delivery.
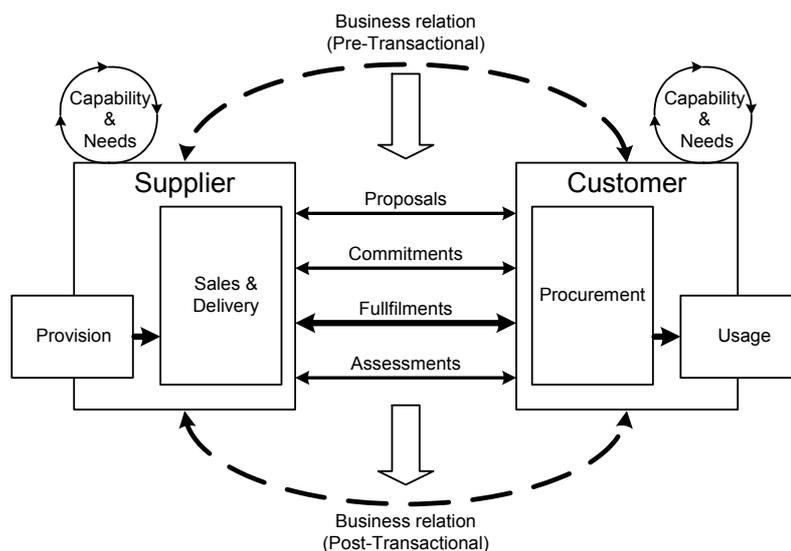

Figure 3: The constituents of the business transaction

Customers procure products in order to have their needs satisfied. These products are purchased in order to be used by the customer. The customer must be prepared to receive the product. This means that the customer may need to perform some preparatory activities before the products can be put into

use. The usage situation may of course differ to a large degree dependent on whether the product will be a component (pre-product) in the production of another product or if it is to be conceived as an end product with an independent use.

The business transaction is dependent on the existing business relation between the business parties. Such relations can be deep if there exist prior interaction, and thin if no or little interaction has occurred. In the frame contract case, the frame contract functions as a regulator of the business relation between the two parties. The business relation does not only consist of these formal agreements, but also of the collected experiences of prior business interactions. The execution of the business transaction will influence the business relation dependent on its performance. If there will be recurrent business transactions, the post-transactional relations will form the pre-transactional relations in the next business transaction. Such business transaction recurrence is dependent on the existence of a frame contract. The frame contract defines the occurrence of several recurrent business transactions. In the case of a separate transaction order, recurrence occurs when the two parties choose trade again.

The business interaction aims at improving both parties' capabilities in different respects. The customer wants to satisfy certain needs through the product usage. The purchased product will enable the customer to perform desired actions. The customer compensates the supplier for the delivery. This compensation will increase the financial capability of the supplier. The business interaction will however often have learning effects on both parties. Experiences from the execution of the business interaction may improve the capability for future business interactions. This capability improvement can apply both to this particular business dyad, but also to interaction with other business parties. Experiences from business interaction can be a basis for both continuous improvement on a daily basis and be incentives for more strategic developments.

In figure 3 the exchanges of business transaction are depicted. Besides business interaction and exchange we have also included a value transformation dimension in the figure. A product flow from provision via delivery and procurement to usage is shown. There are also links outside the organisational boundaries to other business actors. This is indicated in figure 3 by the boxes of provision and usage as antecedent to the supplier and succedent to the customer. The provision link (outside the supplier) gives also an indication of that the supplier's capability is dependent on capabilities of its sub-contractors and other business parties (Hedberg et al, 1997).

4   CONCLUSIONS

This paper has been about developing a comprehensive framework for business interaction. What do we mean by comprehensive? We have presented a dyadic framework for business interaction. This implies a *symmetric focus* on a supplier and a customer. The framework includes important *contextual aspects* in relation to the business dyad. The business interaction of a *particular dyad* emerges from *interaction on a market level* between potential suppliers and potential customers. The business interaction within a business transaction is one part of a larger value transformation. Links to other business parties in the *value transformation* are thus recognised.

Other important characteristics of our comprehensive framework are the division of the dyadic business interaction in two levels; *frame contracting* and *business transaction*. The significance of the *capabilities* of the business parties is emphasised. The dynamics of these capabilities are stressed. The capabilities evolve gradually through business interactions. Capabilities are prior conditions to business interactions and used and exploited during such interaction. Capabilities are affected by the execution of the business interaction and the learning that arises from it. The dynamics of business interaction are also emphasised through other aspects. Business interactions are described as *exchanges* between customers and suppliers. We acknowledge different types of exchanges; communicative as well as material exchanges. Exchanges rely on *business relations* between the business parties. Such business relations evolve through business interactions on a frame contracting and business transaction level. Business interactions on these different levels may be performed

recurrently. This will have effects on the continuous evolvement of the business relations between the two business parties.

We have based our work mainly on earlier research on the BAT-model, which was the main inspiration for developing this comprehensive framework. We have taken into account the different unresolved issues in the BAT-model summarised section 3.1 above and then presented a revised BAT framework consisting of three sub-models. BAT can be seen to be an integral part of the workpractice framework presented in Goldkuhl & Röstlinger (2003).

The comprehensive framework for business interaction is to be seen as *pragmatic instrument*. It shapes our understanding of e-interactions. It can be used for several purposes. It can be used as a conceptual instrument when *evaluating* existing business interaction. It guides the evaluator to focus different important aspects of the business interaction. Such an evaluation can be used as a basis for redesign. The framework can be used for *modelling* and *designing* e-interactions. In such situations it may be used in combination with appropriate ISD methods. This framework consists of generic models of business interaction, which can be used as templates for analysing and designing e-interaction. The framework can help to identify necessary business actions. It reminds the designers about different dynamic features of business interaction as exchanges, recurrence, evolvement of business relations and capabilities. It can give structure in the design process and be a basis for the important design of business actions and the allocation of actions to different agents (human agents and IT artefacts). Development of IT-support for business interaction is to be seen as a basic development of business capability. One challenge is how to redevelop IT capability based on continual experiences from business interactions. Human agents usually adapt in flexible ways dependent on their acquired experiences. IT artefacts need to be redesigned in order to change their behaviour in a structural way.

Our reference model is based on a value transformation perspective. This means that the generic framework can be applied in several business dyad situations. Sometimes an organisation is a supplier and sometimes an organisation is a customer. The framework can be applied in such different situations. The proposed framework has been developed from theories and empirical findings. We have reviewed several frameworks for business interaction and this review has led us to identify important properties to aim for. Our position is to

- see business action as a building block,
- emphasise the exchange character of business interaction and
- adopt a symmetric view on business parties and their interaction,
- acknowledge both communicative, material and financial interaction.

This made us to focus on the BAT-model as the main source of inspiration. Different experiences and assessments from application and analysis of the BAT-model were used as basis for the development of the comprehensive framework together with knowledge from other theoretical and empirical sources. The development of the framework can thus be seen us a combined theoretical and empirical endeavour. Within the scope of this paper there was not enough space to elaborate these theoretical and empirical grounds in detail. This is one task for future work. Other tasks are to use it in evaluation and design of e-interactions and report on its applications.

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