2002

Understanding B2B Interaction - A Model to Accenture Interorganizational Systems Design Issues

Karin Axelsson
Linkoping University, karax@ida.liu.se

Ulf Melin
Linkoping University, ulfme@ida.liu.se

Goran Goldkuhl
Linkoping University, ggo@ida.liu.se

UNDERSTANDING B2B INTERACTION – A MODEL TO ACCENTUATE INTER-ORGANISATIONAL SYSTEMS DESIGN ISSUES

Karin Axelsson

VITS Research Group, Dept of Computer and Information Science, Linköping University, SE-581 83 Linköping, Sweden
phone +4613284053 fax +4613284435
karax@ida.liu.se

Ulf Melin

VITS Research Group, Dept of Computer and Information Science, Linköping University, SE-581 83 Linköping, Sweden
phone +4613284437 fax +4613284435
ulfme@ida.liu.se

Göran Goldkuhl

VITS Research Group, Dept of Computer and Information Science, Linköping University, SE-581 83 Linköping, Sweden
phone +46705529815 fax +4613284435
ggo@ida.liu.se

ABSTRACT

In this paper, we argue for the need to thoroughly understand business-to-business (B2B) interaction when designing inter-organisational systems (IOS). This understanding is critical since an IOS both has influence on and is influenced by existing business logic. As a means to reach such understanding we propose a phase model for business interaction, together with a perspective based on business action theory (BAT). Business interaction is defined as consisting of business communication and exchange of value. BAT divides business processes into six generic phases encompassing generic, interactive actions between a seller and a buyer. Different types of exchange occur in these phases. The BAT phase model is an instrument for analysing interaction in a business relation. The outcome of this analysis can then be used for improvements of interaction and serve as a ground for developing a suitable IOS. We explain the theoretical background of this model, i.e. the business action theory, and discuss how the model can be useful in IOS and business design situations. The purpose of the paper is to emphasise that inter-organisational development processes, including IOS design, are depending on a thorough understanding of business interaction.

541

1. INTRODUCTION

No business is an island, according to Håkansson and Snehota [1989]. As long as we have traded we have been interacting with each other; requested and offered products and services, negotiated about the price, promised to deliver and pay, fulfilled the transaction, and maybe reclaimed afterwards if we were not satisfied. This business logic was true during Stone Age barter and it still holds true in the electronic commerce of the 21st century. Many other things have changed, though. The dependence on information technology (IT) is rapidly increasing within business interaction. Organisations do not only use IT-systems for their internal activities, but also for inter-organisational B2B and B2C interaction. Such inter-organisational systems (IOS) have been on the IS research agenda for more than twenty years [Cavaye and Cragg, 1995, p. 14]. Konsynski [1992, p. 45] points out some areas where IOS design meets different and more complex challenges compared to intra-organisational IS design; e.g. loss of control and influence for the participating organisations, cross-cultural issues must be handled, consensus between organisations are difficult to reach, inter-organisational standards must be decided, and informal procedures are often seen as the norm. Kumar and van Dissel [1996] develop a typology of IOS to provide an overall map of the phenomenon. They categorise IOS as either pooled information resources IOS, value/supply-chain IOS, or networked IOS. These types of IOS manifest different kinds of interdependencies (pooled, sequential, and reciprocal) between organisations [ibid, p. 285]. Due to the different levels of interdependence they imply different levels of structurability and are exposed to different risks and sources of conflict. Kumar and van Dissel [ibid.] stress the importance for the interacting organisations to be aware of possible risks with IOS and actively try to avoid them.

It would be an inappropriate simplification to assume that IOS design is mainly a technical matter. Instead, IOS design demands a thorough understanding of what organisational challenges the interacting parties will meet as well as a common strategy for how to handle this situation. Important parts of such a strategy seem to be a distinctiveness in business communication (understanding business acts and sequences), a willingness to view the business relationship from both the buyer's and the seller's perspective, and a joint aim to develop the businesses inter-organisationally. As Konsynski [1992, p. 61] says *"The best leverage of the IOS opportunity lies in redesign, re-engineering, or re-rationalization, of business processes, not just in one organization, but across many organizations"*.

Given these obvious challenges and risks in IOS design, we propose a phase model based on business action theory (BAT) as a tool for understanding organisational interaction. The BAT phase model is an instrument for analysing two parties' (a seller and a buyer) interaction in a business relationship. The outcome of this analysis can then be used for improvements of interaction and serve as a ground for developing a suitable IOS. In this paper, we explain the theoretical background of this model, i.e. the business action theory, and discuss how the model can be useful in IOS and business design situations. The purpose of the paper is to emphasise that inter-organisational development processes, including IOS design, are depending on a thorough understanding of the business interaction.

The paper is arranged in the following sections; after this brief introduction we discuss some theoretical work on B2B interaction, mainly based on the business network approach. The BAT model's outline and characteristics as well as its theoretical sources are presented and discussed in section three. The paper finally highlights some implications for IOS design in section four.

2. BUSINESSES IN INTER-ORGANISATIONAL INTERACTION

Senn [2000, p. 23] argues that B2B electronic commerce should not be seen as an Internet-based phenomenon, but rather as a restructuring of the very basis for conducting business. Supported by IOS the buyer and the seller are able to interact in new ways. This means that the map can be redrawn. Senn [ibid.] defines it as a fundamental shift in the manner in which organisations interact with buyers and

suppliers. In this time of fast technological innovations and new ways of organising, it is thus crucial to focus upon the very fundamentals of a business interaction.

2.1. Business interaction models

In order to analyse and understand business interaction, conceptual frameworks can be useful. There are many kinds of more or less generic models that aim at visualising sequential steps or phases along a value chain or a business process. Ahlström [2000], for example, presents one such model of business interaction and gives an overview of several other models. Håkansson [1982, p. 24] describes a perspective on interaction as a reciprocal action performed both by a seller and a buyer in an interaction model. This interaction model is not sequential, instead it consists of four groups of variables, so-called main elements (italicised below). These main elements have an influence on the interaction between the buying and the selling company: 1) Variables that describe the involved actors, both as *organisations* and *individuals*. 2) Variables that describe the elements and the *interaction process*. 3) Variables that describe the *environment/context* in which the interaction takes place. 4) Variables that describe the *atmosphere* that has an influence on, and is influenced by the interaction. The interaction model introduced by Håkansson [1982] focuses on a dyad. It is also important to understand relations in a context. Such a context can be other relations and business networks. The industrial/business network approach, "the Uppsala School" [e.g. Håkansson, 1982; Axelsson and Easton, 1992; Håkansson and Snehota, 1995], can help us to reach such understanding.

Interaction between firms can be characterized in different ways. (1) Complexity, (2) symmetry and (3) informality are structural characteristics of a relationship [Håkansson and Snehota, 1995]. The *complexity* in a relationship can comprise the number, type and contact channels for those from each organisation who are involved in a business relation [ibid.]. Also, contacts can vary from level to level between firms. Most relations in industrial networks are characterised by customers and suppliers being *symmetrical* in terms of resources and initiatives on each side. The relationships often demonstrate a *low level of formality*. Even though formal contracts exist, they are seldom referred to [ibid.].

Another important aspect to study is different dimensions of relationships, such as links, bonds and ties. *Links* refer to the connections that exist in the activities between customer and supplier, so-called activity links. Activities can be of various types, for example technical, administrative or commercial. The links between activities reflect the need for co-ordination which affects how and when various activities are carried out. Matching one actor's resources with others' and dividing out the tasks are examples of an aim towards purchasing and marketing functions within an organisation. This, in turn, has consequences for both the costs for carrying out the activities and their effectiveness [ibid.]. *Bonds* between the actors in a network can be of various types, for example technical, social, time based, knowledge based, administrative, economic, and legal. Bonds may have various aims, an example being to achieve co-ordination as a means of saving money. To gain access to suitable co-operators and maintain a certain position in the network are other examples of the importance of handling bonds. A relationship between two organisations affects the way in which the organisations use their resources, for example personnel, equipment, know-how, and financial. A relationship between two organisations can comprise pooled resources of these kinds, so-called resource *ties*. The relationships between organisations are not just a way of assuring access to resources, they are also a way of getting various types of resources to meet, confront and combine [ibid.]. In this case, an IOS is a good example of a resource that ties businesses together and can work as a technical bond.

The kind of generic models presented above makes it possible to identify and distinguish between different steps or phases, and also to identify feasible ways to integrate information and actions along a business process. Timmers [2000, p. 33] proposes a systematic approach to identify architectures for business models based on deconstruction and reconstruction. He uses parts of business processes (e.g. critical actions in operations, procurement, sales) in order to deconstruct sequences of activities. Timmers looks for interaction patterns to find the actors involved (sellers, buyers, partners) and how they integrate or combine their information. The interaction patterns can be one-to-one, one-to-many,

543

many-to-one, and many-to-many. Finally, Timmers reconstructs the steps of the business process for a particular business model by combining interaction patterns with integration of activities, and thus illustrates a specific business logic within the business process [ibid.]. This approach has similarities to our work. In the next section we introduce the interaction model based on business action theory.

3.   BUSINESS ACTION THEORY

The business action theory (BAT) is a conceptualisation of business interaction. Business interaction is defined as consisting of business communication and exchange of value. BAT divides business processes into six generic phases encompassing generic, interactive actions between a seller and a buyer; for example offer, express purchase interest, order, confirm order, deliver, and pay. Different types of exchange occur in these phases of the business process.

The first version of BAT was presented by Goldkuhl [1996]. The theory has then been further refined and grounded in both theory and practice, documented by for example Goldkuhl [1998], Melin and Goldkuhl [1999], Axelsson et al. [2000], Goldkuhl and Melin [2001], Lind and Goldkuhl [2001].

3.1.   Theoretical sources

A dyad consists of a supplier and a customer performing actions directed towards each other. These actions together form a business interaction. Parts of this interaction consist of exchange of information (i.e. business communication) and parts of it can be labelled as exchange of value, i.e. exchange of products (goods/services) vs. money. The business communication cannot be seen as mere information transfer. The business communication consists of communicative acts that include both representation of the world as talked about and certain "relationship creators". When performing a communicative act, an actor is not only presenting some facts of the world but is *doing* something when communicating in relation to the recipient; e.g. commitments and expectations are raised.

Let us use a simple example to illustrate this important thesis. There can be a piece of a message consisting of delivery information like product identification, quantity, delivery time, etc. This piece of information, which represents a part of the world referred to, can be part of different communicative acts. It can be part of a query from a customer about possibilities to deliver the item. It can be part of an offer from a supplier, or it can be part of an order from a customer, or part of an order confirmation from the supplier. It can also be part of a delivery slip following the goods, or an invoice to the customer, or a reclaim from the customer. All these communicative acts cannot be reduced to a transfer of information about some universe of discourse. They are all different acts creating different types of relationships between communicator and recipient.

A theory of business interaction benefits from a proper understanding of communication. Speech act theory of Austin [1962], Searle [1969] and Habermas [1984] offers such a proper conceptualisation of communication. The main thesis of speech act theory is that all communication should be seen as action and that every such act consists of two parts: 1) The *propositional* part (i.e. references to the world talked about) and 2) the *illocutionary* (or performative) part (i.e. the action mode with force to establish different inter-personal relationships).

Austin [1962] criticised the "descriptive fallacy" in philosophy and science, i.e. the misconception that language is used only for description of the world. We use language to describe the world but we also do a lot of other things with language. We promise, request, command, declare, issue, appoint, excuse and thank, just to mention some typical illocutionary acts.

Speech act theory has been used as a main source of inspiration for several generic business models. There are two well-known models describing business interaction and performance; the Action Workflow model [Denning and Medina-Mora, 1995] and the DEMO model [Dietz, 1994]. A business interaction can be seen as formed by a generic action pattern. This means that certain types of acts are per-

544

formed and that these acts are related to each other by a certain business and communication logic. The Action Workflow describes business interaction to consist of two basic roles (called customer and performer) and of four different phases: 1) preparation, 2) agreement, 3) performance, and 4) acceptance. In the preparation phase there can be requests from the customer and offers from the performer. In the next phase, customer and performer come to an agreement of what to be done by the performer. In the performance phase, the executor reports what has been done. In the last phase, the customer accepts what has been done or declares some kind of dissatisfaction if necessary.

In the Action Workflow model (and also in the DEMO model) there is an attempt to catch the generic pattern of a business transaction. The different phases represent communicative acts of different types (with clear inspiration from speech act theory). The communicative acts are ordered into a basic pattern. An agreement must be preceded by some initial request and must be followed by the performance of the agreed action and this in turn succeeded by some statement of acceptance or non-acceptance.

The basic principles from speech act theory and the ideas of generic acts and phases of business interaction (from Action Workflow and DEMO) form the starting point for Business Action Theory (BAT). These frameworks are, thus, not the only theoretical base for BAT. It is not enough with general theories concerning communication. A proper understanding of business issues is needed. This can be found in e.g. the business network approach (above). In Goldkuhl [1998] there is a further discussion about the theoretical ground and the relationships and differences between these theories and BAT.

We described the Action Workflow model very briefly above. We get some inspiration from this model but, based on Goldkuhl [1996], we reject it as a proper generic model for business interaction. A thorough critique is found in Goldkuhl [ibid.]. (cf also Verharen [1997] who includes a critical examination of Action Workflow, DEMO and BAT. As a result of this comparison Verharen gives preference to BAT as a proper model of business interaction.) We summarise some main critical points here: The model is not symmetrical enough. It excludes several important acts (e.g. fulfilment from customer and acceptance/reclaim from performer/supplier). It has an emphasis on performer/supplier serving the customer and excluding the commitments of the customer towards the supplier. There is not a proper view of the exchange between customer and supplier. Being just a communication model it excludes material action. The performance is reduced to a mere statement of what has been performed. Goldkuhl [ibid.] also criticise the Action Workflow model for starting too late in the business interaction. Early stages of the business interaction are thus excluded.

3.2.   The BAT phase model

One of the most important parts of BAT is a phase model of business interaction between supplier and customer. These phases are arranged around a business transaction: What generic acts are performed when a supplier sells something and what generic acts are performed when a customer purchases something? A graphical model is presented in figure 1 where the different phases are made explicit. Business interaction has here been divided into six generic phases: 1) Establishing business prerequisites phase, 2) Exposure and contact search phase, 3) Proposal phase, 4) Contractual phase, 5) Fulfilment phase, and 6) Assessment phase.

The first phase is concerned with establishing prerequisites for performing business. On the supplier side the keyword is *ability*. The supplier must have an ability (a capacity and a know-how) to perform business; to make offers and contracts and to fulfil these contracts. This ability can exist within the supplier's own organisation, but it can also be mobilised by the supplier from other actors outside the organisation. The customer does not have the corresponding ability (or has certain reasons for not utilising such an ability). In the operations of the customer there are *lacks and needs* which may be satisfied by potential suppliers and their products (goods/services). This first phase represents the processes of establishing prerequisites for business interaction. Business prerequisites are of course

545

not only within the firm itself. To a large extent a firm is interested in combining external resources with their own in order to "go concern".

The second and third phases can together be viewed as a *business interest* stage. In the second phase both parties search for contact. The ability of the supplier is exposed and offered to the market. The lacks and needs of the customer give rise to desire and potential demand, which guide a possible search for products or suppliers. To find each other the supplier and the customer must *expose* their interests to perform business. Advertising can be seen as an example of actions in this phase.
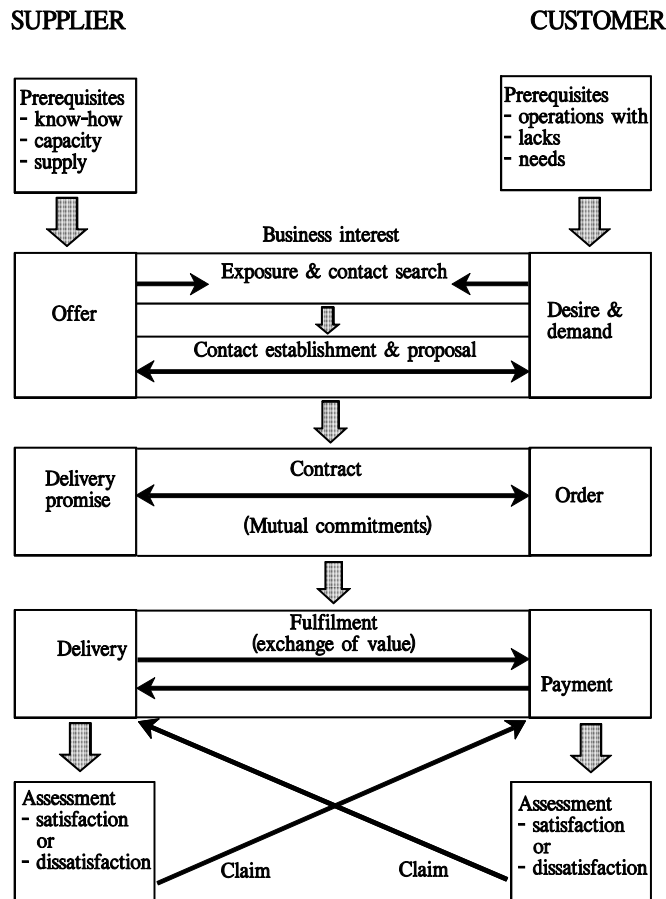

Figure 1 Business Action Theory: A phase model [building on Goldkuhl, 1998]

When supplier and customer have found each other they *establish contact* and perhaps start *negotiating* (phase three). The communication here can be described as *proposal* stating. Bids and counterbids are made. The desire and demand of the customer are expressed. The supplier can make different offers. Of course in many cases there are fixed (and standard) offers, which have to be taken or rejected as such. Proposal is the key notion in this phase. If we analyse proposals from a communicative action perspective, a *dual* character can be seen. A proposal from a supplier (i.e. an offer) can be seen as both an attempt to influence a potential buyer to make a purchase decision and an expression of willingness to sell under certain conditions. Using the speech act classification of Searle [1979] this type of act is both a *commissive* and a *directive*.

The negotiation in phase three can be transferred into a contractual phase. This is the fourth phase. The keyword here is *agreement*. Customer and supplier come to an agreement concerning the business transaction. The contract is a mutual communicative action expressing the *mutual commitments* made; i.e. commitments for future actions. This involves a delivery promise of the supplier. The order of the customer also includes an obligation for future payment. We use the concept of contract in a generic sense. We do not presume written contracts, which of course can occur in many business transactions. An oral agreement is also seen as a contract.

546

These different commitments must be *fulfilled*. Otherwise the contract is broken. The supplier must deliver and the customer must pay (phase five). These material actions can be guided and accompanied by different communicative actions. The supplier can enclose a delivery slip together with the delivery made. The supplier usually presents an invoice to evoke payment from the customer.

If not satisfied with the delivery, the customer can make a *claim*. The supplier is requested to make some modification in the delivery. Correspondingly, the supplier can make payment claims towards the customer. This is the sixth and last phase that involves *assessments* of the fulfilment leading to *satisfaction* or *dissatisfaction*.

This generic business interaction model describes the inherent business logic when customers and suppliers perform business with each other. It describes generic business actions of both communicative and material character performed by supplier and customer. Making business involves with necessity communication, otherwise customer and supplier cannot agree on the business deal. But business interaction cannot be reduced to only communication. It must include the material acts of delivering goods and/or services and paying.

The BAT phase model is an interaction and exchange model. It avoids building a theory of one party viewing the other one. This is often done in much marketing literature, an active supplier influencing a passive customer. Such uni-direction has been criticised [e.g. Glynn and Lehtinen, 1995; Axelsson and Easton, 1992]. Instead, a more symmetrical model is sought giving equal attention to both parties and the exchange character of doing business. In the BAT model the two roles have been given equal importance, independently of the relationship's state. This is also in accordance with communicative action theories making sender and recipient equally important in a basic theoretical stance, cf. Habermas [1984, p. 323f]. This does not however imply that it in some situations cannot be appropriate to put a special emphasis on either part. Within the frame of BAT it is, for example, possible to study the marketing efforts of a supplier as foreground while having the actions of customers as background.

This interaction approach emphasises that exchange is going on in each phase (besides the first phase). Both parties direct actions towards each other. Phase 2, exposure and contact search, includes *exchange of interest*. Seller and buyer signal their possible interest for doing business. In phase 3, customer and supplier *exchange proposals*. They communicate bids and counterbids. They express preferences and try to influence each other in order to arrive at an acceptable deal. In the contractual phase (4) the parties *exchange commitments*. They commit themselves to future actions, i.e. the proposed exchange of value. This *exchange of value* takes place in the 5th phase, the fulfilment. Assessment phase, the 6th and last phase, can include the *exchange of acceptances or claims*.

BAT acknowledges the *iterative* nature of performing business. There can be iterations within a business transaction between different phases; cf. Goldkuhl [1998] for discussion and examples. There is also a *cyclic* nature of doing business, which is not graphically described in the BAT phase model. A performed business transaction will be a basis for future business transactions [ibid.]. Thus, from phase 6 there is a return back to phase 1.

3.3. Business interaction and long-term relationships

The BAT phase model is generic, describing the inherent logic of different possible business interactions. When focusing on long-term B2B interaction, as is the case for most IOS design situations, there are however certain characteristics which can be added to the model. What we present in this section, based on Axelsson et al. [2000], can thus be seen as a specialisation of the generic BAT model.

In long-term relationships there is recurrent performance of business transactions. We pinpoint two important aspects to be seen as special cases of business interactions: 1) The reduced lack of need to search for new business parties, and 2) The existence of long-term agreements. The first aspect means that phase 2 of the BAT model (see figure 1) can be said to have been short-circuited when there already is an existing business relationship. The two parties already possess knowledge about each other

547

and if they are content they are not looking for any actual alternatives. There is a mutual trust and loyalty between the parties to continue the business relationship. The other aspect implies that there are proposals and contracts on two levels. There can be long-term agreements (on a principal level), concerning a business partnership and also plans for delivery of products for a longer period. Based on these long-term agreements there will be a recurrent performance of business transactions. There will of course be agreements within each business transaction (suborders and confirmations). Contracts do not necessarily mean written ones.

We divide the business interaction into three general phases: A) Preparatory phase, B) Relationship management phase and C) Business transaction phase. The preparatory phase includes initial stages before the long-term relationship is established (phases 1 and 2 in the general BAT model). Before such a relationship is established the business parties probably "test" each other in business transactions. In long-term relationships there is a general phase interspersed between the initial preparation and the particular transaction. We call this relationship management since it is concerned with the relationship level giving prerequisites for recurrent transactions. In a long-term relationship there can be negotiations not only concerning business transactions. There will be negotiations on a long-term basis forming long-term contracts. The business parties can also suggest other changes concerning their business abilities. A customer can e.g. suggest that the supplier should make investments in production equipment in order to enhance product quality, which is further discussed in next subsection.

3.4.   Business interaction and different levels of relationship management

In some cases, discussions and negotiations between a customer and a supplier will go beyond the existing possibilities of the supplier's products (offer). A customer may demand and propose products, which implies a considerable advance in the ability of the supplier. The focus will in such cases often be on investment in new technology [Goldkuhl and Melin, 2001]. It is important to conceptually distinguish between business interaction concerning influence on abilities and long-term contracting (which was described in the subsection above). Determination of reciprocal abilities may include activities of exposure of current abilities, proposing new abilities, and agreeing on new abilities.

Business interaction, as presented by Goldkuhl and Melin [2001], distinguish between three levels: 1) Business transactions, 2) Contractual relationship management, and 3) Relationship management of reciprocal abilities. *Business transactions* can evolve over time. This means that the business parties continuously adapt to each other when performing business. If a customer and a supplier want to regulate their business transactions, they can negotiate and possibly establish a long-term contract. This is called *contractual relationship management*. A long-term contract is a major result of this type of relationship management. But the result is not only a contract regulating the business transactions. The business interaction of contractual relationship management establishes a changed and possibly deepened business relationship. On this level, the business parties are performing meta-business interaction. This means a business interaction concerning business interaction on another level. The topic of the contractual relationship management is how to perform business transactions. The business interaction of contractual relationship management has the function of designing business transactions. The design of business transactions is, thus, performed in interaction between customer and supplier in a negotiation process. The two parties form together the business transaction based on their different abilities, interests and power in the negotiation process.

Sometimes a business party wants to change what is performed in the business transactions beyond the current abilities of the other party. If one business actor is not content with some part of the exchanges in the business transaction, there may be an initiative for a development of the abilities of the other party. This is labelled *relationship management of reciprocal abilities*. This type of relationship management should also be seen as a design of business interaction. It is – in the same way as contractual relationship management – a process of business interaction aiming at a design of other business interactions. This type of meta business interaction involves negotiating about what to perform in business

548

transactions and who will perform which parts of different actions. The business interaction on this level will give frames for both business transactions and contractual relationship management.

4.   CONCLUSIONS – IMPLICATIONS FOR IOS DESIGN

In this paper we have argued for the need to thoroughly understand B2B interaction when designing IOS's. This understanding is critical since an IOS both has influence on and is influenced by existing business logic. As a means to reach such understanding we propose a model for analysing business interaction, together with a perspective based on business action theory. There exist several models of business interaction, as mentioned above. The communicative action ground behind BAT, though, seems to distinguish our approach from others. The different characters of the business actions and their corresponding exchanges function as sharp criteria for the phase division. We claim that business action theory is a feasible base to understand business interaction thanks to, at least, three key issues in BAT. The phase division and the symmetric perspective when analysing the buyer and seller are two obvious strengths with this approach. The distinctiveness in business communication, inherited from speech act theory, is the third one, since illocutionary acts [Searle, 1969], such as promises, requests, commands, and declarations, are important to analyse and take into account when designing IOS's.

There is also a need to distinguish different kinds of relationship from each other in IOS design. Long-term relations differs e.g. from more short-term relationships, as we have referred to above. We have also discussed development and management on different levels, that is another important aspect to confront in IOS design situations.

IOS design also has an influence on links, bonds, and ties [Håkansson and Snehota, 1995], mentioned above. An IOS is a technical bond between two business parties that, on the one hand can strengthen a relationship (i.e. work as a barrier-to-entry, e.g. the case of EDI), and on the other hand serve as a plat-form for searching for new business partners (e.g. the case of open Internet systems). The use of IOS's in B2B relations can also challenge the low level of formality that usually characterise these relationships. A higher degree of formalisation of relations can be both good and bad for a certain business relationship. Therefore, design and implementation of an IOS need to take into account the unique conditions for a certain relationship and interaction.

The approach we suggest, in order to reach an understanding of business interaction for designing a suitable IOS, can be compared to the emergent perspective on IOS use, meaning and behaviour [Markus and Robey, 1988]. We believe that it is important to take the purpose, setting and process [ibid.] into account when analysing and changing organisational patterns (both internal and in business interaction) and IOS's. In this aspect, BAT is a suitable model since it helps bringing these issues together.

In this paper, we have presented a generic model to be used for analysing B2B interaction and discussed the importance of understanding interaction when designing IOS's. This is an important step taken, but it is, though, not enough for understanding the entire phenomenon of IOS design. Therefore, we find it important to continue our research by using the BAT phase model for evaluations of different types of IOS, e.g. from Kumars and van Dissels [1996] typology. We also plan to look further into an IOS' functions for links, bonds, and ties between organisations [Håkansson and Snehota, 1995], as this is another important area about which to develop knowledge.

REFERENCES

AHLSTRÖM, M. [2000]. *Offset Management for Large Systems – A Multibusiness Marketing Activity*. PhD dissertation, Department of Management and Economics, Linköping University.

AUSTIN, J.L. [1962]. *How to Do Things with Words*. Oxford University Press.

AXELSSON, B. and G. EASTON [1992, eds]. *Industrial Networks: A New View of Reality*. Routledge, London.

549

AXELSSON, K., GOLDKUHL, G. and U. MELIN [2000]. Using Business Action Theory for Dyadic Analysis. Presented at the *10th Workshop on Interorganizational Research*, Norwegian University of Science and Technology, Trondheim, 18-20 August 2000.

CAVAYE, A.L.M. and P.B. CRAGG [1995]. Factors contributing to the success of customer oriented interorganizational systems. *Journal of Strategic Information Systems*, 4(1), 13-30.

DENNING, P.J. and R. MEDINA-MORA [1995]. Completing the loops. *Interfaces*, 25(3), 42-57.

DIETZ, J.L.G. [1994]. Business modelling for business redesign. In *Proceedings of 27th Annual Hawaii International Conference on Systems Science*, IEEE Computer Society Press, Los Alamitos, 723-732.

GLYNN, W.J. and U. LEHTINEN [1995]. The concept of exchange: Interactive approaches in service marketing. In *Understanding service management*, (GLYNN, W.J. and J.G. BARNES, Eds.), John Wiley & Sons Ltd, Chichester, p 89-118.

GOLDKUHL, G. [1996]. Generic business frameworks and action modelling. In *Proceedings of Conference Language/Action Perspective '96*, Springer Verlag.

GOLDKUHL, G. [1998]. The six phases of business processes - business communication and the exchange of value. In *Proceedings of the twelth biennial ITS conference (ITS´98)*, Stockholm.

GOLDKUHL, G. and U. MELIN [2001]. Relationship Management vs. Business Transaction: Business Interaction as Design of Business Interaction. In *Proceeding of the 10th International Annual IPSERA Conference*, Jönköping International Business School, 431-443.

HABERMAS, J. [1984]. *The theory of communicative action. Reason and the rationalization of society*. Volume 1, Beacon Press.

HÅKANSSON, H. [1982, Ed.]. *International Marketing and Purchasing of Industrial Goods – An Interaction Approach*. IMP Project Group, John Wiley & Sons, Chichester.

HÅKANSSON, H. and I. SNEHOTA [1989]. No Business is an Island: The Network Concept of Business Strategy, *Scandinavian Journal of Management*, 5(3), 187-200.

HÅKANSSON, H. and I. SNEHOTA [1995, Eds.]. *Developing Relationships in Business Networks*. Thomson, London.

KONSYNSKI, B.R. [1992]. Issues in Design of Interorganizational Systems. In *Challenges and Strategies for Research in Systems Development*. (COTTERMAN, W.W. and J.A. SENN, Eds.), John Wiley & Sons Ltd., 43-63.

KUMAR, K. and H.G. van DISSEL [1996]. Sustainable collaboration: Managing conflict and cooperation in interorganizational systems. *MIS Quarterly*, 20(3), 279-296.

LIND, M. and G. GOLDKUHL [2001]. Generic Layered Patterns for Business Modelling. In *Proceedings of the Sixth International Workshop on the Language-Action Perspective on Communication Modelling (LAP2001)*. (SCHOOP, M. and K. TAYLOR, Eds.), Aachen University of Technology, 109-128.

MARKUS, M.L. and D. ROBEY [1988]. Information Technology and Organizational Change: Casual Structure in Theory and Research. *Management Science*, 34(5), 583-598.

MELIN, U. and G. GOLDKUHL [1999]. Information systems and process orientation – Evaluation and change using business action theory. In *Systems Development Methods for Databases, Enterprise Modelling, and Workflow Management*. (WOJTKOWSKI, W., WOJTKOWSKI W.G., WRYCZA, S. and J. ZUPANCIC, Eds.), Kluwer Academic/Plenum Publishers, New York, 233-244.

SEARLE, J.R. [1969]. *Speech acts. An essay in the philosophy of language*. Cambridge University Press, London.

SEARLE, J.R. [1979]. *Expression and meaning. Studies in the theory of speech acts*. Cambridge University Press, London.

SENN, J.A. [2000]. Business-to-Business E-Commerce. *Information Systems Management*, 17(2), 23-32.

TIMMERS, P. [2000]. *Electronic Commerce – Strategies and Models for Business-to-Business Trading*. John Wiley & Sons Ltd, Chichester.

VERHAREN, E. [1997]. *A language-action perspective on the design of cooperative information agents*. PhD Dissertation, KUB, Tilburg.

550