

Clarifying Government – Citizen Interaction: From Business Action to Generic Exchange

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Abstract

The development and launching of new public e-services over the web to citizens implies a need for models as guidance. Besides feature models of public e-services, there is also a need for contextual models describing government – citizen interaction. In this paper we take one step towards a generic interaction model for studying government – citizen interaction. We base this work on an existing model for conceptualising business interaction; the BAT model (Business Action Theory). This model has been transformed and generalized to a generic exchange model (GEM). We have pursued a critical analysis of the BAT model and identified several conceptual concerns as a basis for transformation to GEM. The GEM model is intended to be used, as a kind of practical theory, for inquiries (design, evaluation) both in public and business settings. The paper also includes applications of the developed GEM model in one eGovernment setting and a discussion of experiences from this empirical study.

1 Introduction

1.1 Background

There is a rapid growth in the development and launching of new public e-services over the web to citizens. Such endeavours usually incorporate a 24/7-vision for governmental agencies. Citizens should always be able to reach, through the web, government agencies and also be served by them. For the development of public e-services there is a need for appropriate models for conceptualisation and guidance. Different stage models seem to be popular. There are different examples of such models, for example ANAO, (2000), Statskontoret (2000), Layne & Lee (2001), Hiller & Belanger (2001). Different stages in these models express evolutionary paths and different types of e-service. For example, the Swedish stage model (Statskontoret, 2000) comprises four stages: 1) Information, 2) interaction, 3) transaction and 4) integration.

Stage models have criticized for several reasons (Andersen, 2004; Persson & Goldkuhl, 2004). The stages do not express sufficient conceptual clarity. There are several other important features of e-services which are dismissed in the stage models. As an alternative, Goldkuhl & Persson (2004ab) have formulated a more nuanced model, the e-diamond model. This model describes e-service according to three polarities:

- Informative vs performative, i.e. type of communicative action
- General vs individualized, i.e. degree of individualisation
- Separate vs coordinated, i.e. amount of involved agencies

Goldkuhl & Persson (2004b) emphasise that it is important to see that e-services comprises two-way communication between government agencies and citizens. Several other authors also acknowledge the two-way communication character of e-services; e.g. Ancarini (2005) and Wimmer (2002). This implies a need for interaction models, i.e. models that conceptualise the interaction between government and citizens. Such models can be said to be *contextual models*. Stage models and models like the e-diamond model and also service quality models (e.g. Buckley, 2003; Santos 2003) can be labelled *feature models* of e-services. Different features of e-services are described and emphasised in such models. Contextual models have a broader scope. They do not only describe e-service and their features. They describe the interaction context in which e-services take place.

Wimmer (2002) has discussed different degrees of ambition for e-service interaction based on the Business Media Reference Model (e.g. Schmid & Lindemann, 1998). This is a model mainly adapted for interaction on a business market. There are important differences between a market based customer – supplier interaction and a public and legally based government – citizen interaction. However, it might be possible to utilise market/business models and adapt them to the particular features of public administration, as implied by Wimmer (2002).

The Business Media Reference Model (Schmid & Lindemann, 1998) comprises a structuring of interaction phases that might be useful even in governmental contexts. Besides this model, there exist several other models for business interaction. Weigand & van den Heuvel (1998) have presented an integrated model for e-commerce applications with layers and phases. This model is based on the language-action perspective - LAP (Winograd & Flores, 1986), which is founded on speech act theory (e.g. Searle, 1969). Weigand & van den Heuvel (1998) have put together several LAP based business interaction models in their integrated model. One of the models is the BAT business interaction model (e.g. Goldkuhl, 1998; Goldkuhl & Lind, 2004). BAT (Business Action Theory) comprises a structuring of actions into phases. Interactive actions performed by the roles customer and supplier are structured into generic interaction phases.

A model of business interaction can be seen as kind of *practical theory*. A practical theory is aimed for an informed study of some phenomena (Cronen, 2001; Goldkuhl, 2006). A business interaction model is a kind of conceptualisation of important business interaction aspects (e.g. roles, actions, phases, layers). Such a practical theory/model can be used for practical purposes as to inform evaluation and design endeavours (Lind & Goldkuhl, 2006).

1.2 Purpose and procedure

The purpose of this paper is to take steps towards an interaction model appropriate for conceptualising the interaction between government agencies and citizens. We base our work on business interaction models. We have selected the BAT business interaction model to be the candidate for adaptation to public administration. Although we have long experience from work with the BAT model in business settings¹, we have earlier been very hesitant and reluctant to use this model in public settings. There are important principal differences between commercial and public settings which should be upheld. We mean that the BAT model as such should not be used directly in public settings. However, the interaction model is possible to generalize and hence to use for describing government – citizen

¹ Confer Lind & Goldkuhl (2006) for an overview of different applications.

interactions. This aim to create a generalized interaction model is based on the need for such a model as a conceptualising tool for e-service development.

We have thus taken the BAT business interaction model as a starting point (section 2 below) and based on this model we have created a Generic Exchange Model - GEM - (section 3) that can be used in both business and public settings. The generalization of the BAT model to the GEM model has been based on an evaluation of different features of the BAT model. Different versions of the BAT model have been studied.

This paper contains conceptual analysis of interaction models (section 2-3). The paper also includes an application of the developed GEM model in eGovernment setting (section 4). Actually, the development of the GEM model has grown out from practical needs in eGovernment projects in which the authors have participated. This application gives some empirical grounding of the developed GEM model for eGovernment development.

2 Point of departure: The BAT model for business interaction

BAT (Business Action Theory) is a theory and collection of models concerning business interaction. Its primary scope is dyadic interaction between customer and supplier. It has evolved as a theory within the language-action tradition (Winograd & Flores, 1986).

There is a natural choice for us to select BAT as a candidate for adaptation to a model for government – citizen interaction. We have worked with the BAT model for a long time and have experiences from its application (for an overview confer Lind & Goldkuhl, 2006). Government – citizen interaction consists of action and communication. BAT is a model that emphasises action and communication due to its foundation in the language-action tradition. We consider it due to these features to be a proper choice. It is an appropriate point of departure for creating a model for government – citizen interaction.

BAT has evolved as a theory since 1996 (Goldkuhl, 1996). We will briefly describe its evolution in section 2.2 below. In section 2.1 we will describe its current status; the 2004' version (Goldkuhl & Lind, 2004). In section 2.3 we will conduct an assessment of the BAT model as a basis for its transformation into a generalized exchange model (section 3).

2.1 Fundamental features

Nowadays BAT consists of several generic models of business interaction. The main BAT model is a dyadic model for describing business interaction between a customer and supplier (figure 1). It describes business interaction in terms of four phases of a business transaction: 1) proposal phase, 2) commitment phase, 3) fulfilment phase and 4) assessment phase. In each phase there may be exchanges. In the proposal phase there may be exchange of proposals. There may be offers from the supplier and questions from the customer. There may be bids and counter-bids. In the commitments phase the two business parties may come to an agreement. Orders and promises are exchanged. Through a delivery promise, the supplier makes a commitment for future delivery. The customer order is not just a request for a delivery. In a normal business it also means a commitment for future payment. In this phase the business parties may, through a negotiation, come to an agreement about a business deal. A business contract is established in this phase; either as a formal and written contract or as an informal one. In the third phase, the fulfilment phase, there will be an exchange of value. There is an exchange of products vs money. The supplier delivers a product (goods and/or

services), and the customer usually pays for the delivery. In this phase the business parties fulfil their earlier commitments. The fourth phase is an assessment phase. Each business party assesses the business interaction. Did it reach expectations? If not, this may be expressed as a complaint. Not all discontents may be expressed. There exists the choice of voice vs exit. This means that negative assessments may not be communicated. Positive assessments are not so often communicated, but sometimes there may be an expression of commendation.

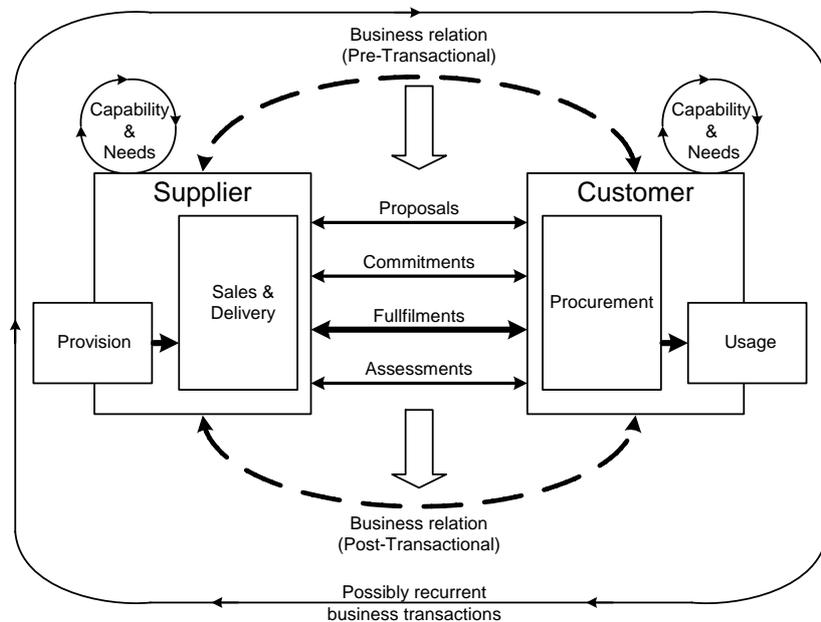


Figure 1. The BAT model for business transaction – 2004' version
(from Goldkuhl & Lind, 2004)

2.2 Evolution of the BAT model

The BAT model was originally developed 1996 (Goldkuhl, 1996). It was presented as an alternative to the famous Action Workflow model within the LAP tradition (Medina-Mora et al, 1992). In the 96' version (see figure A1 below), different interactive actions were described and structured in a kind of generic business logic. BAT was applied in different business process inquiries¹ and partially as a consequence of these applications the original model was revised in Goldkuhl (1998). In the 98' version (see figure A2 below), the phase construct was introduced. The dyadic interaction was structured into six generic phases (ibid): 1) Business identification, 2) exposure and contact search, 3) contact establishment and negotiation, 4) contracting, 5) fulfilment, 6) completion.

Later, this phase structure was partially revised. In 2004, Goldkuhl & Lind (2004) presented a new version of BAT. In this revision a differentiation was made between market interaction and dyadic interaction. On the market level, several potential suppliers and several potential customers are interacting. When a particular business interest arises between a supplier and a customer, a transition is made to dyadic interaction. The dyadic interaction is described as a business transaction structured in four phases (figure 1): 1) proposals, 2) commitments, 3) fulfilments, 4) assessments. In the 2004' version (ibid), a differentiation was also made

¹ Confer Lind & Goldkuhl (2006) for an overview of different applications.

between two types of contracting situations¹: 1) a frame contract comprising several sub orders and 2) a separate transaction order. In the first case there is a transaction group consisting of several sub transactions. In the second case there are separate single transactions, a separate order made for each transaction.

These conceptual developments led also to a differentiation into three related BAT models in Goldkuhl & Lind (2004). In figure 1 above, the BAT transaction model is reproduced. There is also a BAT market and dyadic interaction model, which is an overall model describing both the market interaction and the dyadic interaction (figure A3). There is also a BAT frame contracting transaction model, which describes the relation between frame contracting and business transaction.

In Lind & Goldkuhl (2003) a layered structure of the different BAT concepts was presented. This was an alternative to the layered architecture presented by Weigand & van den Heuvel (1998). The different BAT layers are business action, action pair, exchange, business transaction, and transaction group.

2.3 Conceptual concerns

As said above we will use the BAT approach as a point of departure for developing a generalized interaction model that is possible to use for government – citizen interaction. We will use the BAT transaction model (figure 1) as the main source of inspiration, but we will also look into other BAT models; especially the two earlier models (figure A1–A2). It is the collected BAT knowledge that we try to use as a basis.

This transformation step (from BAT to GEM) is a conceptual one. In order to arrive at a proper general model we need to perform a conceptual analysis of the different BAT models. Below we present a critical conceptual assessment of BAT. This assessment results in a collection of questions, issues and concerns which will be used in the conceptual transformation of BAT into GEM. These concerns are summarised below in table 1. We will briefly go through the different concerns below.

Symmetrical preconditions?

In the earlier models (figure A1–A2), preconditions were stated at each party. The supplier has a supply and a capacity to deliver. The customer has certain needs and problems which may be resolved by products from the supplier. In the 2004' model (figure 1) these preconditions at each party were harmonised to 'capabilities and needs'. Through this harmonisation, it was stated that even the customer has certain capabilities (e.g. to perform a business transaction, and that the supplier has certain needs (e.g. to sell products). We find it appropriate to acknowledge these preconditions, but one can question if the preconditions should be conceived as symmetrical.

Action clarity?

In the original model (figure A1) the different types of actions were described in a rather explicit way; e.g. 'order', 'confirm order'. In the 2004' version (figure 1), these explicit

¹ This differentiation followed the empirical experiences reported by Axelsson et al (2000) and the theoretical analysis made by Lind & Goldkuhl (2003).

actions are no longer there. Is it not important to express the typical interactive actions explicitly?

Exchange vs phase?

The later BAT model divides the dyadic interaction into phases (figure A2 and 1). Phase is an important construct in these later models. In Lind & Goldkuhl (2003) it is emphasised that each phase represents a distinct type of exchange. For example in the proposal phase, there is an exchange of proposals. Proposal is thus a type of *exchange object*. The naming of phases is however not consistent in figure 1. Fulfilment (the third phase) can not be seen to be an exchange object. It is rather a label of the type of activities performed in this phase. As is said in Lind & Goldkuhl (2003), the type of exchange in this phase is value (products vs money). There should be a consistent naming of types of exchange and phases.

Separation market - dyad?

In 2004's version (Goldkuhl & Lind, 2004), there has been a separation of the market level and the dyadic level in relation to the earlier models (figure A1-2). This differentiation seems to be important to make since on the market level there may be several suppliers and several customers acting and on the dyadic level there are only a single supplier and a single customer. One question is if this differentiation must imply a division into separate models? Is it not possible to describe market and dyadic interaction in one and the same model in order to get a better overview? The market and dyadic interaction model in Goldkuhl & Lind (2004), reproduced in figure A3, does not describe dyadic interaction in any detail.

Exchange on a market level?

The market and dyadic interaction model (figure A3) describes interaction on the market level. It can be interpreted as a kind of exchange. We doubt that activities on this market level should be considered as the same type of exchange as on the dyadic level.

Exchange infrastructure?

Dyadic interaction is described as these two parties are interacting in isolation. No other influences are described. A dyadic model like BAT transaction model (figure 1) should of course emphasise a two-party interaction. However, there are important infrastructural conditions which are totally left out from the description. In Goldkuhl & Röstlinger (2006) a generic workpractice model is described that includes both a transactional and an infrastructural dimension. Should not exchange infrastructure be added to a dyadic exchange model?

Material exchange not only in value exchange?

A business transaction is described as three phases of business communication (the phases 1, 2 and 4) and one phase of material exchange (phase 3, fulfilment). Is there not any material exchange in any other phase than in phase 3? We claim that already in phase 1 (proposal phase), there might be exchanges also of material character. Often customers try out proposed products. You may want to taste food, listen to music, try on clothes, test a car before you make a buy decision. Sometimes, the customer needs to show to the supplier some parts that is crucial for the coming product use and hence for proposed product. For example, a broken

machine must be shown to the supplier in order to get an estimate of costs. These things imply that the conception of the proposal phase should be widened.

Exchanges in fulfilment?

The fulfilment phase is described in BAT as a value exchange; the delivery of products vs the payment of money. There is a one-way direction of products from supplier to customer. ‘Product’ is used in a generic sense in BAT. Products can be both goods and services. However, in some service situations, there will not be a one-way direction of products. In e.g. treatment services (Goldkuhl & Röstlinger, 2000), the customer must provide conditions (the object to treat) to the service supplier. This is not shown in the BAT model.

Implications of generalization?

And at last here, the perhaps most important question in the review of the BAT model: How should we conceive exchange generically beyond business transactions? What features in the BAT conceptualisation are distinctly commercial? How should a truly generic exchange model look like?

Table 1. Conceptual concerns in the BAT model

BAT conceptual concerns
Symmetrical preconditions?
Action clarity?
Exchange vs phase?
Separation market - dyad?
Exchange on a market level?
Exchange infrastructure?
Material exchange not only in value exchange?
Exchanges in fulfilment?
Implications of generalization?

3 The generic exchange model

3.1 The GEM model

Based on the needs and concerns described in section 2.3 above and the objective to create a model appropriate for government – citizen interaction we have developed a Generic Exchange Model (GEM). The model is shown in figure 2.

In the GEM model we have strived for a generic terminology. Instead of commercial concepts we have used more general concepts. Concepts like ‘sales’, ‘procurement’ and ‘business’ are left out. This means also that we use the concept pairs ‘producer/supplier’ and ‘client/customer’ instead of only ‘supplier’ and ‘customer’¹.

¹ The concepts supplier and customer need to be generalized. We introduce the concepts ‘producer’ and ‘client’ from the workpractice theory (Goldkuhl & Röstlinger, 2006). We find it appropriate to use double concepts as suggested above. It is important to conceive the GEM model also for business exchange.

We make a distinction between the forum (market) level and dyadic level. We have replaced the concept 'market' by the concept 'forum'. Market stands for a place of trading where many suppliers and many customers can meet. We need now to extend this place for commercial exchange to a place which can include government – citizen interaction. We have found the forum concept to be a very appropriate notion for this. Forum can be a 'marketplace or public place' (Merriam-Webster On-Line, www.m-w.com). What we need is a concept that captures the existence of possibly several producers/suppliers and several clients/customers with interests to engage in a future exchange. There are one or more producers with a supply of products and there is one or more client with a need and demand for products. It is important to acknowledge that we use the concept product with a generic meaning; something produced with the intent to be used by someone. A product with this generic meaning can e.g. be a permit or some other decision issued by a governmental agency. Forum is a 'place for assembly'¹ with the purposes of exchanging products. Forum is often used for a 'public meeting place for open discussion' (Merriam-Webster On-Line, www.m-w.com), i.e. public place for exchange of ideas.

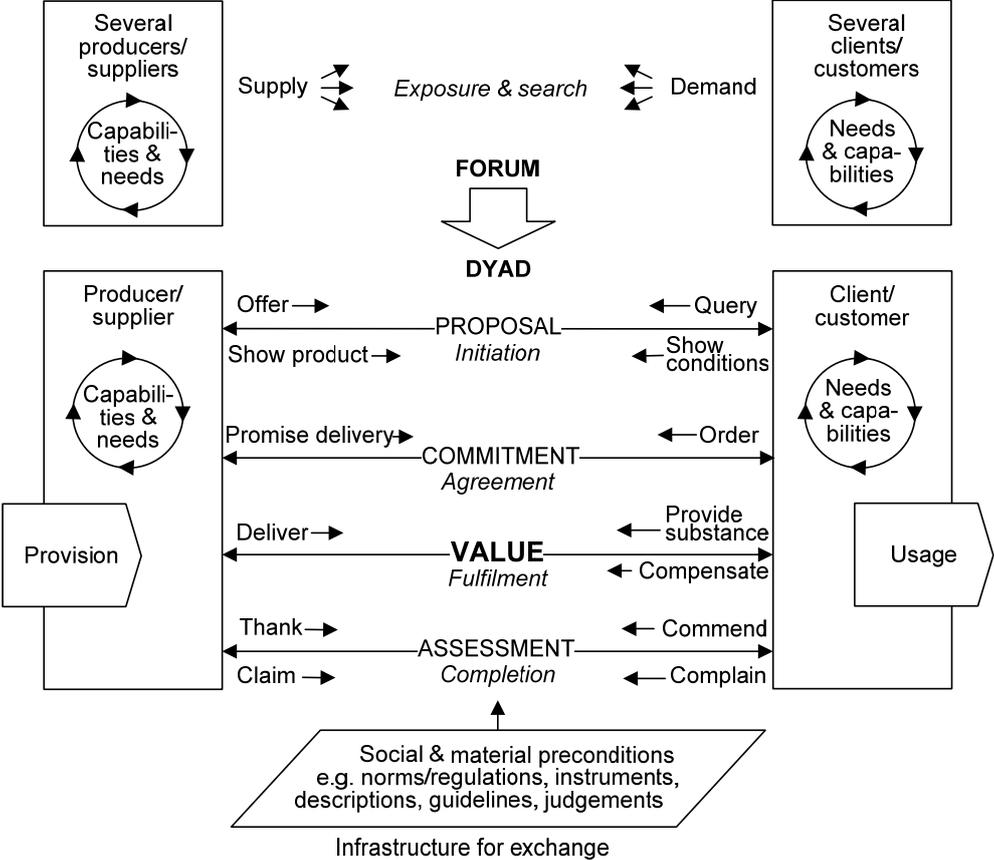


Figure 3. Generic Exchange Model (GEM)

The dyadic interaction is seen as transactions consisting of the four generic phases: 1) initiation, 2) agreement, 3) fulfilment and 4) completion. These labels describe the type of activity taking place. Connected to these activity labels there are types of exchange objects. There are different types of exchange objects in each phase: 1) proposal, 2) commitment, 3 value and 4) assessment. The producer and client conduct different types of actions in each exchange phase.

¹ Confer Online Etymology Dictionary; www.etymonline.com.

We have also introduced ‘infrastructure for exchange’ as a common support and governance for the interaction. There can be common instruments, like e.g. the internet. There can be certain laws and regulations which govern the interaction.

3.2 From conceptual concerns to a new model

We have above described some features of the new GEM model. From this argumentation it is possible to see some part of the transition from BAT to GEM. We have in table 2 below clarified the transition. Table 2 comprises the conceptual concerns described above in section 2.3 and table 1. In table 2 we have added a brief description of how we have resolved the conceptual concerns in the new GEM model.

Table 2. From conceptual concerns in BAT to solutions in GEM

BAT conceptual concerns	GEM solutions
Symmetrical preconditions?	A differentiation is made in GEM. Producer/supplier precondition: Capabilities & needs Client/customer precondition: Needs & capabilities
Action clarity?	Actions are explicitly mentioned in GEM.
Exchange vs phase?	Phase (type of activity) is differentiated from exchange object. Both constructs are visualised in GEM.
Separation market - dyad?	Forum (market) level and dyadic level are described exhaustively in the same model
Exchange on a market level?	Exchange does not take place on a forum level, only exposures.
Exchange infrastructure?	Exchange infrastructure introduced in GEM.
Material exchange not only in value exchange?	Proposal phase (initiation) may also include actions that show products and client conditions.
Exchanges in fulfilment?	GEM comprises the possible actions by the client to provide substance ¹ to the producer. This substance will be used as basis for production and delivery of products. This is mainly applicable in treatment services.
Implications of generalization?	Business terminology downplayed. Aims for generic terminology in GEM.

We will make some brief comments to table 2. Some parts of the motivations can be read above in section 3.1. We say that exchange does not take place on the forum level. This does not mean that there is no communication on this level. Actors try to reach each other on this forum. They may expose information about their existence, capabilities and needs. Actors may be reached by information about other actors. When a contact is establishing and a joint interest for exchange occurs, there will be a transition from forum level to dyadic level.

BAT is a model for business interaction. We have taken this model for business interaction and transformed it into a model for exchanges. Exchanges can be trading. But it can also concern cases in the governmental sphere where interaction takes place between citizens and government agencies. We do not claim that GEM can be used for all types of government –

¹ We use ‘substance’ as a generic term for ‘raw-products’ as basis for creation of products. This is in accordance with the terminology of workpractice theory (Goldkuhl & Röstlinger, 2006).

citizen interaction. We restrict it to situations where the citizen is driven by some specific *need* that may be resolved by the government. We do not for example think that it is applicable for parts of the judicial area.

3.3 What is not described in GEM?

We have not used all aspects described in the BAT model (figure 1) when transforming it to the GEM model. There are some parts which are left out. This is not just a matter of generalization and abstraction. We build on the old insight concerning models; that a model describes only a selected part of the world, that a model is a simplified representation of reality. We have intentionally left out some aspects from the BAT model in order to have a model which is not too overloaded. We can not grasp too many aspects in one and the same model.

In the BAT model it is shown that a business transaction is based on some existing business relations between the parties and that the performance of a business transaction will lead to altered business relations between the two parties. This type of relational development is important to acknowledge. However, the BAT model does not give a full account of this relational development. Actually there is an important relational change between each phase; even between each performed action (cf. e.g. Habermas, 1984; Heritage, 1984). We think that this aspect of relational development should be described in other ways. We have left out this aspect from the GEM model in order not to burden the model with too many aspects.

The same goes for describing recurrent transactions. This is also an important aspect that was introduced in the 2004' version (Goldkuhl & Lind, 2004). We need to have other models describing this aspect in order not to overload the GEM model.

4 An application of the GEM model in eGovernment development

We are engaged in empirical research concerning eGovernment development. It was in such practical research endeavours that we experienced a need for government – citizen interaction models. We will below describe one minor case. In this case the GEM model has been used to inform the inquiry. When we talk about GEM here, we mean the GEM model as an illustration (figure 2) and also its accompanying theoretical foundation including definitions and other conceptual clarifications. In this paper we have not given a full account of this theoretical foundation. A lot has been said earlier in papers on BAT and workpractice theory. A lot need to be said in future papers.

4.1 E-service for child care

The research context for this study is a R&D project together with several municipalities in Sweden. There is an initiative to co-develop e-services among municipalities in order to create e-services for co-utilization. Instead of procuring standard applications or each municipality developing its own e-services, this initiative (in Swedish called Sambruk; confer www.sambruk.se) aims at a conjoint development of e-services. The intention is, through this municipal co-operation, to decrease costs for development, procurement and operation of e-services. The intention is also, through sharing of knowledge and experiences among participating municipalities, to create high quality e-services and public administration processes. This co-operative use of e-services is supported by a R&D project. The over-all

purpose of this research is to study and give knowledge support to development, deployment, implementation and evaluation of joint e-services.

The relevant research for this paper was a study of a requirements specification for e-services concerning child care. The role of the researcher, in this small case study, was to investigate and make a quality assurance of an already made requirements specification. This was desired by the practitioners in Sambruk before the spec should be used in procurement of the required e-service application. The spec was evaluated by the researcher and a review report was produced. The evaluation consisted of criticisms and proposals for improvement. A more thorough description of this case study has earlier been reported in Goldkuhl (2006).

During the review of the requirements spec, the researcher identified several deficiencies. In order to better understand these deficiencies the inquiry became informed by some practical theories (ibid for more description). In order to better understand some identified problems in the spec, it was necessary to describe the context of the planned e-service application, i.e. the municipality – citizen interaction. The BAT model was used as a source of inspiration. A first version of the GEM model was outlined in this study and was used as a kind of template for clarifying the municipality – citizen interaction. A model was created that describe the role of e-services and the main service that is the child care. This model is found in figure 3.

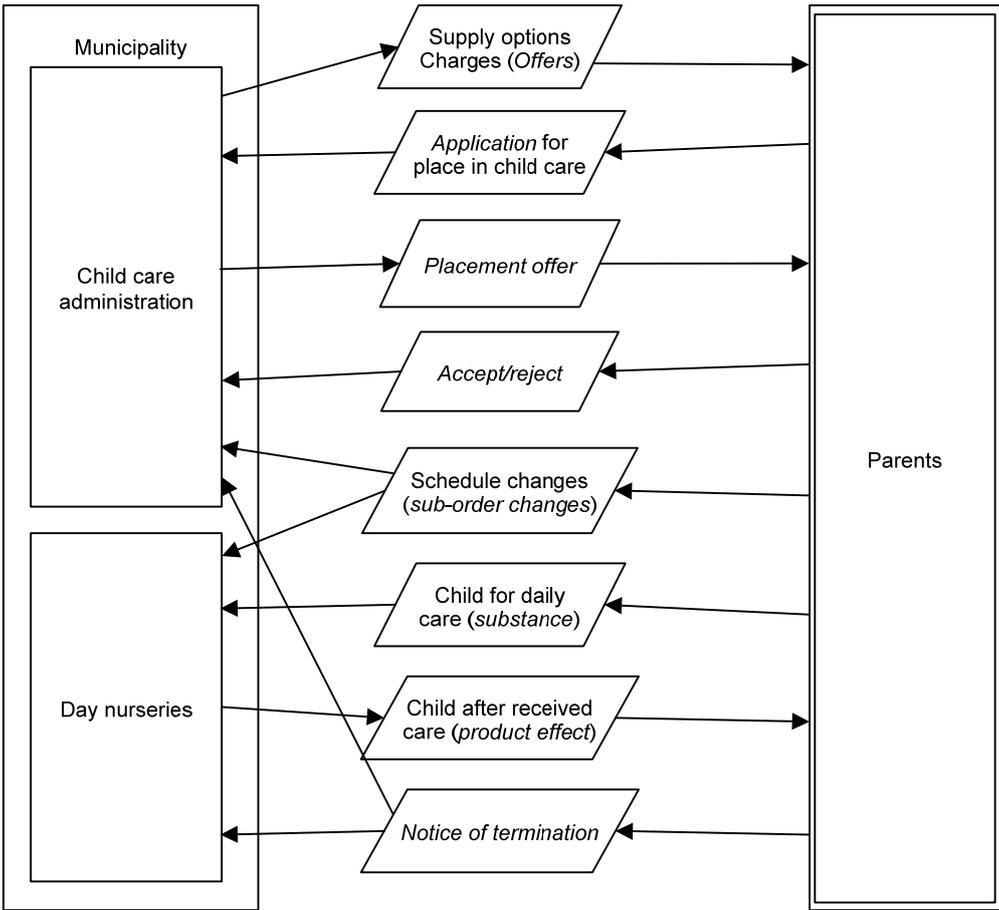


Figure 3. A co-work diagram describing the interaction between the municipality and the parents (modified from Goldkuhl, 2006)

This description (called a co-work diagram) shows important parts of the e-service application. This is a web application that is aimed to be used by external users (parents) and it should function together with other municipal information systems. These systems are seen as internal in the municipality in relation to the e-service application which is an external system that brings external users to interact with municipal actors. This web application is intended to comprise several e-services for the citizen. Citizens (external users) are parents who will apply for a place for their child/children in publicly financed and municipally administered child care. The e-service application shall have functions for parents to get information about charges, to apply for child care, to receive placement offers (through e-mail) and accept/reject such offers, to continually notify any changes in schedules and to give a notice of termination.

The interaction model in figure 3 was clearly inspired by the GEM model (figure 2). The child care model is actually structured into phases according to GEM. Supply options and information on charges are parts of the proposal phase; application, placement offer and accept/reject are parts of the agreement phase; leaving¹ and fetching the child are parts of the fulfilment phase. Schedule changes and notice of termination is actually also parts of the agreement phase. Schedule changes concern specific requests for sub-transactions (days) within the overall agreement. A notice of termination is a withdrawal of the agreement.

This model (figure 3) was a very important instrument for assessment of the e-service spec. As said above, it was possible to apply for places in the child care. When doing this a list of possible day nurseries was exposed. This was just an enumerated list of names of day nurseries. There was no other information for the user as a support for his/her choice. This circumstance became the basis for a serious criticism towards the requirements spec. In order to make a proper choice between different supply options of day nurseries in the municipality, there was a need to get a good image of these different options. This criticism was informed by the GEM model. The first exchange phase (proposals) is about getting informed about possible options before the client gives an order (contracting in the agreement phase). As more thoroughly described in Goldkuhl (2006), the original requirements specification was not developed from a proper exchange perspective. It was mainly guided by a perspective of the client as an “information supplier”. The GEM model and its instantiated co-work diagram (figure 3) helped to formulate criticism and to reformulate the requirements spec (ibid). There were also several other criticisms that were informed by the exchange theory, not mentioned here (ibid).

4.2 Empirical grounding

In the described application above, GEM has been used as lens for looking at government – citizen interaction. It has been used to produce a model of the planned or actual interaction. The produced model (co-work diagram) relies on GEM, but there is not a direct mapping of phases and actions from GEM to the co-work diagrams. The typical actions and the phases are not marked in the co-work diagram (as a situational model). There is some theoretical influence on the wordings in the diagram. Actions are theoretically characterized. This theoretical characterization is italicized in the text. In some cases some part of the direct action wording is italicized to emphasize the type of action (e.g. *Application* for place in child care). In other cases, when there is no adequate action formulation in the action description,

¹ Leaving the child to a day nursery is a good example of ‘providing substance’ that was introduced in the GEM model above.

the type of action is added in parenthesis afterwards and italicized; e.g. schedule changes (*sub-order changes*).

GEM (and its underlying exchange theory) has informed the model production. The theory has been used in a freely way when describing the government – citizen interaction. This follows an *abductive principle* concerning the relation between theory/generic models and situational models (Goldkuhl, 1996). There must not be a one-to-one mapping of constructs between the theoretical and empirical level. The theory can inform the inquiry and modelling in a deductive way. It is however important to be free to model what is perceived important in an open and inductive way. The theory may not be comprehensive enough to capture all empirical variation.

What have we learnt from this application and how has this empirical work affected the GEM model? We consider this application as bringing some empirical grounding to the Generic Exchange Model. In what ways can a model like GEM be validated through empirical work? This is a crucial question to answer. As said in section 1, we consider GEM to be a kind of a practical theory (Cronen, 2001; Goldkuhl, 2006). It is not seen as a traditional theory mirroring reality and where observations give evidence to the theory through hypothetic-deductive studies. A practical theory aims at practical values. It is intended to be used. However, as a theory it must have descriptive and explanatory functions. Cronen (2001, p 30) writes about practical theory: “Its use should, to offer a few examples, make one a more sensitive observer of details of action, better at asking useful questions, more capable of seeing the ways actions are patterned, and more adept at forming systemic hypotheses and entertaining alternatives”.

A practical theory (as a model like GEM) should be useful for both description and analysis. An assessment of a practical theory means an evaluation of how applicable it is for description and how useful it is for practical knowledge generation like assessments and design proposals. We have illustrated the grounding issues in figure 4 below.

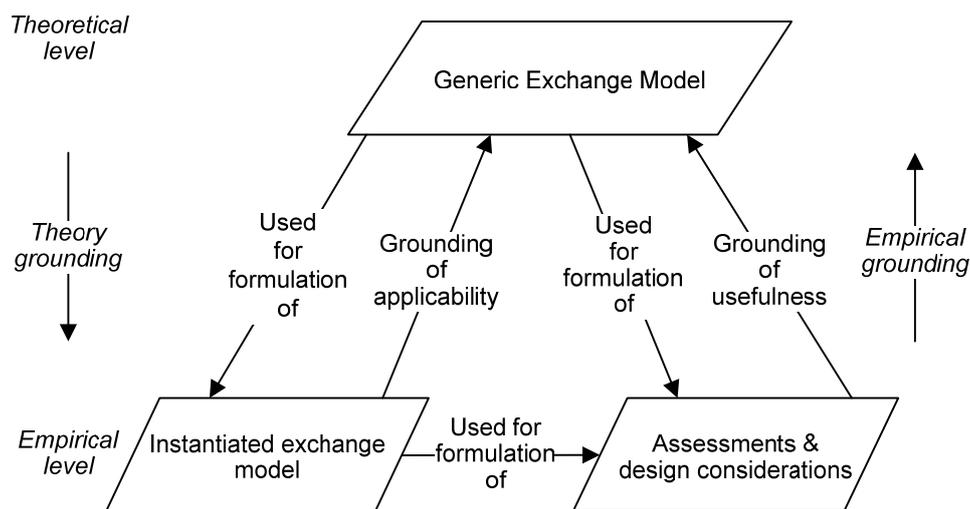


Figure 4. Reciprocal grounding at use of GEM

GEM is used for creation of situational models of exchange like the co-work diagram (figure 3). These formulated models are seen as instantiations of the generic model (GEM). These situational models have been used for analysis and reasoning of situational features, i.e. for

assessment and diagnosis. These models (and assessments made) can be used to formulate alternative solutions, i.e. new designs; this was the case concerning the child care e-service application. In diagnosis and design, one does not only use the situational models. The practical theory (generic models) will also be used to inform knowledge creation.

This kind of situational inquiry may give evidence to the generic model (practical theory). The generic model will be empirically grounded through this process. Empirical grounding in this type of research should not be seen as a simple choice between total verification and total falsification. Through each case some proof can be given. A practical theory may be more and more corroborated through its continual application. However, each application may give rise to modifications which will mean that the practical theory continually will change through such evolutionary steps. Nevertheless, successful applications of a practical theory will contribute to empirical grounding of this theory. We distinguish between two types of empirical grounding in this respect. We differentiate between grounding of applicability and grounding of usefulness (figure x). *Grounding of applicability* means a positive assessment that the generic structures and categories (of the practical theory) have been possible, relevant, adequate and meaningful to apply. The generic model was possible to apply in formulation of an instantiated model. *Grounding of usefulness* means a positive assessment that the practical theory and its instantiated models have been shown to be generative and useful for valuable knowledge creation. By dividing into these two types of empirical grounding it is possible to evaluate them in each case.

We claim that the two applications have given contributions to both grounding of applicability and usefulness. In this paper, we have not been able to give a full account these groundings. Concerning the child care case, more detailed information about the empirical grounding can be found in Goldkuhl (2006).

It is worth noticing that there are reciprocal grounding processes operating here. It is not only the case of empirical grounding of a practical theory through its application. It is also the case of a theoretical grounding of the situational results. The produced models and created assessments and design considerations were informed by the practical theory and are thus theoretically grounded in this theory; confer figure 4.

5 Conclusions

In this paper we have taken one step towards a generic interaction model for studying government – citizen interaction. We claim, based on with knowledge from other fields, that such a generic model (as a practical theory) can guide design and evaluation public e-services and other eGovernment applications. For development of a generic interaction model, we have chosen to use a business interaction model (the BAT model) as a starting point. This business interaction model has been transformed to a generic exchange model abbreviated GEM. This means that the BAT model has been generalized to cover both commercial and public interaction. We have not only generalized the BAT model. We have pursued a critical analysis of the BAT model and identified several conceptual concerns as a basis for transformation to GEM.

An important part in the BAT model is the exchange perspective. This exchange perspective is core feature of GEM. This means that we conceive government – citizen interaction as exchanges. Not all government – citizen interaction can be seen as exchanges. The exchange

model builds on the precondition that the citizen has some kind of need that may be resolved through some governmental agency.

The GEM model is thus intended to be used for inquiries both in public and business settings. We have a strong hypothesis that the model can be used in these different types of settings. In future research we will study this hypothesis, i.e. we will apply the GEM model in different kind of settings and in different kind of situations and gather experiences from its use. We presume that such applications will lead to further development of the Generic Exchange Model.

Acknowledgements

This research has been financially supported by the Swedish Governmental Agency for Innovation Systems (VINNOVA).

References

- ANAO (1999) *Electronic Service Delivery, including Internet use by Commonwealth Government Agencies*, Australian National Auditing Office, Canberra
- Ancarini A (2005) Towards quality e-service in the public sector: The evolution of web sites in the local public service sector, *Managing Service Quality*, Vol. 15 (1), p 6-23
- Andersen K V (2004) *E-government and Public Sector Process Rebuilding - Dilettantes, Wheel Barrows, and Diamonds*, Kluwer Academic Publishers
- Axelsson K, Goldkuhl G, Melin U (2000) Using Business Action Theory for dyadic Analysis, accepted to *the 10th Nordic workshop on inter-organisational research*, Trondheim
- Buckley J (2003) E-service quality and the public sector, *Managing Service Quality*, Volume 13 (6) p 453-462
- Cronen V (2001) Practical theory, practical art, and the pragmatic-systemic account of inquiry, *Communication theory*, Vol 11 (1), p 14-35
- Goldkuhl G (1996) Generic business frameworks and action modelling, In *Proceedings of Communication modelling - Language/Action Perspective '96*, Springer Verlag
- Goldkuhl G (1998) The six phases of business processes - business communication and the exchange of value, accepted to *the 12th ITS conference "Beyond convergence"* (ITS'98), Stockholm
- Goldkuhl G (2006) What does it mean to serve the citizen? - Towards a practical theory on public e-services founded in socio-instrumental pragmatism, accepted to *the International Workshop on E-services in Public Administration*, Borås
- Goldkuhl G, Lind M (2004) Developing e-interactions – a framework for business capabilities and exchanges, in *Proc of the 12th European Conference on information systems (ECIS2004)*, Turku
- Goldkuhl G, Persson A (2006a) From e-ladder to e-diamond – re-conceptualising models for public e-services, in *Proceedings of the 14th European Conference on Information Systems (ECIS2006)*, Göteborg
- Goldkuhl G, Persson A (2006b) Characteristics of Public E-services: Investigating the E-diamond Model, in *Proceedings of the First International Pragmatic Web Conference*, Stuttgart
- Goldkuhl G, Röstlinger A (2000) Beyond goods and services - an elaborate product classification on pragmatic grounds, in *proc of Quality in Services (QUIS 7)*, Karlstad university

- Goldkuhl G, Röstlinger A (2006) Context in Focus: Transaction and Infrastructure in Workpractices, in *Proceedings of the 4th Intl Conference on Action in Language, Organisations and Information Systems (ALOIS-2006)*, Borås
- Habermas J (1984) *The theory of communicative action 1. Reason and the rationalization of society*, Polity Press, Cambridge
- Heritage J (1984) *Garfinkel and ethnomethodology*, Polity Press, Cambridge
- Hiller J, Bélanger F (2001) *Privacy strategies for electronic government, E-government series*. Endowment for the business of Government, Pricewaterhouse Coopers, Arlington
- Layne K, Lee J (2001) Developing Fully Functional E-government: A four-stage model, *Government information quarterly* 18(2): 122-136
- Lind M, Goldkuhl G (2003) The constituents of business interaction - generic layered patterns, *Data & Knowledge Engineering*, Vol 47 (3), p 327-348
- Lind M, Goldkuhl G (2006) Designing Business Process Variants – Using the BAT Framework as a Pragmatic Lens, in Bussler C et al. (Eds, 2006) *BPM 2005 Workshops*, LNCS 3812, pp. 408 – 420, Springer-Verlag Berlin, Heidelberg
- Medina-Mora R, Winograd T, Flores R, Flores F (1992) The Action Workflow Approach to Workflow Management Technology, In: Turner J., Kraut R. (Eds.) *Proceedings of the Conference on Computer-Supported Cooperative Work, CSCW'92*, ACM Press, New York
- Persson A, Goldkuhl G (2005) Stage-models for public e-services - investigating conceptual foundations, accepted to *the 2nd Scandinavian Workshop on e-Government*, Copenhagen
- Santos J (2003) E-service quality: A model of virtual service quality dimensions, *Managing Service Quality*, Vol 13 (3), pp 233-246
- Schmid B F, Lindemann M A (1998) Elements of a Reference Model for Electronic Markets, in Sprague E (Ed) *Proceedings of the 31st Hawaii Intl Conf on System Science (HICSS'98)*, 193-201
- Searle JR (1969) *Speech acts. An essay in the philosophy of language*, Cambridge University Press, London
- Statskontoret, (2000) *The 24/7 Agency: Criteria for 24/7 Agencies in the Networked Public Administration*, Report 2000:41 Statskontoret, Stockholm
- Weigand H, van den Heuvel W-J (1998a) Meta-patterns for Electronic Commerce Transactions based on FLBC, *Proc. of 31st Annual Hawaii International Conference on System Sciences*, pp. 261–270
- Wimmer M A (2002) Integrated Service Modelling for Online One-stop Government, *Electronic Markets*, Vol 12 (3), p 149-156
- Winograd T, Flores F (1986) *Understanding computers and cognition: A new foundation for design*, Ablex, Norwood

Appendix

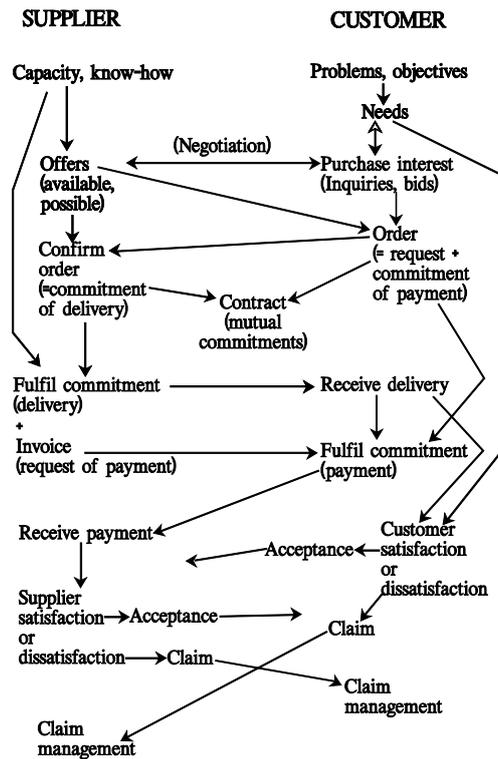


Figure A1. The BAT model – 96’version (from Goldkuhl, 1996)

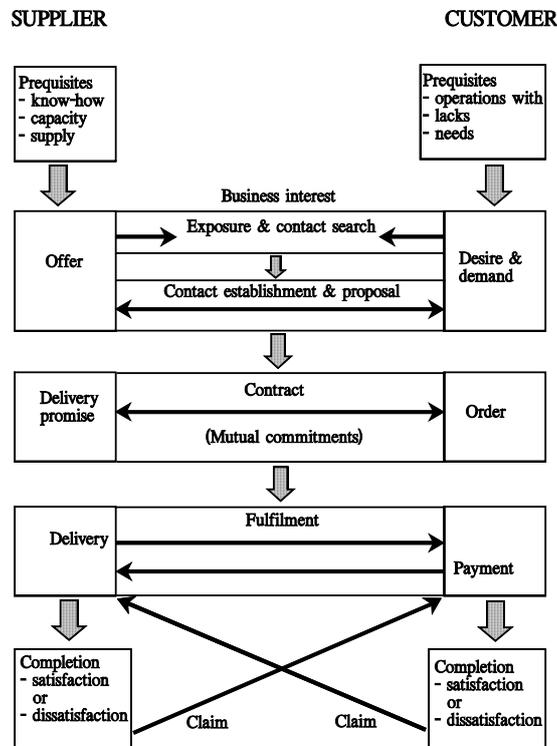


Figure A2. The BAT model – 98’version (from Goldkuhl, 1998)

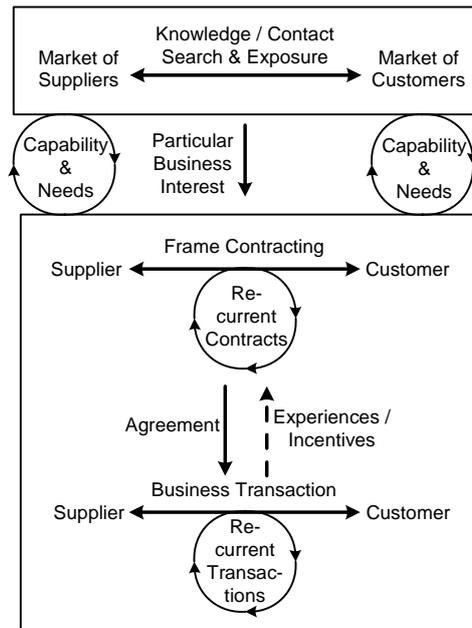


Figure A3. BAT market and dyadic interaction model (from Goldkuhl & Lind, 2004)