

The Communicative Action Paradigm for Business Modelling - A Research Agenda

Jan L.G. Dietz

Delft University of Technology
Faculty of Information Technology and Systems
P.O. Box 356
2600 AJ Delft, The Netherlands
e-mail: J.L.G.Dietz@its.tudelft.nl

Göran Goldkuhl

Linköping University
Centre for studies on humans, technology and organization (CMTO)
S-581 83 Linköping, Sweden
e-mail: ggo@ida.liu.se

Mikael Lind

University of Borås
Department of Computer Science and Business Administration
S-501 90 Borås, Sweden
e-mail: Mikael.Lind@hb.se

Victor E. van Reijswoud

Delft University of Technology
Faculty of Information Technology and Systems
P.O. Box 356
2600 AJ Delft, The Netherlands
e-mail: V.E.vanReijswoud@its.tudelft.nl

Abstract

The communicative action paradigm for research and practice in business process and information systems modelling and design has showed to be promising. The paper presents a proposed research agenda for performing research on business modelling and related issues according to the communicative action paradigm. Sixteen research issues are described and justified. These research questions can be grouped into three areas: 1) conceptual issues, 2) modelling and design issues and 3) meta level issues. The formulated research agenda is one result from a collaboration between two research groups (VITS from Sweden and DEMO from the Netherlands).

1 Introduction

1.1 Background

The Language/Action Perspective (LAP), introduced in the field of Information Systems by Flores and Ludlow in the early 1980's (Flores, Ludlow, 1980) has proven to be a valuable new basic paradigm for studying Business Systems as well as the Information Systems that support them. In contrast to the traditional conception of communication as exchanging knowledge, the LAP emphasises that communicating is also doing things, namely performing language acts like asserting, requesting and declaring. It has given rise to a new refreshing view on business systems and information systems and it has brought about a number of new approaches to the analysis and design of these systems. Some examples of these approaches are : Action/Workflow (Medina-Mora et al 1992), BAT (Goldkuhl, 1996; 1998; Lind, Goldkuhl 1997), DEMO (Dietz 1994, Dietz & Mulder 1998, Van Reijswoud & Van der Rijst 1995), and SAMPO (Auramaki, Lehtinen, Lyytinen 1988).

Iivari & Hirschheim (1996) have analyzed eight IS development approaches, four traditional and four emerging. Among the emerging approaches they place "speech act based approach" which is equivalent with language/action (LAP) and communicative action (CAP) as we write in this our paper. Iivari & Hirschheim state that one feature of the emerging approaches is the lack of specialised journals and conferences. However since 1996 two specialised international LAP workshops have been held, at which the research groups in the world that do actually take LAP as the leading paradigm reported on ongoing research and presented results of their theoretical and practical efforts (LAP 1996, LAP 1997).

The Communicative Action Paradigm states that a business system can most fruitfully be conceived as a network of interrelated communicative acts, for a number of purposes. One of them is to model a business system just for better understanding the current situation, for locating and analysing current problems. Another purpose is to redesign or re-engineer the system, and a third purpose could be to use the model for managing the operation of a complex business system.

Adopting CAP as the leading paradigm for studying business systems, in every kind of organisation, inherently means taking predominantly a construction and operation oriented stance (the C/O stance), contrary to the function and behaviour oriented stance (the F/B stance). The latter appears to be the best known and the mostly taken stance when studying business systems. It is in fact the dominant stance in all social (as well as all natural) sciences.

Taking the F/B stance basically means that one produces a black box model of the system under consideration and that one refines one's understanding of that system by decomposing it into a tree structure of subsystems. This is called functional decomposition. From the F/B stance one can effectively answer questions about the function or the behaviour of a (sub)system with regard to its environment in terms of (input and output) variables or flows (of physical items or information).

The C/O stance is the dominant stance in all technical or engineering sciences. Taking the C/O stance basically means that one produces a white box model of the system under consideration, in which the elementary acting units and the elementary actions they can perform, become visible. From the C/O stance one can effectively answer questions about how function and behaviour are brought about. Otherwise said, the construction and the operation of a system constitute the basis for explaining its function and behaviour. In order to hide detail and improve an overall understanding one can cluster acting units into composite or complex entities. This is called constructional composition.

1.2 From LAP to CAP

Although the Communicative Action Paradigm (CAP) presented in this paper, does not essentially differ from the L/A Perspective, the authors have felt it worthwhile to coin the new name for at least two reasons. The first one is that we want to emphasise the application of language action theories for studying, modelling and redesigning co-ordination for action. In other words our main application area consists of business systems, of organised ways of co-operation. The second reason is that we want to explicitly include non-verbal communication. The term 'language act' generally has a strong connotation with the common notion of (spoken or written) language, whereas we want to stress that any physical act may count as a communicative act. For instance, handing over a loaf of bread by the baker to the client without saying something counts as stating that what the client requested to be done and the baker promised to do, now has been done. Similarly, exchanging forms between employees in a company may count as performing requests or promises (or as other

communicative acts), although this is not explicitly mentioned on the form or uttered otherwise in a spoken or written form.

1.3 Purpose

This paper is the result of a first step in the collaboration of two research groups that have adopted CAP. One of them is the network based research group VITS in Sweden, which among other things brought about the BAT theory (Goldkuhl, 1996; 1998; Lind, Goldkuhl 1997). The other one is the DEMO research group in the Netherlands, which among other things produced the DEMO theory and methodology (Dietz 1994, Dietz & Mulder 1998, Van Reijswoud & Van der Rijst 1995). One purpose of the paper is to provoke discussion about what CAP entails, its advantages and its limitations. Another one is to put some structure to the area of CAP based research in order to be able to survey the area. However, the most important purpose is to provide an inventory of research issues that the authors consider to be relevant.

The collected research issues are presented as a list of 16 questions in section 2. These questions are structured into three areas:

Conceptual issues

- What is an elementary communicative act?
- What levels of action/actor can or should be distinguished?
- What constitutes a business process?
- What action – relations can/should be distinguished?
- How should Information Systems and their use be understood in the Communicative Action Paradigm perspective?

Modelling and design issues

- What kind of purposes do/can we have in modelling?
- What modelling strategies do we have and how can they be combined?
- What model types are/should be distinguished?
- How does the theory influence the distinguished model types?
- What modes are driving the modelling?
- How to relate the business process with the logistical process?
- How to relate business communication modelling to resource aspects?
- What is the effect of communication modelling on the communication competence (and understanding of it) of the people in the analysed situation?
- What new architecture(s) would be needed/possible for designing Communicative Action based Information Systems?

Meta level issues

- Metamodelling of methods?
- How can/should the field of CAP based analysis/(re)design be delineated?

In our presentation we have put forth different arguments concerning the importance of the research issues. We have, in a limited space, described the relevance of the proposed research areas. More can be said about this, both from a theoretical and practical application point of view. The reader should bear in mind that we do not present performed research but rather starting points for research.

In section 3 we present a few conclusions that can be drawn from this inventory work as well as from our other experiences in CAP based work.

2 Research Questions

2.1 What is an elementary communicative act?

The core of CAP is found in the theory of speech acts as developed by Austin (1962) and Searle (1969). The speech act theory is based on the idea that people perform actions when they speak. According to Austin speech acts are a form of words 1) with sense, reference and so forth, 2) with a communicative force, and 3) that cause effects. We believe that this tripartite distinction needs to be the core of our understanding. However, for CAP we like to extend this basic understanding with an inclusion of non-verbal speech acts. Thus, in CAP Austin's tripartite division applies to non-verbal speech acts as well.

Speech acts have been categorised into several taxonomies, of which Searle's taxonomy (Searle, 1979) is best known. Searle identified five different types of speech acts: directives, commissives, assertives, declaratives and expressives. The investigation of alternative distinctions is an area of attention in CAP.

One of the critiques on the speech act theory is that it does not explain the co-ordination of action between socially acting people (Dietz & Widdershoven 1991). One of the possible explanations for this phenomenon is provided by the theory of Communicative Action of Habermas (1984). Habermas explains that the exchange of the criticisable validity claims that are inherently included in a speech act brings about social co-ordination. Next to the claim that an utterance should be well formed, Habermas distinguishes claims to power, truth, justice and sincerity.

If CAP wants to explain and model how communication involves the working of an organisation (in the broadest sense of the word) we should consider elementary elements (verbal as well as non-verbal) that not only cause effects, but also bring about co-ordination of action between people. These elements are called communicative acts. A most important question for CAP based research thus is the question of the unit of action: what is an elementary communicative act? And secondly: which distinctions can or should be made?

Next to the business oriented (essential) communicative acts, related material acts or informational acts may be identified (Medina-Mora et al, 1992; Dietz, 1996; Goldkuhl, 1996). These acts refer to action in the world of objects or the world of information. These worlds should be contrasted with the world of subjects, in which the communication and co-ordination between these subjects takes place.

Communicative acts can be grouped into several complex patterns explaining the co-ordination of action in organisations. The Conversation for Action (Winogrand & Flores, 1986), the Business Transaction (Dietz, 1996; Reijswoud, 1996), and Generic Model of Business Processes (Goldkuhl, 1996) are examples of complex patterns of communicative action. Different patterns may be proposed.

2.2 What levels of action/actor can or should be distinguished?

In modelling organisations or business systems from the CAP, there seems to be a choice of the granularity of the acting units chosen. These acting units can e.g. be individual persons, or even roles of persons, they can be groups of persons, or departments or even whole companies. So there is a pertinent question as to which level of granularity has to be chosen or can best be chosen, probably dependent on the purpose of the modelling, thus the problem at hand. A related question is whether there is an elementary, i.e. atomic, unit of action, and if so, what constitutes such an atomic actor.

Similar questions can be asked with respect to actions. Both within an organisation and between organisations actions or interactions can be regarded on a coarse and on a fine level of granularity. Many times there are some actions that need to be focused on in detail and other actions that can be regarded at an aggregate level. Here also exists the related question of atomicity. Is there an atomic communicative action, and if so, what constitutes it (cf. section 2.1)?

When an organisation is being analysed there is mostly a need to let the situation create demands on when to go into more detail of an action or an actor, which means that one needs to be able to handle different levels of granularity of actions and actors. So, there is a need for guidance as to what level of abstraction (concerning actions and actors) should be taken when performing business modelling, in particular since communicative actions and the actors performing them are the building material of the networks that are conceived within the CAP.

2.3 What constitutes a business process?

Unfortunately our cognitive capacity as humans is limited. This means that we are unable to see the world as a whole and to predict all the effects of our actions (Langefors, 1993). Therefore there is a need to divide the world into different pieces in order to talk about it. This can be done in different ways. There is a need to distinguish different parts in an organisation from each other in order to be able to talk about the organisation. By using the notion of business processes it is possible to achieve this. Business processes highlight certain aspects of an organisation.

Many business process oriented development approaches emphasise the business process as being a transformation process. When applying the CAP on an organisation, the transformation aspect of business processes is emphasised as well as the exchange of value between the studied (modelled) organisation and its surrounding. This exchange is based on the communicative acts performed within an organisation and between the organisation and its surrounding. A business process is constituted of a grouped (interrelated) number of speech acts.

There is also a lot of controversy and confusion regarding the number of processes appropriate to a given organisation. Processes seem to be infinitely divisible (Davenport, 1993). Thus there is a need to find criteria for delimiting and dividing business processes.

We have also experienced that many organisations often have different ways in which business missions are being performed. Examples of such ways are standard stock sales, and tailor-made product sales. Such variants need to be distinguished from each other (Lind & Goldkuhl, 1997; Lind, 1996).

The notion of business processes has a close relationship to CAP. Communicative acts are used as the unit of analysis in order to determine an organisation's business processes. Typical questions to study within this issue are:

- What is the scope of a business process?
- What building blocks does a business process consist of?
- How many business processes does an organisation consist of, i.e. how is a business process distinguished?
- How is a business process distinguished from other business processes?

2.4 What action – relations can/should be distinguished?

Next to the issue of granularity of actors and actions, as presented in issue 2, there is another issue concerning the involvement of people in communicative actions or business transactions. An example may illustrate what the issue is about. In health care processes there are several kinds of participants, e.g. patients, doctors and nurses. A patient may request a doctor to get medical treatment and/or care. In that case, both the patient (who actually is not a patient yet!) and the doctor are actors who perform their communicative acts with authority and responsibility. In the process to follow the doctor might ask a colleague to treat the patient. Now the patient is not an actor in the business process but the recipient of the (medical) acts the two doctors have agreed upon. The same holds for the situation that the doctor asks the nurse to take care of the patient.

It may be necessary to distinguish more different 'roles' of people in business processes. For each of them, so for instance for the recipient role, there is a need to investigate the role, to determine its participation in the business process. In the medical care case, it is important to have a decisive answer to the question whether the patient accepts the applied treatment or care, or the doctor that has requested for it and has concluded that what he asked for is performed satisfactory.

2.5 How should Information Systems and their use be understood in the Communicative Action Paradigm perspective?

The CA paradigm does not only state that business processes involve communicative action. Computer-based information systems can as well be understood in a CA perspective. Following such a perspective information systems are seen as vehicles to perform communicative and language action (e.g. Goldkuhl & Lyytinen, 1982; Verharen, 1997). The view of information systems in CAP is not restricted to see them as "containers of information" and "instruments for information transmission". An information system can be understood as a potential for communicative action of an organisation (Goldkuhl & Ågerfalk, 1998). This action potential (i.e. a repertoire for communicative acts) is used to perform important business acts. Acts like offering, ordering,

delivery promising etc can be made through the computer-based systems. This is obvious the case when studying applications like electronic commerce.

Information systems are not only used to perform communicative acts. An information system does usually contain a memory of earlier actions performed. Inspecting and using such an action memory is important as a support for actors to perform different business actions (ibid). To be reliable, an organisation (as an acting unit) must perform its different actions in a congruent fashion towards external parties, as e.g. customers. This action congruence must hold for actions performed by different persons and at different occasions. E.g. acts of delivery and invoice must be congruent with commitments made earlier (in offers and delivery promises).

The role of information systems as components in business processes need to be highlighted in a CAP approach. How are systems used for communicative actions? What kind of earlier communicative actions must be held in the action memory of an information system? Many information systems are not designed according to CA paradigm. We presuppose that CAP is a very useful paradigm for designing information systems and will imply information systems with other qualities than common. Even if some steps are taken for designing CAP based methods for IS development more methodological work has to be done. Empirical studies on CAP-based IS development are also needed. The CAP framework can also be used (as a diagnostic instrument) to assess current information systems, which have been developed without CAP framework and method. Such systems might be redesigned to be more CA explicit and transparent.

2.6 What kind of purposes do/can we have in modelling?

Business process modelling can be performed with different purposes. What different purposes can we have in modelling? The understanding of different purposes is important in order to evaluate different modelling approaches. Some approaches might fulfill some purposes better than other approaches, but it can also be the other way around. No single modelling approach will probably serve all possible purposes in the best way.

Process modelling is often used to understand and evaluate current business processes. One important sub-purpose in such a situation is the identification and formulation of different problems related to current processes. Process modelling is also used in order to design new business processes. There can be totally new processes but of course also redesign of current processes. The modelling of future business processes can be used as an aid to evaluate and choose between alternative change measures. Some (but not all) consequences of suggested process adjustments can be identified already at this modelling stage, instead of obtaining such consequences unexpectedly during implementation. A business process model can also be used as an aid in running complex business. There is a need for a documentation of business processes for quality assurance and for education of new employees.

Different modelling purposes demand modelling of different aspects. How is the emphasis on communicative action in CAP approaches related to these different purposes? What impact do communicative action modelling have on different purposes? How can CA based modelling be adapted to different modelling situations?

2.7 What modelling strategies do we have and how can they be combined?

By a modelling strategy we mean a way of working by which we focus on the analysis of the situation that we want to model and the process by which we generate the models that incorporate this focus.

Within CAP the focus in general is on the analysis of communicative action in a business situation. This means that the aim of the modelling strategy should primarily focus on the identification of communicative action in an organisational context. It should also provide a way of working to reveal the complex patterns in which the communicative acts appear.

Communicative action may be represented in different models highlighting different aspects. The modelling strategy needs to ensure that these different aspects are identified in the complex organisational situation and lead to models highlighting these different aspects. In other words, the modelling strategy needs to ensure that the predetermined aspects are modelled.

When modelling different aspects of a business in different models the modelling strategy needs to provide rigid guidelines that identify and model the relationships between these different aspects. Preferably, the modelling strategy guides the analyst from one model to the next on the basis of these relationships.

A modelling strategy also needs to include guidelines that describe the way in which the business situation needs to be modelled. The best know ways in which models are determined are the top-down and the

bottom-up approaches. An alternative approach is the bottom-all approach (Lind & Goldkuhl, 1997). Next to these approaches we may identify linear or iterative modelling strategies. In CAP there is not one favourite approach, as long as the focus stays on the identification and understanding of communicative action. However, we may further investigate the advantages or disadvantages of these strategies for modelling communicative action.

The goal of business modelling, i.e. the analysis and redesign of communicative co-ordination in organisations, needs to be reflected in the modelling strategy. This means that we think that a complete modelling strategy in CAP does not only have to provide a way of working for the analysis of business communication, but also for the redesign of the business. Research should focus on establishing these complete business modelling strategies.

2.8 What model types are/should be distinguished?

When performing modelling of organisations there is a need to use different models in order to be able to express different aspects of the business. Examples of such aspects are business communication, flow, transactions, interrelated actions, contexts etc. To perform business modelling and business development means, among other things, working with documentation (a coherent set of models) according to the rules of the governing method (Goldkuhl & Cronholm, 1993).

Each used model expresses certain aspects of the studied area. In order to ensure that the model is being used according to its intentions, there is a need to express the purpose of using a certain model type. The purposes of different model types are often not explicit enough. That may lead to that the user of a method might have problems to determine the reason for using a certain model type, i.e. the intentions behind modelling acts do not become clear.

Often we use more than one model type when performing business modelling. Modelling can be considered as being the performance of transformational acts. In order to generate a certain model, modelling acts need to be performed. It is common that aspects described in earlier generated models are used in order to create “new” models, i.e. there exists relationships between different model types within the same approach (method). These action relationships are very often unclear. Goldkuhl & Cronholm (ibid.) have identified a number of basic modelling acts. These are delimit, identify, define, characterise, relate, subdivide and translate.

Generally one can say that a method is a mean to reach the objectives in a certain perspective. In this context it is therefore important to secure that CAP phenomena are focused in the used model types. The results produced when using different model types should also form an entirety for understanding of business communication and related aspects. The understanding of the entirety is founded by understanding the meaning of a certain model type, the actual result represented according to a certain model type and the action relationship between different model types.

2.9 How does the theory influence the distinguished model types?

A method consists of guidelines for how to go about something. Its character is prescriptive. A method tells what to do in different situations in order to arrive at certain goals. All methods build on some implicit or explicit *perspective* (way of thinking) (Goldkuhl et al, 1997). A perspective includes values, principles and categories (with definitions), which are more fully expressed in the method and its method components. The perspective can be based (grounded) on theories. An example of such a theory is the speech-act theory (Austin 1962; Searle 1969; Searle 1979; Searle, Vanderveken 1985). Observe that the perspective can be expressed in the method without being explicitly articulated. Parts of the perspective can be present in the method in a rather inherent way. A perspective is the conceptual basis of a method and represents its underlying values.

Some model types are highly integrated with underlying theories. The theory is used to emphasise the values and intentions behind the elements in a modelling type. We think that it is of great importance that the modelling types (purpose and content) harmonise with the underlying theory.

Modelling tools can be used for different purposes and highlight different aspects, where many model types have been created for many different applications. As identified in Lind & Goldkuhl (1997) there is sometimes a need to distinguish between theory and method when performing business modelling. A method consists, among other things, of questions to ask in the modelling situation. When focusing on certain aspects of a business, such as business processes, there is a need to adapt a business process oriented theory in order to be able to ask more generative questions.

The model types used in the CAP include some basic elements used in order to describe/analyse a certain situation. As mentioned in section 2.8 it is therefore a need to focus the phenomena in the perspective. These basic elements (such as speech acts, actions, actors etc) should be reflected in the underlying perspective, which should be based (or grounded) on theories. One example of a model type based on a theory is the communication diagram in DEMO-(Dietz, 1996; Reijswoud, 1996).

2.10 What modes are driving the modelling?

In issue 9 above, we discussed the relationship between theory and method. There is an obvious need to have the underlying theory/perspective (in our case the CA paradigm) influencing the modelling methods. But not all parts of theory might be explicitly incorporated in the method (cf Goldkuhl, 1996 for discussion concerning relationships between theory and method in a Language Action Perspective).

In a modelling situation, the analyst, can be guided by both method and theory. Sometimes the theory might be the main driving force. In such a situation, the analyst is utilizing the generative power of the theory to put questions and the modelling method is perhaps only used in a rather free fashion. In another situation, the modelling method might be the main driving force for the analyst. In such a case, the analyst is using the modelling capabilities of the method as the main question generator. The notational and procedural rules of the method is followed rather strictly and the influence from theory (outside the method) might be low.

In business modelling, an analyst cannot only be guided by his pre-knowledge of theoretical and methodological character. The business situation being studied must be one important stimulus for generating questions. We can talk about the studied situation (the business context) as one driving force for the modelling. If this is the main driving force in modelling, we call it situation driven modelling. This is thus the case where theory and method have a low impact on the modelling result.

We presuppose that business modelling should be performed with a mix of theory, method and situation driving modes. From a Communicative Action perspective there is an obvious need for a strong CA theoretical impact - both directly from explicit theory and indirectly from utilized methods. There are research questions of how to find an appropriate balance between these different driving forces and how these driving forces can interact in a constructive way. A critical stance towards our own theory (CAP) must also be taken. Are there modelling situations where a heavy impact of a CA theory driving force gives too much blind spots of other important aspects of the situation under scrutiny?

2.11 How to relate the business process with the logistical process?

We do consider it a valuable achievement that the CAP allows one to conceive business processes separately from the material production or the logistic processes where they are about. This allows one to study the productivity and efficiency of a business process next to and apart from the productivity and the efficiency of the physical production and the transportation of goods. This holds of course particularly for so-called information-intensive organisations like banks and insurance companies where there is no production or transportation of material things (Note. The word 'information-intensive' is misleading, a better term would be: 'material-production-lacking'. Endnote). However, in order to evaluate proposed enhancements of the business processes, it is highly desirable to link them, if applicable, to the related production or transportation processes.

A second need for relating business processes to logistic processes occurs in the fulfilment or result phase of a business transaction or workflow cycle. In that phase the (external or internal) customer has to accept with responsibility the physical goods as being the things he requested for. Obviously, one then needs to be able to observe the state of these goods. It also holds already for the supplier who has to ensure whether entering the fulfilment phase is possible. Thus there is a need to understand the logistical process (production process) in the context of the business interaction (again, in organisations that have logistical processes).

In many approaches for process thinking it is common that one regards either the process as business interaction *or* as refinement (production or logistical process) (see for example literature concerning BPR). In order to find legitimation for the existence of logistical processes the organisation needs to be looked upon as a whole.

2.12 How to relate business communication modelling to resource aspects?

A very popular approach today when evaluating organisations is to look for performance and cost indicators, and to measure their values. Some of these indicators concern business processes, other ones concern logistic processes. An example of a performance indicator concerning mainly the business process (for material-production-lacking companies even almost exclusively) is the delivery time of a customer order. An example of a performance indicator concerning production processes is the scrap rate. Cost indicators are e.g. the costs of the resources (people and machines) and the costs of material.

When redesigning and/or re-engineering an organisation, there is obviously a need to highlight consequences (effects) of proposed alternatives. For a careful evaluation the key performance and cost variables have to be measured or estimated. Simulation techniques may be most valuable in addressing this research issue.

2.13 What is the effect of communication modelling on the communication competence (and understanding of it) of the people in the analysed situation?

A transformation approach to business modelling (cf issue 7) has a tendency in viewing business processes in a rather objective way. Business processes are, in such a modelling approach, restricted to transforming input to output. The use of a CA paradigm in business modelling expands this narrow view to modelling of communicative actions and rules for such actions. Communicative action modelling comprises the modelling of the communicative competence of the organisation, which involves such competence of its human actors. Modelling communicative competence is not just a representation of the outside world. It means modelling parts of an intersubjective world.

Describing intersubjective rules must comprise procedures of interpretation, reconstruction and mutual comprehension and assessment (Habermas, 1979; Goldkuhl & Lyytinen, 1984). It should not be seen as process of analysts studying the organisation from the outside. Rules for communicative actions are social and meaningful phenomena. Such rules cannot finally be described without assessment of those following the rules.

A communicative action approach relies thus on some participation by actors of the organisation under scrutiny. The elicitation and modelling of communicative rules and competence should (at least partly) be understood by those following such rules. What effects will the articulation of rules and competence have on the competence possessors themselves? This modelling and elicitation might raise the awareness of their own behavior and the conditions for their action repertoire. How can the organisational actors make use of such improved self-understanding? Business process modelling in a CA paradigm can be seen as an organisational learning process (Argyris & Schön, 1996). What are the conditions for and effects of such a learning process of communicative competence? What importance does this kind of improved understanding of communicative competence have on the redesign of business processes?

2.14 What new architecture(s) would be needed/possible for designing Communicative Action based Information Systems?

Communicative Action based Information Systems (CAbIS) are different from traditional information systems. Where a traditional information system is based on an informational understanding of an organisation and is supposed to support the informational processes, a CAbIS is founded on communicative action based understanding and is supposed to support communicative co-ordination of subjects in an organisation. On the basis of this difference we need to reconsider whether traditional architectures for designing information systems are appropriate for CAbIS.

If we consider the design of traditional information systems we observe that the emphasis is put on the constraints that apply to the information that is needed by an organisation. For example, what information is available and how can it be distributed. Such a design is not based on the notion of responsible subjects that perform interrelated communicative acts that eventually create information. These systems fail to take into account the communicative co-ordination that forms the basis of an organisation in the CAP.

One possible strategy for designing CAbIS is by using software components based on elementary communicative action. These components may be grouped in so-called business components based on the complex patterns by which an organisation is conceptualised in CAP. If that is done there is a need to ensure that the aspects covered in the CAP also are covered in the architecture for developing and using business components.

There may be more possible architectures for designing CabIS, and research should focus on exploring

possible architectures. We should also explore the possibilities for extending existing approaches. If we analyse and redesign an organisation on the basis of the CAP and we do not have the means to support the redesigned organisation with CabIS, we will not be able to show the benefits.

2.15 Metamodelling of methods?

When using methods for modelling an organisation the organisation is the object for analysis with an evaluation and development purpose. Methods can also be modelled, where the method then in itself is the object for analysis with an evaluation and development purpose. When methods are regarded as the object for analysis, we move to a higher level of abstraction, to the meta-level. This research agenda contains issues that both concern ways of looking at methods as well as ways of looking at organisations.

Methods can be studied from different perspectives. One perspective is to regard the method in an ideal typical way, which means that one study the intentional use of the method. A complimentary perspective is to look upon the use of the method, i.e. applying a situational perspective. When regarding a method from a meta-level one can, among other things, question underlying values of the method. Many modelling methods are "cook-book" oriented, i.e. the method description rather states what to do and not why to perform a certain modelling act (Jayaratna, 1994). The effect could be that the method user then does not understand the reason for doing a certain modelling act. By metamodelling we mean the modelling of methods, where values and rules, among other things, within methods are analysed.

As identified in Goldkuhl et al (1997) methods can be described by applying a method theory. There are many similar conceptual frameworks for methods (as e.g Avison & Fitzgerald, 1995; Brinkkemper, 1995; Jayaratna, 1994; Kronlöf, 1993; Kumar & Welke, 1992; Tolvanen & Lyytinen, 1992). In order to make such a description there is a need for method components that focus aspects expressed in the method theory. Such components could be goal analysis, problem analysis, concept analysis, analysis of used model types and the relation between the model types etc.

According to our perspective on methods, goals and values have to be expressed in order to ensure that the method user is becoming aware of the intentions behind the methods. Metamodelling can be used for many purposes such as comparison, development, evaluation, and description in order to express and emphasise different aspects (such as the unit of analysis) related to the underlying theory. Metamodelling is also used to create and express methods in order to ensure that the method becomes congruent, i.e. ensure that the different parts of the method fit together. We mean that metamodelling is a mean to ensure that the methods being used are supporting the CAP.

2.16 How can/should the field of CAP based analysis/(re)design be delineated?

In the previous items of the research agenda we have mainly focused on the theoretical content of the Communicative Action Paradigm (CAP). However, it is also necessary to distinguish ourselves from other approaches and perspectives that also claim to perform business modelling for the purpose of analysis and redesign.

The main criterion for the delineation of the CAP is found in the unit of analysis. Within the CAP the unit for analysis is the communicative action (defined in section 2.1). Consequently, organisations are conceptualised as networks of interrelated communicative actions that establish the business processes. Associated with these actions are the informational, material and documental flows that matter. So the first criterion to consider approaches and perspectives to be CAP based is that they take communicative actions as their primary focus for the analysis of organisations.

The same principle applies to redesign. Within the CAP, redesign is also based on communicative actions. Through redesigning the network of interrelated communicative acts, an optimised organisational or business situation is achieved. The redesign of a communicative acts network may have implications for the informational, material or documental flows in the organisation. These implications are derived from the redesigned network. Approaches and perspective that do not primarily locate the possibilities for redesign in the networks of interrelated communicative acts thus do not belong to the field of the CAP.

A second criterion is provided by the definition of a communicative act. Within the CAP a communicative act is defined as a verbal or non-verbal utterance with a propositional and an illocutionary constituent part, together constituting an element of a business process (see item 1). Only approaches for business modelling that do recognise this composition of communicative acts can be considered as CAP based. So, for example approaches that only consider the semantic meaning of communication do not belong to this

group.

Exclusion of several approaches and perspectives from the CAP does not imply that they cannot be used. However, these approaches and perspectives need to be considered as additional to a CAP based analysis or (re)design.

3 Conclusions

This paper presents the combined view of the four authors on a research agenda for research to be undertaken within the common Communicative Action Paradigm. This research agenda should of course be considered as a joint communicative act performed by the authors. As a communicative act, it is a *mixed communicative act*, i.e. it combines different thematized types of actions performed. The paper *expresses the views* of the authors on the research area. It should also be considered as a *research plan* for the authors and the two research groups we represent. We externalize *research commitments*. This research agenda is what we want to do and what we plan to do (if research conditions are facilitating). The research agenda should also be seen as an *attempt to influence* the growing LAP/CAP research community. We are not setting the research agenda exclusively for ourselves. The paper is a *request for research* on important matters. We are arguing for research questions to be addressed by other researchers as well. In this sense, our paper should be interpreted as a *contribution to the ongoing scientific dialogue* on desired research directions.

The discussions of the 16 research questions in section 2 not only present the research issues, but at the same time also constitute a scientific justification for putting more effort in CAP based research. Next to this scientific relevance, there appears also to be a high societal relevance. The numerous number (over 50 now) of applications of CAP based methodologies, notably BAT and DEMO, in practical projects have convincingly demonstrated the practical viability and value of the Communicative Action Paradigm.

Perhaps the most important contribution of CAP to the fields of Business Systems and Information Systems, is that it might provide the necessary bridge between the 'organisation' people and the 'IT' people, or between the users and the information analysts, by adding the (missing) C/O perspective to the already existing F/B perspective.

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