Reconstruction of Different Business Processes

- A Theory and Method Driven Analysis

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Abstract

When evaluating and developing organisations, the business process perspective is a popular one to use. Several methods exist and there are new ones being developed. When evaluating and/or developing organisations from a business process perspective, there is a need to reconstruct existing business processes. We have experienced problems in distinguishing and delimiting business processes in relation to each other. There is a need for criteria. Within the language/action perspective a more clear process notion can be formulated, which supports a clear process delimitation. In this paper we are showing a coupling between a method driven and a theory driven approach for reconstruction of different business processes. The business action theory, which is based on the language/action approach, gives us support in guidance for reconstruction of different business processes, i.e. asking questions based on communicative action theories. We also present a method for process and action modelling. The presented theory and method have been used in an action oriented case study, which is used to show experiences and drawing conclusions from one theory and method driven analysis of business processes.

1   Introduction

In contemporary organisational change approaches such as Business Process Reengineering (BPR) and Total Quality Management (TQM) the process notion is put into focus. Several different methods for process modelling exist. It is important to have adequate method support when reconstructing current processes and redesigning new ones. The different methods are however based on different conceptual frameworks and thus different process notions. There are many process methods/frameworks which tend to have a restricted "manufacturing" view; i.e. describing the transformation from input to output. This is of course important to describe, but it seems in many situations not to be enough. Language/action (L/A) approaches challenge this narrow view; c.f. e.g. Action Workflow (Action Technologies, 1993; Denning & Medina-Mora, 1995) and DEMO (Dietz, 1994). Such approaches emphasise the business process as a *mission*. This implies that different roles (e.g. customer and performer as in Action Workflow) must be identified and specified and that different activities/phases in the business process must be clearly related to the different roles.

One important problem in process modelling is the delimitation of processes. This problem is discussed by Davenport (1993). Unclear criteria for process delimitation can give rise to varying amount of processes when describing an organisation (ibid. and Goldkuhl, 1996). L/A approaches, with the roles and mission in focus, have a more clear process notion which supports a more straightforward process delimitation. A business process theory related to modelling methods give analysts support when to decide where a process starts and ends. This is claimed to be one important advantage for the L/A approaches to business process modelling

(Goldkuhl, 1996).

The issue of process delimitation is also related to process division. As identified by Lind (1996b) many business process approaches tend to have a sequential process view: One main process is divided into sequential sub processes. Lind wants to supplement this view with "variant processes". This means that there will be alternative business processes in an organisation, i.e. there are different ways for performing business missions. An organisation usually performs different kinds of missions and this implies different types of business relationships between customer and supplier.

If there are different ways to perform business, such different ways ought to be identified and modelled in a business process development project. The different ways of performing business (i.e. different business processes) should be reconstructed and evaluated. In such a reconstruction there is a need not only to have good modelling methods. There is a need to have an appropriate business process theory as a lens for identification, delimitation and division of different current processes. The business process theory and the modelling method should be integrated in a proper way. In Goldkuhl (1996) there is a comparative analysis of two such approaches: Action Workflow (e.g. Action Technologies, 1993; Denning & Medina-Mora, 1995) and SIMM (e.g. Goldkuhl, 1992). Both these approaches are based on a language/action perspective. There are similarities and differences between these two approaches. In the SIMM approach there is not as tight a coupling between theory and method as in Action Workflow (ibid.). There is therefore a need to articulate the relationships between the theory level and the method level.

The purpose of this paper is to make such an articulation of the relationships between theory and method. In other words the purpose is to describe an integral usage of an L/A oriented business process theory and methods for business process modelling in the process reconstruction phase.

We will describe briefly the conceptual framework "Business Action Theory" (section 2) and parts of the business process modelling method (section 3). The usage will be illustrated by a case study (section 4).

2   Theory: A Generic Business Framework

There is a need to understand the making of business as action and interaction. Making business is not mere agent-less transportation of information and material. It consists of customers and suppliers performing actions of communicative and material character. Such different actions are related to each other in generic patterns. The Business Action Theory (BAT), presented by Goldkuhl (1996, 1997), is one such attempt to describe the generic business action logic. This theory is founded on communicative action theories (as e.g. Searle, 1969; Habermas, 1984) and business relationship theories (as e.g. Axelsson & Easton, 1992; Normann & Ramirez, 1993; Gummesson, 1996). As mentioned above, a comparison between BAT and Action Workflow is performed in Goldkuhl (1996). Verharen (1997) has made a comparison between BAT, Action Workflow and DEMO, and as a result he has followed BAT as his main theoretical inspiration when studying business interaction in his thesis (ibid).

This generic business framework describes business processes as consisting of six phases. It starts with business prerequisites of customer and supplier and goes through business communication (with e.g. offers, inquiries, negotiation and contract) to fulfilment (through delivery and payment) and ends up with the satisfied usage or discontent and possible claims. The phases are:

1.   Business prerequisites phase
2.   Exposure and contact search phase
3.   Contact establishment and proposal phase
4.   Contractual phase
5.   Fulfilment phase
6.   Completion phase

These different phases were described in Goldkuhl (1996) and have been further developed in Goldkuhl (1997). The phases are depicted in figure 1.

The Business Action Theory emphasises that there are certain business actions which always have to be performed when doing business, as e.g. the communicative actions offer, order, delivery promise, contract. Such actions always have to be performed in principal, but in simple business situations, some of these actions can be implicit or integrated with other actions. The theory also emphasises that there is a certain principal order between different groups of actions within a business process. The different phases constitute such groups of actions.

The purpose of Business Action Theory is of course to describe and explain business interaction. But the purpose is also that it can be used as a theoretical lens in organisational change when developing business

processes. The theory can be used as an interpretative framework when reconstructing, evaluating and redesigning different business processes. In such change situations it should be supplemented by congruent change methods.
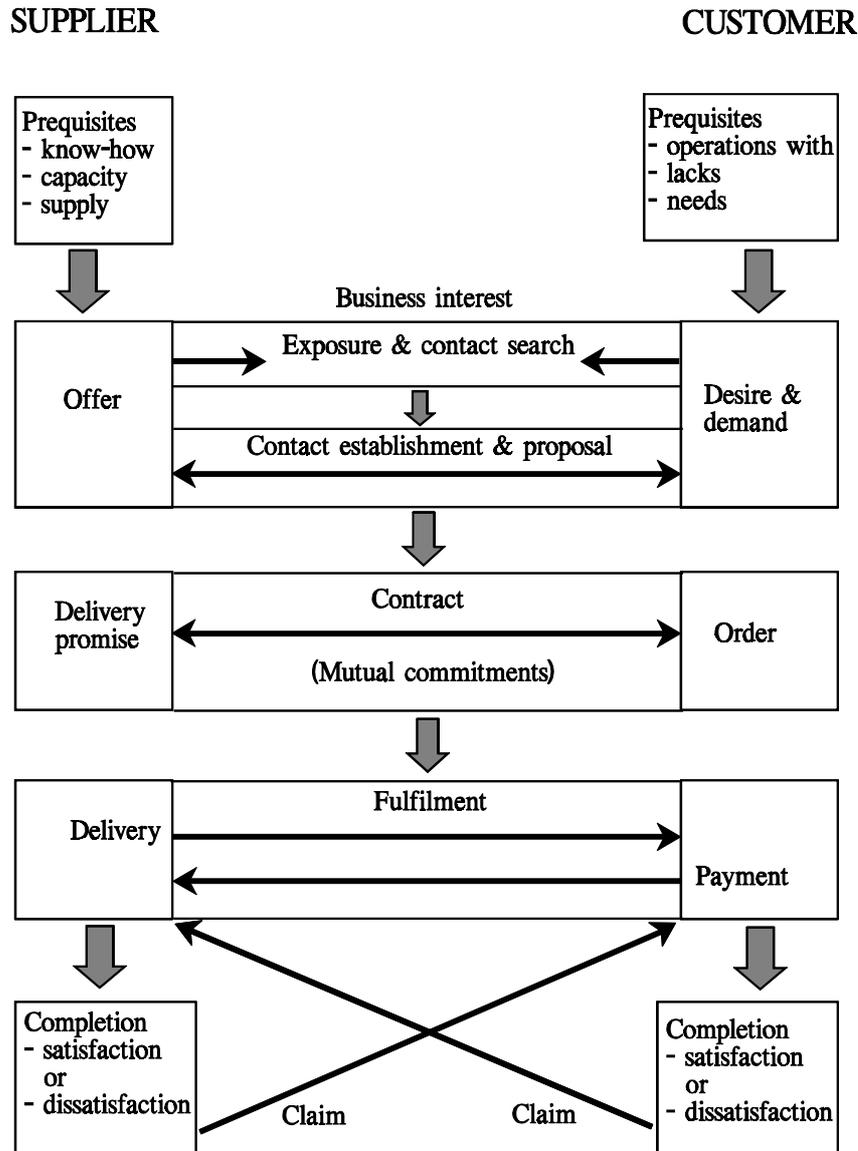
SUPPLIER   **CUSTOMER**

| Prequisites
- know-how
- capacity
- supply | | | Prequisites
- operations with
- lacks
- needs |

Business interest

| Offer | Exposure & contact search

Contact establishment & proposal | Desire &
demand |

| Delivery
promise | Contract

(Mutual commitments) | Order |

| Delivery | Fulfilment
 | Payment |

| Completion
- satisfaction
  or
- dissatisfaction | Claim   Claim | Completion
- satisfaction
  or
- dissatisfaction |

Figure 1: Business Action Theory: The six generic phases of business processes (from Goldkuhl, 1997)

3   Method: Process and Action Modelling

When performing a reconstruction of different business processes within a corporation there is a need for the modellers to be supported by methods. Development methods consist of work procedure, notation and a conceptual structure. Methods are based on some implicit or explicit theoretical perspective (Goldkuhl & Cronholm, 1993; Avison & Fitzgerald, 1995). In this paper we argue that the L/A oriented business process theory (BAT) should actively be used in reconstruction, evaluation and redesign of business process. This theory should thus be an explicit supplement to process analysis methods.

When reconstructing a corporation's different business processes, we propose the use of two method components from the SIMM methodology. These are Action Diagrams and Process Diagrams. There are other method components in the SIMM methodology, such as problem analysis, goal analysis and strength analysis, which are important in business process analysis, but they are not described in this paper (cf e.g. Goldkuhl & Röstlinger, 1993). The purpose of using Action Diagrams is to capture the detailed activity pattern within a business process. The Process Diagrams are used to make it possible to regard the business process on a survey level. Below there is a discussion of the meaning and use of these two diagram types.

3.1   Action Diagrams

Action Diagrams are graphical models (Goldkuhl 1992, 1996). They have a well defined notation. They are intended to be used by systems analysts and IS users together in specifying and modelling information systems and their business contexts. Action Diagrams try to integrate a flow orientation (describing information and material flows) and an action orientation (describing the types of action performed) in one type of description (Goldkuhl, 1996). Therefore Action Diagrams are appropriate for business process modelling (see appendix 1 for an example).

The basic description elements are found in figure 2. An activity consists of performers, actions and action objects. There are human actors in specific activity roles (e.g. salesman, order clerk and customer). These actors are performing actions. Actors use resources and instruments in their actions. Actions are performed based on some prerequisites (basis for action), which can be of physical nature or information. Results of actions can be action objects of physical or informational character. Producing an information action object means a communicative action. A performer can be an actor as well as an instrument, such as a computerised information system. An important aspect of Action Diagrams is the semantic power to describe action logic. It is possible to describe sequential order of actions (i.e. the flow aspect), alternative actions (decision points), conjunctive actions, contingent actions (i.e. actions occurring only sometimes), trigger (initiation) of actions (by time or communication), interruption of actions (by time or communication), condition for actions, and parallel actions.

A contextual descriptive approach is mainly used when working with Action Diagrams (Goldkuhl, 1992). Each Action Diagram describes a business context within a business process. Different Action Diagrams are related to each others through descriptive connectors (i.e. links to other Action Diagrams). The limits of each Action Diagram (=business context) are arbitrary; i.e. the analyst has the freedom to choose the appropriate borders of the described context.
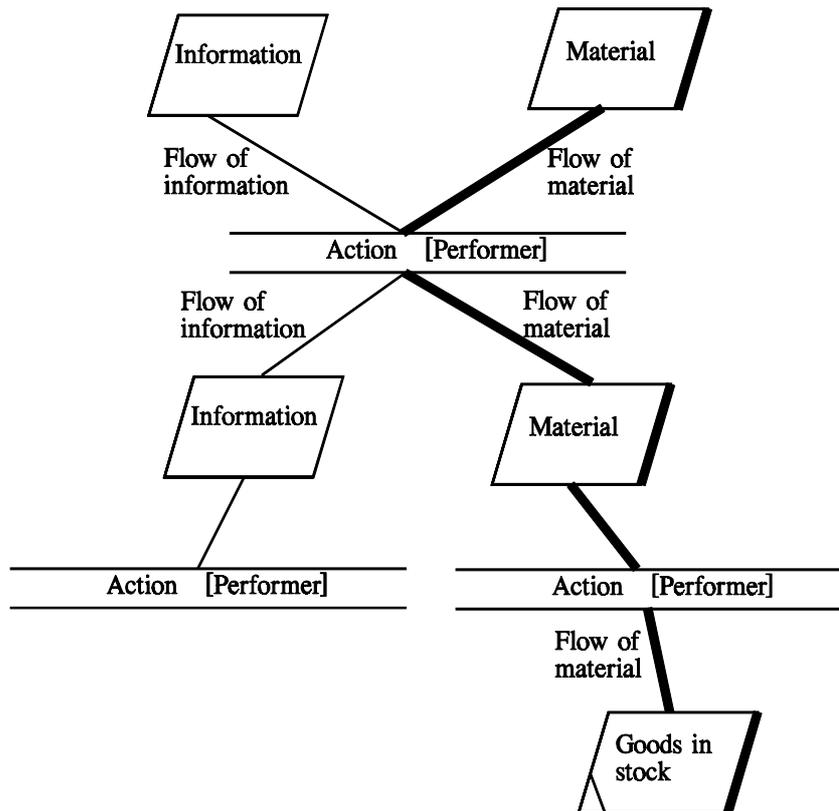

Figure 2: Basic description elements in Action Diagram (from Goldkuhl, 1996)

3.2   Process Diagrams

Process diagrams are used to make it possible to regard a business process on a survey level (see appendix 2-4 for examples). A Process diagram is a key map of a business process. The contents in the Action Diagrams, such as activities, flow and action objects (see figure 2) are grouped to more coarse-grained components.

We call these process components:

- customer-to-customer process
- side processes
- sub processes

Each business process consists of a customer-to-customer process and possible side processes. The customer-to-customer process consists of the business logic from customer inquiry or order to delivered products to the customer. The activities within a customer-to-customer process are performed for a specific customer, between a supplier and a specific customer. The side processes support the customer-to-customer process and its character is either a condition for or a consequence of the performance of the customer-to-customer process. The activities that a side process consists of are performed for a *potential* customer. The activities that a customer-to-customer process consists of are performed for a *specific* customer (Lind, 1996b).

The customer-to-customer process and the side processes consist of one or several sub processes. Each sub process consists, among other things, of several activities, which are contextually related to each other. The sub processes within a certain business process are, in the Process Diagram, related to each other by information or material flow in order to gain understanding of the business context on a survey level. A sub process can be performed by several actors who can be members of different organisational units. Each sub process can be a component in several business processes.

The Process Diagram excludes the fine-grained activities which sub processes consist of, i.e. the level of detail only runs down to sub processes. More details can be found in the Action Diagrams. Figure 3 is an outline to the principle structure of the Process Diagram.
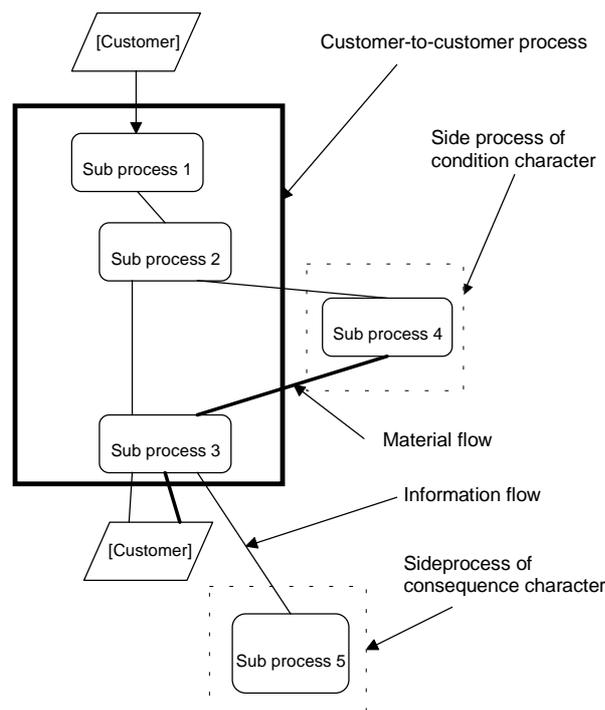

Figure 3: Basic description elements in Process Diagram (Lind, 1996ab)

3.3   How to Perform Reconstruction of Different Business Processes

As identified in Lind (1996ab) a corporation usually consists of several business processes (variant processes) and these coexist in a corporation and co-use the infrastructure of the corporation. This means that an organisation has different ways of performing business missions, where each business process consists of activities that are performed for a certain business mission. It does not seem that people in corporations often have a clear picture of which business processes the corporation consists of. These have to be reconstructed, which can be done by business modelling using Action Diagrams and Process Diagrams. A series of Action Diagrams and appurtenant Process Diagram describe the parts of a business process and how these parts are related to each other. In order to develop a corporation its business processes need to be reconstructed as a basis

for redesign.

When using Action Diagrams in the business modelling process, information and material flows are identified (reconstructed). Action Diagrams are used to describe the activity pattern within the business processes in detail. These diagrams (activity contexts) are related to each other. A so-called "bottom-all" approach is applied to capture the different contexts (Goldkuhl, 1992), i.e. the different activities that are performed during business missions are studied on a detailed level in order to reconstruct the business processes (the contexts). The semantics of the Action Diagram notation makes it possible to describe the activities in great detail; e.g. different exceptions can easily be modelled. In order to gain understanding of the wholeness of the business process, we go from several detailed and related Action Diagrams and aggregate to one survey Process Diagram. A so-called bottom-up approach is normally used to produce Process Diagrams where Action Diagrams are used as a basis. The relationships between these bottom-all and bottom-up approaches are depicted in figure 4 below.
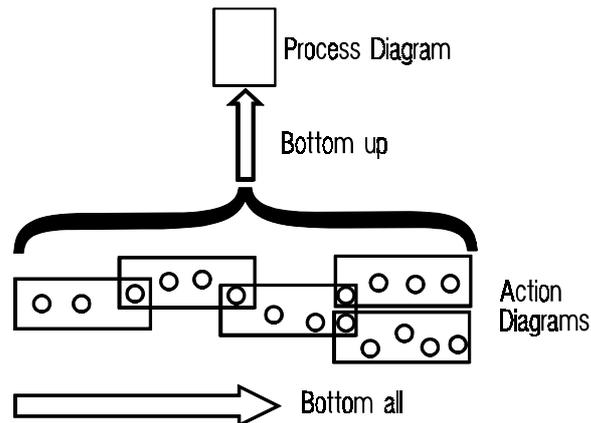

Figure 4: Bottom-all and bottom-up approaches when using Action Diagrams and Process Diagrams

When performing a reconstruction of a certain business process one starts with a typical business mission and reconstructs the business logic (activity pattern). We focus on the business logic and the business interaction within a certain business process. To be able to focus on the business interaction, Business Action Theory (BAT) is used as a theoretical lens. During this part of the reconstruction process Action Diagrams are used, where BAT is used as an aid to find the purpose for different contexts. We understand the business process through the business mission between customer and supplier.

The first series of Action Diagrams is the basis for finding other ways of performing business missions. These diagrams are used in order to find differences between ways of doing business. This way of reconstructing business processes is continued until all ways of performing business missions are described. Sometimes Process Diagrams can be used to find other ways of doing business directly. A Process Diagram is thus used as a basis to specify the contents of a business process in detail and this is performed by using Action Diagrams. Our experience is that the first business process which is reconstructed has to be done by Action Diagrams, but when identifying the following business processes one *can* apply this kind of a top-down approach.

When performing process and action modelling of a certain business process the generic business framework (see section 2) is used as a basis for asking questions. Therefore, the customer-to-customer process part of a business process is the first one to be reconstructed. Then one identifies which prerequisites that have to be fulfilled in order to be able to perform a business mission in the way that the description of the customer-to-customer process shows, i.e. identifying side processes with condition character. Finally one identifies the consequences that the given way has on performing business deals, i.e. identifying side processes with consequence character.

4   Case Study: Reconstruction of Different Business Processes

Between October 1994 and March 1995 we participated in an action research project, with the research purpose to develop and test a method for business process oriented change analysis (Lind, 1996a). The selected company for developing and implementing the method was Structo (with about 130 employees) in Storfors, Sweden. Structo is a manufacturing company, which mainly transforms steel into pipes for hydraulic cylinders. At Structo there was a need for integrating administration and production. Therefore a change analysis was initiated in order to reconstruct and develop the business processes of Structo. A project group was formed consisting of several persons from different departments of Structo and the two of us as researchers. We participated actively

in the analysis process. In the research intervention approach we gathered different kinds of data through participant observation, documents and interviews (Gummesson, 1991).

One of the activities, when a corporation is diagnosed, is reconstruction of existing praxis. In the case study a reconstruction of the business logic was performed. During the diagnosis the goals, and instruments for achieving those goals, were clarified. This showed in what ways the business processes were instruments for reaching the main goals of the corporation. The existing praxis was reconstructed at two levels:

- At the activity level by using Action Diagrams.
- At the survey level by using Process Diagrams based on activities and their connections from the Action Diagrams.

4.1 Coexisting Business Processes

In the case study several of the business processes of the corporation were reconstructed. These covered 90 % of the operations of Structo. The reconstructed business processes were called:

- *special production customer*, which consists of activities to produce tailor-made products.
- *standard stock customer*, which consists of activities that are performed when Structo is selling products from the standard stock.
- *long-term agreement customer*, which consists of activities that are performed when the customer makes a prognosis of his future orders, in order for Structo to be able to plan their production.
- *whole trading customer*, which consists of activities that are performed when the subcontractors of Structo deliver products directly to Structo´s customer. Structo is not able to manufacture those products itself.
- *long-term agreement - whole trading customer*, which consists of activities that are performed when the customer makes a prognosis of his whole trading orders.
- *long term agreement - half trading customer*, which consists of activities that are performed when finished products are delivered to Structo before they are delivered to the customer. The goal of this business process is to store bulk products that are cut when the products are delivered to the customer. The customer makes a prognosis of his orders.

Table 1 shows the delimitation of the business processes in the case study. These are six variant processes; i.e. different principle ways for Structo to perform its business. We use the two dimensions "Customer Relation" and "Internal Handling" to classify the business processes. These dimensions were appropriate to use in this case describing the differences between the variant processes (Lind, 1996ab); cf also section 4.5 and 5 below where the usage of the BAT framework in this respect is described.

Internal Handling Customer Relation	Processing (from raw material to finished product)	Whole trading (direct delivery from sub-contractor to customer)	Half trading (processing by subcontractor, delivery by Structo)
Special production (project based development)	Special production customer	---	---
Standard stock sales	Standard stock customer	Whole trading customer	Missing, but is being developed
Long term agreement	Long-term agreement customer	Long-term agreement - whole trading customer	Long-term agreement - half trading customer

Table 1: The delimitation of the business processes (variant processes) in the case study.

Below we describe the contents of the business processes standard stock customer, special production customer and whole trading customer and how these have been delimited to each other.

4.2 The Business Process "Standard Stock Customer"

In appendix one there is an Action Diagram showing the details of the activity pattern for proposal and order handling concerning the business process "standard stock customer". The different communicative action types in the two sub processes are either explicit or implicit in the information objects that are used. As described in

section 3 Action Diagrams are used as a base for the construction of Process Diagrams (grouping of activities to sub processes). The Process Diagram in appendix 2 shows the business process "standard stock customer".

The business process is initiated when the customer asks for an offer from the corporation. The offer is based on a price list, but the prices can be negotiated. This offer can result in an order. Alternatively, the customer is already one of the customers of Structo and therefore an order could be made directly without asking for an offer. The acknowledgement of the order obligates Structo to fulfil its commitment to the customer.

After an agreement, the customer's order is picked from the standard stock and cut according to the agreement. The order handling ends up in the delivery stock and an invoice is written. The goods for delivery will be transported from the delivery stock with a suitable means of transportation to the customer.

The customer-to-customer process, as is implied in appendix 2, consists of activities that are performed for a specific customer. The activities cover the process from offer to delivery. One prerequisite for picking from the standard stock is that there are finished products in the standard stock. The standard stock is supplied by controlling the need for provision and deliveries. This takes place in a side process, which is a prerequisite for the customer-to-customer process. When the stock level is too low it needs to be supplied with products from the production unit. The planning takes place in another supporting sub process. The production unit has a need for raw material which is purchased from external suppliers.

After the delivery, the invoice aimed for the customer is looked after in order to make sure that payment is made. It is an assignment for a sub process within the customer-to-customer process. Within the business process there are side processes with consequence character such as dealing with suppliers' invoices, and customer claims.

4.3   The Business Process "Special Production Customer"

The Process Diagram in appendix 3 shows the business process "special production customer". The business process is initiated by the customer asking for an offer from Structo, where Structo together with the customer use an inquiry procedure to look through the customer's demands. The inquiry is a detailed specification of demands, which will later on be used in the production process. The offer, including specification of the customised product, hopefully ends up in an order from the customer.

The production has to be planned in order for Structo to fulfil their commitment (specified in the contract) towards the customer. The production is done exclusively for the specific customer, which is the reason why the sub process production is a part of the customer-to-customer process. As in the business process "standard stock customer" the goods for delivery end up in the delivery stock. It will be transported with a suitable means of transportation to the customer and an invoice will be written and mailed to the customer.

Different raw materials have to be purchased in order to perform the customer-to-customer process, i.e. the side processes purchase and stock-keeping of raw material are important prerequisites in order to perform the customer-to-customer process. The production unit refines (manufactures) the materials. Dealing with external suppliers' invoices as well as claims are consequences of the performance of the customer-to-customer process in the business process.

4.4   The Business Process "Whole Trading Customer"

The Process Diagram in appendix 4 shows the business process "whole trading customer". The business process is initiated through a discussion between the customer and Structo. The result from the discussion is a possible customer order, which results in an acknowledgement of order. The order is based on standard products and a standardised price list.

In order for Structo to fulfil its commitment, the production is relocated to one of the subcontractors of Structo. This is done by a simple order by fax from Structo. The subcontractor manufactures the product and delivers the product directly to the customer. Parallel to the subcontractor's delivery, the subcontractor notifies Structo about the fulfilment. The notification is the signal for Structo to have an invoice written and mailed to the customer.

Dealing with subcontractors' invoices as well as claims are consequences of the performance of the customer-to-customer process in the business process.

4.5   Comparison Between the Reconstructed Business Processes

As can be seen in the description of the three chosen business processes above there are some differences. The different business logic of the variant processes are emphasised. These differences can be looked upon from the different phases that a business process consists of (see section 2; Goldkuhl 1997). These phases are:

1.   *Business prerequisites phase*, where prerequisites are established (both within the supplier's and the customers' organisations) for performing business (sales/purchases).

2. *Exposure and contact search phase*, where both parties, customer and supplier, seek contact. The supplier's ability is offered and exposed to the market. The customer's lacks and needs create demands.

3. *Contact establishment and proposal phase*, where the supplier presents available and possible offers to a specific customer. The customer is showing some needs and purchase interests.

4. *Contractual phase*, where the supplier and customer make commitments which are shown in an order from the customer and an acknowledgement of order from the supplier.

5. *Fulfilment phase*, where the supplier and customer fulfil their commitments. The supplier fulfils the commitment by performing a delivery and the customer fulfils by paying for the received delivery.

6. *Completion phase*, where the customer and supplier achieve satisfaction or dissatisfaction. Either the customer uses the delivered products with satisfaction and the supplier receives the payment, or certain claims are raised.

In the described business processes there are some differences in the different phases, which can be used to delimit business processes in relation to other business processes. Table 2 shows the differences in each phase (five of the phases included) in each business process.

Business process Phase	Standard stock customer	Special production customer	Whole trading customer
1. Business prerequisites phase	Own production of standardised products.	Flexible production equipment, design competence.	Established relationships with subcontractors.
3. Contact establishment and proposal phase	Standard products are offered. Price list exists, but prices can be negotiated.	Products are designed based on customer needs. Prices are negotiated.	Standard products are offered. Price list exists, based on subcontractors prices.
4. Contractual phase	Customer order based on an offer or a price list	Customer order based on offer including product specification.	Customer order based on a price list
5. Fulfilment phase	Production for potential customers. Picking from stock and delivery is done based on the specific customer order	Production based on order from the specific customer. No stock handling, only delivery.	Production and delivery are done by a subcontractor
6.Completion phase	Potential claims are handled by Structo.	Potential claims are handled by Structo.	Potential claims may be forwarded to subcontractors.

Table 2: Business phase matrix

5   Conclusions

Usually an organisation has different ways of performing business. From our point of view the different ways of performing business have its base in business relations between supplier and customer, and the internal handling for fulfilling commitments. This means that there will usually be alternative business processes within an organisation, i.e. there are "variant processes" within the organisation. In order to evaluate and develop an organisation there is a need to reconstruct such different business processes. The language/action oriented perspective will help us find criteria for such delimitation of different business processes.

In this paper the Business Action Theory (Goldkuhl, 1996, 1997) is used to describe the generic business action logic when performing business. The theory helps us to understand the performance of business as actions and interactions. The criteria used for distinguishing and delimiting different business processes are based on generic communicative action types, such as *offer*, *desire and demand*, *contract* and *claim*. Looking into the different phases that business processes consist of, one can see that these action types are used differently. We have created a business phase matrix in order to be able to identify these differences (see table 2). The generic communicative action type *offer* can be used as an example: In the business process "standard stock customer" the offer to potential customers are based on an assortment of standardised products. In the business process "special production customer" the offer is based on products designed in accordance with expressed customers

needs. To be able to offer products for potential customers there are business prerequisites, such as own production of standardised products (for "standard stock customer") and among other things design competence (for "special production customer"). As can be seen the offer is different within the two business processes, which is one reason for separating the treatment of these offers from each other, i.e. regard the business interaction and internal handling as separate business processes based on the differences between how the corporation offers its products.

We have much experience from method driven business modelling. We have preferred methods that are based on contextual thinking and communicative action theory. A method consists, among other things, of questions to ask when performing work of investigation. A supplementary theory is an aid to gain deeper understanding of the area that is studied. More questions are added to the method by using a supplementary theory. A method driven analysis is needed in order to achieve a structured documentation. A theory driven analysis is needed to aid the modeller to put more generative questions. The business models (Action Diagrams, Process Diagrams) presented in this paper are based on theory and method guidance, which have helped us to achieve higher understanding of business processes.
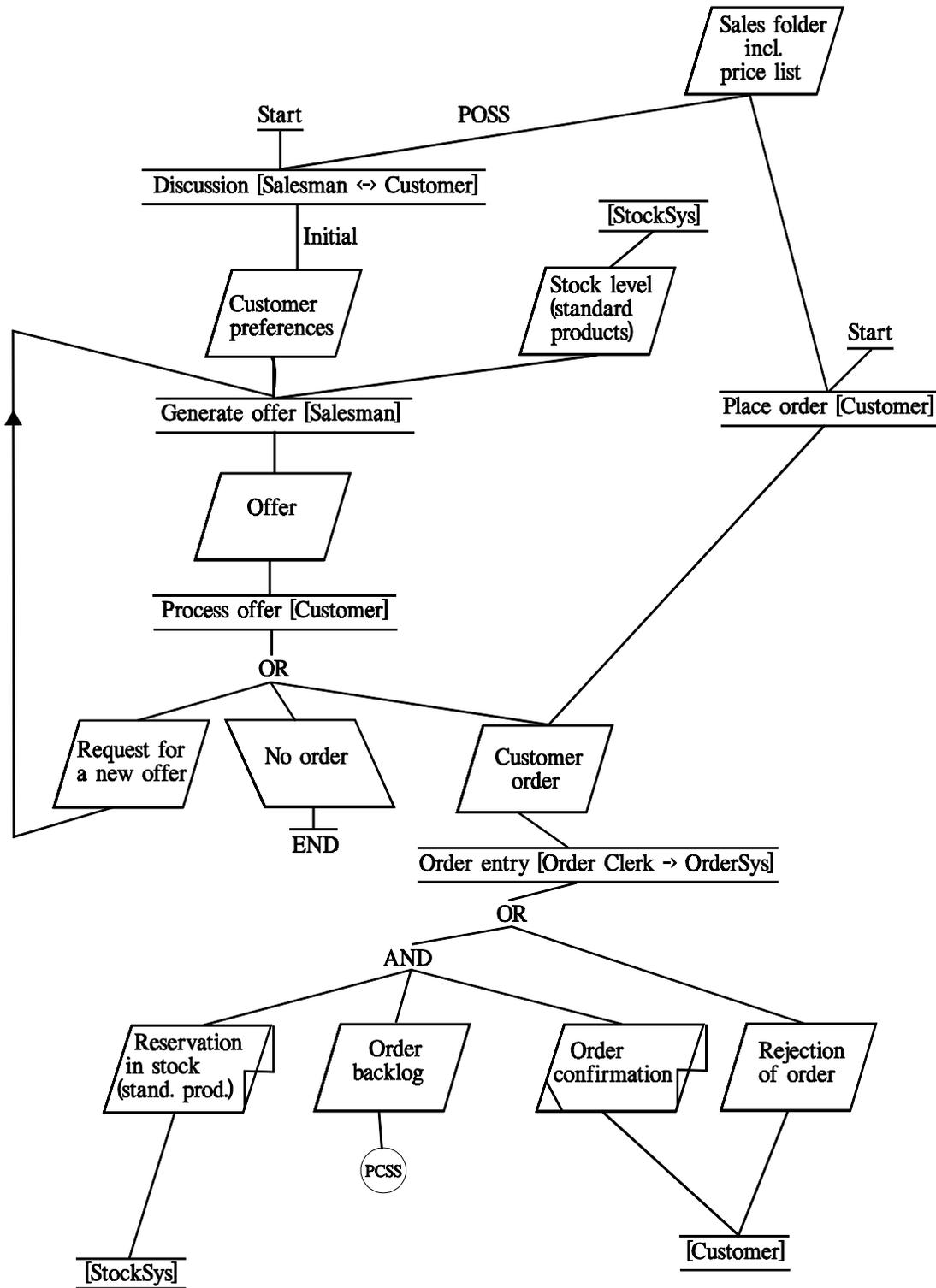
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Appendices

Appendix 1: Action Diagram describing the sub processes *proposal* and *order handling* for the customer-to-customer process in the "standard stock customer" business process

Appendix 2: Process Diagram describing the "standard stock customer" business process

Appendix 3: Process Diagram describing the "special production customer" business process

Appendix 4: Process Diagram describing the "whole trading customer" business process

ACTION DIAGRAM				
Series: Standard stock customer				
Prepared by: ML, GG	**Date**	**Version**	**Reference**	**Page**
	1995-02-19	1	Poh	1
Concerning: Proposal and order handling				*Appendix 1*

Start   POSS

Discussion [Salesman ↔ Customer]

Sales folder incl. price list

Initial

Customer preferences

[StockSys]

Stock level (standard products)

Start

Generate offer [Salesman]

Place order [Customer]

Offer

Process offer [Customer]

OR

Request for a new offer

No order

END

Customer order

Order entry [Order Clerk → OrderSys]

OR

AND

Reservation in stock (stand. prod.)

Order backlog

PCSS

Order confirmation

Rejection of order

[StockSys]

[Customer]

PROCESS DIAGRAM				
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Concerning: Business process: Standard Stock Customer				*Appendix 2*

[Customer]

OR

Proposal handling

Order handling

Stock-control

Planning of production

Purchase - Raw material

Stock-keeping

Stock-keeping - Raw material

Production

Picking / cutting from standard stock

Handling of invoices from external suppliers

Delivery

Handling of invoices to customers

[Customer]

Possibly

Claim management - Customer
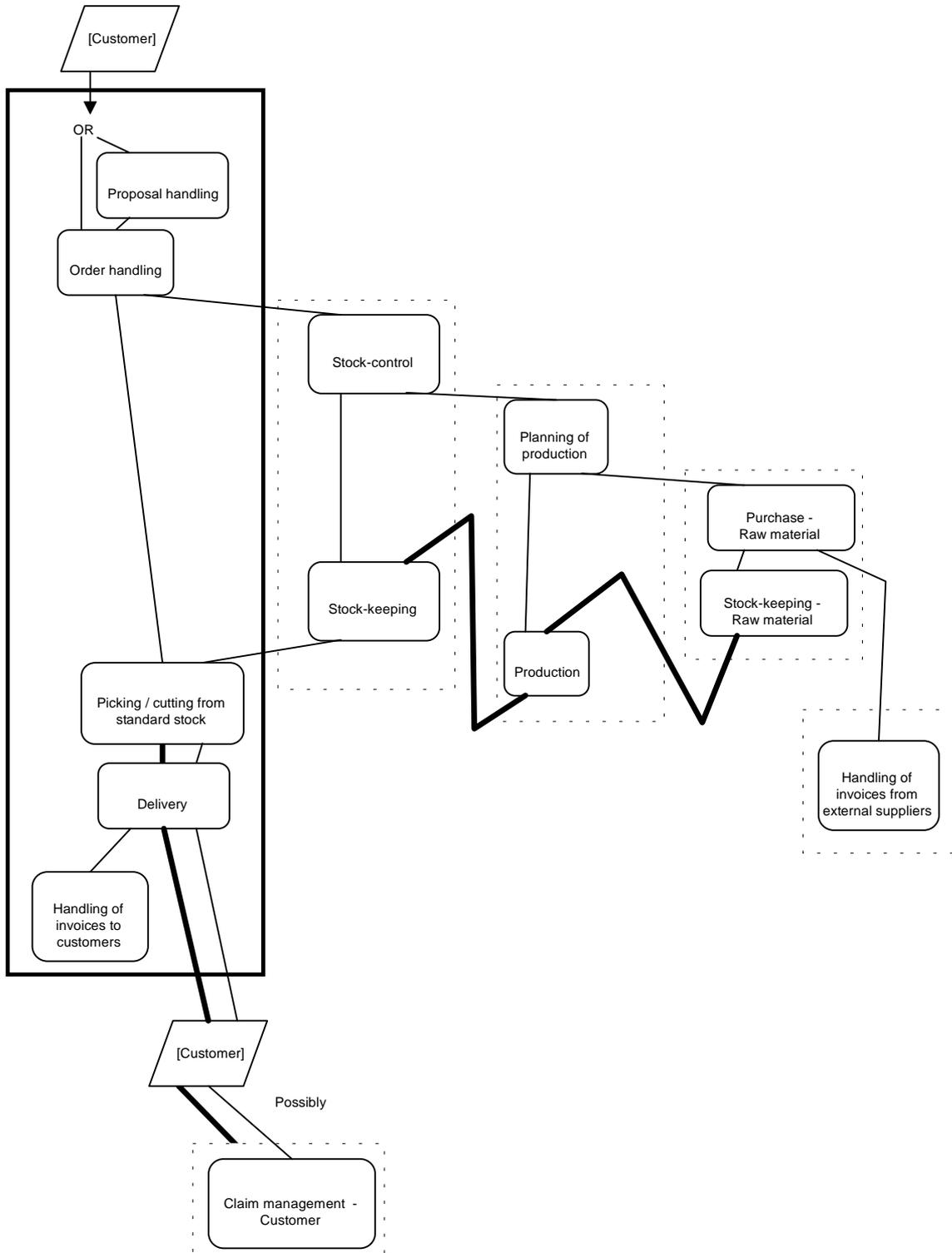
PROCESS DIAGRAM				
Prepared by: ML, JW	**Date**	**Version**	**Reference**	**Page**
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Concerning: Business process: Special production Customer				*Appendix 3*
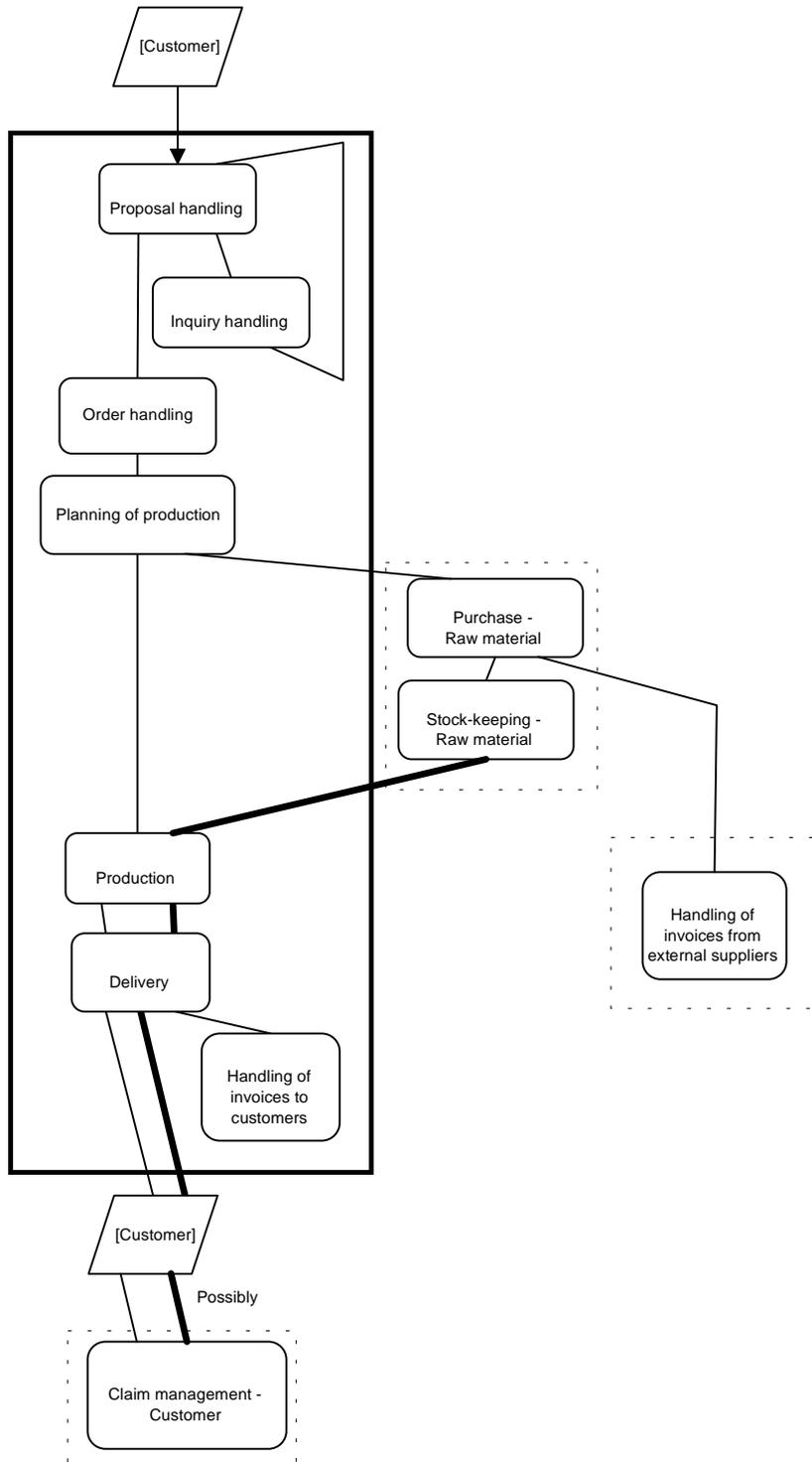
[Customer]

Proposal handling

Inquiry handling

Order handling

Planning of production

Purchase - Raw material

Stock-keeping - Raw material

Handling of invoices from external suppliers

Production

Delivery

Handling of invoices to customers

[Customer]

Possibly

Claim management - Customer

PROCESS DIAGRAM				
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Concerning: Business process: Whole trading customer				*Appendix 4*

[Customer]

Order handling

Delivery directly to customer
[Subcontractor]

Invoicing

Handling of
invoices to
customers

Handling of
invoices from
subcontractors

[Customer]

Possibly

Claim management -
Customer

Claim management -
subcontractor

Possibly