

Grounding of methods for business change: Altering between empirical, theoretical and internal grounding

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Abstract:

Methods can be a useful support during business change. Methods are not static objects, they need to be refined due to new circumstances and new knowledge. How shall such method development be performed? How can such methods be justified? In this paper we propose an approach for Grounded Method development. This approach take generation and grounding on different levels (empirical, theoretical and internal) into consideration. We illustrate Grounded Method development through a case; the refinement of a change method, which was applied in an action research project in a steel company.

Keywords: Business Change Method, Grounded Method Development, Business process, Justification

1 Introduction

Business organisations of today continuously face new challenges of meeting demands from the environment. Such demands give rise to changing the ways of working as well as the products offered to its clients. People performing business change activities need some guidelines for such difficult task. Such guidelines can be expressed in methods. There is a need for business change methods (BCM). Methods consist of general knowledge that can be translated to a particular change situation and thereby increase the effectiveness of that situation. An appropriate and reflected choice of the method to be used means that the method user can increase the probability of arriving at successful results. The chosen method does however not always suit the actual situation. It is therefore often a need to develop and adapt existing methods to certain domains of application.

Methods need to be useful, otherwise they are not good methods. There is, as said above, sometimes a need for refinement of methods. *How shall such a method development be performed?* During development of methods it is also a need to prove the applicability of the method and thereby provide good arguments for the method. There is a need for methods for development and evaluation of methods. In order to create better ways for method development one must reflect upon the method notion as such. *What kind of knowledge is a method? How is a method justified?* How are these issues related to research? Many times method development and evaluation are performed in research endeavours. *How can business change methods be conceived as research results? How shall research on business change methods be performed?*

The purpose of this paper is to address these (*emphasised*) questions by presenting an approach for research on, and development of, change methods. We call this approach, which in itself can be seen to be a method, Grounded Method development (GM). We have been involved in several action research projects in which the GM-approach has been applied. Such an application of the GM-approach will be used as an illustration in order to discuss experiences from a research/development situation.

In the next section (section 2) we will present how a business change method (a BCM) has been developed. The following section (section 3) consists of a presentation of the GM-approach. In this section experiences provided in section 2 will be referred to. Section 4 summarises the paper.

2 Development of a business change method

2.1 Change Analysis/SIMM

During the last 20 years there has been an ongoing development of our business change method. This method is called Change Analysis/SIMM (CA/SIMM) (Goldkuhl, 1992; Goldkuhl & Röstlinger, 1988, 1993). SIMM stands for Situation adaptable work and Information systems Modelling Method. CA/SIMM has during the last years been developed to support focus on certain aspects. Examples of such aspects are business processes (Lind, 1996), inter-organisational interaction (Christiansson, 1998) and networked organisations (Hultgren, 2000). In this section we will describe one such development – the refinement of CA/SIMM to support diagnosis and development of business processes.

The description below is based on one case study in which business process oriented CA/SIMM was used. CA/SIMM in this method version and in other versions has however been applied, both in whole and in parts (by using specific method components from the method), in several other case studies. Another case study which adopts CA/SIMM with business process orientation is Melin & Goldkuhl (1999).

CA/SIMM is a BCM that is used for analysing problems, strengths, business processes and goals in order to formulate change requirements and change measures. The change requirements form the basis for specifying different measures. The purpose of a change analysis is to generate grounded measures for developing businesses. Change analysis is a method that suggests an unbiased diagnosis of the business before taking appropriate action of change. The Change Analysis method is used to support the method users in the initial phase of a business development. Generated measures could concern a wide range of aspects such as development of competence, marketing strategies, products, organisation structure, administrative work flow and information systems etc.

The framework of CA/SIMM (Goldkuhl, 1992; Goldkuhl & Röstlinger, 1988, 1993) consists of four phases, which are:

- *Establishing prerequisites*, which purpose is to establish expectations concerning goals, resources, times etc for the change analysis project
- *Business diagnosis* which consists of method components such as business definition, business modelling, problem analysis, goal analysis, strength analysis, resource analysis and generation of change requirements. The purpose of this phase is to achieve an understanding of the current situation in the business
- *Generating and evaluating measures* which formulate and evaluate different measures that can be conducted in order to find solutions for different change requirements

- *Decision* which purpose is to establish measures

In figure 1 an explanation is given to the principle structure of CA/SIMM. CA/SIMM is based on the idea that change requirements constitute the glue between the present situation and the desired future situation. A change requirement is a conclusion of a set of problems, goals and strengths. In order to understand problems, goals and strengths in context there is a need to arrive at an understanding of what is done and who is doing different things. Formulated change requirements gives the change direction in order to reach a desired future situation. Change requirements thus have formulations such as increase, decrease, expand etc. Within CA/SIMM there is also a support for reformulate change requirements to change measures. These change measures are then described and assessed concerning what positive and negative effects from implementing them respectively not implement them.

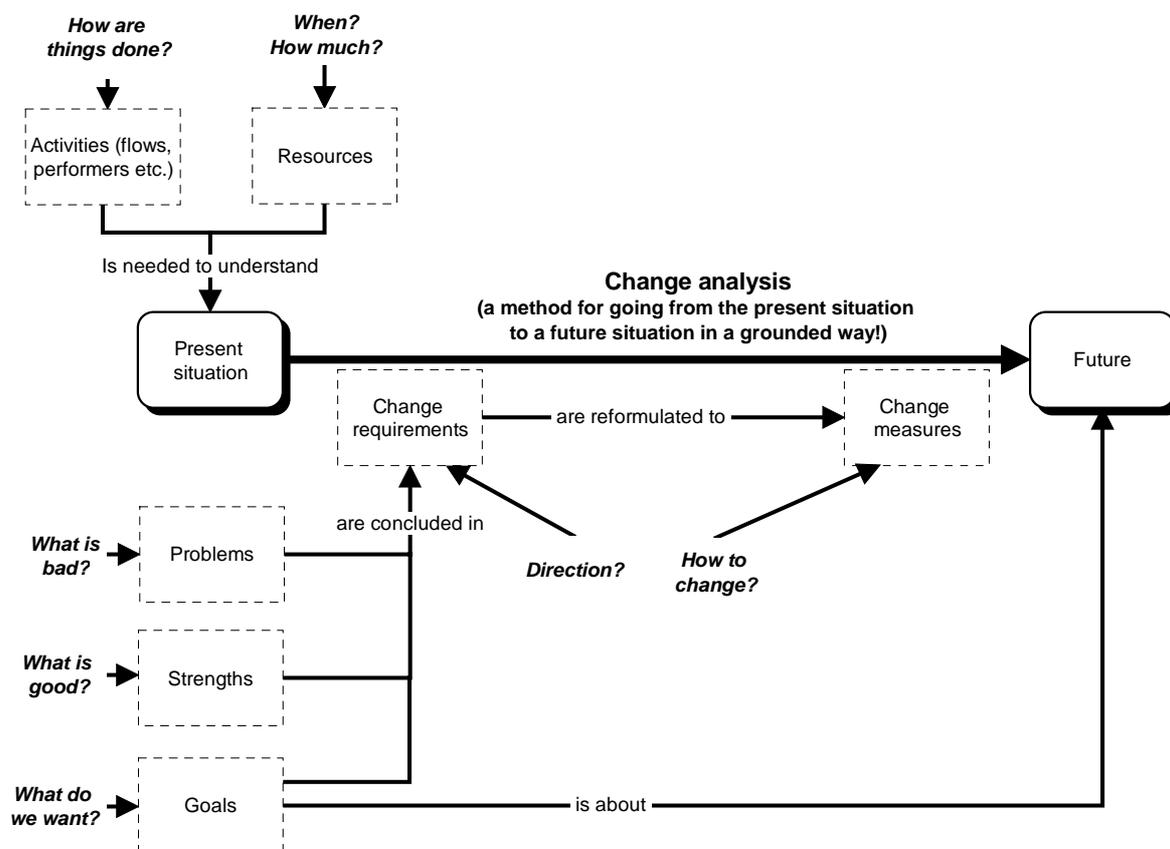


Figure 1: The principles of change analysis/SIMM

CA/SIMM advocates a high degree of participation in change work. Business modelling for example should be performed in co-operation between different representatives of the studied business. Such a participative approach is necessary since the knowledge of how the business is performed exists within the people working in the business. This also means that models produced during different modelling sessions need to be user friendly and encourage communication among different participants. A lot of the results generated from the use of Change Analysis should be based on a common understanding among the participants, which demands a participative approach.

2.2 Need for further development

In the beginning of the nineties a business process perspective on organisations gained a lot of interest. Change concepts such as Business Process Reengineering (BPR) and Total

Quality Management (TQM) used business processes as the way of thinking in order to emphasise a customer-focus and an activity-orientation when changing organisations. Business processes are oriented towards the horizontal process with different activities for refining results, which should have a tangible value for the customer. These activities will be performed in different organisational functions. The business process perspective claims that there is a need to handle “the white spaces in the organisation chart” (Rummler & Brache, 1995).

During the same time period we became engaged in a business change project at a steel company. The steel company had a need for method support during their change project. The need for methods was motivated by the lack of holistic approach during earlier change activities at the steel company. Nobody had a sufficient understanding for the wholeness. The steel company also had an interest in business processes and had an intention to perform a business process oriented change work. To support such a business development there was a need to develop methods for such purpose.

We were involved as action researchers. Such an action research approach (c.f. Checkland, 1991; Jönsson, 1991) means that we acted as change agents in the change project at the steel company and also observed the development of the change process. There was an alteration between intervention and observation. In this change project it was explicitly stated that change analysis should be used as a support for generating such change measures. We were involved during a six-month period as change analysis experts. The result concerning the change work at the steel company was a number of well-founded change measures based on a business process oriented perspective to be used in the development of the company.

CA/SIMM was during this time however not prepared for explicitly guiding a business process oriented change project. It was in other words a need for development of the method to explicitly adopt a business process oriented perspective. Since CA/SIMM regards different aspects of the business based on a contextual thinking it seemed possible to adapt the method to a business process perspective.

2.3 Constituents of a method

There was, as claimed above, a need for further developing CA/SIMM. One important issue to address before describing the process of developing CA/SIMM is the constituents of a method for business change. Change work is an interplay between stating questions and giving answers to these questions. A method, such as CA/SIMM, is guidelines for work. Its character is prescriptive. A method tells what to do in different situations in order to reach certain goals. Methods for business change include representational guidelines, i.e. modelling techniques or notations, as well as procedural guidelines, i.e. how to work and what questions to ask (Röstlinger & Goldkuhl, 1994; Goldkuhl et al, 1998). Many times the *procedure* and *notation* are tightly coupled together. Modelling is about asking questions and documenting answers in different models. General *concepts* are used when asking questions and are also parts of the semantics of the notation. The concepts can therefore be regarded as the glue between procedure and notation. All methods are based on some implicit or explicit *perspective*, which includes values, principles and categories. An example of perspective is the further developed notion of processes. Methods also consist of *framework* and *co-operation procedures*. The perspective influences the categories that are reflected in the questions and answers.

Adopting a business process perspective on change analysis means that questions that are stated during the use of different method components will be aimed to develop knowledge about the business that are business process oriented. The notation, i.e. the modelling technique, is used to document business process oriented aspects.

2.4 The development of CA/SIMM

During the action research project performed at the steel company a business process perspective was continuously integrated into the method. This meant an iterative process of using a business process perspective through method application and method development. This method development consisted of creation of new method components and refinement of existing method components in order to make it possible to pay attention to business processes during analysis of different focal areas (Röstlinger & Goldkuhl, 1994). One can say that there was a shift between desk-based development and trial in practice where implemented ideas in the method continuously were refined. The development of the method meant that we continuously shifted between two arenas; the application arena and the reflection arena. This meant that development was characterised by application of the method and reflection about the method in use. In the case study parts of the method development was performed “on the fly” directly integrated in application. The application of this refinement was then reflected upon when shifting to desk-based development. Such reflection meant a reconstruction of implicit method rules, which were the actual procedures that took place on the application arena, and evaluation of these rules.

The change project at the steel company lasted for six months. The result from the project was experiences from application of the method, the developed method in itself as well as the change documentation at the steel company (which were generated from using the method). These different results were the base for our explicit grounding of the new and adapted method.

We suffered insecurity in adopting the business process view that existing management literature propagated for. A lot of criticism can be put upon different change concepts that focus on business processes (c.f. Lind, 2001ab). There is a lot of motives for that one should adopt such a thinking, but not *how* an organisation should be perceived when adopting a business process oriented perspective. Examples of questions that occurred during the application of the method were:

- How to delimit and divide business processes?
- How many business processes are appropriate to identify?
- What different types of business processes do exist?
- What different sub-parts do business processes consist of?

During the change project performed at the steel company we therefore had to develop our own frameworks for adopting a business process view on organisations. This can be seen as parts of method development, especially development of a new *perspective* underlying the method. We developed a generic framework for business interaction between supplier and customer. It is a six-phase model describing the generic business logic. It starts with business prerequisites of customer and supplier and goes through business communication (with e.g. offers, inquiries, negotiation and contract) to fulfilment (through delivery and payment) and ends with the satisfied usage or discontent and possible claims. The model was originally presented in Goldkuhl (1996) and it has later been refined (e.g. Lind & Goldkuhl, 1997; Goldkuhl, 1998). The generic model has been called the BAT model (Business Action Theory). Theoretically it has got inspiration from - except from business process thinking -

speech act theory (Searle, 1969) and applications of it (Winograd & Flores, 1986). Besides this generic business process model, we also started (to develop criteria for business process determination; originally formulated in Lind (1996) and later refined in Lind (2001ab).

In the empirical application of the change method we recognised a need for understanding the business performed at the steel company as several ways of performing business. In other words it existed several business processes at the steel company, where these variants of business processes spanned from exposure and contact search phase to satisfaction phase (according to the BAT model). Such thinking in variant processes can not be found in existing literature on business processes, but has proven to be a powerful way of thinking when regarding organisations from a business process oriented perspective (Lind, 2001ab).

2.5 Justification of the refined method

Method development gives rise to a need to perform evaluation and test the usefulness of the new method. It is important to investigate how good the method is, and this must be tested. These are questions of usefulness and validity of the method. Such investigations and justifications can be performed in different ways. We call this grounding of methods. Such grounding of methods can be performed in different ways. We distinguish between internal, theoretical and empirical grounding.

During the internal grounding the strive was to ensure a coherent and consistent method. This was done by the aid of a proper description of the method. We performed a so-called meta-modelling of the method (c.f. Brinkkemper, 1995). This meta-modelling concerned:

- Goal analysis
- Concept analysis
- Document analysis
- Procedure analysis

Goal analysis was done in order to ensure that different sub-goals (on different levels) were measures for the overall goal with the method. Different sub-goals were related to each other through a means-ends hierarchy.

The conceptual analysis and modelling was performed on two levels; on the level of the method perspective and on the level of method components. On the level of perspective the business process perspective adopted in the refined CA/SIMM was modelled. On the level of method components concepts used in each notation were modelled. Through such an analysis we could ensure that concepts used on the method component level and on the perspective level were given the same meaning.

The purpose of the document analysis was to ensure that produced models (e.g. diagrams, tables) formed a coherent wholeness. An analysis was therefore performed to see how different documents were related to each other. Emphasis was put upon documents used during business modelling since the business process perspective gave consequences upon the way that the business were modelled.

The procedure analysis was performed in order to visualise and ensure that different method supported activities lead to intended results.

The theoretical grounding meant that we related different constructs of the refined method to other theories. The theoretical grounding meant that we took the categories, such as goals

with the method, essential concepts (e.g. business processes), and related these to existing literature concerning business development. First of all we defined the purpose of adopting a business process oriented perspective to CA/SIMM. The goal analysis performed during the internal grounding was used as a basis. We arrived at an understanding that the overall goal is to ensure good business. This then meant that we had to define what we meant by good business, which was done by relating to different management theories such as e.g. Porter's (1985) value-chain model.

Second we performed a thorough analysis of different views on business processes. We looked into the definitions provided by e.g. Davenport (1993), Hammer & Champy (1993), and Rummler & Brache (1995). These definitions were modelled by the use of concept diagrams and then compared in order to withdraw important characteristics from different business process views. These characteristics were then critically reflected upon which resulted in our own business process perspective. Since there is a variety in how to understand business processes such a critical reflection was needed in order to ensure that the developed CA/SIMM acknowledged an intentionally formulated view on business processes.

As far as theoretical grounding concerns we also studied different approaches for analysing complex systems. Identified approaches were de-compositional (Langefors, 1973), contextual (Goldkuhl, 1992) and inductive. Further we also checked correspondence to other explanatory theories that address issues about change. Examples of such theories are Davenport (1993), who claims the need for understanding problems and also divides the change process into different parts, and Kotter (1996) who addresses issues concerning change implementation.

During the theoretical grounding we used different models such as:

- Goal diagram
- Concept diagram

The empirical grounding consisted of two parts. The first part was conceptualising findings from the method in use. Observations during the case study performed at the steel company were documented by the use of logbooks. The contents of these logbooks were characterised in order to conceptualise different findings from the method in use. As an input to this process we of course also used the change documentation from the steel company, i.e. the different models (diagrams, tables etc) which were produced during the change analysis by the support of the new method. This documentation (including all preliminary versions of it) gave one important and concrete picture of the method use. The findings from this analysis were among other things documented in theory diagrams. The other part of the empirical grounding was about studying effects from the method in use. We interviewed people from the steel company who had taken part in the change analysis.

The total generation and grounding of the BCM has been documented in Lind (1996) and parts in Lind & Goldkuhl (1997).

To summarise the development of a BCM, the refinement of CA/SIMM, figure 2 below can be used. We first identified a need for development of CA/SIMM in order to adopt an explicit business process thinking. We performed an action research case study at a steel company in which we performed method development in an integrated fashion. This method development meant that we reflected upon the method in use and then created new or refined method parts which later were used in the case study. After the case study we had achieved results such as

a method for business process oriented change analysis, logbooks as well as produced documentation from method in use. These results were then the basis for performing internal, theoretical and empirical grounding.

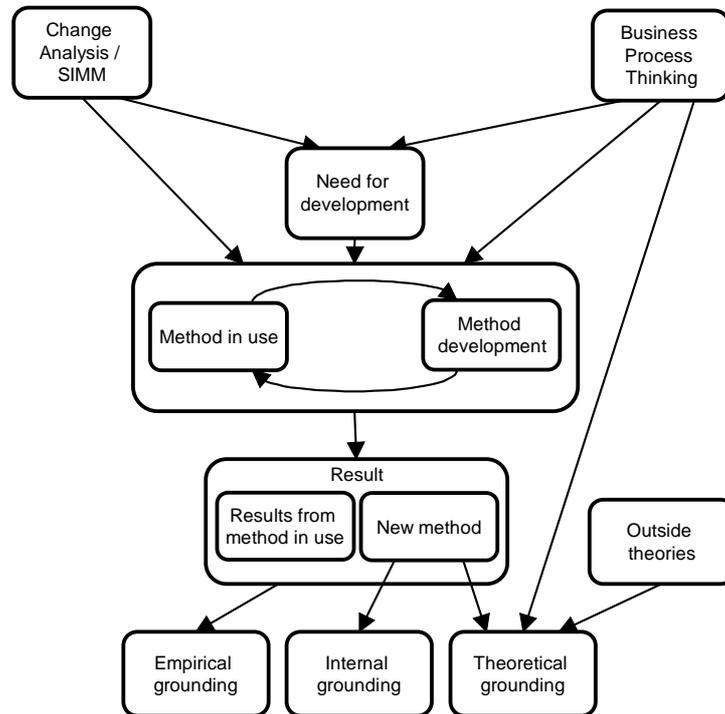


Figure 2: The process of developing a specific BCM

3 Grounded method development

The development and justification of a BCM, described above, have adopted a specific approach which we have called Grounded Method development. This means that the development of a method must also take into consideration how the method is justified (grounded). Grounding and generation of a method is seen as inter-dependant and closely inter-linked processes. The approach for Grounded Method development (GM) has earlier been described in Goldkuhl (1993, 1999). An early precursor is Goldkuhl (1979).

Methods are prescriptions for human action. A method is a form of knowledge that can be characterised as action knowledge (Goldkuhl, 1999). Methods are guidance knowledge, which means prescriptions of how humans should act in a different situations (Goldkuhl, 1993). Prescriptions are not true or false. Truth is not the proper validity claim (Habermas, 1984) to raise concerning methods and other prescriptions. For methods there is another validity claim at stake: *Its intended result at use*.

One can therefore not claim that “method X is true”. One can however claim that “method X leads to good result”. This means that one can make different statements about methods and their uses and such statements can be more or less true. An important question is thus how methods can be justified.

Methods are not only prescriptive knowledge. Methods also have relationships to other forms of knowledge (Goldkuhl, 1993), such as:

- Explanatory knowledge
- Value knowledge

- Categorical knowledge

According to Goldkuhl (1979, 1993) there exist a relationship between prescriptive statements and explanatory statements. A prescriptive statement can be seen to have the following type structure: “If goal then prescribed action”. An explanatory statement is seen as a classical causal relationship: “If cause then effect”. Goldkuhl (ibid) means that if the effect in an explanatory statement is a desirable goal then the “cause” can be reformulated to a prescription of action. A prescriptive statement is thus an inversion of an explanatory statement.

Since the use of methods should lead to certain results there should also be a relationship to value knowledge. Values can be questioned which naturally is also the case for methods. Research around methods can never be free from values. Justification of values and goals among other values can be seen as rational discourse (Habermas, 1984).

Methods are among other things constituted of categories. An evaluation of a method should therefore include an assessment of the categories that the method is constituted of. These categories govern our questioning in a change process and consequently our answering of those questions. The categories that constitute the method should reflect the ways reality is regarded. In the refined CA/SIMM one core category is business process. Methods as categorical knowledge means the categories included in the method as well as definitions of the categories.

One core issue for this paper is how methods should be justified, i.e. how to ground methods. In section 2 we showed that the refined CA/SIMM was grounded by shifting between the internal, the empirical and the theoretical level. Justification of methods needs to be done in relation to three different kinds of knowledge; the method itself (internal grounding), empirical observations (empirical grounding) and other knowledge of theoretical character (theoretical grounding).

Generation and grounding of methods are multi-functional activities. This means that generation include elements of grounding and grounding can include elements of generation. In our description of the development of the refined CA/SIMM in section 2 we used the internal, the empirical and the theoretical level to show generation as well as grounding of the method.

In the figure 3 below we have included the different forms of knowledge that methods have relationships to as well as different grounding principles. This figure should be seen as a principal description of our method for grounded method development (GM).

The development of the refined CA/SIMM can by help of figure 3 be explained in the following way. First of all the method was generated through reciprocal actions between empirical observations (through studies of the method in use), theoretical inspirations (through different theories about business processes) and preliminary internal validation. The empirical observations formed an understanding of effects from the method in use. These effects were investigated from observations during the action-research-oriented case study as well as from interviews conducted after the case study was concluded. Note that applications of methods can be studied in different ways. Other methods for data collection are direct observation, arranged test situations etc.

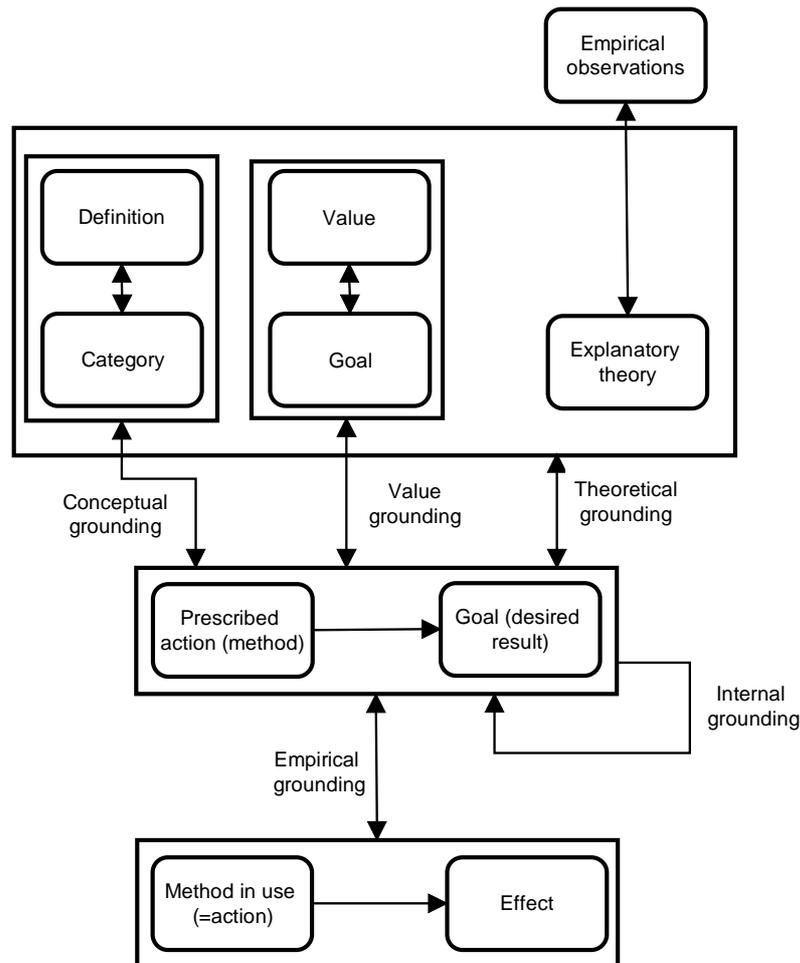


Figure 3: Different grounding processes for methods
(adapted from Goldkuhl 1993; 1999)

After the case study was performed at the steel company we altered into a process of justification where we performed different grounding procedures:

- *Internal grounding* in which the method's coherency and consistency was checked. This was supported by meta-modelling. This meta-modelling included modelling of different parts of the method such as procedural rules, model types, concepts and values.
- *Theoretical grounding* in which conceptual grounding and value grounding was performed. We also performed explanatory grounding where other theories about change work were used as basis for justification.
- *Empirical grounding* which meant that we conceptualised observations and conducted interviews in order to investigate the effects from the method in use.

Conceptual grounding meant that different categories were defined and related to each other and value grounding meant that different goals were modelled by relating them to each other.

These different grounding procedures revealed inconsistencies in the method. After the case study was performed we thus had to perform some further generation of the method. A generation inter-twined with grounding that formed a grounded method for the next application of the method.

The approach for grounded method development (GM) can thus be said to involve actions for both generation and grounding on different levels.

4 Summary

In this paper we have showed that there is a need to alter between empirical, theoretical and internal levels during method development and evaluation. Method development is much about shifting focus between these different levels, but also about shifting focus between generation and grounding. In the table below we have put these different focuses together.

Table 1: Grounding of methods: shifting focus

	Generation	Grounding
Internal level (method level)	Continuous refinement or idea based design introducing new constructs	Internal control, which means a validation of the method's internal congruence
Theoretical level	Deduction, which means derivation from outside. Using values, categories and explanations from outside theories.	Grounding in values, categories/definitions and explanations (outside theories)
Empirical level	<ul style="list-style-type: none"> • Modification (empirically based changes) • Induction, which means reconstruction of method rules 	Empirical grounding, which means studying the method's practical use

In this paper we have presented a method for grounded method development (GM). This method shall not only be seen as a way to develop grounded methods. It should also be seen as a way to research about methods and arguments how to conceive methods as research results. Research on business change methods should be done through shifting between applying methods, and thereby getting experiences from the method in use, and desk-based development. There should also be an alteration between generation and grounding. In this paper we have also showed the relationship between methods and different knowledge forms. One important characteristic of research results is that they should be grounded. Grounded methods could therefore be seen as one possible result from a knowledge development process generating research results. Business change methods as research results developed through GM can thereby be seen as a way to generate grounded research results.

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