ACCOUNTING AS ACTOR IN HEALTH CARE

Towards understanding the translation of management accounting and control systems in the Dutch sector of nursing homes, homes for the elderly and homecare

- Working paper -

MARG / MCA Conference - Birmingham - November 2015

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Abstract

This study offers a review of the enactment of management accounting and control systems (MACS) in two Dutch care organizations. The Dutch care sector (i.e. Dutch sector of nursing homes, homes for the elderly and home care) faces several fundamental challenges. In a short period of time, care organizations have to transform from risk free financed public services to market oriented social enterprises (ActiZ, 2013; ActiZ, 2014a; ActiZ, 2014b; BDO, 2013; Wolswinkel & Achterberg, 2011)*. As a consequence, Dutch care organizations have to cope with new entrepreneurial questions, varying from demand driven care concepts and critical care consumers to increasingly uncertain revenue streams and growing financial risks. In reaction to these uncertainties Dutch care organization deploy MACS as solutions providing tools. However, there have been no studies which reflect on the implications of the deployment of MACS in the Dutch care sector.*

This study explores the performative effects of MACS by examining the way MACS enacted and was enacted upon by other actants at The Relief Group and South Care, two large Dutch care organizations. In line with (post) ANT thinking (J. Law, 2004; Mol, 2002; Mol & Law, 2004) *, this study shows how MACS were revealed as multiple objects which were different but at the same time related. Although looking homogeneous from the outside, MACS got translated by the heterogeneity of its users* (Quattrone & Hopper, 2006)*. This study pictures several versions of MACS which co-exist in a complex and drifting network of both enabling and restraining relations within the same organization.*

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1. Introduction

The Dutch care sector (i.e. Dutch sector of nursing homes, homes for the elderly and home care), faces elementary changes. In a short period of time care organizations have to transform from risk free financed public services to market oriented social enterprises (ActiZ, 2013; ActiZ, 2014a; ActiZ, 2014b; BDO, 2013; Wolswinkel & Achterberg, 2011). The main developments are the following. Firstly, to confine the national health care budget, the central government has transferred several financial risks to care organizations. Due to various developments the expenditures on long term care have risen to alarming levels. In a policy document titled 'From systems to people', dated 8 February 2013, the Dutch Minister of Health and Welfare wrote: "The tenability of expenses on care are under pressure. At the moment an average household spends more than eleven thousand Euros per year. If the increase in expenses on care continues in the same pace as the past ten years, an average household will spend half its income on care by the time we reach 2040." (Ministerie van Volksgezondheid, Welzijn en Sport, 2013 p. 3) Systems, dominated by expense claims, are replaced by reimbursement systems based on performances. Secondly, new government regulations concerning the extramuralization of clients with a low indication for care pose a serious risk of real estate becoming vacant. Redeveloping real estate, cutting back in residential capacity and the acceptance of corresponding financial losses seem inevitable (Gupta Strategist, 2012; Nederlandse Zorgautoriteit, 2014b). And finally, the so-called 'thankful' generation slowly gives place to a critical generation of clients. This type of client asks for custom-made care. The consequence of this demand driven development is a differentiation of services (ActiZ, 2013; ActiZ, 2014b).

To cope with these entrepreneurial developments, managers in the Dutch care sector are in need of additional management information (Van Eeken, van Roon, ten Rouwelaar, Schaepkens, & Schijff, 2010; Van Eeken, van Roon, ten Rouwelaar, & Schaepkens, 2012). Several studies with regard to organizations in the for-profit sector have demonstrated a correlation between perceived environmental uncertainty (PEU) and the need for more sophisticated management information: the higher PEU, the more urgent the need is for broad management information (Bouwens & Abernethy, 2000) in general and non-financial information in particular (Abdel-Kader & Luther, 2008; Abdel-Maksoud, Dugdale, & Luther, 2005; Merchant, 1990). This study confirms that this relation between PEU and management information catches on in the Dutch care sector as well. Moreover, this increase in PEU coincides with the in this sector widely shared opinion that a decentralized, flexible and empowered management is necessary to properly service the new type of care customer (ActiZ, 2013; ActiZ, 2014b; Buinink & Albeda, 2005; Nijhof, 2013). Consequently, a delegation of responsibilities to lower management levels, in particular team managers, is initiated. Team managers are in touch with the myriad of day-to-day problems and are therefore supposed to come up with customized solutions to specific and individual problems and wishes of clients. This in turn invigorates the need for extra MACS to offer senior management the information they need to stay in control and at the same time provide lower management echelons with the proper information to comply with their new responsibilities (Zuurbier & Hartmann, 2010).

Although there are several studies on the effects of all kinds of efficiency and economic enhancing measures in hospitals (e.g. (Chua, 1995; CIMA NHS Working Group, 2005; Conrad & Guven Uslu, 2011; Guven-Uslu & Conrad, 2008), there are no studies that explore the implications of the introduction of more MACS (Management Accounting and Control Systems) in the Dutch care sector. Introducing MACS in this sector is not just copying management accounting practices from other sectors. Several studies have indicated that MACS interact with the conduct of business and organizational culture. Implementation of MACS not only changes the organizational environment and corresponding processes, the structure and design of MACS are moulded by their environment as well (Burns & Scapens, 2000; Busco, Riccaboni, & Scapens, 2006; Collier, 2001).

The main purpose of this research is to explore why and how MACS enact and are enacted upon in the Dutch care sector. The deployment of MACS in this sector increases. But how does this deployment evolve, what expected but also unexpected outcomes and consequences are traceable in everyday practice and how can management learn from this all? To find answers to these questions, this study starts with an actor-network theory (ANT) perspective as research frame and continues with a post ANT way of thinking. Central theme in ANT is the theory of translation, which describes how actants – both human and non-human – do not diffuse unchanged but are readjusted and readapted in a context of interacting networks (Callon, 1986). In this perspective, deployment of MACS in the care sector means that a process is initiated in which MACS enacts and is enacted upon by other actants in a rhizome resembling tangle of sociotechnical relations (Latour, 1987). In line with this conception, this research is also inspired by post ANT studies which question the immutability of objects (J. Law & Singleton, 2005; Mol & Law, 2001).

In line with Callon (1986) four phases were distinguished to operationalize the concept of translation. This framework of translation was applied in two case studies: The Relief Group (TRG) and South Care (SC). The choice for case study research was founded in the possibilities it offers to penetrate deeply into an organization and to realize a rich field study because “the key to understanding practices lies in the careful tracing of their constitutive activities” (T. Ahrens & Chapman, 2007). Both cases showed how the application of MACS expanded in both horizontal (extension at the same managerial level, in particular at senior management level) and vertical direction (extension to lower managerial levels). Main motives for these extensions were an increase in perceived environmental uncertainty and reorganization to a more decentralized model of management. The close empirical investigation revealed a rhizome resembling tangle of relations of both human and non-human actants, all involved in localized MACS enactments. In line with (post) ANT thinking, MACS were revealed as multiple objects which were different but at the same time related (J. Law & Singleton, 2005). Although looking homogeneous from the outside, MACS got translated by the heterogeneity of its users (Quattrone & Hopper, 2006).

This study is structured as follows. The first part presents a short literature review on the relevance of MACS which will result in a performative and relational perspective on accounting. Next, ANT and post ANT will be explained. Subsequently the research methods and research design of this study will be elaborated. It will go on with a short description of the two case studies and its results. This study will finish with concluding remarks and limitations.

2. Management Accounting & Control Systems

2.1. Relevance of MACS

According to the Chartered Institute of Management Accountants (CIMA), management accounting is "the process of identification, measurement, accumulation, analysis, preparation, interpretation and communication of information used by management to plan, evaluate and control within an entity and to assure appropriate use of and accountability for its resources. Management accounting also comprises the preparation of financial reports for non-management groups such as shareholders, creditors, regulatory agencies and tax authorities" (CIMA Official Terminology). According to the same institute, management control comprises “all of the processes used by managers to ensure that organizational goals are achieved and procedures adhered to, and that the organization responds appropriately to changes in its environment.”

By means of a memorable publication, titled 'Relevance Lost' (1987), Johnson and Kaplan introduced a new agenda. The big challenge was and is how to align the new possibilities of information technology with new accounting techniques in order to fulfil the new role of 'internal business consultants' (Burns & Vaivio, 2001). Widely supported is the conviction to broaden the scope of MACS by including non-financial measures. In particular adoption of indicators like customer satisfaction, on-time delivery and responsiveness to customer needs are seen as important drivers for the use of non-financial measures (Abdel-Maksoud et al., 2005). Bouwens and Abernethy distinguish MACS information with a narrow scope versus MACS information with a broad scope, defining the latter as modern (Bouwens & Abernethy, 2000).

Parallel to this developments, Burns and Vaivio (2001) describe another development. While new information technology drives 'routine' accounting tasks into centralized positions, management accounting is becoming more decentralized (Burns & Vaivio, 2001). Last mentioned development highly relates to perceived environmental uncertainty. The bigger this perceived uncertainty the more decentralization of competences is inevitable and the more urgent the need for broad MACS information in general and non-financial info in particular (Abdel-Kader & Luther, 2008; Abdel-Maksoud et al., 2005; Merchant, 1990). A same positive correlation is identified between the increase in relative customer power and the need for sophisticated MACS. This is in line with the portrayal of the 'flexible firm' by Mouritsen (1999).

Important also is the question how MACS information is used. Naranjo-Gil and Hartmann make a clear distinction between a diagnostic versus an interactive use of MACS information (Naranjo-Gil & Hartmann, 2007). Vaivio shows how non-financial measurements promote interactive control systems (J. Vaivio, 1999). And recently, Chong and Mahama (2014) conclude that interactive use of budgets has direct positive effects on team effectiveness (Chong & Mahama, 2014). In line with these studies, this paper defines diagnostic and interactive controls as descriptions of how managers use controls. In fact this idea suggests that any control mechanism can be used interactively (discussion and debate among organizational members of different hierarchical levels with a focus on learning) or diagnostically (little discussion about data and a focus on negative variances)(Ferreira & Otley, 2009; Tessier & Otley, 2012).

2.2. Performative and relational perspectives on accounting

The nature of MACS change causes a lot of discussion and research. Various studies show that the diffusion of innovative management accounting practices is a process that is hard to define (T. Ahrens & Chapman, 2006). Others emphasize change in accounting is neither linear nor foreseeable (Alcouffe, Berland, & Levant, 2008; Baxter & Chua, 2003). And some conclude "change is rather a drift of practices that move in time and space along the interactions of a multitude of actors" (Alcouffe et al., 2008). In short, these studies blur the functional and instrumental perspective on accounting. For example, this functional approach cannot satisfactorily explain why implementation of the same accounting tool seldom leads to the same implementation patterns and why these tools frequently do not solve the problems for which they are initially implemented (Busco, Quattrone, & Riccaboni, 2007). This study therefore chooses a perspective that focuses on the social potential of accounting by emphasizing the interrelationships between all the factors that are involved in accounting practices (Granlund, 2001). After all, the meaning of accounting inscriptions is not contained in its figures, texts or graphical representations but in the practice through which these inscriptions are enacted (Quattrone, 2009). In fact this study chooses a performative and relational perspective on accounting.

Within the scope of this study, performativity means that economic theory – in most cases put into practice through accounting – does not just describe and explain reality but rather shapes and performs

reality (Vosselman, 2014). For example, Ferraro (2005) shows how the language and assumptions of economics shape management practices. He explains how ideas of economist, whether these ideas are right or not, are powerful and can become true by modifying reality like a self-fulfilling prophecy (Ferraro, Pfeffer, & Sutton, 2005; Ghoshal, 2005). Applied to accounting practices and accounting change, this performative perspective shows shifting networks of related actors, both human and non-human, using MACS information in a relational drift of practices (Andon, Baxter, & Chua, 2007). As a result of these relations with others, actors – including MACS - acquire their forms and attributes (J. Law, 1999).

3. Theoretical framework

3.1. ANT

In line with aforementioned preference for a performative and relational perspective on accounting, this study chooses ANT as research frame. "Rather than regarding accounting as 'given', ANT sees accounting as an unstable technology constructed in networks of humans and non-humans in contingent socially negotiated processes of knowledge creation, i.e. it is neither independent nor stable and only exists in its performance." (Hopper & Bui, 2015 p. 33) ANT permits an accurate and close empirical investigation of the many network relations that are built between both human and non-human agents in their pursuit to recruit allies and mobilize artefacts to support their ideas and interests (Pipan & Czarniawska, 2010) with regard to MACS. ANT distinguishes itself from other theories by considering both human and non-human actors on the basis of equality. This is in line with the positive posture of ANT towards technology (Latour, 1987). In the present social world people increasingly mix objects and society and therefore techno-science has become an essential characteristic of our society, which justifies a so-called 'symmetrical anthropology' (A. Lowe, 2001b). These sociotechnical relations have to be investigated in order to understand the 'teamwork' between accounting systems and human actors in constituting contemporary organizations (A. Lowe, 2001a). Because the term 'actor' is often associated with human qualities many ANT researchers choose the more neutral term 'actant' instead (Ren, Jóhannesson, & Van der Duim, 2012).

By tracing and studying the associations, ANT offers a possibility to explain how accounting innovations 'translate'. ANT substitutes the word 'diffusion' for 'translation': an innovation does not diffuse unchanged but is (re)adjusted and (re)adapted by the context of interacting actor-networks in which it evolves and overcomes possible resistance (Akrich, Callon, & Latour, 2002b; Callon, 1986; Latour, 1987). The innovation is manipulated to align it with the multiple interests of actants involved (Akrich et al., 2002b; Alcouffe et al., 2008; Emsley, 2008). During this process of translation the initiators have limited control (Briers & Chua, 2001).

Callon (1986) unravels translation in four processes: problematization, interessement, enrolment and mobilization. This enumeration does not stand for an imperturbable sequence. On the contrary, these four processes overlap and interact with each other (Becker, Jagalla, & Skærbæk, 2013; Dery, Hall, Wailes, & Wiblen, 2013; Mähring, Holmström, Keil, & Montealegre, 2004). In the process of problematization, a problem is identified and some proponents of change herald they have a solution to offer in a first attempt to convince others. In the phase of interessement, the pioneers persuade actants of the usefulness of the proposed solution by establishing connections between the interests of those actants and the proposed solution. If successful, the outlines of a network of supporting actants become visible. In the third phase the network grows and actants, both human and non-human, are enrolled. The network becomes larger and stronger the more allies accept and take their roles. How actors are enrolled and translated into the network with MACS does matter because this shapes practices of management accounting and control

(Rowbottom & Locke, 2015). In the fourth phase the solution is finalized after all relevant actants are mobilized and adopt the innovation (Mouritsen, Larsen, & Bukh, 2001). By now the innovation can present itself as a black box: a solid appearance which is not questioned for at least some time.

3.2. Post ANT

Like every invention, the development of ANT is not in the hands of its originators. ANT itself gets translated (Gad & Jensen, 2010). Law and Singleton (2005) bring forward that in early ANT studies, objects are thought of being too rigid and immobile. They pose the question "... even if we want to think of objects as the effects of the enactment of sets of relations, those relations are a good deal more variable than early versions of ANT tended to suggest?" (J. Law & Singleton, 2005) Post ANT researchers change the focus from an epistemological point of view on an object to the ontology of the object of research.

According to an epistemological point of view, objects like MACS look complex because the various stakeholders, who work with these systems, have different perspectives and consequently make different interpretations (Mol & Law, 2001; Mol & Law, 2004). Starting from this epistemological perception, the main task of the researcher is "to explain the different perspectives and so retrieve the real object behind the interpretations" (J. Law & Singleton, 2005 p. 333). This epistemological perception presupposes "one non-human world that provides a stable baseline for multiple human interpretations" (Gad & Jensen, 2010 p. 72). Transcribed to this study, an epistemological point of view presupposes immutable MACS which are obscured by different interpretations.

This study aims for an extra performative dimension by changing from an epistemological to an ontological point of view on MACS, meaning differences in perception of MACS are no longer a matter of different perspectives on a single object but "the enactment of different objects in the different sets of relations and contexts of practices" (J. Law & Singleton, 2005). This study makes the assumption that below the surface of the detailed case descriptions, there are several objects enacted which are all called MACS. Consequently, close descriptions of these different MACS are required to learn the differences and similarities. The ontological point of view introduces concepts like multiplicity and fractionality (Watson, 2007). Multiplicity "... *does not imply that reality is fragmented. Instead it implies something much more complex. It implies that the different realities overlap and interfere with one another*" (J. Law, 2004). In line with Gad and Jensen (2010), this study argues that the complexity of MACS is a combination of multiplicity – there are different versions of MACS which are all pointed out as MACS – and fractionality or partial connections – these different objects are related but not at all points or in all dimensions.

4. Research methodology

4.1. Case study research

With previous theoretical considerations in mind, this study aims to answer two research questions:

1. Why and how do MACS enact and are MACS enacted upon by other actants in two case organizations, both operating in the Dutch sector of nursing homes, homes for the elderly and home care?
2. How can management in the Dutch sector of nursing homes, homes for the elderly and home care learn from the translation processes of MACS in the two case organizations?

The main verb in the first research question is 'to enact'. This verb represents the notion that when actants act they bring structures and events into existence and set them into action, creating social constructions and relations (Weick, 1988).

The choice for case study research was founded in the possibilities it offers to penetrate deeply into an organization and its culture, behaviour, experienced perceptions and mutual interactions. In line with Bédard and Gendron, this study used three sources of data: semi structured interviews, documents and observations (Bédard & Gendron, 2004). The interviewing took place in a sequential way, meaning the first interview was analyzed after which the findings of this first interview were used in the next interview and so on. Follow-up and probe questions were asked for further explanation and clarification of initial answers (Bailey, 2007). And during all interviews, which lasted between 60 and 90 minutes, an atmosphere was striven for to ease interviewees to bring up issues not anticipated (Tucker & Parker, 2014). Acquired insights legitimized the possibility of adding new questions or altering existing ones. In fact there was an intertwining relation between data collection and data analysis (Marginson, 2004). After transcribing each interview, the interviewee was asked to comment on the transcription.

4.2. Zooming in and zooming out

The sequence of research steps, as pictured in the previous section, was moulded according to the two folded movement of zooming in and zooming out, as described by Nicolini (2009a). The zooming in part related to a detailed study of practice. The second move, zooming out, aimed at theorizing practice by deploying the theoretical framework as described in sections 3.1 and 3.2. This double movement is necessary because descriptions of practice are often not complete and "a coherent analytical stance is necessary for the goal of outlining a coherent practice-based ontology" (Nicolini, 2009a). The result of this movement of zooming in and zooming out was a recursive procedure of field research and theory refinement. "Finally, after multiple iterations between theory and data, a theoretically oriented interpretation can be extracted and then reported" (J. Vaivio, 2008). This is in line with the idea of Wagensveld and Vosselman (2012): instead of depicting the theoretical domain as a central space separated from practices, they explain how theory and practice are intermingled.

4.3. Computer assisted qualitative data analysis

To facilitate the tenacious process of analysing and theorizing data, this research used the opportunities of Computer Assisted Qualitative Data Analysis Software (CAQDAS) like ATLAS.ti. Frequently mentioned advantages of using CAQDAS are the possibilities of handling huge amounts of data in an orderly way. Moreover, this software helps researchers to demonstrate in a convincing way the validity (Silverman, 2005) and reliability of their findings (Abernethy, Horne, Lillis, Malina, & Selto, 2005; Budding & Cools, 2007), offering the possibility "to leave an audit trail" (Miles & Huberman, 1994).

In line with the theoretical framework, this research used corresponding conceptual codes. Next to these conceptual codes, free codes were added in conformity with empirical data and ditto suggestions, which emerged during the coding process (Abernethy et al., 2005). To increase the objectivity of the analysis both an interview protocol and a coding scheme were used (Malina & Selto, 2001). Furthermore, two researchers independently coded several transcripts, leading to an inter-rater coding reliability up to 88,7%, well within the minimum margin of 80% to 90%. This margin is accepted as standard to assess this type of reliability (Malina & Selto, 2001 p. 81; Miles & Huberman, 1994 p. 64).

In this research, the co-occurrence and proximity rules, as described and applied by Malina and Selto (2001), were used to trace and investigate in more detail the numerous associations. Co-occurrence is measured by the co-occurrence ratio, C, which is computed as:

$$C_{12} = n_{12} / (n_1 + n_2 – n_{12})$$

Code 1 (with a frequency of n_1) co-occurs with code 2 (with a frequency of n_2) when code 1 text overlaps or is overlapped by, encloses or is enclosed by, or is identical to code 2 text (with a frequency of n_{12}). In this study the co-occurrence ratio was used to detect and quantify the strength of associations between coded sections of text. The results of the co-occurrence analyses are displayed in appendices 3 and 4. Appendix 5 provides an explanation of how the selection and reduction of data and the process of ascribing meaning to the data took place.

5. Case studies

The theoretical framework, as described in the sections 3.1 and 3.2, was put into practice by means of case study research at two case organizations: The Relief Group (TRG) and South Care (SC). In the following section a short introduction of both case organizations is provided, followed by a case description in line with the four processes of translation, as defined by Callon (1986).

5.1. Introduction

The Relief Group (TRG) is a healthcare organization which comprises a total of 12 nursing homes and homes for elderly. In the annual report 2013, TRG accounts for a capacity of 1,153 intramural places and 2,272 extramural clients. According to the P&L statement 2013, total revenues were € 94,600,745 and the year was closed with a profit of € 717,078. At the time the interviews took place a major reorganization was going on. Space to propagate the so-called ‘couleur locale’ was restricted in favour of unified, transparent and efficient processes and corresponding economies of scale. This reorganization had both a centralizing as well as a decentralizing aim. In the back office, activities were clustered in shared service centres. On the other hand, management structure was flatted by eliminating management levels, aiming for more flexible client oriented care.

SC comprises 31 nursing homes and homes for elderly. In the annual report 2013, SC accounted for a capacity of 2,452 intramural places and 2,271 extramural clients. Ultimo 2013 SC enlisted 5,284 employees (2,723 full time equivalents). According to the P&L statement 2013, total revenues were €210,388,257. In sector benchmarks SC was more than once mentioned as a best practice in the segment of large care organizations. Senior management at TRG acknowledged this reputation of SC.

During the period August 2013 to August 2014 a total of 37 employees, ranking from board of directors to team managers, were interviewed. Besides these interviews, several documents were consulted and analysed to verify statements which were made during the interviews. A list of all interviews, specified by position of interviewee, date and length of time as well as a record of the consulted documents are attached as appendices 1 (TRG) and 2 (SC).

5.2. Problematization

In general, managers of both TRG and SC were well aware of the far reaching developments in their sector. Governmental measures to contain the national healthcare budget and new regulations concerning the

remuneration of care services gave rise to many uncertainties. Customary care provisions were under discussion whether they were applicable and flexible enough to satisfy the needs of a new generation of elderly. One TRG manager commented:

> "*It is not just a question of how to economize spending. These kinds of questions presume that the context stays the same. But this time the context is changing as well."*

The call for more MACS information came from two sides. First of all, higher management asked for more MACS information to make strategic choices to cope with the increase in perceived environmental uncertainty. The continuous change in financial regulations, the dominant position of health insurance companies and the emancipation of the client, created a slippery playing-field. To navigate in this environment, the board of directors of both case organizations asked for more detailed financial information. For example, at TRG investments were made in a so-called strategic planning tool. This tool was supposed to provide an integrated and flexible picture of future scenarios.

The second category of interviewees, who asked for more MACS information, consisted of managers in lower echelons. These managers, mostly team managers, were in need of MACS information which corresponded with the decentralization of responsibilities, including MACS related tasks and responsibilities. Each month each team manager at both case organizations received an income statement of his department to check whether his budget was still balanced and, if not, to take corresponding measures. All managers spoken to confirmed that they considered this information as an essential part of their work. A senior manager at SC told how team managers needed MACS figures for reassurance:

> "*To stay within budget creates a peaceful mind of security*."

Or in the words of a team manager at SC:

> *"If I cannot comprehend my income statement I am not in control. And this will surely have negative effects on primary processes."*

5.3. Interessement

In the process of interessement interviewees at TRG made extensive use of legitimizing stories. In most cases these stories referred to preferable situations in which advanced application of MACS played a conditional role. Higher management referred to successes of colleague organizations which were considered to be the best practices in their branch. These managers were also able to substantiate their points of view with reports from branch organizations and consultancy firms. Lower management coloured their legitimizing stories with previous working experiences or referred to internal situations which could be improved by the ongoing reorganisation and the corresponding application of MACS.

In these legitimizing stories at TRG a bottom-up arrangement of operational processes was a trending topic. But the direction of these stories was without any doubt top down. Upper management had to convince employees in lower echelons of the supposed benefits of decentralization. At the time the interviews took place, senior management at TRG was convinced of the reorganization and the leading role of MACS. At the level of team management however unanimity made place for mixed opinions.

Meanwhile finance and control staff at TRG was explicit in their favour of the reorganization and the role MACS had to fulfil in the new setting. Their views contained a companywide central, streamlined and

transparent back office on one hand and flexible care services on the other. And to stay in control, these care services should be connected with and controlled by the central office thanks to MACS. In general these employees had a rather mechanistic view of how MACS should work.

At SC the process of interessement could be characterized as a widely supported consent with decentralization of responsibilities and, consequently, a broad enactment of MACS. Main justification for this posture was the conviction that a development towards more customized care services was inevitable. And to facilitate this process, delegation of MACS information and associated authorizations were considered self-evident. After all, according to the explanation of a location group manager, his influence on operational procedures was limited compared to the influence and possibilities of his team managers, in particular with regard to matters related to cost efficiencies.

> *"They* [team managers] *know the details behind the figures."*

Finance and control staff at SC profiled themselves as providers of solutions to difficult questions with regard to MACS. The controllers at SC were called counsellors and every month each counsellor visited all team managers to whom he or she was assigned. These visits were called 'client talks', signalling that these counsellors saw the managers as their clients. In these talks counsellors explained to their clients how to interpret the figures and how to act on them in an effective and advantageous way. In fact these counsellors were the representatives of the financial system that was set up to cope with PEU and to enable decentralization. They were the messengers who kick-started the enactment of MACS at team management level.

However, there were critical remarks as well, in particular with regard to the growing dimensions of MACS which comprised numerous cost centres and many complicated mutual cost charges and cost allocations. A team manager sighed:

> *"At SC, it looks as if we try to control things that you almost certainly cannot control. As long as we have a lot of figures on paper we deceive ourselves by thinking we are in control."*

5.4. Enrolment

At TRG, it was possible to discern two developments: a horizontal extension of MACS information and a vertical extension. With regard to the horizontal extension, higher management and staff employees described a vast growing output of management accounting figures and an acceleration in the development and application of MACS during the last two years. Figures on productivity, revenues and costs became more refined and detailed. At the same time this information was supplemented with strategic financial information like long-term forecasts and scenario analyses.

There were many statements at TRG which indicated that MACS penetrated the organization in a vertical way also. During the last two years team managers got acquainted with the so-called 'integral survey'. Dominant figure in this survey was the so-called gross margin. This was the difference between production revenues minus direct salaries. This indication of productivity was widely used as performance figure and was prominent in the evaluation meetings of team managers with higher management. Most team managers knew the specific gross margin targets their teams had to meet:

> *"I know I have to score 60% and I know which questions to ask when my performance is below this percentage. I know which tools to use and I know how to check whether I have enough space left."*

Besides this gross margin and its determinative variables, team managers hardly bore witness of further financial awareness and knowledge. By contrast non-financial indicators, which were related to the quality of health care services, did generate undivided attention of team managers. But it was doubtful whether these managers at TRG considered non-financial figures on quality of care services as part of MACS. Admittedly, in their perception MACS information and quality were somehow related but both sources came from different worlds nevertheless. Asked to what kind of MACS information they used, team managers at TRG mentioned all kinds of figures except for those related to quality. And when questions were asked about the way perceived care was monitored, interviewees naturally mentioned all kinds of quality indices they apparently did not think of when asked to specify MACS information.

At SC questions about how MACS information was made tangible and how this information was diffused led to stories in which two references dominated: the shared folder and the ZZP tool. The shared folder was stationed at the central computer network of SC and was accessible to all managers. A vast amount of figures and results were diffused throughout SC by means of this shared folder, entering each department of SC with a transparency and follow-up consultation which inclined managers to act on these figures. All managers spoken to were able to show this folder and open the correct files in a self-evident manner. Moreover, managers had access to financial figures of any other department. Several managers explained they compared their figures with those of other departments for specific reasons such as disappointing sub-results. In fact, most managers stated they appreciated this type of transparency.

At SC the ZZP tool played an important role. This tool calculated the number of full time equivalents a manager could deploy by filling in the number of clients and their corresponding health care indication. It also offered the possibility to refine the deployment of full time equivalents by differentiating the level of competence, the percentage of sick leaves, number of different shifts and time spend on training and education. To managers this ZZP tool was a black box. Nevertheless, its output was not under any discussion what so ever. In fact this tool was embraced as a solution to circumnavigate complicated control issues and discussions such as workload being too heavy or not.

At SC finance and control staff played an important facilitating role in the connectedness between MACS and management. Team managers could rely on support meetings with their finance and control counsellor every month. However, the division of roles had shifted somewhat. In the period during which the shared folder was arranged and the ZZP tool was drafted, finance and control staff had the initiative in the reporting and the development of MACS information. Management responded by presuming that this information had to be important because otherwise finance and control staff would not have offered it. At the time the field research at SC took place this dependent attitude had emancipated to a more critical posture. For example, the idea to link the duty rosters, which were made three months in advance, with the ZZP tool to display the consequences of planned rosters in advance, came from a team manager and not a finance and control staff member. And when an finance and control counsellor presented to a team manager the cost price calculation of the meals his kitchen staff served to clients, this manager disagreed to such an extent that he decided to draft his own calculation to rebut the calculation of his finance and control counsellor. In explaining his reaction this team manager stated:

> *"This calculation* [the one of the finance and control counsellor] *is a typical example of people who only focus on figures. They have no clue of the processes behind these figures."*

Some finance and control staff members experienced difficulty with this critical or emancipated posture of managers. After all, were they sufficiently qualified to criticize the presented MACS information? Did

they really know what it took to produce accurate, reliable and comprehensive accounting information? On the other hand, several finance and control staff members indicated that a more facilitating and supporting position towards management suited them well because...

> "*...they* [team managers] *are familiar with the content behind the figures and we* [finance and control staff] *are not. […] In fact in my day-to-day practice I never meet a client although these clients are our core business. I realize figures somehow have to mirror images of these clients, otherwise these figures lose their meaning."*

Remarkable was the plea of a senior manager at SC to present only aggregated figures per location (i.e. per nursing home or home for the elderly). According to his experiences team managers were too much focused on the results of their own departments – by this senior manager entombed as 'island attitude' – and paid too little attention to the results of the location they were part of. If figures were no longer presented per department or per team but only per location, attention of managers would shift as well, according to this senior manager. However, team managers were unanimously repudiating. Obfuscating department and team figures in aggregated location figures would mean that actions of individual team managers would hardly be traceable. A team manager explained:

> "*Your decisions are reflected in the figures and those figures are stipulating for your present actions. If I cannot recognize my own doings in these figures I don't know what to do with them. They become meaningless to me. "*

At SC, a top down 'enforcement' of MACS by senior management was fading away and a bottom up 'cherishing' of MACS by team managers was taking over.

5.5. Mobilization

Hierarchically speaking MACS in both case organizations had penetrated up to and including the level of team management and was leaking out to the level of team members, in particular the first responsible nurses. At TRG the trend of MACS information as one of the attention area's a team manager had to act on, was irreversible. Worth mentioning is the role finance & control staff employees at TRG pictured themselves in. Several quotes indicated they felt that their role gained weight. This change paralleled the increasing importance of MACS information. A controller commented:

> *"First it was head bookkeeping and I was one of the assistants. Now it is concern controller and I am one of the controllers."*

At SC the shared folder and its monthly reports were institutionalized. Also widely accepted was the fact that information in this shared folder was accessible to all managers. This transparency was acknowledged as an important characteristic of the organizational culture of SC. Also institutionalized was the ZZP tool. Its outcomes were accepted and deployed without further questions. Also noteworthy was the mobilization of interactive control practices at SC. Some managers stated that for an optimal exploiting of learning effects discussion techniques needed to be improved. In the meantime however, this supposed lack of proper discussion techniques was not an obstacle for a variegation of interactive control practices. Many interview quotes indicated bot the need and willingness to deliberate over MACS information in varying networks.

5.6. Different enactments of MACS

The enactments of MACS aroused different perceptions of different groups of employees. Moreover, equivalent echelons in different case organizations produced different perceptions of MACS as well, blurring pictures even further. MACS were expected to adapt to the specific needs of specific segments of employees within the same care organization. In line with this reasoning one might argue that the differences in interpretation of MACS information between different segments of employees were an inevitable consequence of the differences in professional practice and training. Although this might seem a logical explanation, it at best partially explains the complexity that was disclosed by the field research. Only after exploring the profoundness of the differences in perceptions of MACS, solutions may be found to questions such as how to balance and manage these differences.

6. From an post ANT perspective

6.1. Towards an ontological turn

The objects that were pointed out as MACS by different segments of employees at TRG and SC, differed to such an extent that it was doubtful whether an epistemological stand of view offered sufficient leads to fathom out this tangle of network relations. According to this point of view, objects like MACS look complex and messy because the various stakeholders, who work with these systems, have different perspectives and consequently make different interpretations (Mol & Law, 2001; Mol & Law, 2004). Transcribed to this study, an epistemological point of view presupposes immutable MACS which are obscured by different interpretations.

The discomfort feeling of not fully comprehending what caused the complexity of perceptions of MACS motivated this study to follow the proposal of Law and Singleton (2005) to change the research focus to the ontology of MACS. What if the differences between versions of MACS were due to the nature of MACS itself rather than the multiple interpretations of MACS by its users? This passage is also known as the ontological turn (Watson, 2007), depicting MACS as different objects, enacted in different sets of relations and contexts (J. Law & Singleton, 2005). A limitation to an epistemological point of view would obscure the scope and profundity of the differences that had to be bridged and somehow brought in line to deploy MACS effectively and unambiguously. After all, "... might it not be the case that, if we want to understand objects, to characterize and study them, then we need to attend as much to the mutability of what lies invisibly below the waterline, as to any immutability that arises above the surface?" (J. Law & Singleton, 2005 p. 337)

The ontological point of view starts from the assumption that below the surface of the detailed case descriptions, there are several objects enacted which are all called MACS. The ontological point of view introduces concepts like multiplicity and fractionality (Watson, 2007). In line with Gad and Jensen (2010), this study argues that the complexity of MACS is a combination of multiplicity – there are different versions of MACS which are all pointed out as MACS – and fractionality or partial connections – these different objects are related but not at all points or in all dimensions. This study explains that there are different MACS enacted. And despite the differences these versions of MACS are connected. Consequently, close descriptions of these different MACS are required to learn the differences and similarities.

6.2. Multiple objects called MACS

Based on the case descriptions, per case study three segments of employees could be distinguished, each translating MACS in its own way. The first MACS were those of the finance and control staff. Both at TRG and SC finance and control staff and their MACS were closely related; in fact MACS were created by these employees, effectuating a sense of pride amongst them. Their MACS produced accurate and reliable rationalities, effectively disseminated to all managers. Thanks to MACS, processes and results were made visible and comparable throughout the organization, launching in-depth assessments of results as well as all kinds of scenario and risk analyses, enabling senior management to handle environmental uncertainties. Possible legitimating or sanctioning purposes of MACS information were looked at with suspicion and denounced as 'political' fuss. After all, MACS produced facts which were reflected in ledgers and cost centres.

So far the similarities in the enacted MACS of finance and control staff at TRG and SC. There were important differences in these objects, both called MACS, as well. At SC finance and control staff attributed useful learning opportunities to MACS by revealing best practices which were linked to extensive interactive control practices. In these MACS practices non-financial information played a fairly important role, linking the different professional fields of knowledge within the organization. In the enactment of MACS by finance and control staff at TRG diagnostic control practices prevailed with little room for non-financial information. In fact this enactment started from an accounting knowledge framework with limited understanding or consideration for other professional bodies of knowledge. To finance and control staff at TRG, MACS information was clear and unambiguous, leaving little room for discussion over the meaning and consequences of these figures. More than once discussions over MACS were looked at with suspicion, assuming the discussant was trying to escape from the consequences of disappointing results.

At senior management level, both at TRG and SC, MACS was dominantly present in policy decisions. In fact, MACS enacted compulsory frameworks to which managers at TRG and SC had to comply. Inadequate MACS would either fail to mobilize team managers to take financial responsibility or hinder senior management to stay in control or, even worse, both. At TRG, senior management embraced MACS as ally which provided the data to take the proper course of action in order to safeguard the continuity of TRG. MACS data were treated as facts and answers. Consequently diagnostic control relations prevailed. Moreover, senior management at TRG exploited the legitimating and sanctioning potential of MACS enacted arguments, particularly in the ongoing reorganization at TRG which senior management had initiated.

At SC, MACS information was an important guiding principle for senior management as well. For example, a new care service concept called 'care living' was examined on all possible financial aspects, including rent rebates, before senior management approved of this concept. But in contrast to their colleagues at TRG, senior management at SC was more keen on the interactive control practices MACS enabled. Possibly as a consequence of the interactive control experiences, senior management at SC was confronted with some effects of MACS they did not anticipate. For example, senior managers noticed how detailed MACS reports influenced the attitude of team managers, resulting in so-called 'island thinking' as described in section 5.4. Moreover, senior management started to realize that MACS did not provide adequate information on probably the most important performance indicator, namely the relation with the client. Although MACS somehow revealed the profile of clients as 'care consumers' and their preferences for custom-made care services, these systems were incapable to show the 'care needy' client who still dominated in the day-to-day practices of health care managers.

Previous remarks with regard to clients also applied to the version which team managers at SC and TRG pointed out as MACS. Team managers in both organizations searched in vain for traces of the care needy client on the MACS radar. Moreover, team managers at SC experienced MACS enactments as to much focused on control issues and of limited use with regard to so-called 'soft' matters. In the day-to-day practices of team managers at SC, MACS manifested themselves in the monthly income statements as presented in the shared folder and the ZZP tool. Team managers demonstrated to be quite committed to these MACS objectifications. They accepted and deployed MACS as important signposts in their day-to-day considerations and activities. In fact, considering the reactions of team managers to the proposal of a senior manager to limit the monthly figures to a more aggregated level, MACS had become important co-designers of the position of team managers. They feared that these aggregated figures would insufficiently mirror their individual actions and those of their teams. Consequently this would deprive team managers of important arguments and erode the autonomy of their management position.

The MACS version of team managers at TRG was both dominated by and at the same time restricted to the so-called gross margin between revenues and direct salaries. This percentage dominated their actions and was leading in questions whether it was possible, for example, to schedule extra night shifts or not. Their version of MACS was more or less restricted to finance related information, including for example information on sick leaves. Team managers at TRG were certainly interested in information on quality of health care services. But this type of information was not related to the MACS of team managers at TRG. Both at SC and TRG, team managers were well aware of the fact that MACS made their performances transparent to colleagues and superiors. But in contrast to their colleagues at SC, this transparency created awkward feelings among team managers at TRG because MACS figures were far from self-explaining to them. Although MACS were supposed to bridge distances – bringing figures and their operational translation close to team managers – new distances were created as well. After all, how to combine and balance the business-like MACS enactments versus the social and empathizing nature of health care?

7. Conclusions and discussion

The first part of this section presents the concluding remarks of a more scientific nature. In fact this part provides the answers to the first research question. In the second part conclusions with a managerial relevance are listed. These conclusions aim at answering the second research question. The final part of this section reproduces the limitations of this study.

7.1. Theoretical relevance

Consistent with several studies in the profit sector (Abdel-Kader & Luther, 2008; Abdel-Maksoud et al., 2005; Merchant, 1990), this research shows that the increase in PEU was a major inducement for both TRG and SC to deploy more advanced MACS. With regard to this development, both in horizontal and in vertical direction, extension of MACS practices were evident. The increase in PEU and the necessity to provide more custom-made care services initiated a delegation of responsibilities, including accounting related responsibilities. As a consequence MACS information was translated to team level and vice versa MACS offered senior management the tools to stay in control despite the delegation of responsibilities.

Several examples, obtained during field research, demonstrated how accounting practices influenced thinking and behaviour of interviewees. MACS were not solely instrumental and neutral tools but enacted performative effects as well. MACS was revealed as "an actant rather than an instrument in the hands of

human beings" (Vosselman, 2014 p. 185). As actants, MACS were marked out as 'sociomaterial' (Mol, 2002) because MACS enactments manifested a constitutive and mutually shaping entanglement of the social and the material (Orlikowski, 2007). For example, at SC, MACS became a co-designer of the position of team managers who experienced MACS as an enabler of a more autonomous management position.

In this study, the process of translation was made operational by means of the fourfold scheme of Callon (1986). This scheme proved to be useful to disentangle the many field data, which demonstrated a heterogeneity of actants and accompanying acts and interests, into a structured picture of distinguishable processes of translation. It offered points of departure to map and depict the locally translated MACS relations with other actants. At the same time, the post ANT or ontological perception of MACS was used as meaningful starting point in the quest how to bridge and manage these differences. After all, post ANT researchers such as Law (2004) and Mol (2002) make a stern distinction between pluralism and multiplicity. Multiplicity "does not imply that reality is fragmented. Instead it implies something much more complex. It implies that the different realities overlap and interfere with one another." (J. Law & Urry, 2004 p. 61) Besides the many differences, there are also partial connections. For example, although team management at SC did not recognize the behavioural drawbacks which senior management was worried about, both management echelons searched in vain for a picture of the care needy client in MACS. As a consequence, these managers confronted their colleagues from finance and control with critical requests which hardly belonged to the object which finance and control staff called MACS. In short, this so-called ontological turn highlights the far-reaching consequences of the concept of translation by adding an extra performative dimension through turning the research focus on the ontology of MACS.

Only after acknowledging the profoundness of the differences in perceptions of MACS by revealing multiple versions of MACS which are somehow still related (Law, 2004), solutions may be found to questions such as how to balance and manage these different MACS objects. In delineating the multiplicity of MACS, partial connections become visible. These points of coherence can serve as starting points for managerial efforts to bridge and line up differences. In other words, these leads are useful to answer the second research question.

7.2. Managerial relevance

In both the TRG and the SC case, management proved to be susceptible to non-financial information such as figures on sick leaves, quality of health services and client-satisfaction. In line with the case study of Vaivio at Lever Industrial, this study argues that non-financial indicators have the potential of being "not a merely functional management technology, but also an active element that restructures organizational reality" (J. Vaivio, 1999 p. 413). Contrary to financial information, which was fairly new to most managers, non-financial information often touched the core of the vocation of many care managers. In fact, non-financial information contained an important potential with regard to the receptivity to MACS. This supports a broad interpretation of MACS information (Bouwens & Abernethy, 2000) in addition to which non-financial information is used as a kind of lever to generate attention to financial information as well.

With regard to diagnostic and interactive control practices, both frequency of relevant quotes and co-occurrence analyses indicated that the latter category of practices were more dominate at SC in comparison with TRG. This enactment of interactive control practices ran parallel to the more profound vertical enactment and ditto enrolment of MACS at SC. This finding suggests that interactive control practices were positively related to enrolment of MACS. Moreover, interview quotes indicated that interactive control practices were in particular effective at lower management echelons. Particularly at team management level, MACS information was fairly new and consequently necessitated much

explanation and deliberation, offering opportunities to exploit MACS as a learning machine (Naranjo-Gil & Hartmann, 2007). In this way, interactive control practices seemed to promote the receptivity of managers towards MACS. In fact these interactive control practices came close to the plea of Roberts and Vosselman to reinforce the social potential of accounting by focusing on interdependence and interaction over results (Roberts, 2009; Vosselman, 2013).

Whether MACS could enact the aforementioned enabling and motivating effects of decentralization was not self-evident given earlier explanations on the multiplicity of MACS objects. Taking into account the continuous movement of network connections and corresponding tensions between different interests, emanating from different professional backgrounds, it is necessary to look for some kind of manageable balance between the different MACS objects. This study suggests a possible route to create such equilibrium. After all, MACS "could be designed in ways to ensure that they are enabling and then be used in an interactive way to provide the forum for their on-going application" (Chenhall, Hall, & Smith, 2010 p. 753).

At SC there were indications of a turn of finance and control staff from an inside-out posture – meaning the reasoning of finance and control staff was dominated by their well-defined accounting body of knowledge and went on to determine almost unilaterally how to deploy MACS in their organization - towards an outside-in orientation. Meaningful was the job description of 'counsellor' to denote the role of finance and control staff on the one hand and that of 'client' to qualify the role of care managers on the other. At the time field research took place, this rotation towards an outside-in orientation was not completed yet but already resulted in practices that could be characterized as co-creation and organizational learning. An example was the combined project team of finance and control employees and care managers to investigate the feasibility of a proposal – made by a team manager and now also project member – to link the duty rosters with the ZZP tool in order to calculate in advance the financial consequences of the deployment of employees. This type of MACS enactment, in which different logics positively and creatively intermingled, offered new opportunities to increase both relevance and enrolment of MACS. This procedure fits the call of Vosselman to consciously opt for the creation of a relational ontology of management accounting (Vosselman, 2014) in which performativity of MACS is used to prevent externally – towards other professional realms – oriented defensiveness and to nourish intersubjective relations (Fischer & Ferlie, 2013 p. 45).

7.3. Limitations

If only because practices are never fully articulated (Ahrens & Chapman, 2007), this research has its limitations. The uniqueness of the two cases is an obvious reason to recoil from firm conclusions which claim a broad significance. The insights gathered from these case studies cannot be used to judge enactments of MACS in other networks (Alcadipani & Hassard, 2010). Indeed, the outcomes of the chosen methodology are time specific in localized settings (Law, 2004 p. 155).

Whereas this research is limited to a micro view of individual care organizations, the question whether the introduction of systems like MACS and corresponding managerial practices have broader societal effects is beyond the scope of this research. Neither does this study provide answers to obvious questions whether efficiency of care services improved as result of MACS or whether decentralization and customization of care services improved client satisfaction. All these aspects lay beyond the limits of this study.

Finally, this study limited the number of outlines of MACS to three segments of employees: finance and control staff, senior management and team management. Nevertheless, there were other segments of employees, for example the segment of first responsible nurses, who were introduced to MACS as well. Although these additional segments were still barely distinguishable in their relation to MACS at the time this research took place, the probability of more perceptions than depicted in this research should not be excluded.

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Appendix 1: List of interviews and documents TRG case

Nr.	Type	Description	Date
T1	Transcription interview	Managing director	August 2013
T2	Transcription interview	Managing director	September 2013
T3	Transcription interview	Team manager	December 2013
T4	Transcription interview	Team manager	November 2013
T5	Transcription interview	Team manager	December 2013
T6	Transcription interview	Information analyst	September 2013
T7	Transcription interview	Controller	September 2013
T8	Transcription interview	Team manager	November 2013
T9	Transcription interview	Controller	August 2013
T10	Transcription interview	Team manager	November 2013
T11	Transcription interview	Managing director	August 2013
T12	Transcription interview	Member board of directors	February 2014
T13	Transcription interview	Member board of directors	February 2014
T14	Transcription interview	Managing director	August 2013
T15	Transcription interview	Middle manager	November 2013
T16	Transcription interview	Controller	August 2013
T17	Transcription interview	Middle manager	November 2013
T18	Transcription interview	Coach coordinator	September 2013
T19	Transcription interview	Controller	September 2013
T20	Transcription interview	Team manager	November 2013
T21	Transcription interview	Concern controller	January 2014
D1	Document	Liquidity forecast 2013	
D2	Document	TRG – ActiZ benchmark analysis	October 2013
D3	Document	Concern budget 2013	
D4	Document	Location budget 2013	
D5	Document	Location budget 2013	
D6	Document	Analyses location budgets 2013	
D7	Document	Analyses real estate 2013	
D8	Document	Integrated survey location	August 2013
D9	Document	Integrated survey location	September 2013
D10	Document	Financial statement location 2012	
D11	Document	Financial statement group 2012	
D12	Document	Long term forecast 2014-2018	February 2014
D13	Document	Calculations gross margin 2012	
D14	Document	Development new real estate	July 2013
D15	Document	Organizational charts	December 2013
D16	Document	Print screens dashboard	September 2013
D17	Document	Development plan autonomous teams	November 2013
D18	Document	Project description Strategic Financial Planning Tool	February 2014
D19	Document	Explanation concern budget 2013	

D20	Document	Explanation long term forecast 2014-2018	February 2014
D21	Document	Cost price model TRG	December 2009
D22	Document	Integrated survey location	December 2013
D23	Document	Integrated survey location	December 2013
D24	Document	Evaluation Quality Impulse location	February 2013
D25	Document	Consolidated Forecast 2013	
D26	Document	Explanation Consolidated Forecast 2013	
D27	Document	Manual Corporate Planner	
D28	Observation record	Meeting senior management – Running financial results 2012 and forecast 2013	November 2012

Appendix 2: List of interviews and documents SC case

Nr.	Type	Description	Date
T1	Transcription interview	Team manager	February 2014
T2	Transcription interview	Team manager	February 2014
T3	Transcription interview	Team manager	February 2014
T4	Transcription interview	Team manager	February 2014
T5	Transcription interview	Location group manager	March 2014
T6	Transcription interview	Team manager	March 2014
T7	Transcription interview	Concern controller	April 2014
T8	Transcription interview	Controller	May 2014
T9	Transcription interview	Controller	May 2014
T10	Transcription interview	Location group manager	June 2014
T11	Transcription interview	Location group manager	June 2014
T12	Transcription interview	CFO / Member board of directors	June 2014
T13	Transcription interview	Controller	July 2014
T14	Transcription interview	Team manager	July 2014
T15	Transcription interview	Team manager	August 2014
T16	Transcription interview	Team manager	August 2014
D1	Document	Annual Report SC 2012	
D2	Document	Annual Report SC 2013	
D3	Document	Quarterly report 2013-IV Concern level	
D4	Document	Quarterly report 2014-I Concern level	
D5	Document	Monthly cumulative income statement 2014-Location B	
D6	Document	Monthly production report 2014-I Location B	
D7	Document	Monthly salary report 2014-I Location B	
D8	Document	Discussion paper on P&C cycles	
D9	Document	Financial calculations by team manager in aid of deliberations with team	
D10	Document	Organization chart 2014	
D11	Observation record	Location management team meeting (current budget 2014)	April 2014

Appendix 3: Co-occurrence analysis TRG case

[*Filter ≥ 0.05; blank rows are left out*]

Co-occurrence ratio = C

Computed as:

$C_{12} = n_{12} / (n_1 + n_2 - n_{12})$

Filter = 0,05

	111_Probl_PEU_Financing	112_Probl_PEU_Clients	121_Probl_Solution_PEU reducing information	122_Probl_Solution_Enabling decentralization	211_Interess_Agent_Senior management	212_Interess_Agent_Middle manager	213_Interess_Agent_Team manager	215_Interess_Agent_Staff	221_Interess_LegStroy_Extern	222_Interess_LegStory_Intern	231_Interess_Critically_Organizational context	232_Interess_Criticially_Accountability	233_Interess_Critically_Financial competence	234_Interess_Critically_General competence	311_Object_Tang_Reports	312_Object_Tang_Dash boards
111_Probl_PEU_Financing		0,08	0,19	0,05												
112_Probl_PEU_Clients	0,08		0,06													
121_Probl_Solution_PEU reducing information	0,19	0,06		0,05												
122_Probl_Solution_Enabling decentralization	0,05		0,05		0,10											
211_Interess_Agent_Senior management				0,10					0,07							
212_Interess_Agent_Middle manager										0,09						
213_Interess_Agent_Team manager									0,07	0,07						
215_Interess_Agent_Staff									0,05	0,14						0,06
221_Interess_LegStroy_Extern					0,07		0,07	0,05								
222_Interess_LegStory_Intern						0,09	0,07	0,14								
231_Interess_Critically_Organizational context												0,08		0,10		
232_Interess_Criticially_Accountability											0,08		0,06	0,11		
233_Interess_Critically_Financial competence												0,06		0,05		
234_Interess_Critically_General competence											0,10	0,11	0,05			
311_Object_Tang_Reports																
312_Object_Tang_Dash boards								0,06								
313_Object_Tang_IT programs								0,05								0,06
321_Object_Extension_Horizontal			0,16													
322_Object_Extension_Vertical					0,06			0,12								0,05
411_Connect_Senior management			0,11		0,06											
412_Connect_Middle manager															0,06	
413_Connect_Team manager						0,05		0,05							0,06	
414_Connect_Team member						0,06	0,08			0,08						
415_Connect_Team							0,14									
416_Connect_Staff			0,06					0,06							0,08	
421_Connect_Applic_Financial information			0,07		0,07		0,05	0,08							0,07	0,07
422_Connect_Applic_Non-financial information							0,05	0,05								0,06
423_Connect_Applic_Benchmarking						0,05	0,06									
424_Connect_Applic_Prospective information			0,11													
425_Connect_Applic_External information					0,06				0,07							
431_Connect_Practice_Diagnostic control															0,05	
432_Connect_Practice_Interactive control					0,07		0,05	0,07								
433_Connect_Practice_Decentralization respons.				0,07	0,18	0,05	0,09	0,18		0,07						
434_Connect_Practice_Cost efficiency					0,06			0,05		0,07						
435_Connect_Practice_Coordination									0,05							
436_Connect_Practice_Employee empowerment				0,05	0,10	0,07	0,05	0,12		0,07						0,05
437_Connect_Practice_Accountability					0,08	0,05	0,05	0,08		0,06						
438_Connect_Practice_Monitoring care																
441_Disconnect_Critics inaccuracy																0,08
442_Disconnect_Critics user-unfriendly															0,08	0,08
443_Disconnect_Critics timeliness																
444_Disconnect_Critics limited use															0,06	0,22
445_Disconnect_Critics missing MACS info																
510_Mobil_MACS procedures															0,10	
520_Mobil_Performance standards															0,07	
530_Mobil_MACS artefacts															0,20	

Co-occurrence ratio = C

Computed as:

$C_{12} = n_{12} / (n_1 + n_2 - n_{12})$

Filter = 0,05

	313_Object_Tang_IT programs	321_Object_Extension_Horizontal	322_Object_Extension_Vertical	411_Connect_Senior management	412_Connect_Middle manager	413_Connect_Team manager	414_Connect_Team member	415_Connect_Team	416_Connect_Staff	421_Connect_Applic_Financial information	422_Connect_Applic_Non-financial information	423_Connect_Applic_Benchmarking	424_Connect_Applic_Prospective information	425_Connect_Applic_External information	431_Connect_Practice_Diagnostic control
111_Probl_PEU_Financing															
112_Probl_PEU_Clients															
121_Probl_Solution_PEU reducing information		0,16		0,11					0,06	0,07			0,11		
122_Probl_Solution_Enabling decentralization															
211_Interess_Agent_Senior management			0,06	0,06						0,07				0,06	
212_Interess_Agent_Middle manager						0,05	0,06					0,05			
213_Interess_Agent_Team manager							0,08	0,14		0,05	0,05	0,06			
215_Interess_Agent_Staff	0,05		0,12			0,05			0,06	0,08	0,05				
221_Interess_LegStroy_Extern														0,07	
222_Interess_LegStory_Intern							0,08								
231_Interess_Critically_Organizational context															
232_Interess_Criticially_Accountability															
233_Interess_Critically_Financial competence															
234_Interess_Critically_General competence															
311_Object_Tang_Reports					0,06	0,06			0,08	0,07					0,05
312_Object_Tang_Dash boards	0,06		0,05							0,07	0,06				
313_Object_Tang_IT programs			0,06												
321_Object_Extension_Horizontal			0,06	0,16					0,08				0,13	0,08	
322_Object_Extension_Vertical	0,06	0,06				0,07	0,05	0,05		0,10	0,06				
411_Connect_Senior management		0,16			0,08				0,19	0,10	0,08	0,05	0,15	0,11	0,08
412_Connect_Middle manager				0,08		0,13			0,06	0,09	0,09				0,06
413_Connect_Team manager			0,07		0,13		0,13	0,18	0,06	0,16	0,20	0,05			0,11
414_Connect_Team member			0,05			0,13					0,08				
415_Connect_Team			0,05			0,18			0,06	0,06	0,07				
416_Connect_Staff		0,08		0,19	0,06	0,06		0,06		0,11	0,05		0,10		0,08
421_Connect_Applic_Financial information			0,10	0,10	0,09	0,16		0,06	0,11		0,15				0,14
422_Connect_Applic_Non-financial information			0,06	0,08	0,09	0,20	0,08	0,07	0,05	0,15		0,05			0,09
423_Connect_Applic_Benchmarking				0,05		0,05					0,05				
424_Connect_Applic_Prospective information		0,13		0,15					0,10					0,11	
425_Connect_Applic_External information		0,08		0,11									0,11		
431_Connect_Practice_Diagnostic control				0,08	0,06	0,11			0,08	0,14	0,09				
432_Connect_Practice_Interactive control			0,07	0,06	0,14	0,14	0,10	0,05		0,05	0,07	0,15			
433_Connect_Practice_Decentralization respons.			0,14		0,06	0,17	0,06	0,20	0,06	0,07	0,06				
434_Connect_Practice_Cost efficiency				0,06		0,08	0,05	0,10	0,05	0,11	0,05		0,08		0,08
435_Connect_Practice_Coordination			0,05	0,05		0,10	0,05	0,07	0,08	0,13	0,08		0,07		0,08
436_Connect_Practice_Employee empowerment	0,05		0,14			0,18	0,12	0,16		0,13	0,08				0,07
437_Connect_Practice_Accountability			0,10		0,07	0,19	0,07	0,12		0,10	0,05				
438_Connect_Practice_Monitoring care						0,05	0,13	0,05			0,09				
441_Disconnect_Critics inaccuracy															
442_Disconnect_Critics user-unfriendly															
443_Disconnect_Critics timeliness															
444_Disconnect_Critics limited use															
445_Disconnect_Critics missing MACS info															
510_Mobil_MACS procedures	0,05		0,06	0,07	0,05	0,12			0,07	0,09	0,06				0,10
520_Mobil_Performance standards				0,07		0,07			0,05	0,10	0,09				0,13
530_Mobil_MACS artefacts	0,10					0,07			0,05	0,10					0,06

Co-occurrence ratio = C

Computed as:

$C_{12} = n_{12} / (n_1 + n_2 - n_{12})$

Filter = 0,05

	432_Connect_Practice_Interactive control	433_Connect_Practice_Decentralization respons.	434_Connect_Practice_Cost efficiency	435_Connect_Practice_Coordination	436_Connect_Practice_Employee empowerment	437_Connect_Practice_Accountability	438_Connect_Practice_Monitoring care	441_Disconnect_Critics inaccuracy	442_Disconnect_Critics user-unfriendly	443_Disconnect_Critics timeliness	444_Disconnect_Critics limited use	445_Disconnect_Critics missing MACS info	510_Mobil_MACS procedures	520_Mobil_Performance standards	530_Mobil_MACS artefacts
111_Probl_PEU_Financing															
112_Probl_PEU_Clients															
121_Probl_Solution_PEU reducing information															
122_Probl_Solution_Enabling decentralization		0,07			0,05										
211_Interess_Agent_Senior management	0,07	0,18	0,06		0,10	0,08									
212_Interess_Agent_Middle manager		0,05			0,07	0,05									
213_Interess_Agent_Team manager	0,05	0,09			0,05	0,05									
215_Interess_Agent_Staff	0,07	0,18	0,05		0,12	0,08									
221_Interess_LegStroy_Extern				0,05											
222_Interess_LegStory_Intern		0,07	0,07		0,07	0,06									
231_Interess_Critically_Organizational context															
232_Interess_Criticially_Accountability															
233_Interess_Critically_Financial competence															
234_Interess_Critically_General competence															
311_Object_Tang_Reports									0,08		0,06		0,10	0,07	0,20
312_Object_Tang_Dash boards					0,05			0,08	0,08		0,22				
313_Object_Tang_IT programs					0,05								0,05		0,10
321_Object_Extension_Horizontal															
322_Object_Extension_Vertical	0,07	0,14		0,05	0,14	0,10							0,06		
411_Connect_Senior management	0,06		0,06	0,05									0,07	0,07	
412_Connect_Middle manager	0,14	0,06				0,07							0,05		
413_Connect_Team manager	0,14	0,17	0,08	0,10	0,18	0,19	0,05						0,12	0,07	0,07
414_Connect_Team member	0,10	0,06	0,05	0,05	0,12	0,07	0,13								
415_Connect_Team	0,05	0,20	0,10	0,07	0,16	0,12	0,05								
416_Connect_Staff		0,06	0,05	0,08									0,07	0,05	0,05
421_Connect_Applic_Financial information	0,05	0,07	0,11	0,13	0,13	0,10							0,09	0,10	0,10
422_Connect_Applic_Non-financial information	0,07	0,06	0,05	0,08	0,08	0,05	0,09						0,06	0,09	
423_Connect_Applic_Benchmarking	0,15														
424_Connect_Applic_Prospective information			0,08	0,07											
425_Connect_Applic_External information															
431_Connect_Practice_Diagnostic control			0,08	0,08	0,07								0,10	0,13	0,06
432_Connect_Practice_Interactive control		0,06			0,07								0,05		
433_Connect_Practice_Decentralization respons.	0,06		0,06	0,05	0,32	0,23									
434_Connect_Practice_Cost efficiency		0,06		0,15	0,10	0,11							0,05		
435_Connect_Practice_Coordination		0,05	0,15		0,11	0,06							0,08	0,06	
436_Connect_Practice_Employee empowerment	0,07	0,32	0,10	0,11		0,23									
437_Connect_Practice_Accountability		0,23	0,11	0,06	0,23										
438_Connect_Practice_Monitoring care															
441_Disconnect_Critics inaccuracy											0,12	0,05			
442_Disconnect_Critics user-unfriendly											0,11				
443_Disconnect_Critics timeliness												0,05			
444_Disconnect_Critics limited use								0,12	0,11						
445_Disconnect_Critics missing MACS info								0,05		0,05					
510_Mobil_MACS procedures	0,05		0,05	0,08										0,17	0,19
520_Mobil_Performance standards				0,06									0,17		0,12
530_Mobil_MACS artefacts													0,19	0,12	

Appendix 4: Co-occurrence analysis SC case

[*Filter ≥ 0.05; blank rows are left out*]

Co-occurrence ratio = C

Computed as:

$C_{12} = n_{12} / (n_1 + n_2 - n_{12})$

Filter = 0,05

	111_Probl_PEU_Financing	112_Probl_PEU_Clients	121_Probl_Solution_PEU reducing information	122_Probl_Solution_Enabling decentralization	211_Interess_Agent_Senior management	213_Interess_Agent_Team manager	215_Interess_Agent_Staff	221_Interess_LegStroy_Extern	222_Interess_LegStory_Intern	231_Interess_Critically_Organizational context	232_Interess_Criticially_Accountability	233_Interess_Critically_Financial competence	234_Interess_Critically_General competence	311_Object_Tang_Reports	313_Object_Tang_IT programs
111_Probl_PEU_Financing		0,07	0,51			0,05									
112_Probl_PEU_Clients	0,07			0,08		0,07									
121_Probl_Solution_PEU reducing information	0,51					0,05									
122_Probl_Solution_Enabling decentralization		0,08				0,09									
211_Interess_Agent_Senior management										0,06					
213_Interess_Agent_Team manager	0,05	0,07	0,05	0,09				0,10	0,11						
215_Interess_Agent_Staff														0,14	0,10
221_Interess_LegStroy_Extern						0,10									
222_Interess_LegStory_Intern						0,11									
231_Interess_Critically_Organizational context					0,06						0,08				0,05
232_Interess_Criticially_Accountability										0,08		0,09			
233_Interess_Critically_Financial competence											0,09		0,07		
234_Interess_Critically_General competence												0,07			
311_Object_Tang_Reports							0,14								0,17
313_Object_Tang_IT programs							0,10			0,05				0,17	
321_Object_Extension_Horizontal				0,06			0,06								
322_Object_Extension_Vertical				0,08											
411_Connect_Senior management			0,06		0,09		0,05							0,05	
413_Connect_Team manager			0,07			0,05								0,08	0,06
414_Connect_Team member						0,07									
415_Connect_Team			0,05			0,14			0,09						
416_Connect_Staff							0,12							0,13	0,08
421_Connect_Applic_Financial information			0,08		0,05	0,05	0,07							0,16	0,08
422_Connect_Applic_Non-financial information					0,05	0,08	0,06							0,08	
423_Connect_Applic_Benchmarking					0,06		0,07								
424_Connect_Applic_Prospective information							0,05								0,05
425_Connect_Applic_External information															
431_Connect_Practice_Diagnostic control			0,05												0,07
432_Connect_Practice_Interactive control					0,09		0,05								
433_Connect_Practice_Decentralization respons.				0,07	0,13	0,12									
434_Connect_Practice_Cost efficiency															
435_Connect_Practice_Coordination			0,07				0,07		0,06						
436_Connect_Practice_Employee empowerment					0,14	0,09	0,05								0,05
437_Connect_Practice_Accountability					0,09		0,06								
438_Connect_Practice_Monitoring care					0,08	0,06			0,09						
441_Disconnect_Critics inaccuracy															
442_Disconnect_Critics user-unfriendly															
443_Disconnect_Critics timeliness															
444_Disconnect_Critics limited use										0,05					
445_Disconnect_Critics missing MACS info															
510_Mobil_MACS procedures							0,08							0,27	0,13
520_Mobil_Performance standards														0,05	
530_Mobil_MACS artefacts							0,09							0,24	0,29

Co-occurrence ratio = C

Computed as:

$C_{12} = n_{12} / (n_1 + n_2 - n_{12})$

Filter = 0,05

	321_Object_Extension_Horizontal	322_Object_Extension_Vertical	411_Connect_Senior management	413_Connect_Team manager	414_Connect_Team member	415_Connect_Team	416_Connect_Staff	421_Connect_Applic_Financial information	422_Connect_Applic_Non-financial information	423_Connect_Applic_Benchmarking	424_Connect_Applic_Prospective information	425_Connect_Applic_External information	431_Connect_Practice_Diagnostic control	432_Connect_Practice_Interactive control
111_Probl_PEU_Financing														
112_Probl_PEU_Clients														
121_Probl_Solution_PEU reducing information			0,06	0,07		0,05		0,08					0,05	
122_Probl_Solution_Enabling decentralization	0,06	0,08												
211_Interess_Agent_Senior management			0,09					0,05	0,05	0,06				0,09
213_Interess_Agent_Team manager				0,05	0,07	0,14		0,05	0,08					
215_Interess_Agent_Staff	0,06		0,05				0,12	0,07	0,06	0,07	0,05			0,05
221_Interess_LegStroy_Extern														
222_Interess_LegStory_Intern						0,09								
231_Interess_Critically_Organizational context														
232_Interess_Criticially_Accountability														
233_Interess_Critically_Financial competence														
234_Interess_Critically_General competence														
311_Object_Tang_Reports			0,05	0,08			0,13	0,16	0,08					
313_Object_Tang_IT programs				0,06			0,08	0,08			0,05		0,07	
321_Object_Extension_Horizontal		0,20	0,10								0,20	0,06		
322_Object_Extension_Vertical	0,20													
411_Connect_Senior management	0,10			0,15			0,11	0,14	0,10	0,09	0,09	0,08	0,08	0,15
413_Connect_Team manager			0,15		0,05	0,15	0,16	0,41	0,22	0,06			0,09	0,18
414_Connect_Team member				0,05					0,08					
415_Connect_Team				0,15				0,11	0,15					0,13
416_Connect_Staff			0,11	0,16				0,18	0,09	0,07	0,06			0,16
421_Connect_Applic_Financial information			0,14	0,41		0,11	0,18		0,20	0,05			0,12	0,08
422_Connect_Applic_Non-financial information			0,10	0,22	0,08	0,15	0,09	0,20		0,06				0,11
423_Connect_Applic_Benchmarking			0,09	0,06			0,07	0,05	0,06					0,15
424_Connect_Applic_Prospective information	0,20		0,09				0,06					0,12		
425_Connect_Applic_External information	0,06		0,08								0,12			
431_Connect_Practice_Diagnostic control			0,08	0,09				0,12						
432_Connect_Practice_Interactive control			0,15	0,18		0,13	0,16	0,08	0,11	0,15				
433_Connect_Practice_Decentralization respons.		0,05	0,13	0,19	0,08	0,20		0,13	0,10					0,08
434_Connect_Practice_Cost efficiency						0,09		0,05			0,07		0,06	
435_Connect_Practice_Coordination			0,05	0,08		0,09	0,06	0,10	0,09				0,05	0,06
436_Connect_Practice_Employee empowerment			0,10	0,20	0,07	0,13	0,05	0,16	0,05					
437_Connect_Practice_Accountability			0,15	0,27		0,13	0,08	0,22	0,09				0,09	0,15
438_Connect_Practice_Monitoring care				0,05		0,05		0,05	0,17				0,05	
441_Disconnect_Critics inaccuracy														
442_Disconnect_Critics user-unfriendly														
443_Disconnect_Critics timeliness														
444_Disconnect_Critics limited use														
445_Disconnect_Critics missing MACS info														
510_Mobil_MACS procedures			0,11	0,15			0,14	0,20	0,11				0,07	0,09
520_Mobil_Performance standards			0,05	0,07				0,09					0,05	
530_Mobil_MACS artefacts				0,11			0,08	0,16	0,07				0,06	

Co-occurrence ratio = C

Computed as:

$C_{12} = n_{12} / (n_1 + n_2 - n_{12})$

Filter = 0,05

	433_Connect_Practice_Decentralization respons.	434_Connect_Practice_Cost efficiency	435_Connect_Practice_Coordination	436_Connect_Practice_Employee empowerment	437_Connect_Practice_Accountability	438_Connect_Practice_Monitoring care	441_Disconnect_Critics inaccuracy	442_Disconnect_Critics user-unfriendly	443_Disconnect_Critics timeliness	444_Disconnect_Critics limited use	445_Disconnect_Critics missing MACS info	510_Mobil_MACS procedures	520_Mobil_Performance standards	530_Mobil_MACS artefacts
111_Probl_PEU_Financing														
112_Probl_PEU_Clients														
121_Probl_Solution_PEU reducing information			0,07											
122_Probl_Solution_Enabling decentralization	0,07													
211_Interess_Agent_Senior management	0,13			0,14	0,09	0,08								
213_Interess_Agent_Team manager	0,12			0,09		0,06								
215_Interess_Agent_Staff			0,07	0,05	0,06							0,08		0,09
221_Interess_LegStroy_Extern														
222_Interess_LegStory_Intern			0,06			0,09								
231_Interess_Critically_Organizational context										0,05				
232_Interess_Criticially_Accountability														
233_Interess_Critically_Financial competence														
234_Interess_Critically_General competence														
311_Object_Tang_Reports												0,27	0,05	0,24
313_Object_Tang_IT programs				0,05								0,13		0,29
321_Object_Extension_Horizontal														
322_Object_Extension_Vertical	0,05													
411_Connect_Senior management	0,13		0,05	0,10	0,15							0,11	0,05	
413_Connect_Team manager	0,19		0,08	0,20	0,27	0,05						0,15	0,07	0,11
414_Connect_Team member	0,08			0,07										
415_Connect_Team	0,20	0,09	0,09	0,13	0,13	0,05								
416_Connect_Staff			0,06	0,05	0,08							0,14		0,08
421_Connect_Applic_Financial information	0,13	0,05	0,10	0,16	0,22	0,05						0,20	0,09	0,16
422_Connect_Applic_Non-financial information	0,10		0,09	0,05	0,09	0,17						0,11		0,07
423_Connect_Applic_Benchmarking														
424_Connect_Applic_Prospective information		0,07												
425_Connect_Applic_External information														
431_Connect_Practice_Diagnostic control		0,06	0,05		0,09	0,05						0,07	0,05	0,06
432_Connect_Practice_Interactive control	0,08		0,06		0,15							0,09		
433_Connect_Practice_Decentralization respons.				0,42	0,25							0,06		
434_Connect_Practice_Cost efficiency			0,07		0,05									
435_Connect_Practice_Coordination		0,07		0,06	0,08	0,06						0,07		
436_Connect_Practice_Employee empowerment	0,42		0,06		0,30	0,05						0,05		0,05
437_Connect_Practice_Accountability	0,25	0,05	0,08	0,30								0,09	0,07	
438_Connect_Practice_Monitoring care			0,06	0,05										0,05
441_Disconnect_Critics inaccuracy									0,05	0,05	0,09			
442_Disconnect_Critics user-unfriendly										0,06				
443_Disconnect_Critics timeliness							0,05							
444_Disconnect_Critics limited use							0,05	0,06			0,07			0,05
445_Disconnect_Critics missing MACS info							0,09			0,07				
510_Mobil_MACS procedures	0,06		0,07	0,05	0,09								0,10	0,28
520_Mobil_Performance standards					0,07							0,10		
530_Mobil_MACS artefacts				0,05		0,05				0,05		0,28		

Appendix 5: Audit trail

This appendix provides an explanation of how the selection and reduction of data and the process of ascribing meaning to the data took place. It provides a description of the audit trail which was applied in this study and which Miles and Huberman (1994) mention as an advantage of ATLAS.ti to increase the procedural reliability.

All interviews were transcribed and these transcriptions, together with other documents and observation records, were loaded in ATLAS.ti. Next these so-called 'primary documents' were coded. The scheme of codes started with conceptual codes which were deduced from the theoretical backup. Based on the theoretical setting, open questions and corresponding codes were applied with regard to topics such as, for example, perceived environmental uncertainty, (lack of) experiences with interactive control practices, availability and application of types of information such as non-financial data and benchmark references and division of roles with regard to MACS related tasks and responsibilities. This process is also known as top-down coding or deductive coding. To this list of conceptual codes, free codes were added in accordance with empirical data and suggestions which emerged during the coding process. This process is called bottom-up or inductive coding. The possibility to add free codes was frequently used to prevent the danger of forcing data into predefined frames. After testing several concept lists of codes through many rounds of coding according to the trial and error principle, a final list of codes was composed.

Furthermore, two researchers independently coded several transcripts, leading to an inter-rater coding reliability up to 88,7%, well within the minimum margin of 80% to 90%. This margin is accepted as standard to assess this type of reliability (Malina & Selto, 2001 p. 81; Miles & Huberman, 1994 p. 64). The percentage of 88,7% was established in two rounds of coding. In both rounds the same two authors of this paper participated. In each round the coding of two interview transcripts were deliberated with the following results:

Interview		% Agreement	Average
1	1st round	90,1%	
2	1st round	86.6%	
After the first round of coding two existing codes were merged, one code was redefined and two new codes were added.			
3	2nd round	89,1%	
4	2nd round	88,8%	
Average			88,7%

Table 1: Inter-rater coding reliability

Although the frequencies of the various quotes are an indication of the relative importance of the separate quotes, they do not reflect the relations among concepts nor the intensity of these relations (Malina & Selto, 2001 p. 62). To overcome this limitation the co-occurrence tool, one of several analysis tools of ATLAS.ti, was used to calculate co-occurrence ratios (C) of all possible combinations of codes. These ratios were used to detect and quantify the strength of associations between coded quotations. In order to focus on the more meaningful associations a cut-off limit was chosen of $C \geq 0.05$. This limit meant that approximately 30% of all co-occurrences were selected for closer examination. Lowering the cut-off

limit caused a more than proportionate increase in the amount of associations and cluttered the overall picture accordingly.

The associations with C ≥ 0.05 were selected for careful re-reading of all underlying quotations. This was done with the help of a query tool in ATLAS.ti which offers the possibility to list all quotations which are part of a particular association. The verb 'associate' in this context means that a quotation encloses or is enclosed by, overlaps or is overlapped by, or is identical to another quotation. With the help of the query tool all quotations can be listed for careful reading and considering. In short, this procedure not only displays the more powerful associations, it also enables the researcher to ponder over every detail which a particular association comprises.