Values in management control: Routines of measurement and deliberation

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Abstract:
The management control systems (MCS) literature has recognized the importance of values in the functioning of organizations. Yet the links between aspirational statements and hoped for patterning of day-to-day activity remains a significantly uncertain process. In this paper we shed light on this issue by linking various strands of literature around this topic with an analysis of the development and operation of an MCS (here called Heartbeat) developed by the head nurses in a high performing hospital. Heartbeat drew together various commonly used nursing performance metrics together with a daily scoring of the extent to which nurses felt that organizational values were actualised in their work. We analyse some of the ways in nurses and senior management saw this system as valuable. In doing so we focus on how the MCS design engaged individual and organizational values with the task characteristics and performance demands placed upon nurses.

Key words:
Management control systems, Levers of control framework, organizational values, Performance measurement, Performance management

Authors:
Christopher S. Chapman, University of Bristol, England, chris.chapman@bristol.ac.uk

Anja Kern, DHBW Mosbach, Germany

Lili-Anne Kihn, University of Tampere, Finland, lili.kihn@uta.fi)

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Introduction

In theorising management control systems (MCS), it has been widely appreciated that alongside matters of performance measurement, organizational values – such as for example integrity, innovation, respect, and client focus – play an important role (e.g. Davila and Foster 2005; Kaplan 2009; Malmi and Brown 2008; Merchant and Van der Stede, 2017; Otley 1999; Ouchi 1979, 1980; Simons 1995). The scale of the challenge facing senior management attempts to draw on values to help ensure "everyone acts in the organization's best interest" Merchant and Van de Stede (2017, 97-103), is significant however. A fact testified to by the persistent relevance of the expression "what gets measured gets managed". The limitations of performance measurement as a means to neatly and simply capture both what is, and what should be, going on are long established (e.g. Ridgeway, 1956). Provocatively, however it has even been argued that a risk of designing systems of control based on such measures is that these may actively create, rather than constrain, unwanted behaviour (e.g. Roberts, 2001). All of this suggests the need for more studies analysing the processes through which management control systems seek to link performance measure, aspirational statements of values and day-to-day action.

The financial services sector in response to a series of scandals has commonly attempted to divert blame for undesirable behaviours away from performance measurement focussed MCS onto the proverbial "few bad apples" (c.f. Glaser and Rexrode (2016) for a recent attempt at this). This response highlights one important challenge in understanding the integration of values into MCS, namely the disentangling of individual versus organizational values. Offering an overview, Malmi and Brown (2008, p294) note three approaches to considering this issue. Their least discussed approach is one whereby setting up MCS that promote organisational values will lead to organizational ones becoming prioritised in action in case of conflict with individual values. An approach that has received far more attention in the literature is to focus MCS efforts on selecting and recruiting individuals who already hold organizationally desired values. A stream of work from Abernethy and Brownell (1997) onwards has empirically explored possibilities of selection of individuals based on their values, particularly in dealing with the challenges of innovation or creativity (e.g. Subramaniam and Mia, 2003; Bedford, 2015; Graebner and Speckbacher, 2016). With this work variously moving beyond selection to outline in some detail the nature of control system design appropriate for controlling creative individuals recruited to undertake creative tasks.

Not withstanding such attempts to select for individuals with the "right" values (and thereby approach to work tasks), a further challenge comes from the long-established possibility for tension and conflict between individual and organizational values in the face of explicit and quantified organizational demands for performance (c.f. Argyris, 1952, onwards). Writings of that era emphasised the importance of allowing space for individual expression and of management developing the art of listening, as much as telling (e.g. Mayo, 1949). In discussing the approach of undertaking interviews with workers in the Hawthorne study for example:

> *"It is no doubt necessary to train young men and women to present their knowledge and ideas with lucidity. But, if they are to be administrators, it is far more necessary to train them to listen carefully to what others say."*

Developments in this line of thinking in the early MCS literature can be traced in the budgetary participation literature (see Shields and Shields, 1998, for example). In their

analysis of assumed reasons for budgetary participation given in the empirical literature list motivation as the most common purpose, and satisfaction as the third most common, with information sharing the second most popular. As with the work addressing creativity discussed briefly above, here again we find a large strand of literature that tends to conceptualise individuals and their values as given matters which present the MCS design challenge of how to select and direct these individuals towards a collective purpose.

This brings us to the final conceptualisation presented in Malmi and Brown (1998) whereby MCS might act to socialise individuals such that they take on organizational values. In support of this more complex relationship between individual and organisational values there is a large body of work showing the potential for MCS to change the culture (and values) of organizations (e.g. Dent, 1991). Such work has often shown a complex and troubling relationship between MCS and values (e.g. Covaleski et al, 1998; Kornberger et al, 2011) whereby the effects of MCS notionally espousing particular values (such as flexibility or gender balance, for example) act to effectively entrench the opposite. Considering the nature of how structures of accountability affect the subjectivity on individuals, writers such as Roberts (2001) argue that a risk of assuming individuals are self-contained packages of values that can be sorted and corralled through carefully designed MCS is that this approach misses the ways in which MCS designed around individuals can directly act to construct values and behaviours.

> *"These disciplinary effects individualize by creating a narcissistic pre-occupation with how the self and its activities will be seen and judged" Roberts (2001, p. 1553)*

The risk is that the "bad apples" were not necessarily "bad" when they entered the organization, rather the nature and execution of a notionally value-free MCS might have made them "bad". This structuring of individualising accountability (Roberts, 1991) through certain routines of measurement and discussion might act to actively engender the gaming behaviours performance measures often invite (e.g. Meyer and Gupta, 1994). There are quite shocking examples of this even in settings such as healthcare where one might expect that individual and professional values of care giving would inhibit such tendencies (e.g. Ramesh, 2013). The hope of contemporary theorisations of MCS is however is that a more active engagement with values might construct circumstances for the learning and motivation that are the other reason performance measures "run down" over time as initially divergent individual performances converge (Meyer and Gupta, 1994). But this time because performance and motivation has improved, not simply because the reporting of it has been subverted.

In this paper we study how performance measurement, individual values and organizational values come together in MCS through a field study of the development and operation of an MCS (here called Heartbeat). Heartbeat drew together various commonly used nursing performance metrics together with a daily scoring of the extent to which nurses felt that organizational values were actualised in their work. We analyse some of the ways in which both nurses and senior management this MCS as valuable. In doing so we focus on how the MCS design engaged individual and organizational values with the task characteristics and performance demands placed upon nurses.

Values and performance measurement in management control systems

Values form a key part in Simon's Levers of Control (LOC) framework (Simons, 1995). The framework offers a multi-layered and nested presentation of how to control business strategy identifying four key matters that need to be linked to the business strategy to support it: core values, risks to be avoided, critical performance variables, and strategic uncertainties. These matters are communicated and controlled through different levers of control. The Levers of Control framework has been subject to considerable debate and empirical elaboration in a methodologically diverse body of work (see Mundy (2010) and Widener (2007) for useful jumping off points). The breadth of this literature has simultaneously confirmed the relevance of the framework for theorising management control, but also highlighted the complexity of Simons' originating idea that the power of the control levers is not expected "to lie in how each is used alone but rather in how they complement each other when used together" (Simons 1995, 153).

The issue of values has proved a particularly challenging aspect of the framework to pin down in relation to the "inspirational and directing role of values via beliefs systems" (Simons, 1995, 38). Core values are supposed to convey information about how the organization creates value, the level of performance desired, and how individuals are expected to manage relationships both internally and externally (Simons, 1995, 34-36). A recent mobilisation of the framework supports the significance of the role of beliefs systems however. Heinicke et al. (2016) observe a significant positive relationship between firms with a flexible culture and their emphasis on belief systems.

This finding echoes findings seen in prior contingency work showing that where uncertainty is high then tight control of action is not a desirable (or feasible approach). Under such circumstances then MCS can usefully play a role as a facilitating structure for communication (e.g. Chapman, 1998; Chenhall and Morris, 1995). In Simon's framework, learning to develop appropriate responses is partly undertaken through interactive use of controls, but in the framework such creativity and flexibility is intended to be patterned by boundary and belief systems. The question remains however as to how and why flexible cultures and embedded belief systems might arise? The assumption that these might arise by force of contingent inevitability seems unduly optimistic in the light of the challenges to values in relation to management control activity so clearly to be seen in the extant literature.

Values versus measurement?

Studies drawing in the levers of control framework in the NGO literature offer a useful starting point for exploring how MCS can impact upon shared organizational values. NGO's present a sector where the starting assumption is that individuals in such organisations are particularly concerned with matters of value and mission over and above normal commercial agendas more commonly thought of in relation to MCS (Hall & O'Dwyer, 2018). The results of Chenhall et al (2010) highlight efforts at managing values through selection processes, and also discuss how beliefs systems potentially acted to help individuals come to terms with differences between their personal values and organizational ones. The study shows how active use of beliefs systems helps to manage and maintain employees' identification with core values of the organization, and thus develop strong bonding within organizations; yet such strong bonding can lead to an inward focus and inhibited openness to developing bridging with others.

The findings of the Chenhall et al. (2018) further develop this issue of values and organisational identification focusing on how a performance measurement system allowed

for expression of personal values and beliefs. The study finds that such an expressive role for PMS can generate higher levels of energy and motivation amongst organizational members. In particular, where a PMS can enable the expression of values and beliefs, the resulting energy and motivation can help with planning and review processes especially in settings where organizational members come together to discuss progress and action plans as part of organizational processes.

Taken together, these studies show the potential power of beliefs systems as part of MCS efforts to build identity and motivation. They raise some questions in relation to a more directed efforts to control day to day activity commonly associated with MCS activity however, and particularly in relation to more diagnostic use of controls. Chenhall et al. (2010) for example raise the possibility of diagnostic systems counterbalancing the effect of strong beliefs systems in inhibiting bridging activity, also suggesting diagnostic control might inhibit bonding. This sets the two up as potential counterpoints to each other. A challenge this presents in understanding beliefs and values as a part of MCS then is that it suggests something akin to the challenge of emergent versus directed strategy however (e.g. Mintzberg and Waters, 1984), whereby the values shape behaviour more than more direct control of behaviour through MCS.

It is very clear from the literature that PMS and MCS have powerful potential to change values through performance measures and more diagnostic approaches however. In particular there is a stream of studies exploring the introduction of MCS approaches into settings that were previously controlled by different professional groups. Dent (1990), for example studies the move from an engineering to a business culture, tracing the way in which newly introduced measures and control systems played a central role in the displacement of one set of values and ways of approaching the task of running a railway with a very different one. Other studies that follow such developments in other settings include Llewellyn (1998), Kurunmaki (1999), and Oakes et al. (1998). A theme in all of these papers is the detailed study of the ways in which changes in the make up of MCS (the things that are measured, and how they are measured) acts to change what is seen as organizationally valued. These studies trace the cascades into changes in behaviour, either in the form of programmes of resistance or compliance with the new values embodied in the MCS.

These studies speak to the powerful effects of the visibilities afforded by MCS on the subjectivities of individuals (e.g. Roberts, 2001). The challenge from a control perspective is that performance measurement can easily come to eclipse managerial agendas for change, narrowing the field of vision of the controlled down to the specification of the systems of measurement. What might begin as something notionally part of a management control exercise risks to take on a life of its own as the metrics spawn action that complies with the letter but not the spirit of the metric. This is a part of the reason why contemporary theorisations of MCS point to the need for clear guidance on intention and value beyond the metric.

Studies of MCS and their confrontation with statements of espoused values (e.g. Covaleski et al, 1998; Kornberger et al, 2011) raise doubts over the potential of simple statements of values to counterbalance the effects of explicit performance measurement and target setting however. The elements of MCS comprising explicit performance measurement offer the individual an impression of themselves that is driven by changes outside of themselves, that impacts on how they feel within themselves and so drives them to take actions in anticipation of their representation in the measurement system.

In the setting of NGO's where the starting point is that values are an important part of why everyone is involved, values remain strong. But in less value laden settings, the immediate and pressing nature of performance measurement systems presents a challenge for many statements of corporate values. Absent a strong personal and or field level sense of meaning, statements of values risk to appear as unarguable ideals, promoting an easy (almost unthinking) acceptance of values principle that is not nearly strong enough to withstand the pressure of performance measurements to shape how things are considered and acted upon. The values statement of Enron, for example, famously included "respect, integrity and excellence" (Kunen, 2002). The question then becomes how to make values matters of daily practical concern that actively shape day to day activity.

Values as daily practical activity

Aristotle and his discussion of the ethical principles and how the governance of communities might be arranged to encourage individuals to lead good lives offer a number of interlinked ways to consider the MCS challenges set out above. The first of these is his strong insistence on the importance of understanding virtue as ultimately a matter of action:

> *"It is well said, then, that it is by doing just acts that the just man is produced, and by doing temperate acts the temperate man;" (Aristotles, NE, Book 2, 4)*

However in decrying those approaching ethics as matters for abstract analysis he advocated strongly for the importance of deliberation. In particular the need for deliberation arises from his analysis of the challenge of virtue as finding a course of action that avoided excess but also deficiency of virtue. For example, a desired virtue such as courage requires analysis of what might constitute its excess (i.e. rashness) as well as its deficiency (i.e. cowardice).

> *"That moral virtue is a mean, then, and in what sense it is so, and that it is a mean between two vices, the one involving excess, the other deficiency, and that it is such because its character is to aim at what is intermediate in passions and in actions, has been sufficiently stated. Hence also it is no easy task to be good. For in everything it is no easy task to find the middle, e.g. to find the middle of a circle is not for every one but for him who knows; so, too, any one can get angry- that is easy- or give or spend money; but to do this to the right person, to the right extent, at the right time, with the right motive, and in the right way, that is not for every one, nor is it easy; wherefore goodness is both rare and laudable and noble. "(Aristotle, NE, Book 2, 9)*

Such deliberations are not matters for simply individuals to undertake in isolation, in his ethics Aristotle also problematizes how ethics are embedded in collective life. Human beings follow a purpose (telos), which is ultimately to be happy, requiring them to live a life of virtue. The telos is the link between ethics and collective life. Individuals can only be virtuous under the right conditions. One of the most important conditions is a well-constructed political community. The community brings about virtue through education and through laws that prescribe certain actions and prohibit others. A central question then becomes how we can conceive the community that will develop virtue in the citizens to the greatest possible extent "(Aristotle, NE, Book 3, 3)

The community is defined by Aristotle as polis. Concerning the relationships of the citizens, Aristotle emphasizes that polis is built on partnerships. The polis is not characterized by a group that holds power and controls, but the citizens of a political community are partners, and as with any other partnership they pursue a common good.

" for we stated the end of political science to be the best end, and political science spends most of its pains on making the citizens to be of a certain character, viz. good and capable of noble acts " (Aristotle, NE, Book 1, 9)

Further the community requires specific laws. Law-makers have the responsibility to create laws that support individuals to carry out virtuous actions:

" for legislators make the citizens good by forming habits in them, and this is the wish of every legislator, and those who do not effect it miss their mark, and it is in this that a good constitution differs from a bad one" Aristotle, NE, Book 2,1)

Finally Aristotle discusses how deliberation and decision-making takes place. Citizens need to discuss the advantageous and the harmful, the good and bad, and the just and unjust. On this deliberative process laws are passed and judicial decisions are reached. This process requires that each citizen considers the various possible courses of action on their merits and discusses these options with his fellow citizens. By doing so the citizen is engaging in reason and speech and is therefore fulfilling his telos, engaged in the process that enables him to achieve the virtuous and happy life.

In his LOC framework, Simons (1995) identifies interactive style of use as an important way for senior managers to resolve strategic uncertainties through face to face interactions in which the different perspectives of senior and operational managers are brought together in a non-invasive way to challenge and debate assumptions and plans (Bisbe et al. 2007). This framing on the location of interactivity and debate has powerfully framed our analysis of such matters in an MCS context, answering as it does the question framed by contingency work of how accounting might contribute to effective management under conditions of high uncertainty.

The vision of collective ethical deliberation and action set out by Aristotle challenges us to reconsider the need for interaction and deliberation in an MCS context in more routine situations however. The role of diagnostic use of controls has typically stood in for a framing of accounting more akin to reliance on accounting performance measures built on an assumption of a relative completeness of performance measures (e.g.). Yet patterns of communication and deliberation matter in such circumstances also since the lesson of the performance paradox (Meyer and Gupta, 1995) is that whilst they might be more or less complete, performance measures can generate good and bad behaviour. A promising start in addressing this is made in Mundy (2010), whose detailed field analysis touched upon ways in which conversations in diagnostic situations also drew on beliefs systems to arrive at appropriate outcomes. In this paper we seek to pursue this start through the analysis of an innovative performance measurement system that specifically sought to make values a matter of daily deliberation in MCS practice.

Research site and method

The research objective of this study was investigated with a field study (Ahrens & Chapman, 2006) in a hospital called here as Sairaala. Despite its small size, with about 200 staff members and 3000 operations per year, Sairaala is one of the leading focus hospitals in Europe to specialize exclusively in certain type of operations. Sairaala serves inhabitants in its own hospital district, provides a national referral service, and also treats patients from abroad. The hospital's three main functions are patient care, teaching and research (see Figure 1 for the organization chart).

[Place Figure 1 about here]

About 10 per cent of the personnel are doctors, about 70 per cent caring staff (nurses, physiotherapists, ward secretaries and instrument maintenance staff) and the remaining administration and others. The following activities are outsourced: laboratory, x-rays, catering, cleaning, building maintenance, equipment maintenance, accounting, payroll, etc.

Since its establishment Sairaala has been a growth company – overall, the number of operations per year has doubled, the number of staff has trebled and its annual turnover has increased over two and half times (Documents P2, P13). Sairaala's has a philosophy of continuous improvement of operation. It received, and has renewed, ISO 9001:2000 quality standard. Sairaala has been designed around care pathways with particular attention being paid to work process systematization that allows patients to flow smoothly through the system. Methods such as Lean method and Kaizen have been used to boost continuous improvement of operations. The hospital monitors significant key processes, financial and increasingly non-financial measures.

Sairaala was founded as a limited company owned by diverse public and private interests. Limited company form was selected as it was thought to enable a business-oriented approach to running and financing the hospital, streamlining processes, quick decision making, reward systems encouraging productivity, and participation of shareholders and partners in the decision-making.

Decisions upon the business strategy, mission, and values of the hospital were all made at the same time in the beginning of the new hospital. The purpose of the new hospital was to concentrate all operations in the district into this one place where each surgeon is expected to carry out about 200 surgical operations per year. The initial goal that still exists was to achieve significant economic and qualitative advantages, i.e., to provide cost efficient operations of high quality and high patient safety. High quality is the number one goal, and it has been found to result in cost-effectiveness and profitability. Consequently, Sairaala has been a high-performing hospital both clinically and financially.

The field research was conducted from November 2011 to February 2016, which allowed the authors to be closely engaged with the hospital for over four years. Three primary sources of data collection were used during fieldwork to refine and strengthen empirical results: documentary evidence, observations during five meetings and interviews, and formal interviews. Some additional evidence was collected during contacts after interviews and meetings, during lunch breaks, and via over one hundred e-mails. A comprehensive listing of documentary evidence and field engagements can be found in Appendix 1.

The interviews were conducted by one to three interviewers primarily in English. Almost all interviews were recorded and subsequently fully transcribed verbatim to facilitate their detailed analysis. As we worked back and forth between empirical data collection, theory and research questions, the research followed an iterative process consistent with our interpretive approach to research (Ahrens & Chapman, 2006; Kihn & Ihantola, 2015).

An iterative interpretive thematic coding process was adopted, partly using software, partly less formal. In the very beginning data collection and analysis was more general but begun to quickly focus on the role of values and control. Initial field material was analysed according to emerging themes related with the initiation, development and use of performance measurement systems. Subsequent to this analysis, more refined research questions emerged,

and additional interviews were carried out and e-mails sent out to check and/or supplement evidence in the light of these. This process continued iteratively until in the final coding process the data was analysed according to how organizational values are taken into account in a) initiating and developing a new performance measurement system, and b) in the control of nursing activity. After receiving similar responses to this question from interviewees, observations and documents, we felt that we had reached the point of theoretical saturation (Glaser and Straus, 1967) whereby the judgement was made that answers regarding our particular research questions were unlikely to materially change, and hence we stopped conducting additional interviews.

Values and Management Control in Sairaala

Measuring the Organization's Heartbeat

Values played a key role in the development of management control systems in Sairaala from its very beginning. While high quality, efficient and secure operations were perceived to be essential goals, hospital values were equally understood to play an important role in how those goals are aimed at. Table 1 shows a statement of organizational values dating from the origin of the organisation, and adds indicative actions felt to usefully reflect these. The additional listing of work related actions shows a direct attempt to bridge the high level aspirational values with concrete examples that might inform day-to-day action. This prompts more detailed thought about what is meant seeking to avoid easy agreement that values are shared and supported, risking that they in practice drop into the background to be overshadowed by more prominently pressing matters arising from performance measurement systems. This table was framed and placed on the wall of the wards from a couple of years after the hospital was founded. In this way, Sairaala showed an interest in the belief systems as a way to promote and direct the role of values in day-to-day action right from its earliest days.

[Place Table 1 about here]

The development of the HEARTBEAT MCS begins with the arrival of a new managing director in 2009 however. Previous managing directors had been clinicians. In contrast this new director was the first one having no clinical background but coming from industry and more precisely the production sector. In addition to an engineering degree, this director held a MBA from an international business school and had acquired experience in process management in his former company. When starting at Sairaala he was keen to introduce some of the ideas he had gained in his past work. An important aspect for him was to introduce process measures at operational levels that would enable operational staff to continuously improve processes. Recognizing that there were few operational departmental-level measures besides measuring throughput of patients, he met with operational staff, including in particular nurses and clinicians, to explain them his vision of process management and specific operational measures.

> *"I can say I was the initiator of the [HEARTBEAT] ... Because I came from the industry ... it's quite typical [that] every morning I look at … all the results from the last day: quality, productivity, personnel, everything. You look at it every morning how you did yesterday, what issues arise and so on." (Director 1)*

While Director 1 initiated the development of the new departmental-level performance measures, Director 3 led the development of operational process measures for nursing activity in collaboration with five departmental head nurses. Director 3 clarified HEARTBEAT's role as part of quality policy as follows:

> *"It is part of our quality policy. .. We've had ISO 9000 since 2005, and that entails creating measures, and this makes it stronger. It's a set of measures by which we can demonstrate our quality."*

Discussing the issue, the senior nurses created a new performance measurement system to support quality management. One of the key insights was to understand that the well-being of employees is important in the healthcare delivery process and should be followed up on a daily basis. The nurses also came up with the name of the control system, which we here refer to HEARTBEAT symbolizing measuring the wellbeing of employees.

In addition to using two to three more traditional departmental specific non-financial measures (such as the number of patients per nurse per shift), the senior nurses agreed on using certain soft performance measures captured by getting nurses to make a daily scoring of actualisation of hospital values, patient safety and perceived work load.[1]

> *The measurement of soft experiences in addition to hard action figures and comparing them with each other, brings our joint values as part of weekday life and shows the employees that management is committed to, and appreciates, them. (HEARTBEAT Brochure)*

Figure 2 shows the format of the form used to capture this data. It has one column for each day of the month to capture the traffic light scoring of each individual nurse in the rows. The form was kept in a communal staff area and so the reports of each nurse were visible to each other.

[Place figure 2 about here]

In terms of Aristotle's ethics, measuring the heartbeat is making sure that the members of the organization act in a virtuous way by sticking to the values of the organization. Not only hard performance outcomes, but also the way how actions are carried out matter to this hospital. This can be seen in the reporting on actualisation of values whereby Green was a report by the nurse that in her work this had been "OK"; Yellow that there had been "small deficiencies in the actualisation of values" and Red that "values didn't actualise at all". For patient safety there was no Yellow category, only Green and Red. In terms of workload Yellow and Red related to the degree of departure from manageable, noteably both in terms of whether workload was too light as well as too heavy. Where a Yellow or Red scoring was given it was also required to give a brief explanation. The departmental head nurses or a quality person then entered a daily reporting of HEARTBEAT measures and explanations per employee in an information system. This allowed departmental head nurses to follow real-time daily performance measurements as well as weekly and monthly trends. The system produced reports such as can be seen in Figure 3.

[1] While safety is also included in hospital values, patient safety was perceived to be so important that it is also followed on its own.

[Place figure 3 about here]

This was fairly quickly established as the core of HEARTBEAT. Adoption of the system quickly spread across the nursing departments, and there were occasional additions made to this core as specific departmental head nurses started to develop hard measures of their own with their staff at their own department. Table 2 shows an overview of the development timeline and milestones for HEARTBEAT.

[Insert table 2 about here]

From measurement to management control

The idea was that HEARTBEAT would be the basis for detecting dysfunctionalities and issues in the organization. As nurse 1 explains, if she felt satisfied with her working day she would mark it green:

> *"Ok, in the ward we have colours like green, yellow and red. And it's my own feeling how I feel the day has been, if it's been normal and I've had time to do everything that I needed to do, and I feel that had time to do it, then its green. (Nurse 3)*

In contrast, if she encountered problems that would impact her work in a negative way she would mark it yellow or red:

> *"And if there is something that hasn't gone the way it should have been done then it's yellow. And if there's a lot of rush and a lot of different examinations or something that I have to do some extra with the patients. Or the patient is dis-coordinated or something like that so that makes me spend more time with the patient, then the day might be red. (Nurse 3)*

In this way, HEARTBEAT can indicate that there is a problem. It could be any kind, for example, logistical problem with a patient waiting for stretcher carriers, or a problem with a co-worker being on a sick leave or technology not working. Some other explanations could be, for example, that there were delays at reception desk or with laboratory tests, x-rays or weekly schedules; error in patient information; all the hospital values were not met; or the workload was too heavy (or light) due to too few (many) nurses.

The question of whether or not the organizational values are actualized in day-to-day healthcare seems essential for nurses based on the interviews and is reinforced in the hospital brochure distributed to visitors. A core issue identified above relating to MCS however is the extent to which values are organizational versus individual in nature. At a simple level, a range of departmental based rules and codifications around the HEARTBEAT arose over time. One of these can be seen in Table 3, for example

[Insert Table 3 around here]

The scoring is not the key issue in the HEARTBEAT system however. Whenever a nurse classifies the day as yellow or red and provides a brief explanation of the reasons in the background, departmental head nurses would then attempt to discuss the issue and solve the problem either straight away or in meetings. This was explained as follows:

If there are some other colours [than green], this is alarm for me [that] I have to do something. (Nurse 2)

Sometimes it [HEARTBEAT] might show that there's too many nurses in some shift. Then we can change them into another shift. And then when she (the head nurse) makes our work sheets she changes it. ... Sometimes we need to recruit more but first we look at ...[if we can] shift between [our existing nurses]. ... Lately, there hasn't been too many [nurses] in any shift so mostly it has been that we need to recruit more [nurses]." (Nurse 1)

Trends of measurements are followed and discussed in several meetings such as in weekly and monthly departmental meetings, in departmental head nurses' weekly morning meetings, and in quarterly staff meetings. When nursing director participates the departmental meetings once a month, then the whole period - a week, a month and a three-month period - are looked at as a trend and whether some things come up that should be developed. Specific periods through different years can also be compared.

The focus of attention would be on deviations (i.e., on yellow and red days and whether there are yellow or red trends). Discussions in meetings traces the reasons why nurses had marked them with this colour. The supplementary information would be the basis for tracing the reasons and understanding the issues that had led to marking the day yellow and red.

Thanks to HEARBEAT all kinds of issues that impacted the subjective work experience of the nurses, were picked up. This treatment of subjective experiences then gave nurses the impression that senior staff and management listened to them:

"I think it's not often that I have red days… but if I do I feel that they are being discussed and taken care of." (Nurse 3)

Connecting personal and organizational experience

While deviations in hospital values are not common (i.e. someone reporting that values were not actualized in their work), deviations in too high workload tend to show quickly during rush peaks and may associate with a deviation in the actualisation of values. It is typically the discussions on too high work load that also lead to discussions on whether there was enough time to take care of all the hospital values including individuality and safety despite the rush. Although attempts are made to distribute work in an even way, daily fluctuations exist among nurses. The nurses explained their workload as follows:

If we operate... 15 patients [today] and... 8 patients [tomorrow], it´s [a] very different thing and that´s the reason... why... we['ll] have different amount [of] patients … [also in physiotherapy] after two or three months from the operation. (Nurse 2)

Someday people... might be more in pain and you need to give them more pain medicine which means you might have a lot more work to do. (Nurse 3)

If there are… 3 emergency patients that come during the night and we cannot get one more nurse to come here at 7 o'clock in the morning... we have to divide those patients with ...[the] nurses that we already have. (Nurse 3)

Nurse 3 further explained the effects of workload issues on HEARTBEAT and values as follows:

"That how we feel about every day, we can *always say we feel that it's so busy, it's busy all the time. But if there is nothing we can prove it with then … it feels that we just say it… sometimes I think people might say that it's busy all the time even though they have easier days between there. So now we can prove it that these exact days or shifts are busy." (Nurse 3)*

In doing so, while following standards and targets, HEARTBEAT was found to aid in taking responsibility and care. HEARTBEAT allowed the nurses to make their perceptions of their workload and other issues an object of discussion with management, so that the feelings could be taken into account. One of the senior nurses explains this as follows:

"[…] maybe somebody, has not been [a] fair play[er]. For example, you have very much work and ...[she] does not have anything, so that's not fair. It's very hard to say [it] but now you can colour [red] in there and that you have six patients and that .. [she] only has two patients. … Previously, it was not so easy ... to tell somebody that I have always very much work. It's not easy ... Things have changed and now [the] atmosphere is open minded. … Before you would have have to think that can I say this. But now that she [the nursing director] has given people permission to bring up these things on a daily basis ... they know they can say something about [it]." (SC5)

The nurses also saw that issues raised around HEATBEAT can change their work and should continue doing so:

"Yes, it's important they [staff] feel that they impact things. So it's important if they see something is not going to the right direction we [change] it and people see it is important to them." (Senior nurse)

" Once we started doing it and noticed that it was a tool for implementing changes and that it was monitored, it started feeding off itself." (Director 3)

When soft HEARTBEAT measurements were compared to usual staff/patient ratios, subjective experiences about the amount of work was found to correlate with them. However, when assessing and comparing hard and soft departmental level measures, HEARTBEAT captured various issues and concerns about dysfunctionalities of the operational processes. Further it captured the workload and the linked feeling of having too much or too little work, hence contributing to the analysis of optimal level of nurses and change management. Measurement and evaluation of the past day was also thought to develop and expand personnel's professionalism, analysis and planning of work and critical evaluation of one's own work. It was considered to demonstrate management's commitment to the hospital values and that management values personnel.

By linking a reflection on values to concrete situations, Heartbeat makes values operational. The feeling of being too busy can be reflected more in detail, was it linked to more patients being present as usual, or a specific patient demanding more attention or lacking staff. Reflecting on the causes of a feeling, such as feeling too busy, then enables to understand what is the right action in this context, and therefore to find the right position on the spectrum between extremes, to find the middle way.

Connecting personal and organizational values

According to the nurses interviewed, there is a high degree of agreement on organisational values which are perceived to reflect nurses' individual and professional values, too. Nevertheless, the nursing director always defines organizational values to a new nurse during initiation. Organizational values, their meanings, and implications are also jointly reviewed and opened-up by nurses at least twice a year, and whenever need be. HEARTBEAT Encourages nurses to think about the values again, to act in line with them, and to keep it in mind why and how they work at the hospital. This matter of "how" was captured in the idea of departmental rules of game that are based on the values are communicated to new employees during initiation, i.e., how they are expected to act and behave.

> *"We are at a hospital here and the work needs to be very standardized. I can say that having (organizational values) gives a great deal of stamina in our work and makes it more standardized when there are 200 actors" (Nurse 2).*

The values and associated behaviours set out in Table 1 are expected all the time. As it is so usual to follow the values and the rules of game, divergent behaviour gets quickly noticed and intervened upon.

> *"We have [hospital values] in the background of our rules of game... It would be more difficult to sketch and create [our] joint rules of game, if these values were not there." (Nurse 2)*

The hospital values are taken seriously as Director 3 explains:

> *"We have had some workers, for example, nurses that they may be very good nurses, professional and they [do good] work but they don't ... respect our goals. And [if] they don't act so, ... we don't continue their contracts" (Director 3)*

Values hence play an essential role in how employees meet challenge of their jobs and how it is ultimately regarded as an organizational issue. The process of actualising organizational values in patient care is also viewed to enhance economic value via faster recovery times and personnel and patient satisfaction, which lead to lower costs of patient care.

> *"If [our values] were not [fine], I would claim that our patient feedback would be worse than what it is now. Last year, for example, 96% of the patients indicated that they would recommend this hospital to their best friend." (Nurse 2)*

The overall impact of HEARTBEAT was summarized in a brochure that was distributed to patients and visitors of the hospital:

"The HEARTBEAT has a positive effect on the organizational culture: the employees feel that they are using HEARTBEAT for their well-being and that the measurements are an important way to develop the work community. The information provided by the HEARTBEAT, and the continuous improvement based on it affects directly the quality of each patient's care and experiences of the care period. Sairaala's HEARTBEAT can be applied to any kind of organizations. Its effective implementation requires an organization to have a well-developed, open and safe organizational culture. We believe that the HEARTBEAT strengthens our work climate and attraction as a place of work as the competition of skilled labour is stepping up. (Extract from the official HEARTBEAT brochure)."

If an organization wants its members to carry out actions in a certain way it needs to implement the formal structures to allow the individual members to draw on these rules or structures in their day-to day working life. Ethics code or corporate philosophy may be too far away from action. A control tool such as HEARBEAT allows to connect organizational values with concrete day-to day actions. An important aspect is that organizational members nurses in collaboration with management deliberate on the values, the control tool and its outcomes.

Discussion

In the analysis presented above we describe the development and operation of an innovative MCS whose central feature revolved around a daily traffic light scoring of how nurses felt organizational values were actualised in their work. The HEARTBEAT system collected this data in a way that was visible to all nurses entering the data, and it was collated and reported upon in reports and discussed in regular and ad hoc meetings. The development and operation of the system offer a number of points for reflection in relation to the two main dilemmas outlined in the introduction relating to the disentangling of individual and organizational values and the risk of quantified performance demands crowding out (or even subverting) values.

Healthcare is a setting that as with NGO's attracts individuals we might expect to identify strongly with a set of core values that are reinforced in professional training. The organizational values of Sairaala were agreed upon very early in the life of the organization, predating both the management team and the HEARTBEAT system. Two notable aspects of the approach to rendering values part of day to day activity in the reporting arrangements are the development and discussion of how values in the abstract (which might be in principle shared by any nurse) might be understood as organizationally appropriate actions. As such the HEARTBEAT system played an important role in socialising nurses to work together, with a degree of standardized approach to smooth the nature of their interactions. In the field material we found examples of the nature of HEARTBEAT as a formal system empowered nurses to express their opinions and point out issues of concern. This extended beyond their interactions with each other into conversations with management about staffing levels.

In tracing the various conversations and concerns that become incorporated into the HEARTBEAT system therefore we observed not just the bringing of formally stated organizational values into the foreground, but that these sparked a wide range of conversations between different actors deliberating what was the right way to respond to the various metrics, emerging circumstances, and the shared values. In this sense we think it is appropriate to say the values forming part of the MCS were organizational in nature. The

nature of the system as requiring a juxtaposition between reported metrics and values seems to have acted to prevent them falling into the background, but also to have allowed enough flexibility of individual expression and deliberation that the formal reporting of value actualization did not appear to have engendered gaming behaviour of its own.

Whilst we did not observe gaming behaviour, this is not to deny the possibility. Consistent with an interest in values as practical matters, it is important to recognise the complex and effortful nature of a perceived order. It is also worth considering a little how the nature of nurses' work might play an important role in this such that the approach might offer less value in other situations. Certainly in Sairaala itself, whilst the suggestion was made, the doctors were not interested in adopting HEARTBEAT for themselves. In considering this it is worth noting that the degree of interdependence upon each other to deal with a potentially rapidly changing task in terms of both the number and the nature of patients, as well as staffing levels was far higher and more variable on a daily basis than for doctors. It is also worth noting that the nature of hierarchies in hospitals typically place doctors in more privileged situations.

Conclusions

In this study we sought to explore in detail the role of values in MCS. We did so to better understand how an active mobilisation of organizational values could become a way to arrive at appropriate responses to performance standards in MCS. We did so through analysis of a field study of a successful profit-making hospital provided empirical evidence of how organizational values can be made more "visible" by measuring them and making them part of a management control system. Through measurement, evaluation and discussions around the HEARTBEAT management control system organizational values are linked to activities (i.e., what is behind a red, yellow or green day) and they thus become more concrete as matters of practical concern. In doing so, the discussion of values served to draw on individual values but direct them in relation to an organisational agenda.

In drawing some wider conclusions in relation to the role of values in MCS we think the case also casts an light on the role of senior management responsiblity as well as authority in relation to the nature of organizational culture and the nature of the MCS which they oversee. Simon's in his discussion describes a role for both strategic and ethical values in his conversation around belief and boundary systems. In relation to strategy it is generally accepted that strategy is a managerial preserve. The idea of managerial selection of ethical values however seems more problematic. Drawing particularly upon Aristotle and his concept of virtue occupying a situation of moderation between extremes, we hope this field study offers some insights into the responsibility of management to avoid encouraging extreme behaviour. In relation to this task, the risk of quantified performance metrics is that they can all to easily lead to "maximising" behaviour. Our study shows one way in which a more explicit and frequent reference between quantified metrics and statements of values might act to bring resulting action more onto the path of moderation than extremity.

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FIGURE 1 – Sairaala organization chart

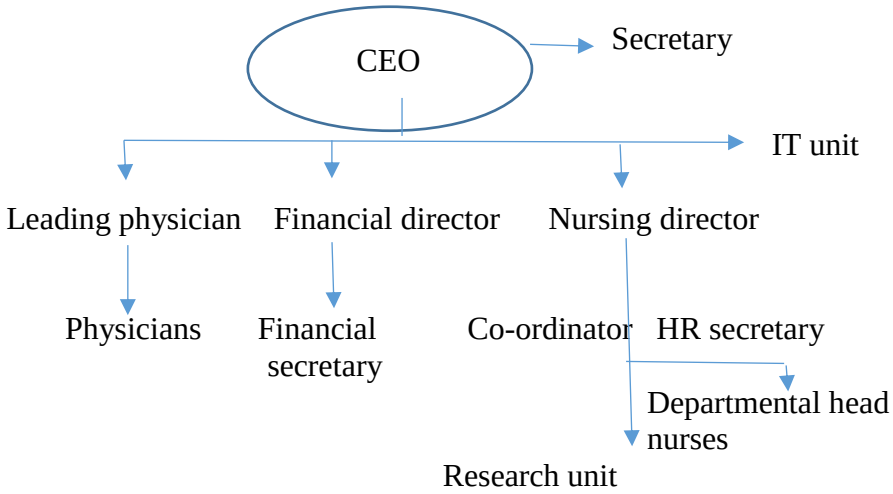


FIGURE 2 – A values scoring form

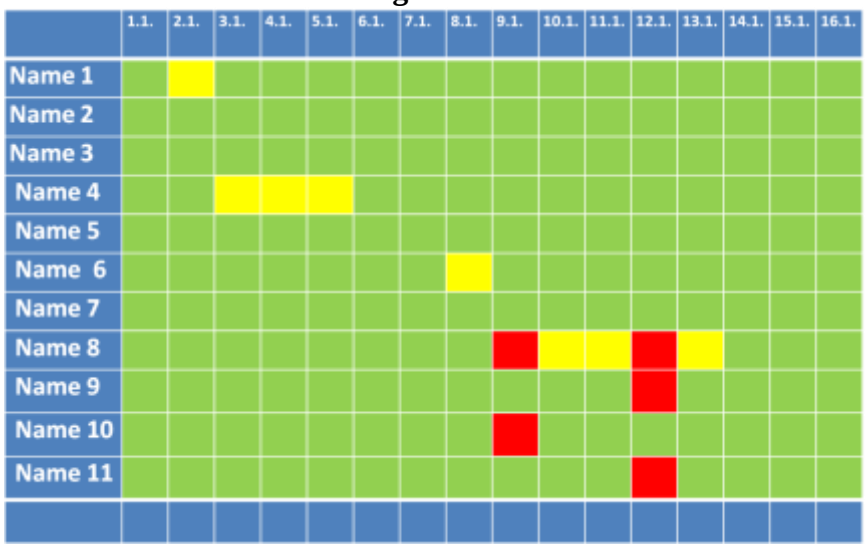
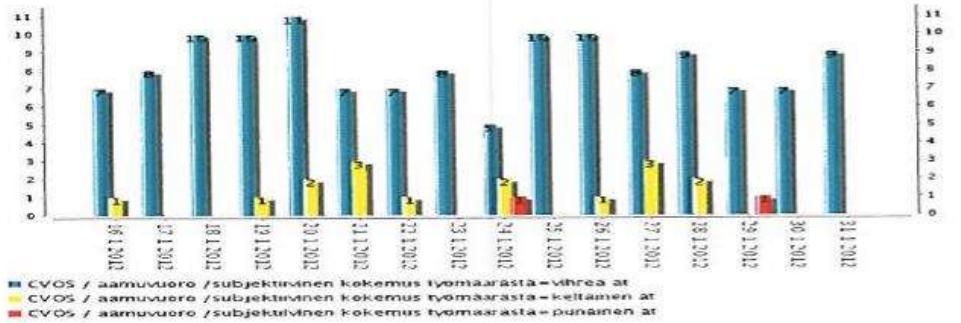


FIGURE 3 – Reporting HEARTBEAT data



AAMU	Arvioita /kpl	% osuus	ILTA	Arvioita /kpl	% osuus	YÖ	arvioita/kpl	% osuus
vihreä	231	93,9%	vihreä	114	89,8%	vihreä	75	94,8%
keltainen	12	4,9%	keltainen	8	6,3%	keltainen	4	5,1%
punainen	3	1,2%	punainen	5	3,9 %	punainen	0	0%

TABLE 1 – Hospital values as framed on placed on the wall in wards

Sincerity/honesty
- I share information
- I give, welcome and ask for feedback
- I bravely ask for and receive help
- I take responsibility for the organizational climate

Freedom of prejudice
- I take up an unprejudiced attitude towards reforms
- I am flexible
- I am creative and innovative
- I adopt an unprejudiced attitude towards the ideas, skills and craftsmanship of new employees

Respectful
- I commit myself to the joint decisions
- I respect others' craftsmanship
- I remember that the work is distributed in an even and fair way
- I respect others' opinions and accept diversity
- I remember good and kind manners

Safety
- I take care of the work environment being safe to patients and staff
- I take care of the work environment being clean
- I remember that safety originates from following the values and principles that have been agreed upon
- I recognize my own professional limits

Inidividuality
- I use my skills extensively
- I dare to be myself

TABLE 2 – Heartbeat development timeline

TIME	ACTIONS AND EVENTS
2005	The hospital received ISO 9001 quality standard.
2009	The new CEO initiated the development of new operational measures for quality control and process management, and the continuous development of nursing processes -project begun.
	One of the directors begun to develop HEARTBEAT with departmental head nurses.
	Thereafter, the departmental head nurses started to develop hard measures of their own for the HEARTBEAT with their staff at their own department.
Nov. 2009	Sterilisation department begun the use of HEARTBEAT. (Two measures were added later on a temporary basis)
Feb., 2010 begun	Physiotherapy unit, Medical secretaries, Surgical ward and Recovery room the use of HEARTBEAT. (No changes thereafter)
Feb.15, 2010	Ward begun the use of HEARTBEAT (values and rules of game, subjective perception of the workload, number of patients per nurse, work load %)
March 1,2010	Reception begun the use of HEARTBEAT (values and rules of game, subjective perception of the work load, number of patients)
March 1, 2010	Waiting line nurses (values and rules of game, subjective perception of the workload, deviation of resources from planned, sudden cancellations, sudden cancellation %, filling % of sudden cancellations, other cancellations). (No changes thereafter)
April 2010	Outpatient department begun the use of HEARTBEAT (first with individual, later with departmental tables)
2011	ISO 9001 quality standard is renewed 2nd time. Continuous improvement of operations continues according to lean model.
May 2011	Operating theatres begun to use HEARTBEAT
Jun. 1, 2013 from patients with	Ward added new HEATBEAT measures (the number of patients transferred recovery room to ward during the day of operation, D patients and infections)
Aug. 1, 2013	Reception added new HEARTBEAT measures (the input of anesthetic nurses at the reception desk, number of patients from the university hospital)

TABLE 3 – Codifying HEARTBEAT scoring at the Outpatient department

Soft measures:	*Green*	*Yellow*	*Red*
• *Resources:Deviations from plans*	as planned	a deficit of one nurse; the resource is away from appointments	a deficit of two or more nurses; resources away from appointments
• *Reception desk Operations*	resources and schedules fine	behind schedules, type of reception changes	schedules behind because of patients or processes
• *Patient document Preparation*	Case records, x-rays and laboratory tests are available	Missing case records, x-rays and laboratory tests	Preparations for receving a patient are unfinished in the morning
• *Patient safety*	no disturbances	a close-by-situation	error in patient information, violence or disturbance
• *Values/feelings*	all fine	something not normal	disturbances at reception desks or something else not normal

APPENDIX 1 – Documentary Evidence, Observation and Interview Details

Documentary Evidence

Source of Document	Document Number	Document	Length in Pages
Public:	P1	Hospital web-site	
	P2	2004 Financial Statements and Audit Report	22
	P3	2005 Financial Statements and Audit Report	23
	P4	2006 Financial Statements and Audit Report	29
	P5	2007 Financial Statements and Audit Report	30
	P6	2008 Financial Statements and Audit Report	23
	P7	2009 Financial Statements and Audit Report	26
	P8	2010 Financial Statements and Audit Report	26
	P9	2011 Financial Statements and Audit Report	23
	P10	2012 Financial Statements and Audit Report	28
	P11	2013 Financial Statements and Audit Report	23
	P12	2014 Financial Statements and Audit Report	22
	P13	2014 Annual Report	12
	P14	The Principles and Goals of the Hospital District for Year 2013	7
	P15	Hippocratic Oath (https://en.wikipedia.org/wiki/Hippocratic_Oath)	8
	P16	Code of Medical Ethics By the Finnish Medical Association (https://www.laakariliitto.fi/en/	2
Hospital	H1	Responsibilities and Authorities	4
	H2	Organization Chart	1
	H3	Process Diagram of Invoicing	2
	H4	Hospital History by the CEO	4
	H5	PowerPoint Presentation of the hospital	8
	H6	PowerPoint Presentation for the Board of Directors Meeting Dec. 2011	20
	H7	Excel Sheet for the Board of Directors Meeting Nov. 2011	4
	H8	PowerPoint Presentation about Learning Lean Organization by the Nursing Director September 5th 2012	32
	H9	Hospital Mission, Values, Focus, Trends, and Vision	1
	H10	Hospital Values and Joint Rules of Game (October 17th 2011)	1
	H11	Hospital 'Heartbeat' Brochure	4
	H12	Patient Feedback Summary January 2013	5
	H13	Patient Feedback Summary February 2013	5
	H14	Patient Feedback summary March 2013	6
Departmental	D1	A Summary of Departmental 'Heartbeats' by Departmental Head Nurses	2
	D2	PowerPoint Presentation of the Ward's 'Heartbeat' in July-Sept. 2013	7

	D3	Memo of the Meeting of the Outpatient Department November 4th 2013	2
	D4	Perceived Actualization of Hospital Values Form of Physiotherapy	1
	D5	'Heartbeat' Form of Physiotherapy	3
	D6	Perceived Work Load Form of Physiotherapy	1
	D7	Patient Safety Form of Physiotherapy	1
	D8	Number of Patients Form of Physiotherapy	1
	D9	'Heartbeat' Form of Outpatient Department	1
	D10	Filled out 'Heartbeat' Form of Outpatient Department	1
	D11	'Heartbeat' Form of Recovery Room	1
	D12	Ward's 'Heartbeat' Form	1
	D13	'Heartbeat' Form of Instrument Maintenance Department	1
	D14	Additional soft non-financial control measures of the Outpatient Department	1
	Total:	44 documents	>425 pages

Observation Details

Date and Duration	**Name of Meeting**	**Number of Participants**
13.12.2011 (73 min)	Leadership group meeting	9 people
19.12.2011 (72 min)	Board of director's meeting	9 people
7.3.2012 (30 min)	Physicians' weekly morning meeting	ca. 10 people
22.5.2012 (118 min)	Head nurses' weekly morning meeting	4 people
24.5.2012 (75 min)	Departmental secretaries' meeting	11 people

Formal Key Interview Details

Dates	**Length of Interviews in Total**	**Interviewees' Job Titles**	**Group**
17.11.2011	150 min	Directors 1 and 2	Directors
7.3.2012	37 min	Senior physician 1	Physicians
8.8.2012 28.8.2012	205 min	Former Director 1	Directors
27.8.2012 31.8.2012 4.12.2013 18.12.2015	225 min	Director 1	Directors
27.8.2012 28.8.2012	114 min	Former Director 2	Directors
27.8.2012 28.8.2012 29.8.2012 3.12.2013	281 min	Director 2	Directors

18.12.2015			
27.8.2012	69 min	Senior physician 2	Physicians
27.8.2012 16.12.2015	91 min	Senior physician 3	Physicians
28.8.2012 30.8.2012 4.12.2013 25.2.2014 23.9.2015	196 min	Director 3 (Nursing)	Nurses
29.8.2012	53 min	Nurse 1	Nurses
29.8.2012 4.12.2013 4.2.2016	127 min	Nurse 2	Nurses
30.8.2012	75 min	Manager 1	Directors
30.8.2012 4.12.2013 4.2.2016	120 min	Nurse 3	Nurses
31.8.2012 17.12.2015	115 min[1]	Senior physician 4	Physicians
31.8.2012	11 min[2]	Manager 2	Directors
4.12.2013	50 min	Nurse 4	Nurses
4.2.2016	70 min	Nurse 5	Nurses
11.2.2016	46 min	Physician 5	Physicians
12.2.2016	53 min	Physician 6	Physicians
In total: 38 interviews	2088 min (mean 116 min per interviewee)	18 interviewees	3 clusters

[1] Included a hospital tour.
[2] This was an ad hoc interview including a presentation of the hospital's certain information systems.

Additional Background Interview Details

Dates	**Length of interviews**	**Interviewees**
28.8.2012	41 min	External Stakeholder
29.8.2012	63 min	External Stakeholder
29.8.2012	65 min	External Stakeholder
30.8.2012	89 min	External Stakeholder
31.8.2012	16 min	External Stakeholder
In total:	274 min (mean 54,8 min per interviewee)	5 interviews