MASTER

Agency and stewardship in a hospital environment

Kleiren, D.P.J.

Award date: 2013

Link to publication
Agency and Stewardship
in a Hospital Environment

by
D.P.J. (Dave) Kleiren

Student identity number 0728103

in partial fulfilment of the requirements for the degree of

Master of Science
in Innovation Management

Supervisors:
dr. F.M. van Eijnatten, TU/e, HPM
dr. J.A. Keizer, TU/e, ITEM
Subject headings: Hospital Organization, Agency, Stewardship, Maslow pyramid, Tuckman model, Design-based research
PREFACE

In front of you lie the results of my master thesis project, which was the final stage of my master Innovation Management at Eindhoven University of Technology. I performed the project in a hospital organization in the Netherlands, which was a new and challenging environment for me. The interest in service science was the starting point of finding a research topic for this thesis. I was searching for a service-oriented organization, and service-related research topic. Hospital organizations caught my attention during the searching process. From this point, I decided to write my literature review about hospital organizations. In the summer of 2012 I got the opportunity to perform a field study in a hospital organization. For privacy reasons, the name of the hospital in the research is mentioned as HOSP. I was excited that I got the opportunity to perform my master thesis project in a hospital organization. I want to thank my supervisors for the time they invested to guide me through the process of writing my master thesis. A special thanks goes to Renée, who was my motivating research partner in HOSP, and Hans, who was my supervisor HOSP. He gave me the opportunities I needed to succeed this master thesis project. I also want dedicate a special thank to my family who always supported me with everything I did during my study period. Without these people it was not possible for me to present you this thesis.

Dave Kleiren,

April 2013, Eindhoven
Background – This thesis was spurred based on the need of HOSP to get an overview of the collaboration between stakeholders in the organization, and provide guidelines to increase the collaboration in the organization. The research is a problem-oriented, design-based research, and it contains of two parts namely the analysis, and design phase. The analysis phase was meant to get an overview of the potential problems in HOSP that creates the management problem. The design phase is focussed on developing a design that reduce the management problem in HOSP.

Results – The analysis phase shows that HOSP is operating in a dual structure. Literature shows that this type of structure creates good collaboration in a hospital. The expected agency and stewardship relationship between stakeholders in a team gave deeper insights about the collaboration in the teams. Two ‘success teams’ were analyzed to gain deeper understanding of the success factors in the teams. The derived success factors result in a set of empirical functional requirements. The empirical functional-requirements in combination with the theoretical functional-requirements are the input for the design to reduce the management problem in HOSP.

Conclusions – The design to reduce the management problem are presented in a set of CIMO-logics. These are a set of design principles to stepwise reduce the management problem in HOSP. The CIMO-logics are derived from the theoretical and empirical functional-requirements.

Keywords – Hospital, organizational structure, agency, stewardship, Maslow theory, Tuckman model, design-based research
The research shows the results of a field study in HOSP, as part of an on-going PhD research in HOSP about creating learning teams in the organization. The field study focuses on the collaboration between stakeholders at different levels in the organization. The collaboration between stakeholders was mentioned as a factor that might influence the process of creating learning teams in the organization. The results of the study serve as the input for the on-going PhD research in HOSP.

As a start of the study, the lack of collaboration was formulated as a management problem. In the intuitive diagnosis the ‘inefficient organizational structure’ and the ‘incomparable management principles’ are formulated as the potential causes of the management problem. The inefficient organizational structure is selected as a potential cause based on the results of the literature review performed prior to the field study. The literature review shows that an inefficient organizational structure is a potential cause for the lack of collaboration in hospital organization. The ‘incomparable management principles’ is formulated as a second potential cause of the management problem in HOSP. The second potential cause was selected, based on the results of the on-going PhD research in HOSP.

The status quo of the potential causes were analyzed in the first stage of the field study. The organizational structure of HOSP was analyzed by doing a document analysis and performing interviews with stakeholders in the organization. The results of the document analysis and the interviews were compared to the theoretical functional-requirements. The theoretical functional-requirements provide guidelines of organizing hospital organizations to improve collaboration between stakeholders.

The incomparable management principles, as a second potential cause of the management problem, were analyzed by doing a questionnaire among stakeholders at the nurse department of HOSP. The results of the questionnaire are compared to the theoretical functional-requirements.

The results of the analysis showed that HOSP operate in a dual structure, which is mentioned in the literature as a structure with good collaboration between stakeholders. The analysis phase also shows that in HOSP no incomparable management principles exists between stakeholders. Managers and nurses score high on the two management principles, namely agency and stewardship. This result, where stakeholders scoring both high on agency and stewardship, is not covered in literature. The initial management-principles analysis was not applicable in this sample. Therefore, an alternative analysis was developed based on the underlying theory of the initial management-principles analysis to show if the management principles are a potential cause of the management problem in HOSP. The results of the
alternative analysis show a team with the best collaboration atmosphere (based on the new criteria). This team was picked as a ‘success team’. The second ‘success team’ was selected by an expert in HOSP, because the expert noticed a relatively high score on a measured construct in the questionnaire.

A further analysis of the ‘success teams’ was necessary to get a deeper understanding of the possible elements to improve the collaboration in the nurse teams. Focus groups were organized for the two ‘success teams’. The analysis of the focus groups results in a set of empirical functional-requirements to improve collaboration in teams.

The theoretical-, and empirical functional-requirements create a design in form of a set of CIMO-logics, to reduce the management problem in HOSP. A considerable set of limitation affect the reliability of the proposed CIMO-logics. The limitations are important, as the CIMO-logics will be used as input for the on-going PhD research in HOSP.
# TABLE OF CONTENTS

PREFACE .......................................................................................................................... I

ABSTRACT ......................................................................................................................... II

EXECUTIVE SUMMARY ..................................................................................................... III

TABLE OF CONTENTS ....................................................................................................... V

LIST OF FIGURES .............................................................................................................. VII

LIST OF TABLES ................................................................................................................ VIII

1 INTRODUCTION .............................................................................................................. 9

2 PROBLEM STATEMENT .................................................................................................. 11

2.1 Hospital......................................................................................................................... 11

2.2 Problem statement ....................................................................................................... 12

3 THEORETICAL BACKGROUND ...................................................................................... 13

3.1 Hospital organizations ................................................................................................. 13

3.1.1 Different Worlds .................................................................................................. 13

3.1.2 Organizational structures .................................................................................. 15

3.1.3 Conflicting worlds .............................................................................................. 16

3.1.4 Interventions ..................................................................................................... 17

3.2 Motivation theory ....................................................................................................... 19

3.2.1 Maslow’s ‘Hierarchy of needs’ theory ............................................................... 19

3.2.2 McGregor X, Y theory ...................................................................................... 21

3.2.3 Agency- and stewardship theory ................................................................. 21

3.3 theoretical functional-requirements ........................................................................... 27

4. RESEARCH METHOD .................................................................................................. 28

4.1 Analysis phase ............................................................................................................ 28

4.1.1 Method of data collection ............................................................................... 28

4.1.2 Method of data analysis ................................................................................ 30

4.2 Design phase ............................................................................................................. 33

4.2.1 Method of data collection ............................................................................... 33

4.2.2 Method of data analysis ................................................................................ 33

5. RESULTS ..................................................................................................................... 36

5.1 analysis phase .......................................................................................................... 36

5.1.1 Organizational structure ................................................................. 36

5.1.2 Management principles ......................................................... 44

5.1.3 conclusion analysis phase ........................................................................... 48

5.2 Design phase ............................................................................................................ 55

5.2.1 Background and first impression ................................................................. 55

5.2.2 Quantitative analysis ................................................................................... 56

5.2.3 Quotes focus group team five ................................................................. 57
LIST OF FIGURES

FIGURE 1 OVERVIEW ELEMENTS MASTER THESIS PROJECT 9
FIGURE 2 ORGANIZATION OF THE RESEARCH 10
FIGURE 3 INTUITIVE DIAGNOSIS OF THE MANAGEMENT PROBLEM 12
FIGURE 4 FOUR WORLDS IN HOSPITAL 14
FIGURE 5 TRADITIONAL HOSPITAL ORGANIZATION 15
FIGURE 6 INTEGRATION OF THE FOUR-WORLD THEORY AND THE TRADITIONAL HOSPITAL-ORGANIZATION 16
FIGURE 7 DUAL STRUCTURE 18
FIGURE 8 INTEGRATED STRUCTURE 19
FIGURE 9 MASLOW'S HIERARCHY OF NEEDS 20
FIGURE 10 THE REINFORCING CYCLES OF APPLYING THE X–Y THEORY 21
FIGURE 11 PRINCIPAL-MANAGER CHOICE MODEL 23
FIGURE 12 CONSTRUCT OF STEWARDSHIP THEORY 24
FIGURE 13 TEAM-DEVELOPMENT MODEL OF TUCKMAN AND JENSEN BY AMELSVOORT & SCHOLTES 26
FIGURE 14 MANAGER-NURSE CHOICE MODEL 31
FIGURE 15. ORGANIZATION CHART OF THE HOSP GROUP 37
FIGURE 16 ORGANIZATION CHART OF HOSP MEDICAL CENTRE 38
FIGURE 17 ORGANIZATION CHART NURSE DEPARTMENT HOSP 39
FIGURE 18 OUTCOME INTERVIEW QUESTIONS OF DELEGATION 42
FIGURE 19 STANDARDIZED FACTOR LOADINGS ON THE HIGHER-ORDER AGENCY CONSTRUCT 45
FIGURE 20 STANDARDIZED FACTOR LOADINGS ON THE STEWARDSHIP CONSTRUCT 46
FIGURE 21 BOX- PLOT OF THE GOAL SETTING CONSTRUCT 47
FIGURE 22 BOX- PLOT OF THE STEWARDSHIP CONSTRUCT 48
FIGURE 23 RESULTS OF THE ANALYSIS PHASE RELATED TO THE INTUITIVE DIAGNOsis. 49
FIGURE 24 EXAMPLE SCATTER-PLOT 49
FIGURE 25 SCATTER PLOT TEAM 1 51
FIGURE 26 SCATTER PLOT TEAM 2 51
FIGURE 27 SCATTER PLOT TEAM 3 52
FIGURE 28 SCATTER PLOT TEAM 4 52
FIGURE 29 SCATTER PLOT TEAM 5 53
FIGURE 30 SCATTER PLOT TEAM 10 53
FIGURE 31 BOX- PLOT LEARNING CONDITIONS PER TEAM 54
FIGURE 32 DESIGN OVERVIEW 64
FIGURE 33 MASLOW PYRAMID AND THE CIMO-LOGICS 67
FIGURE 34 AGENCY AND STEWARDSHIP IN TUCKMAN AND JENSEN TEAM-DEVELOPMENT MODEL 67
FIGURE 35 THE THEORETICAL AND EMPIRICAL PART OF THE RESEARCH RELATED TO THE INTUITIVE DIAGNOsis. 69
FIGURE 36 OVERVIEW DUAL MANAGEMENT STRUCTURE IN HOSP 70
FIGURE 37 CONSTRUCTS IN QUESTIONNAIRE
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Comparison of the Agency and Stewardship Theory</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 2</td>
<td>Group-development model of Tuckman and Jensen</td>
<td>25</td>
</tr>
<tr>
<td>Table 3</td>
<td>Theoretical functional-requirements</td>
<td>27</td>
</tr>
<tr>
<td>Table 4</td>
<td>Category, direction of answers, and explanation of the interviews questions</td>
<td>29</td>
</tr>
<tr>
<td>Table 5</td>
<td>Sample interviews</td>
<td>29</td>
</tr>
<tr>
<td>Table 6</td>
<td>Goal of interview questions per function and criteria used to derive outcome</td>
<td>31</td>
</tr>
<tr>
<td>Table 7</td>
<td>Descriptive statistics used to analyze the outcomes of the questionnaires</td>
<td>32</td>
</tr>
<tr>
<td>Table 8</td>
<td>Organizational structure based on criteria</td>
<td>40</td>
</tr>
<tr>
<td>Table 9</td>
<td>Delegation and mandating</td>
<td>41</td>
</tr>
<tr>
<td>Table 10</td>
<td>Outcome collaboration between medical specialist and management/nurses</td>
<td>43</td>
</tr>
<tr>
<td>Table 11</td>
<td>Response rate per function</td>
<td>44</td>
</tr>
<tr>
<td>Table 12</td>
<td>Response rate per team</td>
<td>45</td>
</tr>
<tr>
<td>Table 13</td>
<td>Goodness of Fit indices for a specific construct</td>
<td>47</td>
</tr>
<tr>
<td>Table 14</td>
<td>Family codes used in the transcriptions of the focus groups</td>
<td>57</td>
</tr>
<tr>
<td>Table 15</td>
<td>The empirical functional-requirements</td>
<td>63</td>
</tr>
<tr>
<td>Table 16</td>
<td>CIMO-logics related to the theoretical- and empirical functional requirements</td>
<td>65</td>
</tr>
<tr>
<td>Table 17</td>
<td>Variable measured questionnaire</td>
<td>FOUT! Bladwijzer niet gedefinieerd.</td>
</tr>
<tr>
<td>Table 18</td>
<td>Questions per function</td>
<td>FOUT! Bladwijzer niet gedefinieerd.</td>
</tr>
<tr>
<td>Table 19</td>
<td>Guidelines of different fit indices used in LISREL</td>
<td>FOUT! Bladwijzer niet gedefinieerd.</td>
</tr>
<tr>
<td>Table 20</td>
<td>Result independent sample t-tests</td>
<td>FOUT! Bladwijzer niet gedefinieerd.</td>
</tr>
</tbody>
</table>
1 Introduction

As an Innovation Management student, at the faculty of Industrial and Innovation Sciences at the Eindhoven University of Technology, I performed the final part of my study, the master thesis project. Figure 1 shows the elements of the master thesis project. The first stage of the research is the literature review (marked blue in figure 1). The literature review focuses on a dilemma in hospital organizations between cost reduction and quality of care. The results of the literature review are the theoretical functional-requirements to reduce the dilemma.

The second part of the research is the field study (marked pink in figure 1). The field study is performed in a hospital organization. For privacy reasons the name of the hospital is labelled as ‘HOSP’ in this document. The organization of the research is shown in figure 2. The input of the analysis phase of the research (marked blue in figure 2) is the management problem (marked yellow in figure 2). The potential causes of the management problem, which are derived from the theoretical functional-requirements (marked purple in figure 2), are mentioned in the intuitive diagnosis. The potential causes of the management problem in HOSP were analyzed in the analysis phase. The design phase of the research (marked green in figure 2) concludes with a design that consists of a set of CIMO-logics (marked brown in figure 2) to reduce the management problem in HOSP. The design has an impact-model (marked pink in...
which is dependent on the possibilities of HOSP to apply the CIMO-logics into practice. The research setting also influences the impact of the design. The impact of the design determines the reliability of the CIMO-logics to reduce the management problem.

Chapter two describes the problem statement and the goals in research. Chapter three outlines a summary of the literature review. Chapter four describes the method of research in the analysis and design phase of the research. Chapter five examines the results of the analysis-, and design phase of the research. This chapter ends with a design in form of a set of CIMO-logics to reduce the management problem in HOSP. Chapter six outlines the conclusions of the research. Chapter seven describes the impact model of the design in a discussion section.
2 Problem statement

Paragraph 2.1 describes the hospital organization HOSP, and paragraph 2.2 describes the management problem in HOSP.

2.1 HOSP

The former minister of public health, welfare and sports Els Borst stimulated hospitals to think about renewing themselves, to create the ‘hospital of the 21st century’: HOSP has the ambition to become a 21st century hospital. A hospital of the 21st century needs the philosophy to treat patients as customers. HOSP trained and convinced employees to achieve this goal. Together with medical-, care-, architectural developments, and the possibilities of ITEE (Information, Telecommunications and Electronics Engineer), HOSP developed an innovative hospital building to give substance to a 21st century hospital.

Stakeholders in HOSP agreed on that the patients are the focus in a hospital of the 21th century, and together they developed the following value-categories:

- Relationship towards patient
  - Hospitality towards patient
  - Human orientation towards patient
- Relationship towards organization

The values are shown in appendix A, and are referred in the text as ´21st century´ values.

The ´21st century´ values resulted in a plan to train 1200 employees in HOSP to put the values into practice. HOSP already started with the training of the employees when the financial crisis hit HOSP in 2009. The government did not give HOSP extra financial support, as hospitals in a deregulated market are not under governmental supervision. The financial crisis resulted in mass dismissals. The bottom-up way of creating the ´21st century´ values was replaced by top-down management, where major changes and dismissals were detrimental necessities. In this period there was no money and ambition to actively implement the ´21st century´ values anymore.

The crisis kept going for two years and since the beginning of 2012 HOSP started again to implement the ´21st century´ values, and creates the bottom-up way of working as before the crisis.
2.2 PROBLEM STATEMENT

When the dust of the financial crisis settled down in 2012 HOSP wanted to recreate the participative behaviour among nurses that existed before the crisis. The participative behaviour is necessary by implementing the ‘21st century’ values in HOPS. The capacity manager of the nurse department noticed collaboration issues between stakeholders at different levels in HOSP. Collaboration is necessary to create participative behaviour to implement the 21st century values. Therefore, the lack of collaboration was formulated as the management problem.

The summary of the literature review (see chapter 3) mentions that the organizational structure of a hospital is a potential cause of the lack of collaboration. Therefore, it is necessary to analyze the organizational structure of HOSP to validate it as a cause of the management problem.

Another potential cause of the management problem is the application of agency and stewardship in nurse teams. Former research in HOSP suggested these management principles as a cause of a lack of collaboration in nurse teams.

Figure 3 shows the intuitive problem diagnosis with the management problem and the potential causes.
3 Theoretical background

The intuitive diagnosis shows that the inefficient organizational structure is a potential cause of the management problem in HOSP. This chapter outlines the literature review of the potential causes as formulated in the intuitive diagnosis. Paragraph 3.1 outlines the stakeholders and the organizational structures in a hospital organization.

The second potential cause of the management problem is the incomparable management principles (agency & stewardship) in nurse teams. Paragraph 3.2 outlines the motivation theories and the relation towards agency and stewardship. The incomparable management principles are analyzed in the teams. Therefore, paragraph 3.2 also outlines a team-development theory.

The literature in this chapter is a summary of the literature review (marked blue in figure 1), as preparation of the field research (marked pink in figure 1). This chapter concludes with a set of theoretical functional-requirements, which are the input for the design to reduce the management problem in HOSP.

3.1 HOSPITAL ORGANIZATIONS

Cools (2008, p. 12), Neogy and Kirkpatrick (2009, p. 31) and Saltman, Durán and Dubois (2011, p. 187) mention approximately 80% of the medical specialists in a hospital organization are self employed and organized in a specialist partnership. The medical specialists are not under supervision of the board of directors of a hospital.

3.1.1 Different Worlds

A hospital organization is a complex environment, where stakeholders interact with each other to deliver care to the customer. Glouberman and Mintzberg (1996, p. 4) present a matrix with four stakeholders in a hospital organization (see figure 4). The matrix has a vertical and horizontal axis (see blue text in figure 4a). The stakeholders managing down on the vertical axis focus on direct care-delivery. The stakeholders managing up on the vertical axis focus on the interests of people controlling and/or funding the hospital. The vertical axis creates a horizontal cleavage (see figure 4b) that result in a conflict of interest between stakeholders at the top of the vertical axis (trustees and managers) versus the stakeholders at the bottom of the vertical axis (medical specialist and nurses).
The stakeholders on the right side of the horizontal axis are practicing in. These are under clear control and part of the hospital as a ‘healthcare business’. Stakeholders toward the left on the horizontal axis are practicing out. These are independent of the hierarchical structure in a hospital, and do not receive formal authority. The horizontal axis creates the vertical cleavage that result in a conflict of interest between stakeholders on the left side of the axis (trustees and medical specialists) and stakeholders on the right side of the axis (managers and nurses). The cleavages divide the hospital in four worlds (community, control, cure & care) with four stakeholders (trustees, managers, medical specialists & nurses) as shown in figure 4. The stakeholders have their own interests, which create cleavages between the four worlds. Hospitals must balance the interests of the stakeholders in the four worlds to minimize the conflict situation. This lead to closing the cleavages in figure 4.

### 3.1.1.1 Stakeholders in a hospital organization

There are four types of stakeholders in a hospital. First, medical specialists who provide cure to the customers. They manage down, provide direct cure to the customers, and practice out, as most of the time they are self-employed in a specialist partnership. Second, the nurses who provide care to the customers. They are managing down, they provide direct care to the customers, and practicing in as they are employed workers of the hospital. The third stakeholder group are the manager who provide managerial control in a hospital. They are managing up, at interest of the executive board. The managers control all the activities and translate the strategic decisions of the executive board into tactical, and operational working
decisions. Managers are practicing in, as they are employed workers of the hospital. The fourth stakeholder group are the trustees, for instance the supervisory board. The supervisory board is practicing out as it is independent on the executive board, and managing up, because it controls the executive board of a hospital. The focus of the research will be on medical specialists, managers, and nurses.

![Organizational structure diagram](image)

**Figure 5 Traditional hospital organization (Based on Beijer & Paquay, 2011, p. 2)**

### 3.1.2 Organizational structures

In a traditional hospital structure, the specialist partnerships work in a parallel to the general management. A specialist partnership is a democratic system where the medical specialists have the same amount of power. All the specialist partnerships choose someone who participates in the core staff. In the core staff participate the medical specialists of all the specialist partnerships. The core staff chooses medical specialists to participate in the board staff. Medical specialists set the boundaries of the decisions that can be made by the mandated person who participates in the core- and board staff (bottom-up). Contrarily, the executive board delegates tasks towards the middle managers (top-down). Figure 5 schematically shows the traditional organizational-structure of a hospital, and figure 6 shows the integration of the four-world theory and the traditional hospital-structure. Nurses and managers are employed workers in a hospital organization. The medical specialists practice out and manage down, as they deliver direct care to the patient. The nurses in the care quadrant have to deal with medical specialists, who are organized in the specialist partnerships on one hand, and on the other hand they have to deal with the administrative hierarchy of the general management.
Glouberman & Mintzberg (1996, p. 18) mention the four worlds in a hospital result in coalitions between stakeholders. Nurses, in the care quadrant, are in between the cure world of medical specialists, and the control world of the general management in a hospital. The nurses in the care quadrant can participate in the clinical coalition together with medical specialists. In this coalition the nurses cooperate with the medical specialists in the cure quadrant to ‘fight’ against the managers, who manage up, on the other side of the horizontal cleavage (see figure 6). Nurses in the care quadrant can also cooperate with the managers in a hospital to create an insider coalition. In this coalition the nurses and the managers cooperate to ‘fight’ against the medical specialists, who practice out, on the other side of the vertical cleavage.

3.1.3 Conflicting worlds
Saltman et al. (2011, p. 188) mention the specialist partnerships have a cohesive culture. The cohesive culture results in behaviour where they only mind their own business, and for this reason they have a lack of self-reflexivity and self-purifying. Another aspect mention by Scholten & Grinten (2005, p. 170) is that medical specialists in a specialist partnership are less loyal to salaried workers compared to medical specialists in specialist partnerships. Klopper-Kes, Meerdink, Wilderom and van Harten (2011, p. 98) mention that too many times the focus in hospitals is towards the managerial aspects. The cohesive culture of medical specialists, and the focus on managerial aspects have a negative influence on the relationship between the stakeholder groups, which have a negative influence on the performance of a hospital.
Glouberman & Mintzberg (2001, p. 85) and Klopper-Kes et al. (2011, p. 98) mention - to balance these interests - the two actors should work towards common goals. The organization should reduce the distinction. The distinction consists on one hand towards the focus on quality by the medical specialists, and on the other hand of the focus on the control of costs by the general management of a hospital. To take away this focus distinction, means to close the horizontal cleavage in figure 4.


3.1.4 Interventions
This paragraph focuses on the implementation of a dual- and integrated organizational structure in order to reduce the horizontal- and vertical cleavage in figure 4. Other interventions to close the horizontal- and vertical cleavages are described in Kleiren (2012).

Medical specialists must participate in management functions. This integration is necessary to reduce competition between them, create an equal focus, stimulate the understanding of the goals of each other, and create common goals, which is valuable for all the stakeholder groups in a hospital.

Beijer and Paquay (2011) outline two integrated organizational structures, the dual structure (see figure 7) and the integrated structure (see figure 8). The integrated structures close the vertical- and horizontal cleavage to create mutual understanding between medical specialists in the bottom left quadrant in figure 6 and middle management and executive board in the upper right quadrant in figure 6.

3.1.4.1 Dual structure
The dual structure has two direct connections between the medical specialists and the general management of a hospital. The first direct connection, indicated as (a) in figure 7, is the deliberation of strategic issues between the board staff and the executive board of the hospital. The core staff of the medical specialists is a group of representatives of the specialist partnerships in a hospital. The core staff translates the needs of the medical specialists in the specialist partnerships towards the board staff. The indirect connection between core staff and executive board is dotted line (b) in figure 7.
The second direct connection, indicated as (c) in figure 7, is that medical managers, as representatives of the specialists partnerships, are part of the hierarchical structure of a hospital. The medical manager has control over the operational managers. The medical manager is employed, which creates the indirect connection between the specialist partnerships and the operational managers (dotted line (d) in figure 7). Employed medical specialists move from the left side of the horizontal axis (practicing out) towards the right side of the horizontal axis (practicing in) in figure 4a. Due to this movement, an employed medical specialist gains insights about the managerial issues and can transfer this towards the specialist partnerships, which creates mutual understanding between each other.

3.1.4.2 Integrated structure
Beijer and Paquay (2011) mention a second more integrated structure (see figure 8) compared to the dual structure. The executive board and the board staff of the dual structure are grouped as co-directors in the integrated structure. In the integrated structure both parties are formal responsible and have to justify themselves to the supervisory board. The responsible unit is called the ‘performance responsible unit’ (PRU). The council of the medical managers and the council of the general managers form together the council for a specific specialism. An important change compared to the traditional structure (see figure 5) and the dual structure (see figure 7) is the change in the mandating arrow in figure 8. The specialist partnerships still exist in the integrated structure, but the focus is not on decision making as in the traditional-, and dual structure, but on improving the quality of care for their specialism.
3.2 MOTIVATION THEORY

The intuitive diagnosis shows that HOSP wants to improve collaboration and participative behaviour. Literature describes stewardship and agency as adversative management principles. Stewardship lies responsibilities at the bottom of the organization, where employees are stimulate to actively solve problems together, which stimulates collaboration and participative behaviour. In an agency environment, employers follow up orders from the management, and the responsibilities lie higher in the hierarchy. Maslow’s hierarchy of needs, and McGregor’s X-Y theory are underlying theories of agency and stewardship. Therefore, it is necessary to outline the motivation theories. First, in paragraph 3.2.1 Maslow’s ‘hierarchy of needs’ theory is described. The theory explains the pyramid of the basic desires and needs of individuals. Second, in paragraph 3.2.2 McGregor’s ‘X-Y theory’ is described. “McGregor’s X-Y theory is a salutary and simple reminder of the natural rules for managing people, which under the pressure of day-to-day business are all too easily forgotten”(Chapman, 2010). Paragraph 3.2.3 outlines the agency and stewardship theory related to the motivation theories as described in paragraph 3.2.1 and 3.2.2

3.2.1 Maslow's ‘Hierarchy of needs’ theory
Maslow's hierarchy-of-needs pyramid exists of five levels (see figure 9). Landy and Conte (2007, p. 342) mention all lower needs in the pyramid need to be substantially satisfied before a higher need in the pyramid becomes dominant.
First, the lowest levels of the pyramid are the basic needs, which consist of the ‘physiological needs’ and ‘safety needs’. The physiological needs are of all the primary needs for individuals to survive, like water and food. If the physiological needs are fulfilled individuals take care to fulfil the safety needs, which are the needs for people to live in a safe environment. Second, the psychological needs consist of ‘belongingness and love needs’ and ‘esteem needs’. ‘Belongingness and love needs’ consists of relationships individuals want to have with other people, for instance the need to have a family is an example of this need. The second psychological need is the ‘esteem need’. Poston (2009, p. 351) divides the ‘esteem need’ in the lower form of esteem and the higher form of esteem. “The lower form of self-esteem is directly related to an individual’s ego, meaning that there is a strong need to be respected by others…. The higher form of self-esteem that Maslow addresses is that of self-respect” (Poston, 2009, p. 351). The lower form of self-esteem can only be fulfilled by other people. Therefore, it is harder to maintain because people are busy with status, recognition, fame, reputation and appreciation as described by Poston (2009, p. 351). The higher form of self esteem is easier to maintain, as people are sure about themselves and this cannot be taken away so easily. The highest level in the pyramid is the need of self-actualization. This need becomes important only if all other needs are fulfilled. Van Eijnatten (2012) mentions that the higher hierarchical-needs can be fulfilled by applying intrinsic motivators in a working environment. The lower hierarchical needs can be fulfilled by applying extrinsic motivators.
Two basic principles of managing people in an organization are explained by McGregor, as the X- and Y theory. “Theory X assumes that employees dislike work, lack ambition, avoid responsibility, and must be directed and coerced to perform……..Theory Y assumes that employees like work, seek responsibility, are capable of making decisions, and exercise self direction and self-control when committed to a goal” (Van Eijnatten, 2012). This results in a reinforcing negative cycle, by applying the X theory, or a reinforcing positive cycle, by applying the Y theory in figure 10.

3.2.3 Agency- and stewardship theory

The agency- and stewardship theory describe ways of behaving in an organisation. Davis, Schoorman and Donaldson (1997, pp. 22-24) mention the agency principles are based on an economic perspective. “The ‘model of man’ underlying agency and organisational economics is that of the self-interested actor rationally maximising their own personal economic gain. The model is individualistic and is predicated upon the notion of an in-built conflict of interest between owner and manager” (Donaldson & Davis, 1991, p. 51). Davis et al. (1997, p. 24) mention that the stewardship theory has its roots in psychology and sociology and is based on human behaviour instead of economic perspectives. “In stewardship theory, the model of man is based on a steward whose behaviour is ordered such that pro-organizational, collectivistic behaviours have higher utility than individualistic, self-serving behaviours” (Davis et al., 1997, p. 24). Table 1 shows the characteristics of the agency- and stewardship theory ordered in psychological- and situational mechanisms. The psychological mechanisms of the agency theory in table 1 are comparable with the basic needs (physiological and security needs) of Maslow’s pyramid in figure 9. These basic needs can be achieved by extrinsic motivators (see agency column in table 1). The psychological mechanisms of the stewardship theory in table 1 are focused on the higher hierarchical levels of the Maslow pyramid like the highest
hierarchical need self-actualization, which is based on personal vision and growth. This highest hierarchical need can be fulfilled by intrinsic motivators, as described before.

Table 1 Comparison of the Agency and Stewardship Theory (Davis et al., 1997, p. 37)

<table>
<thead>
<tr>
<th></th>
<th>Agency theory</th>
<th>Stewardship</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model of Man</strong></td>
<td>Economic man</td>
<td>Self-actualizing man</td>
</tr>
<tr>
<td><strong>Behavior</strong></td>
<td>Self-serving</td>
<td>Collective serving</td>
</tr>
<tr>
<td><strong>Psychological Mechanisms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motivation</strong></td>
<td>Lower order-economic need (physiological, security, economic)</td>
<td>Higher order needs (growth, achievement, self-actualization)</td>
</tr>
<tr>
<td></td>
<td>Extrinsic</td>
<td>Intrinsic</td>
</tr>
<tr>
<td><strong>Social Comparison</strong></td>
<td>Other managers</td>
<td>Principal</td>
</tr>
<tr>
<td><strong>Identification</strong></td>
<td>Low value commitment</td>
<td>High value commitment</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>Institutional (legitimate, coercive, reward)</td>
<td>Personal (expert, referent)</td>
</tr>
<tr>
<td><strong>Situational mechanisms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Management Philosophy</strong></td>
<td>Control oriented</td>
<td>Involvement oriented</td>
</tr>
<tr>
<td><strong>Risk Orientation</strong></td>
<td>Control mechanisms</td>
<td>Trust</td>
</tr>
<tr>
<td><strong>Time frame</strong></td>
<td>Short term</td>
<td>Long term</td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td>Cost control</td>
<td>Performance Enhancement</td>
</tr>
<tr>
<td><strong>Cultural differences</strong></td>
<td>Individualism</td>
<td>Collectivism</td>
</tr>
<tr>
<td></td>
<td>High power distance</td>
<td>Low power distance</td>
</tr>
</tbody>
</table>

Figure 11 shows the principal-manager choice model. Both manager and principal expect an agency or stewardship relationship between them. Quadrant one in figure 11 shows the situation when both principal and manager expect an agency relationship. This quadrant has lower potential risks, and is based on minimizing the potential costs in an organization. Quadrant four shows the situation when both principal and manager expect a stewardship relationship. This quadrant maximizes the potential performance, but also has a higher potential risk. When manager and principal expect the same type of relationship, good collaboration exists between them. As the first quadrant has a lower risk profile, organizations tend to apply agency, instead of stewardship relationships. However, if both actors expect a stewardship relationship, the relationship ends up in quadrant four, an increase in performance is created. Different expectations of managers and principals will have a negative influence on the relationship between them. If a manager expects an agent relationship and the principal expect a stewardship relationship, the relationship ends up in quadrant two, where the agent act opportunistically and the principal is angry towards the way the manager is acting. A manager expects a stewardship relationship and a principal an agency relationship, the relationship ends up in quadrant three, where the manager is frustrated in the way he or she is controlled by the principal. In short, quadrant two and three are relationships that have a
negative influence on the collaboration between manager and principal. Quadrant one creates the lowest risk and minimizes the costs. Quadrant four increases the performance of the organization. If stakeholders expect an agency relationship, McGregor’s theory X is applicable (see figure 10). McGregor’s X-theory is based on controlling by the managers to minimize the risks. Contrarily, if stakeholders expect a stewardship relationship McGregor’s theory Y is applicable, as managers delegate more and lie the responsibility by the workers instead of controlling it by themselves (see figure 10).

![Diagram of Principal-Manager Choice model (Davis, Schoorman, & Donaldson, 1997, p. 39)](image)

Schepers, Falk, de Ruyter, de Jong, & Hammerschmidt (2012, p. 25) mention customer stewardship-control as a strong predictor of extra-role behaviour and that agency control systems have a negative influence on extra-role behaviour. “Extra-role behaviour includes employees’ extra efforts to take initiatives that improve service in interactions with customers or conscientious efforts to respond to customer concerns” (Schepers et al., 2012, p. 9). Extra-role behaviour results in better service quality.

Hernandez (2012) outlines the construct of the stewardship theory in figure 12. To create a stewardship organisation structural factors, in form of control and rewarding systems are interventions to stimulate the cognitive and affective mechanisms. These mechanisms create psychological ownership, which result in stewardship behaviours. The feedback loop creates evaluation and revisions on the intervention with a stewardship state of mind to evolve the structural factors to improve stewardship behaviour in an organization. The structural factors in figure 12 are related to McGregor Y-theory, where the control system is based on delegation by creating shared leadership. Managers delegates and lie responsibilities in the group instead of controlling it by themselves. The reward systems in figure 12 are intrinsic motivators as in
the upper levels of the Maslow pyramid. This relationship between figure 12 and the Maslow pyramid shows that stewardship is possible in an environment where the basic needs of individuals in the Maslow pyramid are fulfilled, and the managers delegate more as in the Y-theory of McGregor.

Figure 12 Construct of stewardship theory (Hernandez, 2012, p. 177)

The development stage of a team has an influence on the amount of individual needs are fulfilled in a team. In a new team, it is difficult to satisfy the security needs of the individuals in a team. Team members have to get used to each other, and act careful. Tuckman and Jensen (1977) describe a team-development model that has five stages namely ‘forming’, ‘storming’, ‘norming’, ‘performing’, and ‘adjourning’. From now on this model is called the Tuckman model. Table 2 shows the processes and characteristics in the stages.
Table 2 Processes and characteristics of the group-development model of Tuckman and Jensen (Forsyth, 2010, p. 130)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Major processes</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Orientation: Forming</td>
<td>Members become familiar with one another and the group; dependency and inclusion issue; acceptance of leader and group consensus</td>
<td>Tentative, polite, communications; concern over ambiguity, group's goals; active leader; compliant members</td>
</tr>
<tr>
<td>2. Conflict: Storming</td>
<td>Disagreement over procedures; expression of dissatisfaction; tension among members: antagonism toward leader</td>
<td>Criticism of ideas; poor attendance; hostility; polarization and coalition formation</td>
</tr>
<tr>
<td>3. Structure: Norming</td>
<td>Growth of cohesiveness and unity; establishment of roles, standards and relationship; increased trust, communication</td>
<td>Agreement on procedures; reduction in role ambiguity</td>
</tr>
<tr>
<td>4. Work: Performing</td>
<td>Goal achievement; high task orientation; emphasis on performance and production</td>
<td>Decision making; problem solving; mutual cooperation</td>
</tr>
<tr>
<td>5. Dissolution: Adjourning</td>
<td>Termination of roles; completion of tasks; reduction of dependency</td>
<td>Disintegration and withdrawal; increased independence and emotionality; regret</td>
</tr>
</tbody>
</table>

Forsyth (2010; p.130) mentions after a period individuals start to share personal information, and share opinions about other group members and opinions about the leaders in the group. The self-disclosure is necessary for individuals to become familiar with each other. The second stage is the ‘storming’ stage. Individuals know each other, and start to express their dissatisfaction about the procedures and/or leaders in a group. Forsyth (2010, p. 131) describes that individuals can decide to openly challenge the leaders in a team (‘fight’) or try to avoid leaders to minimize the contact and avoid the conflict situation (‘flight’). Fisher (as cited in Forsyth, 2010, p. 131) mentions that a low level of conflict can be a result of a positive interpersonal relationship among team members, but more common in this situation is that team members are uninvolved, unmotivated, and bored. Conflict is an incentive to create cohesion in a group, which is beneficial to guide a group towards the ‘norming’ stage of the group development. Forsyth (2010, p. 131) mentions that a group becomes unified and organized. Mutual trust and support among team members arises, and individuals start to cooperate with each other. In this situation members resolve problems, which were before - in the ‘storming’ phase - the cause of a conflict. There are still different opinions about issues, but a team apply constructive decisions making to solve these problems. The fourth stage is the performing stage. “..members shift their attention from what the group is to what the group needs to do. In organizational contexts, that means getting clear what the team’s duties, obligations, and responsibilities are and crafting task and decision processes that are appropriate.” (Bush and Coetzer, 2007, p. 193). Forsyth (2010, p. 132) mentions that just a few groups are able to make it until this stages of team development. The last stage is the ‘adjourning’ stage, where dissolution of the team occurs. This can either be planned or spontaneous. Van Eijnatten, Peters, and Poorthuis (2002) outline different classic team-development models, also the Tuckman model as described before. They outline that teams
become self-managing teams if they evolve in the team-development stages (except of the adjourning phase) of the Tuckman model. Van Amelsvoort and Scholtes (as cited in van Eijnatten et al., 2002) describe that the transition towards other stages is an important event, because a group can stick at a specific stage or relapse towards a previous stage of team development (see figure 13). It has the result that a team is not able to develop towards a higher stage anymore. Relapsing towards a previous stage is an effect of the insufficient fulfilment of an earlier stage in the team development. This means that teams have to go through all stages of team development to be able to develop themselves towards the performing development-stage. Van Eijnatten et al. (2002) mention that in the classic theories a manager need to adapt the management style on the stage of development where a team is operating. It is necessary for a manager to determine the development stage of a team, in order to apply the correct management style in a team. In the early stage it is necessary to be more instructive, and in a later stage a manager must focus on coaching team members. In the early stages McGregor’s X-theory is applied, and in the later stages McGregor’s Y-theory is applied in teams. This means result in an agency environment in the early development stage of a team, and a stewardship environment in a later development stage of team.

![Team-development model of Tuckman and Jensen by Amelsvoort & Scholtes (as shown in van Eijnatten et al., 2002)](image-url)
3.3 THEORETICAL FUNCTIONAL-REQUIREMENTS

This paragraph shows the theoretical functional-requirements, as described by Kastelein and Keizer (2012) as explicit testable requirements for the implementation of a design in an organization. The theoretical requirements are used as input for the design as described in paragraph 5.2.5. Table 2 shows the overview of the theoretical functional-requirements as derived from literature in this chapter. TFR1 and TFR2 are functional requirements derived from the hospital organization literature as described in paragraph 3.1, and TF3 until TFR9 are derived from the motivation theory as described in paragraph 3.2. The theoretical functional-requirements are the input for the design to reduce the management problem in HOSP, as described in paragraph 5.2.5.

<table>
<thead>
<tr>
<th>Theory</th>
<th>Code</th>
<th>Functional requirements</th>
<th>Condition</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital organization</td>
<td>TFR1</td>
<td>Dual structure</td>
<td>Lack of collaboration</td>
<td>Medical manager are employed workers, and create a direct connection between specialist partnerships and general management. Specialist partnerships have the same powers as in the traditional structure</td>
</tr>
<tr>
<td></td>
<td>TFR2</td>
<td>Integrated structure</td>
<td>Lack of collaboration</td>
<td>Council of medical managers and business managers are both responsible for the profits of a hospital organization. Specialist partnerships exist for professional purposes, but the powers moved to the council of medical managers</td>
</tr>
<tr>
<td>Motivation theories</td>
<td>TR3</td>
<td>Determination of team-development stage</td>
<td>Always</td>
<td>The development stage determines the management style which is suitable to develop a team.</td>
</tr>
<tr>
<td></td>
<td>TR4</td>
<td>Extrinsic motivators</td>
<td>The need to fulfill the lower levels of the Maslow pyramid</td>
<td>Bonuses and other extrinsic motivators enable employees to fulfill the physiological needs and create financial security.</td>
</tr>
<tr>
<td></td>
<td>TR5</td>
<td>Intrinsic motivators</td>
<td>The need to fulfill the higher levels of the Maslow pyramid</td>
<td>The psychological and self-fulfilment needs can be satisfied by intangible aspects e.g. positive feedback, growth, achievement etc.</td>
</tr>
<tr>
<td></td>
<td>TR6</td>
<td>Apply X-theory</td>
<td>If team is in stage 1 or 2 of Tuckman &amp; Jensen’s team-development model</td>
<td>Instructions and control are necessary to develop a team towards a higher stage in the Tuckman &amp; Jensen’s team-development model.</td>
</tr>
<tr>
<td></td>
<td>TR7</td>
<td>Apply Y-theory</td>
<td>If team is in stage 3 or 4 of Tuckman &amp; Jensen’s team-development model</td>
<td>Coaching and more delegation are necessary to develop a team towards a higher stage in the Tuckman &amp; Jensen’s team-development model.</td>
</tr>
<tr>
<td></td>
<td>TR8</td>
<td>Agency environment</td>
<td>Applicable if basic needs of the Maslow pyramid are NOT satisfied &amp; Team is in stage 1 or 2 of Tuckman &amp; Jensen’s team-development model</td>
<td>Guidance and control of a team is necessary to develop the team, and secure lower levels of the Maslow pyramid.</td>
</tr>
<tr>
<td></td>
<td>TR9</td>
<td>Stewardship environment</td>
<td>Applicable if individuals’ basic needs in the Maslow pyramid are satisfied &amp; a team is at least in the third stage of Tuckman &amp; Jensen team-development model</td>
<td>Individuals feel safe, and people trust each other in a team. The individuals in a team are focused on collaborative problem solving.</td>
</tr>
</tbody>
</table>
4. Research method

The intuitive diagnosis shows two potential causes of the management problem, namely the inefficient organizational structure and incomparable management principles. In the analysis phase (marked blue in figure 2) the status quo of the potential causes in HOSP is determined. Based on the intuitive diagnosis the analysis phase consists of two parts:

- Data collection and analysis to determine the organizational structure in HOSP (marked red in figure 3)
- Data collection and analysis to determine the management principles in nurse teams in HOSP (marked blue in figure 3)

The results of the analysis phase are compared to the theoretical functional-requirements to see if the organizational structure, or the incomparable management principles are the causes of the management problem. The design phase focuses on the reduction of the management problem, based on the theoretical functional-requirements and the results of the analysis phase. Paragraph 4.1 describes the method of data collection and analysis in the analysis phase, and paragraph 4.2 outlines the method of data collection and analysis in the design phase of the research.

4.1 ANALYSIS PHASE

This paragraph describes the method of data collection and analysis (marked blue in figure 2) to determine the status quo of the potential causes in the intuitive diagnosis.

4.1.1 Method of data collection

The intuitive diagnosis shows two potential causes of the management problem, namely the inefficient organizational structure (marked red in figure 2), and the incomparable management principles (marked blue in figure 2). The method of data collection of these cause are described in the following paragraphs.

4.1.1.1 Organizational structure

A document analysis was performed to collect data of the organizational structure in HOSP. Besides the document analysis, also semi-structured interviews were performed to get empirical data of the collaboration between stakeholders and the organizational structure in HOSP.
The interview questions and the category per question are shown in appendix B. The interview questions have a specific category. These categories are derived from the characteristics of organizational structures as described in chapter three. The category of the interview questions, the possible direction of the answers, and the explanation are shown in table 4.

Table 4 Category, direction of answers, and explanation of the interviews questions held to analyze the organizational structure

<table>
<thead>
<tr>
<th>Category</th>
<th>direction of answer</th>
<th>explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational structure</td>
<td>traditional, dual, or interated structure</td>
<td>Beijer and Paquay (2011) mention these last three main types of organizational structure in hospitals</td>
</tr>
<tr>
<td>Relationships between stakeholders</td>
<td>Mandating, delegation sending or receiving</td>
<td>Beijer and Paquay (2011) mention that in specialist partnership mandating is applied, and in some organizational structures delegation of tasks is applied. There is a difference between when someone is delegating tasks to someone (sending), and someone is receiving tasks from someone (receiving).</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Positive, negative or neutral collaboration between stakeholders</td>
<td>Several authors in chapter two emphasize that conflict of interest can affect the collaboration between different stakeholders in a hospital organization</td>
</tr>
</tbody>
</table>

The sample of the interviews was determined in consultation with the capacity- and unit manager of the nurse department. A requirement from the management was that at least one person of every hierarchical levels in the organization, and at least one coordinating nurses per team was interviewed. All respondents are part of the nurse department in HOSP. The sample of the interviews is shown in table 5.

Table 5 Sample interviews

<table>
<thead>
<tr>
<th>Hierarchical level</th>
<th>Function</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic level</td>
<td>Board of director</td>
<td>1</td>
</tr>
<tr>
<td>Tactical level</td>
<td>Capacity manager</td>
<td>1</td>
</tr>
<tr>
<td>Operational level</td>
<td>Unit manager</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Coordinating nurse</td>
<td>12</td>
</tr>
<tr>
<td>Specialist partnership</td>
<td>Medical specialist</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total 21</td>
</tr>
</tbody>
</table>
4.1.1.2 Management principles

Davis et al. (1997) mention that the expected relationship between stakeholders has an influence on the performance of an organization and the collaboration between managers and nurse teams in HOSP. Stakeholders choose between the agency and stewardship management principle. Schepers et al. (2012) mention statements to measure an agency and stewardship construct. The agency construct is a higher-order construct with twelve statements, which are divided in three sub constructs namely, goal setting (4 statements), monitoring (4 statements), and rewarding (4 statements). The stewardship construct consists of five statements. The respondents indicate their (dis)agreement with a set of statements on a seven-point likert scale, as used in Schepers et al. (2012). The data is necessary to determine if stakeholders expect an agency or stewardship relationship from each other. The scope of the research is the nurse department. The nurse department consists of thirteen teams, with a total of 335 nurses, twenty coordinating nurses, six unit managers, and a capacity manager. The coordinating nurses are the link between the unit managers and the nurses in HOSP. The capacity manager is the head of the nurse department, and did not take part in the questionnaire. In this questionnaire also other variables were measured, which are part of another research in HOSP (see appendix C). The questionnaires were spread as hardcopy directly to the nurses. The questionnaires, and the correspondence to generate a good response rate are shown in appendix C. The launch date of the questionnaire was 17 December 2012. The introduction e-mail was sent on 12 December 2012 to prepare the participants for a questionnaire. Three weeks after the launch of the questionnaire, at 7 January 2013, a reminder email was send to all the participants. The initial deadline, the 7th of January, was prolonged to the 14th of January, because of the low response rate at the initial deadline. The correspondence e-mails are shown in appendix C.

4.1.2 Method of data analysis

4.1.2.1 Organizational structure

Transcriptions of the interviews were made, and all the answers were assigned to the answer categories (see table 6). A quantitative analysis on the categories was applied to get insights about the type of organizational structure in HOSP.

Table 6 shows the categories and the amount of interview questions assigned to each category. The criteria show the minimum amount of answers a respondent must answer to count a specific outcome as ‘true’. For instance, table 6 shows that the unit manager has three questions about the organizational structure. A unit manager answers two times with ‘dual structure’ or related characteristics, and one time with ‘integrated structure’ or related
characteristics. In the analysis the respondent in this situation is count as someone who answers that the organizational structure of HOSP is (closely) related towards a dual structure. In the end, all the answers of the respondents were summarized in an overview, where the overall opinion of the respondents shows the organizational structure in HOSP. This empirical data is compared to the document analysis as performed before. Besides the quantitative analysis and the document analysis, a qualitative analysis is applied by deriving quotes from the transcription that clarify the organizational structure in HOSP, and the relationship between stakeholders.

Table 6 Goal of interview questions per function and criteria used to derive outcome

<table>
<thead>
<tr>
<th>Category interview question</th>
<th>Board of directors</th>
<th>Capacity manager</th>
<th>Unit managers</th>
<th>Coordinating nurses</th>
<th>Medical specialists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount Criteria</td>
<td>Amount Criteria</td>
<td>Amount Criteria</td>
<td>Amount Criteria</td>
<td>Amount Criteria</td>
<td>Amount Criteria</td>
</tr>
<tr>
<td>Organizational structure</td>
<td>5 ≥4</td>
<td>4 ≥3</td>
<td>3 ≥2</td>
<td>2 2</td>
<td>5 ≥4</td>
</tr>
<tr>
<td>Mandating</td>
<td>2 2</td>
<td>1 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delegation (receiving)</td>
<td>1 1</td>
<td>1 1</td>
<td>1 1</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Delegation (sending)</td>
<td>1 1</td>
<td>1 1</td>
<td>1 1</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Collaboration</td>
<td>1 1</td>
<td>1 1</td>
<td>1 1</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Quality of collaboration</td>
<td>1 1</td>
<td>1 1</td>
<td>1 1</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10 10</td>
<td>8 8</td>
<td>7 7</td>
<td>7 7</td>
<td>8 8</td>
</tr>
</tbody>
</table>

4.1.2.2 Management principles

Figure 14 shows the managers-nurse choice model based on the principal-manager choice model of Davis et al. (1997).

![Figure 14 Manager-Nurse choice model (based on Davis et al., 1997)](image-url)
The data from the questionnaire give insights of the relationship between management and nurses in HOSP. The expected relationship ends up in one of the four quadrants in figure 14.

The first stage of the data analysis is to apply a confirmatory factor analysis (CFA) on the individual outcomes to check the validity of the application of the theoretical agency and stewardship construct in this sample. The CFA was performed for the nurse respondents in the sample. The details of the CFA are shown in appendix D. De Jonge (2011) mentions LISREL as a program to perform a CFA. LISREL 8.8 was used to do the CFA. Before the CFA, a missing data approach was applied to eliminate missing data. Hair, Jr. et al. (2010, p. 48) mention that a complete-case approach (list-wise deletion) is preferred for a CFA, if the missing values are less than fifteen percent of the sample data. In a complete-case approach a respondent is eliminated if missing data occur in one of the statements of the construct. In a CFA the observed and estimated matrices must be equal. If the observed and estimated matrices in the CFA are not equal the constructs in this sample cannot be treated as an agency and/or stewardship construct.

4.1.2.2.1 Determination of management principles per team

After the CFA, the descriptive statistics of the data were analyzed. The distributions of answers gave insights about the (dis)agreement on a stewardship, or agency relationship between management and nurses. Table 7 shows the descriptive statistics that are used to analyze the questionnaires.

The average outcome of the managers (managers and coordinating nurses) were compared to the average outcome of the nurses in the teams, which they supervise. The average outcomes of the managers and the nurses ends up in one of the four quadrants of figure 14, which is positive if the relationship ends up in quadrant one or four, or is negative if the relationship ends up in quadrant two or three.

Table 7 Descriptive statistics used to analyze the outcomes of the questionnaires

<table>
<thead>
<tr>
<th>Descriptive statistic</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mode</strong></td>
<td>The value that appears the most in a set of data.</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>The average outcome of the data.</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>The middle value of the data set.</td>
</tr>
<tr>
<td><strong>Box-plot</strong></td>
<td>It describes the 50% around the median, and the spread of the answers can be analysed</td>
</tr>
</tbody>
</table>
4.2 DESIGN PHASE

This paragraph shows the method of data collection and analysis of the design phase of the research (marked green in figure 2). The relationship among managers and nurses ends up in one of the four quadrants of figure 14. Davis et al. (1997) mention that a relationship ends up in quadrant one if both manager and nurse choose an agency relationship, or the relationship ends up in quadrant four if both manager and nurse choose a stewardship relationship. Quadrant one minimizes the potential costs, and quadrant four maximizes the potential performance in an organization. As described in chapter two HOSP wanted to improve collaboration and create participative behaviour among employees. Therefore, the ‘success teams’ end up in quadrant four, which is a stewardship relationship. The ‘success teams’ are used as example for other teams in the nurse department. These ‘success teams’ were further analyzed in the design phase of the research, where the data was used as input for the design, as described in paragraph 5.2.5. If no team ends up in quadrant four, the team(s) that ends up in quadrant one were used as ‘success teams’. Two of the thirteen teams in the nurse department were picked as ‘success teams’ in the design phase.

4.2.1 Method of data collection
The goal of the data collection of the design phase is to receive success stories from teams that perform better compared to other teams in the analysis phase. Therefore, focus groups were held in the two ‘success teams’. The criteria for the focus group participants were at least one coordinating nurse or unit manager, and approximately five nurses. The theme of the focus groups were the ‘21st century’ values, as described in appendix A. The supporting questions of the focus group consist of three types of questions. First, the opening question was asked to get a first impression of the type of people who took part in the focus group. After the opening question, the introduction questions were asked, which cover the topics to be discussed in the focus group. With these questions the people got familiar with the topics, and the intention was to start the discussion in the group. The transition questions were used to create a discussion and generate opinions and practical examples from the participants. The guiding questions are shown in appendix E. The focus group were recorded, and transcriptions were made afterwards.

4.2.2 Method of data analysis
The phrases in the transcriptions, that contain elements about the way of working in the teams, were labelled with open codes. The open codes are bundled together in specific family
codes. This family codes consist of all related open codes. Open codes are connected to one or more family codes. The following family codes are used:

- **Agency**: The codes that are related to ‘goal setting’, ‘monitoring’, and ‘rewarding’. These constructs form the higher-order agency construct, as described in appendix D.

- **Patient as a guest**: The codes that are related to the ‘21st century’ values in appendix A.

- **Patient as a human being**: The codes that are related to the ‘21st century’ values in appendix A.

- **Relationship between nurse, patient, manager and medical specialist**: The codes describe the atmosphere in a team, and the collaboration between stakeholders.

- **Stewardship**: The codes that are related towards more participative behaviour.

- **Team characteristics**: The codes not directly related to the previous family codes, and give insights about the characteristics of a team.

After connecting the open codes to the family codes, a quantitative analysis was performed to add up the amount of open codes in every family code. This gave the overview of the amount of codes per family of both focus groups. The quantitative analysis gives insights of the richness of stories, and the differences between both teams. After the quantitative analysis, the in-depth analysis per focus group was performed, by analyzing quotes from the focus group. The ‘success stories’, and the related themes give insights about the differences and comparisons between the two teams. The mechanisms behind the ‘success stories’ are used as input for the design, as described in paragraph 5.2.5.

4.2.3 Method of design

The results of the document analysis, interviews and focus groups are compared to the theoretical functional-requirements, as described in paragraph 3.3. This comparison results in design principles to reduce the management problem in HOSP. Denyer, Tranfield, and van Aken (2008) describe a CIMO-logic approach to develop design principles. The CIMO-logics contain the following aspects:

- C: Context
- I: intervention
- M: mechanism
- O: Outcome
A CIMO-logic describes the context where a specific intervention is applied, to trigger a mechanism, that results in a desired outcome. The set of the design principles results in a reduction of the management problem in HOSP.
5. Results

This chapter describes the results of the analysis and design phase of the research. The results are compared to the theoretical functional-requirements, as described in paragraph 3.3.

5.1 ANALYSIS PHASE

This paragraph describes the results of the analysis phase (marked blue in figure 2). The first part of the analysis phase is the analysis of the organizational structure of HOSP, and the second part is the analysis of the management principles in the nurse teams in HOSP.

5.1.1 Organizational structure

A document analysis was performed to get an impression of the organizational structure in HOSP. Besides the document analysis also interviews were performed with stakeholders at strategic-, tactical-, and operational level in HOSP.

5.1.1.1 Document analysis

Figure 15 shows that HOSP Group has three divisions, namely HOSP medical centre, HOSP Service Centre, and HOSP Home Care. Figure 16 shows the organizational chart of HOSP medical centre, where the green dotted line indicates the focus of the research, the nurse department. Figure 17 is the magnification of the nurse department. The division directors of HOSP in figure 15 and 16 consist of four members, where two are medical directors who are mandated from the board staff. Beneath the division directors, process- and capacity managers follow in the hierarchy. They are responsible for the development and operation of processes and the capacity of different units. The domain managers under supervision of the process managers are responsible for the dual management between specialist partnerships and HOSP. Together with the medical specialists they decide about the production for a specific period in consultation with the unit managers under supervision of the capacity managers who are responsible for the allocation of the capacity for a specific unit.
Figure 15. Organization chart of the HOSP group
5.1.1.2 Interviews

Appendix B shows the categories and the interview questions per function. Paragraph 4.1.2.1 gives the overview of the criteria used to count a respondent for a specific outcome. Table 8 shows the amount of respondents who met the criteria (see paragraph 4.1.2.1) for the organizational-structure category. All respondents, except of two coordinating nurses, replied the dual structure as organizational structure in HOSP. Two coordinating nurses did not meet the criterion of two (see paragraph 4.1.1.1). The data show a mutual understanding at the organizational-structure category. Based on this quantitative analysis the outcome shows a dual structure in HOSP.

Table 8 Organizational structure based on criteria

<table>
<thead>
<tr>
<th>Interviewees</th>
<th>Traditional structure</th>
<th>Dual structure</th>
<th>Integrated structure</th>
<th>Didn’t meet criteria (=2)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board of Directors (N=1)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Medical specialists (N=1)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Management (N=7)</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Coordinating nurses (N=12)</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0</strong></td>
<td><strong>19</strong></td>
<td><strong>0</strong></td>
<td><strong>2</strong></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>

Table 9 shows the results of delegation and mandating in HOSP. In this table delegation is divided in powers, responsibilities, and resources, respectively ‘P’, ‘R’, and ‘RS’ in table 9. For example, a unit manager answers that he or she delegates a task (delegation sending in table 9) to a coordinating nurses, and gives that coordinating nurse the full powers, responsibilities, and resources to do tasks. This means that at the ‘delegation sending’ column for the unit managers counts ‘yes’ for ‘P’, ‘R’, and ‘RS’. Table 9 shows that all coordinating nurses delegate responsibilities toward the nurses in the teams. HOSP have guidelines that all nurses in a team are responsible for a specific task in the team, which is necessary to guarantee the functionality of the daily works in a team. The responsibilities that nurses receive are ‘sterrollen’. These are non-hierarchical responsibilities, but only responsibilities to guarantee the daily functioning of the team.
Figure 18 shows a transformation of the results in table 9 in hierarchical order. Figure 18 shows that the board of directors delegate tasks with full powers, responsibilities, and resources towards the capacity manager. The capacity receives tasks with full powers, responsibilities, and resources. The answers match with the answer as given by the board of directors.

Based on these results of the interviews at strategic, tactical, and operational level (board of directors, capacity manager & unit managers) there is a clear understanding about the delegation of tasks. The medical specialist who was interviewed mentioned that there are medical specialists mandated from specialist partnership who choose the members of the board staff of the collective specialist partnerships in HOSP.
Table 10 shows the opinion of the respondents about the collaboration between medical specialist, management, and nurses in HOSP. Almost all respondents mention a good collaboration between medical specialists, management, and nurses.
Appendix F shows quotes derived from the interviews. Some coordinating nurses mention the collaboration is good at their own department, but have doubts about the collaboration of other departments.

"Er zit wel een verschil tussen de maatschap en vakgroep, vanuit de vakgroep wordt veel meer vanuit productie perspectief bekeken."

It shows the difference between medical specialists who are part of the hospital organization, and not participating in a specialist partnership. The theory shows that medical specialists as part of the general management of the hospital is beneficial to create common goals among medical specialists and general management of the hospital. This closes the vertical cleavage in figure 4b.

"Er worden mooie dingen geschreven, maar doktors weten altijd nog via de achteringang dingen voor elkaar te krijgen tegen de regels in. Sommigen krijgen hier alles voor elkaar. We roepen al 30 jaar dat het anders moet, iedereen vindt dat het anders moet, maar nog niemand heeft het kunnen veranderen. Want als je het wil veranderen dan kost je de kop."

Even though, table 10 shows that the collaboration is good between managers, nurses, and medical specialists, there are still signs that medical specialist via an unofficial way influence the policy of the hospital.

The organizational structure of HOSP shows a dual management structure, where medical specialists from specialists partnership collaborate with the process manager and capacity managers to agree on the production of specialist partnerships. The theoretical functional-requirements (see paragraph 3.3) show that in a dual structure employed medical managers are the direct link between specialist partnerships and general management of the hospital. In HOSP, twelve of the thirteen teams have no employed medical managers, who create the direct link between specialist partnerships and general management. One team in the nurse department of HOSP have employed medical specialists. The outcome of the
interviews show that nurses experience better collaboration compared to non-employed medical specialists.

5.1.2 Management principles

Appendix G shows the team number and the corresponding team names as used in HOSP. For privacy reasons the teams are numbered instead of their original name. In total 361 questionnaires were distributed to unit managers, coordinating nurses and nurses in the thirteen teams at the nurse department of HOSP. In total 184 respondents handed in the questionnaires, which is a response rate of 51%.

<table>
<thead>
<tr>
<th>Function</th>
<th>Sample</th>
<th>Response</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit managers</td>
<td>6</td>
<td>6</td>
<td>100%</td>
</tr>
<tr>
<td>Coordinating nurses</td>
<td>19</td>
<td>15</td>
<td>79%</td>
</tr>
<tr>
<td>Nurses</td>
<td>335</td>
<td>163</td>
<td>49%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>360</strong></td>
<td><strong>184</strong></td>
<td><strong>51%</strong></td>
</tr>
</tbody>
</table>

Table 11 shows the response rate per function. The respondents represent thirteen teams, 85% were woman, 30% were younger than 30, 21% between 31 and 40, 24% between 41 and 50, and 25% were older than 50. Thirteen percent is less than two years employee of HOSP, 27% between 2 and 10 years, 60% was more than ten years employee of HOSP. 58% of the respondents have a ‘MBO’ degree, and 42% have a ‘HBO’ degree.

Table 12 shows the response rate per team. The teams that have a response rate above 45% were taken as representative teams. Six out of the thirteen teams were below this criterion, which mean a non-representative teams. Team six, eight, nine, eleven, twelve, and thirteen are excluded from the analysis in this paragraph. For the teams in the analysis it is important that in every team, nurses and management (coordinating nurses and unit managers) filled in the questionnaire. For the representative teams all the coordinating nurses and unit mangers filled in the questionnaire, except of team seven. Team seven was also excluded from the analysis. All the teams that are excluded from the analysis are marked purple in table 12.

First, a confirmatory Factor analysis is applied on the nurse respondents to justify if the research questions are representative questions for the agency and stewardship constructs in this sample. As described in paragraph 4.1.2.2 list-wise deletion is preferred when the missing values are less than fifteen percent of the sample data. Six percent of the agency questions, and two percent of the stewardship questions contains missing values. As the sample meets the minimum criterion, list-wise deletion was applied.
Table 12 Response rate per team. The teams marked purple are excluded for the design phase.

<table>
<thead>
<tr>
<th>Units</th>
<th>Teams</th>
<th>Sample</th>
<th>Response</th>
<th>Percentage</th>
<th>representative response &gt;45%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1</td>
<td>Team 1</td>
<td>26</td>
<td>14</td>
<td>62%</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Team 2</td>
<td>19</td>
<td>15</td>
<td>79%</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Team 3</td>
<td>34</td>
<td>26</td>
<td>76%</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Team 4</td>
<td>13</td>
<td>11</td>
<td>85%</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Team 5</td>
<td>22</td>
<td>18</td>
<td>82%</td>
<td>Yes</td>
</tr>
<tr>
<td>Unit 2</td>
<td>Team 6</td>
<td>24</td>
<td>10</td>
<td>42%</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Team 7</td>
<td>37</td>
<td>19</td>
<td>51%</td>
<td>Yes</td>
</tr>
<tr>
<td>Unit 3</td>
<td>Team 8</td>
<td>40</td>
<td>10</td>
<td>25%</td>
<td>No</td>
</tr>
<tr>
<td>Unit 4</td>
<td>Team 9</td>
<td>25</td>
<td>9</td>
<td>36%</td>
<td>No</td>
</tr>
<tr>
<td>Unit 5</td>
<td>Team 10</td>
<td>27</td>
<td>18</td>
<td>67%</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Team 11</td>
<td>32</td>
<td>10</td>
<td>31%</td>
<td>No</td>
</tr>
<tr>
<td>Unit 6</td>
<td>Team 12</td>
<td>32</td>
<td>11</td>
<td>34%</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Team 13</td>
<td>23</td>
<td>5</td>
<td>22%</td>
<td>No</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>360</td>
<td>184</td>
<td>51%</td>
<td></td>
</tr>
</tbody>
</table>

Chi-Square=207.61, df=51, P-value=0.00000, RMSEA=0.143

Figure 19 Standardized factor loadings on the higher-order agency construct
Figure 19 shows the LISREL path diagram with the standardized factor loadings of the high-order agency construct, which consist of ‘goal setting’, ‘monitoring’, and ‘rewards’ constructs. Figure 20 shows the path diagram with the standardized factor loadings of the stewardship construct.

![Diagram](image)

**Figure 20 Standardized factor loadings on the stewardship construct**

Table 13 shows the important fit indices mentioned by de Jonge (2011). De green marked values met the minimum fit indices criteria for the CFA. The most important criterion is the chi square, and it must be significant (p>0.05). The minimum criteria for the other fit indices are shown in appendix D. Table 13 shows that for the stewardship construct the H0 hypothesis is accepted, which means that the observed and estimated matrices are equal. This means that the statements of stewardship in this sample confirm the theoretical construct of stewardship. The agency statements used in this sample do not confirm the theoretical agency construct. The factor loadings of the goal setting construct are relatively higher compared to the monitoring, and rewarding construct in the higher-order agency construct. Therefore, a CFA is repeated for the goal setting, monitoring, and rewarding separately. After doing the CFAs the construct ‘goal setting’ showed most equality between observed and estimated matrices. From this point the analysis is based on the goal setting construct instead of the higher-order agency construct. The goal setting is closer towards a model fit compared to the other two sub-constructs.
Table 13 Goodness of Fit indices for a specific construct (the green marked numbers exceed the cut-off value)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Chi-square ($X^2$)</th>
<th>RMSEA</th>
<th>NNFI</th>
<th>PNFI</th>
<th>CFI</th>
<th>AGFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency</td>
<td>207.61 (p=0.00)</td>
<td>0.143</td>
<td>0.93</td>
<td>0.72</td>
<td>0.94</td>
<td>0.71</td>
</tr>
<tr>
<td>Goal setting</td>
<td>9.45 (p=0.0089)</td>
<td>0.16</td>
<td>0.95</td>
<td>0.33</td>
<td>0.98</td>
<td>0.85</td>
</tr>
<tr>
<td>Stewardship</td>
<td>8.27 (p=0.14)</td>
<td>0.062</td>
<td>0.99</td>
<td>0.49</td>
<td>1</td>
<td>0.94</td>
</tr>
</tbody>
</table>

To get a first impression of the descriptive statistics of the goal setting (instead of agency after the CFA) and stewardship constructs a box-plot of these constructs are shown in respectively figure 21 and 22.

The outcomes of the goal setting and stewardship constructs show that there is more variance in the answers of goal setting compared to the stewardship question. Almost all respondents score high on the goal setting, and stewardship statements. In the goal setting construct is more variance, but all the medians are above the neutral answer (=4). These outcomes result in the incapability to apply the four quadrant model as initial method of data analysis in the analysis phase, as described in paragraph 4.1.2.2.

![Box-plot of the goal setting construct](image_url)
5.1.3 conclusion analysis phase

The outcomes of the analysis of the organizational structure shows that HOSP is operating in a variant of the dual structure, as described by Beijer and Paquay (2011). The dual structure is described as an organizational structure with a good collaboration between stakeholders. The stakeholders confirm in the interviews that the collaboration is working properly between the stakeholders in HOSP. The organizational structure in HOSP is not the cause of the management problem in HOSP.

Davis et al. (1997) mention that management and nurses choose for a stewardship or agency relationship. When the stakeholders choose different, it has a negative influence on the collaboration between the stakeholders. The results of the questionnaire show that in HOSP teams score high on both goal setting and stewardship constructs. The results show that the incomparable management principles as described by Davis et al. (1997) do not exist in HOSP. Figure 23 shows the results of the analysis phase related to the intuitive diagnosis. Notice that agency is replaced by goal setting based on the CFA, as described in 5.1.2. This paragraph continues with a description of the alternative analysis to see if management principles are a potential cause of the lack of collaboration in HOSP. This paragraph concludes with the input for the design phase of the research to reduce the management problem in HOSP.
Figure 23 Results of the analysis phase related to the intuitive diagnosis. The theoretical research showed the inefficient organizational structure and the incomparable management principles as the causes for the management problem. The empirical research showed that HOSP is operating in a dual structure, which results in good collaboration. The high scores on both agency and stewardship cannot determine if this is the cause of the management problem.

Figure 24 Example scatter-plot as will be used in the data analysis of the questionnaire.
Davis et al. (1997) mention in the principal-manager choice model (see figure 11) that stakeholders choose for an expected agency or stewardship relationship. The model assumes that a stakeholder either choose a stewardship or agency relationship. The outcome of the questionnaire shows that in HOPS stakeholders score high on both agency and stewardship. For this reason the teams cannot be assigned to one of the quadrants in the manager-nurse choice model (see figure 14). Davis et al. (1997) mention if manager and nurse score equal on agency or stewardship, a good relationship exists between them. Equality in the expected relationship results in good collaboration between manager and nurse. The equality in the expectation of the stakeholders is used to get a deeper understanding of the data of the questionnaires. The outcome of the goal setting and stewardship statements are plotted in a scatter plot. The scatter plots have on the y-axis the average of the stewardship statements and on the x-axis the average of the goal setting statements (see figure 24). In this example the scatter plot of the whole sample is shown. The scatter plot has four quadrants:

- **S** = There is a stewardship environment, respondents agree on stewardship statements, and disagree on goal setting statements
- **A ∩ S** = There is both a goal setting, and stewardship environment, respondents both agree on agency, and stewardship statements
- **A ∩ S** = There is no clear goal setting and stewardship environment
- **A** = There is a goal setting environment, respondents answers high on goal setting, and low on stewardship statements.

Figure 24 shows a red-shaded area, where respondents scored neutral on goal setting and/or stewardship statements. The underlying element of the principal-manager choice model of Davis et al. (1997) is that there must be equality in the expected relationship between the stakeholders in a team. A team with an equal expected relationship between managers and nurses is marked as a ‘success teams’. To pick a ‘success team’ the scatter plot must show a cluster of answers of unit managers, coordinating nurses, and nurses. A cluster in the scatter plots is the indication of an equal expected relationship, which means clarity about the way of working in a team. For instance, in an extreme situation where all the stakeholders in a team score the same on both goal setting and stewardship, this means that everyone have the same opinion about the way of working in a team. On the other hand if the scatter plot has a diverse range of answers, this means there are different opinions in a group about the way of working in a team. It makes it possible to use the scatter plots to distinct teams from each other. Assume a team with a clustered scatter plot have a good understanding of the expected relationship between other stakeholders in a team that result in better collaboration in a team. The distinction between teams, makes it possible to analyze teams that score better than other teams. This gives insights about the collaboration in a team and how to improve the overall collaboration in HOSP. It is important to emphasize that both nurses and managers have to
score (almost) equal. For instance, if a coordinating nurse and unit manager score ‘4’ on goal setting and ‘4’ on stewardship, and the twenty nurses in a team score ‘7’ on goal setting and ‘7’ on stewardship. In this situation there is a clustered area for the nurses, but there is no equal expectation between managers and nurses. Therefore, the team where the outcome of the managers and nurses is clustered was chosen as the first ‘success team’ in the design phase of the research, as will be described in the next paragraph. The following pages show the scatter plots of the representative teams in the sample.
Figure 27 Scatter plot team 3

Figure 28 Scatter plot team 4
Figure 29 Scatter plot team 5

Figure 30 Scatter plot team 10
Team two, four, and five are the most clustered teams. Initially, the scatter plots had agency on the x-axis instead of goal setting. Notice that as a result of the CFA, agency changed into goal setting. In that initial situation, team five was the most clustered team. The focus groups were already planned before a wrong interpretation in the CFA was discovered. This new insights about the CFA (see paragraph 5.1.2) resulted in a change from the agency construct towards the goal setting construct. With the new goal setting construct some minor changes occurred in the scatter plots. The most clustered team changed from team five towards team two with the application of the goal setting construct in the scatter plots.

The incapability of using the manager-nurse choice model made it necessary to apply an explorative analysis on other constructs measured in the questionnaire to get a deeper understanding of the situation in HOSP. The explorative analysis result in a notification of the capacity manager of the nurse department that team ten scored relatively high on the learning condition construct. This outcome was remarkable, because one year ago team ten had some internal problems. The box-plot of the learning conditions construct is shown in figure 31. Therefore, team ten was taken as a second ‘success team' to analyze in the design phase of the research.

![Figure 31 Box-plot learning conditions per team](image)

Team five, based on the clustered scatter plot, and team ten, based on the relatively high score in the learning construct, were taken as the two ‘success teams' that are used to analyze in the design phase of the research. It is necessary to get a deeper understanding of the ‘success factors’ of the well-functioning teams in order to derive success factors that are necessary to reduce the management problem in HOSP.
5.2 DESIGN PHASE

This paragraph describes the results of the design phase of the research (marked green in figure 2). The purpose of the design phase is to come up with incentives to reduce the management problem in HOSP. Team five and ten, respectively a specialized and non-specialized nurse team, were further analyzed in the design phase. Two focus groups were organized to get a deeper understanding of the mechanisms in these teams that make them successful. The success factors in the teams are useful as input for the design to reduce the management problem in HOSP. The increase of collaboration in the nurse teams means a reduction of the management problem in HOSP. In the focus group of team five, the unit manager, coordinating nurse and three nurses participated. In the focus group of team ten, the coordinating nurse, and six nurses participated.

5.2.1 Background and first impression
Team five is a specialized team that consist of 22 nurses, and team ten is a non-specialized team that consists of 27 nurses. The two ´success teams´ were selected on criteria as described in paragraph 5.1.3. Team five was selected based on the clustered scatter plot, which is a sign of uniformity in the way of working in a team. Team ten was selected on the advice of the capacity manager that noticed a relative high score on the learning conditions construct in this team. This team had problems in the past, and the relatively high score on the learning condition construct was a sign that this team made steps forward in the last year. Even though team five scored higher on the learning condition construct compared to team ten, it is important to get a deeper understanding of two teams that are in a different kind of development stage. It is important to keep the two different backgrounds of the teams in mind while analyzing the focus groups.

The overall impression of the focus group of team five was that the participants were enthusiastic and proud to talk about their team. The coordinating nurse took the lead in the discussion, but everyone had the chance to participate in the discussion.

The overall impression of the focus group of team ten was that overall the nurses were shy in the beginning, and had to get used to the focus group setting. It took some time that the discussion started, but after a few nurses in the group started to come up with stories the other nurses also started to participate in the discussion.
5.2.2 Quantitative analysis

The computer program Atlas.ti was used to perform the coding of the transcriptions. First, open coding\(^1\) was applied to label quotes in the transcription. The open codes were reviewed several times. After the open coding was completed, the family codes were created to connect the open codes to the family codes. The following family codes were created:

- Agency
- Patient as a guest:
  - Patient as a human being:
    - Relationship nurse-manager
    - Relationship nurse – medical specialist
    - Relationship nurse – nurse
    - Relationship nurse – patient
- Stewardship
- Team characteristics

The family codes and the connected open codes are shown in appendix H. For instance, the family code ‘Relationship nurse-medical specialist’ consists of the open codes ‘gelijkwaardigheid’, ‘relatie verpleegkundigen – medisch specialisten’, and ‘respect’ (see appendix H). Open codes are connected to family codes. For instance, the open code ‘respect’ is also assigned to the family codes ‘relationship nurse-manager’, ‘relationship nurse-nurse’, and ‘relationship nurse-patient’. Table 14 shows the amount of family codes in both teams. For example, team five has ten open codes connected to the family ‘agency’ (see appendix H). The open codes connected to the agency family, are mentioned 28 times in the transcription (see table 14). The quantitative analysis gives insights about the importance of several aspects in a team. To arrange the ordinal data, to see the importance of several family codes in the transcriptions, a top four ranking of topics is shown in table 14. Team five scores high on ‘relationship nurse-patient’, ‘relationship towards HOSP’, ‘agency’, and ‘stewardship’. Team ten scores high on ‘relationship towards HOSP’, ‘relationship nurse-nurse’, ‘patient as a human being’, and ‘relationship nurse–patient’. The common factor of these two teams are the ‘relationship towards HOSP’, and ‘relationship nurse-patient’. The important differences

\(^1\) A coding technique where quotes are labelled with all possible codes, and not restricted by a prepared set of codes
between the teams, is that the agency and stewardship aspects in team five are on the third and fourth place in the ranking. In team ten agency and stewardship are ranked on the eighth and ninth place. It is the indication that in team five, agency and stewardship characteristics play an important role in the daily work in team five.

<table>
<thead>
<tr>
<th>Families</th>
<th>Team 5</th>
<th>Team 10</th>
<th>ranking</th>
<th>ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency</td>
<td>28</td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Patient as a guest</td>
<td>6</td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Patient as a human being</td>
<td>17</td>
<td></td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>Relationship nurse - manager</td>
<td>7</td>
<td></td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Relationship nurse - medical spe</td>
<td>6</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Relationship nurse - nurse</td>
<td>14</td>
<td></td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Relationship nurse - patient</td>
<td>35</td>
<td>1</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>Relationship towards HOSP</td>
<td>31</td>
<td>2</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>Stewardship</td>
<td>18</td>
<td>4</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Team characteristics</td>
<td>11</td>
<td></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>173</strong></td>
<td></td>
<td><strong>123</strong></td>
<td></td>
</tr>
</tbody>
</table>

To interpret the quantitative data in detail the following paragraph provides quotes, and comments to get a deeper understanding of the differences, and equalities between the teams.

5.2.3 Quotes focus group team five

All quotes in this paragraph are shown in the boxes with a code. The first number of the code refers to the team, and the second part of the code refer to the quote number. For example label ‘5Q4’ refer to quote 4 from the focus group of team 5.

| **5Q1**: “Ik denk dat het vaste, dat je van elkaar afhankelijk bent, dat je op dat moment op formatie zit, dat deze aspecten heel belangrijk zijn. En daardoor kun je ook de zorg leveren, mensen weten dat ze van elkaar afhankelijk zijn. Mensen weten dat collega’s het van elkaar moeten overnemen, hierdoor is er een laag ziekteverzuim.” |

The clear working pattern for nurses create a dependency towards each other. This makes it clear for nurses how to operate, this result in a higher value of care towards the patient. The manager-nurse choice model (see figure 14), describes that quadrant one (both agency), minimize the risk, and quadrant four (both stewardship), result in higher performance. In this situation there is a mix between agency, and stewardship. The clear working patterns reduce the risks, which result in better performance of a team.
Maslow’s ‘Belongingness and love’ need is secured by the individuals in this team. The need of people to create relationship. Nurses can openly show emotions, as a result of the good relationship between the nurses, and the management. Hernandez (2012) mention the affective mechanisms, to build affective commitment through mutual social exchange, is a necessary psychological factor to create a stewardship environment. This team openly show emotions towards each other (5Q2, 5Q3 & 5Q4), this social exchange result in commitment (5Q5) towards the healthcare they provide for the patient.

Team five is in the fourth stage – performing stage - of the Tuckman model (see table 2). Nurses try to improve their performance to secure best healthcare for the patient. Hernandez (2012) mention developing another regarding perspective (5Q5) is an essential cognitive mechanism to create stewardship behaviour. The social comparison characteristic (see table 2) in this situation is in the direction of the board of directors of HOSP. This team realizes that the board of directors have to run a profitable business, and that extra investments need to be
well substantiated (5Q6). This social comparison towards the board of directors is a stewardship characteristic in this team.

5Q8: “Er is vanuit het ziekenhuis een patiënten tevredenheidsonderzoek, maar dat was helemaal niet toepasselijk op de verloskamers. Hierdoor hebben wij als team zelf een enquête opgesteld die op de verloskamers is gericht. Zodat je echt kunt kijken wat de patiënten missen en wat wij daar aan kunnen doen.”

This team has an entrepreneurial way of working. They try to improve quality of care, by going beyond the traditional ways to achieve this goal. Team five is a self-managing team performing in the fourth stage of the Tuckman model (see table 2). They try to improve the quality of care. As McGregor's Y-theory is applied by the manager of the team, nurses take initiatives. Managers give the nurses space to come up with new ideas, this reinforce the positive Y-cycle team five.

5Q9: “Soms komen mensen ook echt kijken, bijvoorbeeld als er een klacht is geweest dat er geen folder is over een bepaald onderwerp. Dan komen mensen kijken of na een tijdje de folder dan wel aanwezig is. Dan is het wel ook heel fijn om aan de patiënt te laten zien dat we die folder dan ook echt geregeld hebben. Dan hebben patiënten zo iets “owja ik heb het gezegd en er is ook iets mee gedaan”. Het is ook wel typisch dat mensen ook terug komen om echt te kijken of er iets mee gedaan is. Als er dan iets ligt, dan hebben de patiënten ook het gevoel dat hun klacht zin heeft gehad. Niet zoveel voor zichzelf, maar voor patiënten die na hen komen.”

Feedback is embedded in this team, it is not taken as critique, but as something to work on. This quote show the achievement of the lower esteem need in the Maslow pyramid. Nurses take the feedback serious, and they are satisfied if patients come back to check if their comments were taken seriously. The patients respect that they were taken seriously, this fulfills the lower esteem need in the fourth layer of the Maslow's pyramid. The lower esteem need, is to be respected by others. Hernandez (2012) mention enabling employees to derive intrinsic benefits from working toward a valued end, is a necessary structural factor to create stewardship behaviour in a team. The intrinsic benefit is the satisfaction that nurses experience if they can satisfy patients with new-implemented aspects to create higher value of care.

5Q10: “Sinds kort hebben we acute verloskunde hebben gynaecologen opgestart om vertrouwd te raken met acute situaties. Daarnaast hebben we ook de reanamatie training, om ook op de werkpke zelf met eigen apparatuur les te krijgen. Om jezelf zekerder te voelen als het een keer gebeurd. Als het dan gebeurd wil je ook direct kunnen handelen en niet na hoeven denken hoe dat ook alweer werkt. Je wil hier routine in krijgen.”
Hernandez (2012) mentions to create self-efficacy and self-determination through ongoing employee development is a necessary structural factor to create a stewardship environment. Nurse in this team, are constantly trained to develop themselves, and get confident with non-common working practices. This is also related to the fifth level of the Maslow pyramid and the fourth stage of the Tuckman model. Training makes the nurses confident with situations that are beneficial to achieve the self-fulfilment need and increase performance.

5.2.4 Quotes focus group team ten

10Q1: Coordinating nurse: “Het wordt altijd wel terug gekoppeld aan mij, maar het is aan het individu of ze het willen delen met het team.”

The coordinating nurse gives the choice to the nurse to share problems in the group. It is not a common thing in this group to automatically share problems in the group. This is a characteristic of a team that is more fragmented compared to team five. Hernandez (2012) mentions relationship-centred collaboration through shared leadership practices is necessary as a structural factor, to create a stewardship environment. The coordinating nurse in this situation is acting as a leader, and no shared leadership is created in a team.

10Q2: “Ik vind dat hier wel heel erg fijn. Ik heb ook op andere afdelingen gestaan, daar was de leidinggevende de “Queen-mom” en iedereen moest maar “ja en amen”zeggen. En als je het daar ergens niet mee eens was dan werd je waar iedereen bijzat de grond ingeboord.”

10Q3: “Ik geloof dat de sfeer wel goed is. Als het druk lopen we wel tegen communicatie issues op, wat dan wel voor wat strubbelingen kan zorgen.”

10Q4: “Meer dan een jaar geleden was er een roddelcultuur binnen de groep.”

10Q5: “We hebben coaching cursussen gevolgd. Daar hebben we allemaal ons gal gespuwd en van daaruit zijn we verder gegaan. Dat heeft wel positief uitgepakt.”

The power distance between managers and nurses is low in this team, which was the opposite in the past. In the past there were issues that resulted in a lot of changing nurses in the team, and it had an effect on the performance of this team. The issues had a bad influence on the working conditions in the team. A cause of the problems, was the power distance between management and nurses. This was one of the reasons that nurses moved away from the team. At some point, the management of team ten changed. Team members experienced this as an improvement of the atmosphere in the team. Nowadays, nurses mention it as a positive
point that there is a new and stable management. There is a low power distance between management, and nurses. This resulted in a creation of a positive atmosphere in this team. The circulation of many nurses in the past resulted in a constant start in the first stage of the Tuckman model. Nurses had to get used towards each other. There was also a conflict situation with the managers and nurses in the team, this is a sign that team ten was also performing in the second stage of Tuckman’s team-development model. In the past team ten was acting between the first two stages of Tuckman’s team-development model. Nowadays most conflict disappeared and mutual trust among nurses is created. There are still issues sometimes, but nurses try to solve problems together. Nowadays, team ten is acting in the third stage of the Tuckman model.

Individuals in team ten satisfied the ‘security need’ in the Maslow pyramid. By satisfying this need, the nurses could focus on satisfying the ‘belongingness and love needs’ in the Maslow pyramid. This result good relationships and atmosphere in the group. The development stage of a team, and the individual satisfaction of the Maslow pyramid are interacting with each other. For instance, as a team perform in the second team-development stage where conflict situations occur, the team members cannot satisfy the ‘security need’ of the Maslow pyramid. If a team evolve towards a higher team development, it is easier for people to satisfy needs in the Maslow pyramid.

10Q6: “Er wordt wel naar ons geluisterd, we hebben onze eigen inbreng. We hebben een overdrachtsformulier, waar patiënten opstaan met bijzonderheden.....”

10Q7: “Het zijn dingen die vaak ondersneeuwen bij de drukte van de dag. Met een voelbare zorgzwaarte die we allemaal te hoog vinden, en behoorlijke werkdruk.”

10Q8: “We willen wel graag, maar we kunnen niet alles wat we kunnen. We zien die groei wel vergeleken met het verleden. Je ziet wel verbetering......”

10Q9: “Elke dag zijn er een aantal minuten voor vrij gemaakt, waardoor je kunt denken tegen welke problemen lopen we aan en hoe zou je dit zelf oplossen. Dat loopt allemaal nog niet zo echt, de tijd om er echt tijd voor vrij te maken ontbreekt op het moment. We lopen ook hier weer tegen de werkdruk aan. We willen wel heel graag, de kleine succesje zijn er ook al. Het moet van bovenaf, maar het werkt ook wel.”

Problems are externalized in the group, nurses point out causes where they do not have influence on. In this situation they point out the workload as a cause of the incapability to implement a new way of working. They move their responsibility away by emphasizing that the
cause of the problem is outside their boundaries. Slowly team ten is taking more initiatives compared to the past, and the first benefits from it are already visible. Team ten is actively working on improving relationships and the atmosphere in the team, this satisfies the ‘belongingness and love need’ for individuals. The first signs of improvement in taking initiatives are the sign that individuals in team ten are slowly start to focus on the satisfaction of the ‘esteem need’.

10Q10: “Als een patiënt naar me toekomt sta ik echt wel open voor klachten van de patiënt. Maar daar begint het vaak al, als een patiënt een klacht heeft dan komt het via een omweg bij een collega terecht. Het komt dan via een omweg. Het is eigenlijk jammer, want dan heeft die patiënt iets met jou, want ik zojuist al vertelde met dat oud vrouwtje. De oude mevrouw loopt er een aantal dagen mee, ik hoor het pas na een aantal dagen. Dat is zonde, want het stelt allemaal niet zoveel voor, maar het is voor beide niet fijn om dat pas later uit te praten.”  

10Q11: “Dat wordt dan ook gezegd, maar dan nog komen patiënten niet direct naar me toe. Ik denk dat wij ook altijd niet voelen dat we direct een collega moeten aanspreken, alleen als je het wat vaker hoort. We zijn allemaal volwassen, dus ze kunnen zelf ook wel iemand aanspreken. Wij willen ook niet tussen patiënt en collega in staan.”

10Q12: “Afgelopen weekend was het ook weer, kwam ik bij een patiënt op de kamer en dat haar dochter boos was omdat wij naar haar inziens haar moeder alleen op de kamer hadden gelaten, terwijl ze dat helemaal niet kan. “Wie heeft dat gedaan, dat heb jij zeker gedaan”. Ze vertelde het later, dat ze haar moeder wat schuin in het bed had gevonden omdat ze niet goed kon zitten. Ik was dus naar mijn collega’s gegaan en gevraagd wie hier meer van wist, iemand wist het wel want die had nog aangeboden om haar op de bedrand te laten zitten, maar de patiënt had gezegd dat het niet nodig was en dat ze haar alleen moesten laten. Ik communicer dan dan weer wel terug naar patiënt en moeder, en de dochter vertelde nee dat kan mijn moeder zelf niet weten. Ik vind het af en toe wel lastig dat er door mensen al invulling aan wordt gegeven zonder dat het waar is. Net alsof wij bewust iemand zo laten zitten omdat we geen tijd hebben. Het is alsof mensen het idee dat wij bewust dingen niet doen, dan vind ik jammer. Je doet te min aan de zorg die je levert. Als een patiënt zegt dat hij of zij zelf wat kan ga ik daar even vanuit, anders zou ik iedereen in het ziekenhuis met alles moeten begeleiden.”

In 10Q10 the nurse is disappointed that patients communicate in an indirect way. The nurse reacts defensive to point out that the patient should have communicated directly. A similar defensive quote is where nurses point out the way of communication of the patient (10Q11). In this situation the nurses act as individuals, they do not want to be involved in problems of someone else, the problem is not taken as a groups issue, but as an individual problem where they do not want to be involved with. In 10Q12 the nurse is searching for the truth to defend
the team from the patient. These examples show that the ‘safety need’ of a nurse is in danger, which result in defensive behaviour towards the patient.

5.2.5 conclusion design phase
This paragraph describes the conclusion of the design phase of the research. The design reduces the management problem in HOSP, as described in paragraph 2.2. First, a set of empirical functional-requirements are presented, that increase the collaboration and participative behaviour in a team. These empirical functional-requirements are the input of the CIMO-logics, which are presented later on in this paragraph. The CIMO-logics reduce the management problem in HOSP.

Table 15 The empirical functional-requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Empirical Functional requirements</th>
<th>Condition</th>
<th>Comment</th>
<th>Derived from focus group</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFR1</td>
<td>Working on formation</td>
<td>Specialized nurse team</td>
<td>Nurses emphasize that strict working procedure result (agency environment) in trust between nurses in a team</td>
<td>Team 5</td>
</tr>
<tr>
<td>EFR2</td>
<td>Ability to show emotions</td>
<td>'Safety need' of the Maslow pyramid is satisfied</td>
<td>Is necessary to satisfy the 'belongingness and love need' in the Maslowy pyramid and create a stewardship environment</td>
<td>Team 5</td>
</tr>
<tr>
<td>EFR3</td>
<td>Training with unfamiliar situations</td>
<td>Team is performing in third or fourth stage Tuckman and Jensen team-development model</td>
<td>In collaboration with medical specialists nurses improve their skills with unfamiliar situations, which fulfills the 'self-fullfilment' need in the Maslow pyramid</td>
<td>Team 5</td>
</tr>
<tr>
<td>EFR4</td>
<td>Coaching training</td>
<td>Individuals have not satisfied the 'safety need' in the Maslow pyramid &amp; Team is operating in the second Tuckman and Jensen team-development model</td>
<td>A coaching training was necessary to remove the gossip culture and secure the 'safety need' among nurses, and start evolve the team towards the third stage of the Tuckman and Jensen team-development model</td>
<td>Team 10</td>
</tr>
<tr>
<td>EFR5</td>
<td>Good atmosphere</td>
<td>'Safety need' of the Maslow pyramid is satisfied</td>
<td>Both teams emphasize that a good atmosphere is necessary to create good performance in a team. A good atmosphere is necessary to satisfy the 'belongingness and love need' of the Maslow pyramid.</td>
<td>Team 5 &amp; 10</td>
</tr>
<tr>
<td>EFR6</td>
<td>Low power distance</td>
<td>Low power distance has a positive influence on the atmosphere</td>
<td>Team 5 &amp; 10</td>
<td></td>
</tr>
</tbody>
</table>

Table 15 shows the empirical functional-requirements derived from the focus groups as described in the previous paragraph. EFR1 until EFR3 are functional requirements derived
from the focus group of team five, which were chosen based on the uniformity on the way of working in the team (clustered scatter plot). EFR4 is the empirical functional-requirement derived from the focus group of team ten. EFR5 and EFR6 are empirical functional-requirements, which were mentioned in both focus groups.

The design consists of three interrelated elements, namely the individual element based on the Maslow pyramid, the management-style element based on McGregor X-Y theory, and the team-development element based on Tuckman's team-development model. It is necessary to take care of all these elements in order to reduce the management problem in HOSP. For instance, it is not possible to reduce the management problem, if HOSP only focus on the individuals in a team. It is also necessary to keep the team development and management style in mind in order to reduce the problem. The interrelated elements in the design are shown in figure 32.

![Design overview, the three elements interact with each other. HOSP need to take care of the three elements to reduce the management problem](image)

The design is presented in ten CIMO-logics (marked brown in figure 2). The CIMO-logics are developed based on the theoretical functional-requirements (see table 2) and the empirical functional-requirements (see table 15). Table 16 shows the CIMO-logics and the related theoretical and/or empirical functional-requirements.
**Table 16 CIMO-logics related to the theoretical- and empirical functional requirements**

<table>
<thead>
<tr>
<th>CIMO</th>
<th>Based on functional requirement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIMO1</td>
<td>TFR3</td>
</tr>
<tr>
<td>CIMO2</td>
<td>TFR6</td>
</tr>
<tr>
<td>CIMO3</td>
<td>TFR7, EFR5, EFR6</td>
</tr>
<tr>
<td>CIMO4</td>
<td>TFR8, EFR4</td>
</tr>
<tr>
<td>CIMO5</td>
<td>EFR4</td>
</tr>
<tr>
<td>CIMO6</td>
<td>TFR6, TFR8, EFR6</td>
</tr>
<tr>
<td>CIMO7</td>
<td>TFR4</td>
</tr>
<tr>
<td>CIMO8</td>
<td>EFR5, EFR6, TFR9</td>
</tr>
<tr>
<td>CIMO9</td>
<td>TFR9, EFR2, EFR5, EFR6</td>
</tr>
<tr>
<td>CIMO10</td>
<td>TFR9</td>
</tr>
</tbody>
</table>

EFR = Empirical functional requirement (see table 14)
TFR = Theoretical functional requirement (see table 2)

**CIMO 1:** Teams in the nurse department of HOSP (C) need to determine the development stage of a team by applying a focus group (I) to get insights about the development stage of the team (M) that result in an overview of the processes and characteristics of a team and gives insights about the individual satisfaction of needs among nurses (O).

**CIMO 2:** A team in the first stage of the Tuckman model (C) managers need to control as in the McGregor X-theory (I), that increase team development in the early stages of the team-development model (M) and result in developing towards higher stages in the team-development model (O).

**CIMO 3:** A team in the third or fourth stage of the Tuckman model (C) delegation of tasks as in the McGregor’s Y-theory need to be applied (I) which result in initiatives from the nurses (M) that result in participative and collaborative behaviour (O).

**CIMO 4:** As the ‘safety need’ of an individual is not satisfied (C) it is important to openly point out problems, and frustrations which endanger the ‘safety need’ among nurses by applying a coaching training (I), this result in removing misunderstandings between team members (M) which result in a starting point to start securing the safety need of an individual (O).

**CIMO 5:** A team, where misunderstandings are removed and a starting point is created to start securing the ‘safety need’ for individuals, (C) needs to periodically plan session or reflect its own behaviour compared to the starting point (I) to get a deeper understanding on the effect of
specific behaviour towards other team members in a team (M), that leads to satisfying the safety need (O)

**CIMO 6:** Individuals where misunderstandings are removed and a starting point is created to secure the ‘safety need’ in the Maslow pyramid (C), need a clear and a control-oriented leadership (I) that reduces the risk of the escalation of the ‘safety need’ (M) and leads to satisfying the safety needs (O).

**CIMO 7:** Individuals who have not satisfied the ‘safety need’ (C), a manager can apply extrinsic motivators (I), which secure the economic safety for nurses (M), and result in the satisfaction of the ‘safety need’ (O).

**CIMO 8:** An individual who satisfied the ‘safety need’ (C), a low power distance between management and individuals need to be created (I), which has a positive effect on the atmosphere (M) and now an individual is able to satisfy the belongingness and love need (O).

**CIMO 9** As an individual has satisfied the ‘belongingness and love need’ they experience more time to work towards a service oriented approach for the patient (C), problems or improvements towards healthcare need to be analyzed by team members (I), this triggers team members to think about problems (M), and result in collaborative and participative behaviour among nurses (O).

**CIMO 10:** In a team where collaborative and participative behaviour occurs in a team (C), nurses need to transform their ideas into practice (I), this generates respect among the patient because they experience service improvement (M), which result in satisfaction of the lower esteem need of the nurses (O).

The individual satisfaction of needs in the design (marked yellow in figure 32) is based on the Maslow pyramid. The Maslow pyramid and the related CIMO-logics are shown in figure 33. The Maslow pyramid is a theory that describes the individual needs of people. The physiologic needs are assumed as satisfied, for this reason the lowest level of the Maslow pyramid is the ‘safety need’. The agency environment is beneficial for an individual when the safety need is not satisfied (marked red in figure 33). After the satisfaction of the ‘safety need’, an individual starts to work towards a stewardship environment. The stewardship environment becomes stronger after more levels of the Maslow pyramid are satisfied (marked blue in figure 33). The satisfaction of the stages in the Maslow pyramid is accelerated due to agency characteristics.
in teams (see red arrow in figure 33). Individuals in a specialized team are able to develop faster towards a stewardship environment compared to individuals in non-specialized teams. Nurses in a specialized team work on formation – agency element –, which result in the creation of mutual trust (see quote 5Q1 in paragraph 5.2.4). This is beneficial in the satisfaction of the levels in the Maslow pyramid.
Figure 34 shows the Tuckman’s team-development model. In the ‘forming’ stage there is an agency environment where institutional power exists to control the team in the early stage of their existence. In this stage everyone has to get used to the situation, and there is low commitment towards the team. In the ‘storming’ stage team members start to get used to the team setting, and conflict situation occurs towards the institutional power. In this situation a team is in a transition phase from an agency environment towards a stewardship environment. From the ‘norming’ stage a team starts to create stewardship behaviour. It is necessary for HOSP to determine the development stage of a team in order to apply a management style that is appropriate for a specific situation. In the first stage McGregor’s X-theory is appropriate. In the transition phase, the appropriate management style is not clear. The conflicts in a team determine the appropriate management style dependent on the situation. In the ‘norming’ and ‘performing’ stage it is appropriate to apply McGregor’s Y-theory.

The individual satisfaction of the Maslow pyramid, and the team development stage are relating elements. In conflict situations (‘storming stage’) it is difficult for individuals to satisfy the ‘safety need’ in the Maslow pyramid. As a majority of the individuals in a team satisfied all stages in the Maslow pyramid, it can be assumed that a team is also operating in a higher team-development stage. The team members are a collaborative entity, this is not possible in the lower stages of the team-development model. The management-style element of the design is also related with the other two elements in the design. As individuals act in the higher levels of the Maslow pyramid, the management can delegate more tasks, as it is the same in the higher levels of the team development. The three elements in the design are interrelated, and cannot be treated separately.

The CIMO-logics lead towards a stewardship environment. Davis et al (1997) mention that a stewardship results in collective serving and performance enhancement. Collective serving comes together with better collaboration in nurse teams, which means a reduction of the management problem (see figure 32).

It is crucial to determine the development stage of a specific team and the satisfaction of needs of the individuals in a team (CIMO 1). The determination of the status quo shows the development stage of a team. On beforehand of the application of CIMO 1, the characteristics of a team might give insights of the current stage of a team. Specialized or non-specialized team are related to the circulation in a team. The circulation of nurses is higher in non-specialized teams compared to specialized team, as nurses start their career in a non-specialized team and decide to specialize after a few years of experience in a non-specialized team. The circulation of nurses results that new team members have to get used to other nurses in the team, as in the ‘forming’ stage of team development.
Figure 35 shows the theoretical and empirical part of the research. The inefficient organizational structure is a theoretical cause of the lack of collaboration. HOSP is operating in a dual structure, which result in good collaboration between stakeholders as showed in the analysis phase. This means that in the situation of HOSP the organizational structure is not the cause of the management problem. The incomparable management principles (see figure 35) are a theoretical cause of the management problem. The results of the analysis phase showed that both agency and stewardship scored high in HOSP, which was not covered in literature. The alternative analysis showed distinction in the application of management principles in HOSP. The new criteria of the alternative analysis result in the selection of two ‘success teams’. These teams were further analyzed in the design phase of the research. The design phase results in empirical requirements of the teams. The empirical functional-requirements and the theoretical functional-requirements related to management principles result in a design. Notice that only theoretical functional-requirement related to management principles are used as input for the design, because the dual structure showed that this is not a cause of the management problem in HOSP. The design, in form of ten CIMO’s, creates a stewardship environment that result in collective serving and increase collaboration in nurse teams (see figure 35).
6 Conclusion

This chapter describes the conclusions of the analysis- and design phase of the research related to the intuitive diagnosis, as described in paragraph 2.2.

6.1 ORGANIZATIONAL STRUCTURE HOSP

The results of the document analysis, and the interviews show that HOSP is operating in a dual management structure. This dual management applied in HOSP is a variant on the dual structure as mentioned by Beijer and Paquay (2011). There are differences in the theory of Beijer and Paquay (2011) compared to the organizational structure of HOSP. Beijer and Paquay (2011) mention that employed medical manager are acting under supervision of the board of directors of a hospital. The medical managers are the link between general management, and the specialist partnerships. In HOSP there are no employed medical managers, the connection between general management and specialist partnership are process- and domain managers. They are the connection between the core staff that consist of a chairman of a specialist partnership, and the capacity managers in HOSP (see figure 36).

![Figure 36 Overview dual management structure in HOSP](image)

The interviews showed a good collaboration between medical specialist, management and nurses. Team five is working together with employed medical specialists instead of medical
specialists in specialist partnership. Nurses experience the difference between employed medical specialists, and medical specialist from a specialist partnership. Employed medical specialists keep the goals of the hospital in mind, which result in better collaboration. The dual management, as applied in HOSP, creates good collaboration between the stakeholders. The ‘inefficient organizational structure’ is a theoretical cause of the lack of collaboration, but the empirical results of the analysis phase show that the organizational structure in HOSP is not the cause of the management problem. Even though the organizational structure for HOSP is not the cause of the management problem, the result of the interviews show that focusing on transforming more specialist in employed medical specialists would result in better mutual understanding, and have a positive influence on the collaboration. It is difficult to change medical specialists from a specialist partnership towards employed workers, as they need to transform from entrepreneur towards employed worker. The cause of the transformation in team five towards employed medical specialist is out of the scope of the research. The results of the interviews in the design phase about the collaboration between medical specialists, managers, and nurses might be affected by social desirability bias. A reason to assume this bias is the majority of the interview respondents emphasize that the collaboration is working properly at their department, but they have doubts about the functioning of the collaboration with medical specialists in other teams. The doubts are not always part of gossips, as some respondents had experience in other departments.

6.2 STEWARDSHIP AND AGENCY IN HOSP

The analysis phase of the research shows that management and nurses score both high on agency- and stewardship construct. The principal-manager choice model theory of Davis et al. (1997) is not applicable in the sample. The incomparable management principles are a theoretical cause of the management problem, but the analysis phase of the research showed that this theory is not applicable in this sample. It was necessary to apply the alternative analysis on the management principles data to find elements to reduce the management problem in HOSP. The alternative analysis was set up based on the underlying aspects of the principal-manager choice model. This model describes that an equal understanding between managers and nurses is necessary for good collaboration in a team. The alternative analysis was to analyze scatter plots of the agency- and stewardship outcomes per team. The

---

Social desirability bias refers to the fact that respondents are unwilling or unable to report accurately on sensitive topics for ego defensive or impression management reasons (Fisher, 1993)
assumption in the alternative analysis is that a clustered outcome of a team shows an equal expected relationship, which indicates a mutual understanding on the way of working in a team between management and nurses. The mutual understanding have a positive influence on the collaboration, which reduces the management problem in HOSP. Team five was the most clustered team. Therefore, team five was used to analyze in the design phase of the research. Besides team five the capacity manager noticed a relatively high score on the learning construct of the questionnaire for team ten. Therefore, this team was also taken into account to analyze in the design phase of the research. In the design phase focus groups were organized to get a deeper understanding of the success factors in these teams.

The focus groups showed that both teams are motivated to work towards better collaboration, and participative behaviour. The major differences between these teams are the development stage, the type of team, and the background of these teams. Team five is a specialized nurse team where nurses worked for a longer period. The management of team five delegates tasks, and nurses in a team are free to come up with new ideas. Quotes 5Q2, 5Q3, and 5Q4 show that the belongingness and love needs are satisfied in this team. There is a good atmosphere where nurse can openly communicate, and creating possible new ideas to implement in their team. The satisfaction of this need, makes it possible for team five to satisfy the esteem need of the Maslow pyramid (see quote 5Q9). These elements result in good collaboration and participative behaviour among the nurses in this team. The quotes of team five indicate that individuals in this team are operating between the fourth and fifth stage of the Maslow pyramid and that the team is in the ‘performing’ stage of the Tuckman’s team-development model. The satisfaction of the stages in the Maslow and the Tuckman model, result in better collaboration and participative behaviour, and the possibility to focus on service oriented approach towards the patient. Also in team five there is a high workload, like in other teams of the nurse department, but the development stage of the team and the satisfaction of needs among nurses make team five capable in focussing on a service-oriented approach towards patients.

Team ten is a non-specialized nurse team. It is a team where nurses start their career. After a few years of work experience nurses continue their career to specialize themselves, and move towards other teams in HOSP. This result in more circulation of nurses in this team compared to specialized teams. A start of a nurse career is related to low work experience among the team members that also affect the speed of developing individuals in a team and the team itself towards higher levels in respectively the Maslow pyramid and Tuckman’s team-development model. Team ten had a turbulent past with internal problems. There was a high power distance between management and nurses in this team, and a gossip culture dominated the group. The power distance, and the gossip culture had a negative effect on the atmosphere in this team that resulted in extra circulation of nurses in this team. The
satisfaction of the ‘safety need’ among nurses, the second stage of the Maslow pyramid, was in danger in this period. Therefore, nurses were not able to work on the satisfaction of the third stage of the Maslow pyramid the ‘belongingness and love need’, as its crucial to create a good atmosphere in a team. Team ten set up a plan to solve the internal problems. In team ten the two coordinating nurses were replaced by a new coordinating nurse. The nurses in that team participated in a coach training where they openly communicated and discussed the frustration that had a negative effect on the atmosphere. These interventions gave team ten a good starting point to set up a plan to solve the problems. The nurses experience improvement in the atmosphere in this team, but they still have issues sometimes that they try to solve. The high circulation in non-specialized team, makes it for these teams difficult to satisfy the ‘safety need’ in the Maslow pyramid compared to specialized teams. Nurses have to get used towards each other every time when someone else enters the group. This process of getting to know each other take some time. Team ten developed from the first and second stage in the Tuckman model in the past towards the third stage nowadays. There are still issues sometimes, but team ten is able to solve problems better compared to the situation in the past. The circulation in team ten as a result of the type of team make it for team members more difficult, compared to team five, to develop towards a higher stage in the Tuckman model. This has an influence on the ability of this team to focus on the service-oriented approach towards patient, as in a stewardship environment.

The ranking of the topics (see table 14) covered in the focus groups showed that agency, and stewardship are more influential factors in team five compared to team ten. Especially the strict protocols, and the vast formation of working in the team were mentioned as important stimulators of trust in a team, and its beneficial for a good atmosphere. Through this focus on agency aspects, team ten was able to focus on a service oriented approach towards the patient. Davis et al. (1997) mention a mutual understanding on the expected relationship is necessary to create a well performing team. Based on the research, agency influences in teams in a hospital setting are accelerants to create a stewardship environment. The type of team determines the amount of agency influences that are present in a team, because of the specialized working conditions. Non-specialized teams have not a basic set of agency influences in a team, which makes it more difficult for a team to work towards a stewardship environment compared to a specialized team.

For nurses in a team it is necessary to satisfy as many stages as possible in the Maslow pyramid. For the team itself it is necessary to develop the team towards the higher stages of the Tuckman model. The application McGregor’s X or Y theory is dependent on the stages individuals and teams itself are operating in the two models. The more stages in both models are satisfied and developed, more time become available to focus on a service-oriented
approach. Agency influences have an accelerating effect on the creation of a stewardship environment.

6.3 REDUCING THE MANAGEMENT PROBLEM

The theoretical- and empirical functional-requirements results in a design to reduce the management problem. The design consists of three interrelated elements. First, the individual element is based on the satisfaction of needs in the Maslow pyramid. Second, the team-development element is based on Tuckman’s team-development model. Third, the management-style element is based on McGregor’s X-Y theory. The three elements are interrelated to each other, this means that HOSP need to focus on all the elements to solve the management problem in HOSP. A set of CILO-logics provide a stepwise plan to focus on the three elements in the design and solve the management problem in HOSP.
7 Discussion

The impact model of the design (marked red in figure 2) is dependent on the circumstances of the research setting. This chapter outlines the elements that have an effect on the impact model of the design.

7.1 LIMITATIONS

The limitations of the research have an effect on the impact model (marked blue in figure 2). The sample of the interviews to analyze the organizational structure were stakeholders from the nurse department, except of one medical specialist who participated. The purpose of the interviews was to analyze the organizational structure, and the collaboration between stakeholders in HOSP. A limitation is that the outcome might be a unilateral view towards the collaboration between medical specialists and general management, as just interviews were held in the nurse department of HOSP.

The response rate of the questionnaire was low (=51%), and the lowest team-response was 22%. Only six out of the thirteen teams of the nurse department were taken into account in the analysis of the questionnaires. A reason for the low response rate is that the questionnaire used in the research was the third questionnaire in four months spread in the nurse department of HOSP. The results of the two previous questionnaires were not available for the nurses at the time the questionnaire of this research was spread. This could have had a negative influence on the response rate in the research, because the nurses were not motivated to do another questionnaire before having the results of the previous ones. Another reason for the low response rate is that the questionnaire was launched just before the Christmas break. This could have had an effect that people forgot to fill in the questionnaire. The risk of launching the questionnaire before Christmas was necessary to avoid planning problems to finish the project. The restricted range of respondents can result in non-response bias\(^3\), which makes the reliability of the results of the research limited.

\(^3\) Individuals chosen for the sample are unwilling or unable to participate in the survey. Non-response bias is the bias that results when respondents differ in a meaningful ways from non-respondents (stattrek, 2013)
The outcome of the questionnaire showed high scores on the stewardship statements. Socially desirable bias might be an explanation for this outcome. This bias occurs when nurses fill in the questions as if the results look favourable, instead of the actual situation in a team. The stewardship statements were derived from the article of Schepers et al. (2012). The statements in the research were applied in a customer contact centre at a medical equipment manufacturer. Even though the statements were transformed towards vocabulary as understood by nurses, the original environment of the statements, the customer care setting remains a different environment compared to a hospital environment. The agency and stewardship statements from Schepers et al. (2012) are not validated in a hospital environment, which can lead to a misrepresentation of the outcomes of the questionnaire.

Another reason of the minor variance in the stewardship outcome is that after the initial deadline the capacity manager requested the nurse teams several times to fill in the questionnaire. Nurses could have had the feeling that they need to fill in the questionnaire to generate a response rate to satisfy the capacity manager, without taking time to understand the statements. This is another reason that can explain the minor variances in the questionnaire, and effect the reliability of the outcomes.

The design to solve the management problem in HOSP is based on the collaboration between managers and nurses in a team. Medical specialists also participate in a team, this stakeholder was not taken into account while developing the design. Davis et al. (1997) mention that the expectations of management principles by stakeholders have an effect on the collaboration. The theory of Davis et al. (1997) is used to select ‘success teams’ in HOSP to reduce the management problem. The exclusion of the medical specialists in the research may affect the reliability of the application of the CIMO-logics in HOSP.

7.2 RELEVANCE OF RESEARCH

The results of the analysis phase show high outcomes on both the agency and stewardship statements. Davis et al. (1997) describe in the Principal-Manager Choice model that managers and principals expect a stewardship or agency environment. The research show that agency and stewardship can occur at the same time. Quadrant one in the principal-manager choice model shows cost reduction in a team (effectiveness) by expecting an agency relationship between the stakeholders. Quadrant four of the principal-manager choice model shows an increase in performance (efficiency) by expecting a stewardship relationship between the stakeholders in a team. The results of the research show that a combination of agency and
stewardship has an effect on both effectiveness and efficiency in a team. The results are a contribution to the existing literature, as the existing literature restricts stakeholders to choose between agency or stewardship and does not cover a combination of both. This research shows the possibility of the equal existence of two management principles in a team.

7.3 SUGGESTIONS FOR FURTHER RESEARCH

The literature shows the importance of taking several stakeholders in consideration to determine successful collaboration in a team (see principal-manager choice model in figure 11). The research was limited to managers and nurses at the nurse department in HOSP. Medical specialists might also have an influence on the possibility to create a stewardship environment in a team. Future research should also include medical specialist to get a deeper understanding of the possibilities to create a stewardship environment in a team.

The minor variance in the stewardship statements resulted in the extension of the analysis phase (see paragraph 5.1.3). The explorative analysis of the other variables measured in the questionnaire resulted in applying independent sample t-tests between constructs measured in the questionnaire. The outcome of the t-tests showed a trend between the goal setting, and learning condition construct (see appendix I). Overall, the teams scored high on the goal-setting construct, also scored higher on the learning condition construct. An agency-related environment – goal setting is part of the agency construct - seems to have a positive relationship towards the learning conditions construct. In the end, the independent sample t-tests were not used in the research. Therefore, further research is necessary to confirm this relationship.

The design as described in paragraph 5.2.5 need to be tested in practice. The status quo of a team at HOSP need to be determined in the beginning. HOSP creates an overview where teams are operating in the Maslow pyramid. Dependent on the operating level of the Maslow pyramid CIMO-logics are applied in a team. After implementing the CIMO-logics, another status quo measurement must be applied, after some months of working in a new situation. Future research is necessary to test the CIMO-logics in practice.
7.4 RESULTS WORK-SATISFACTION SURVEY

In November 2012 there was a work-satisfaction survey at the nurse department of HOSP. The outcome of this work-satisfaction survey shows if a specific team scores similar, above, or below the average of the nurse department on nine topics. Five out of the six representative teams, as used in the analysis phase (see paragraph 5.1.2) scored similar or above the average of the nurse department in the work-satisfaction survey. Team one till five, which are in the same unit, score all similar or above the average of the nurse department in the work-satisfaction survey. Three out of seven of the non-representative teams scored similar or above average in the work-satisfaction survey. This is respectively 86% of the representative, and 43% of the non-representative teams in the questionnaire of the research (see paragraph 5.1.2) scored similar or above the average of the nurse department in the work-satisfaction survey. Even though this relationship between these outcomes is out of the scope of the research, there might be a clarification for these outcomes based on the design as described in paragraph 5.2.5. To fill in a questionnaire a certain amount of self-reflection is required. The consciousness among nurses to apply self-reflection comes along with the amount of stewardship in a team. In a stewardship environment, self-reflection is a constant positive reinforcing cycle. Self-reflection leads to new ideas and collaborative behaviour as incentives for a stewardship environment. A lack of self-reflection can occur when a team is not operating in a stewardship environment. This is the situation where the ‘safety need’ of the Maslow pyramid for nurses is not satisfied and/or a team is performing in the first two stages of the Tuckman’s team-development model. A lack of self-reflection can occur when a nurse is trying to satisfy the ‘safety need’. This lack of self-reflection is a reason why nurses are not willing to participate in a questionnaire. A questionnaire might be seen as a time consuming superfluous thing. This might be an explanation for the non-representative teams in the questionnaire (see paragraph 5.1.2). Individuals in a team are too busy with satisfying the ‘safety need’, and were not interested in participate in this questionnaire.

On the contrary, the high response rate of the representative teams (see paragraph 5.1.2) might be an explanation that these teams have a higher consciousness of the importance of self-reflection to improve healthcare quality. Team one till five also have the same unit manager for a longer period, compared to other teams in the nurse department. The constant leadership might be an advantage for a team, because they do not have adapting issues of management change. These teams fulfilled the ‘forming’ and ‘storming’ stage of team development and in the team members in these teams are able to focus on self-reflection that result in stewardship behaviour.
HOSP can determine the team-development stages of the teams that did not have a representative response rate by applying CIMO 1. HOSP creates an overview where the individuals in the non-representative in the Maslow pyramid and where a team in Tuckman’s team-development model is operating. The determination of the status quo of these teams creates a starting point for the application of CIMO 2 – 10.
8. Reflection

Writing this master thesis was a challenging, but instructive project. Periods of for and setbacks that resulted in ups and downs in my motivation to work on this project. I learnt many things during this master thesis project. Something that I learnt, and underestimated in the beginning, were the research ethics when it comes to privacy issues of respondents who participated in the research. The privacy issues are important by doing scientific research. It is necessary to inform respondents in a proper and clear way, and treat the data confidential.

Another important learning aspect was the importance and the time consuming task to set-up a deliberate questionnaire. The amount of time and the minor difference in the outcome of the questionnaires let me understand the risks involved by applying quantitative research in an organization. In the research I also applied qualitative research, in the analysis phase by doing interviews, and in the design phase, by doing focus group. The focus group gave me insights about the ratio between time investment and the usefulness of the received data compared to questionnaires. The qualitative research-approach is in an organizational setting more valuable, and it is less time consuming, compared to spreading a questionnaire in an organization. For the quantitative research, the possibilities of misunderstanding must be filtered out of the questionnaire before launching it, which is a time consuming process. Focus groups give you the chance to guide a discussion, where you always have the possibility to clarify aspects that remain unclear for the participants. The possibility to anticipate in a discussion creates valuable data. Quantitative research is a good instrument to reach a lot of respondents, and test hypotheses. Qualitative data is in a design-oriented research a more valuable research tool compared to a quantitative method.

For me it was the first time that I performed a focus group. After writing the transcriptions, I realized sometimes that I should have asked further on specific topics, when participant did not go into detail. Overall I was satisfied in the way I performed the focus group, because I had the feeling that I stimulated the participant, and created a good atmosphere that resulted in practical examples from the participants.

I started my master thesis project in the beginning of 2011, by choosing a first supervisor. A this point I chose dr. F.M. Van Eijnatten, as he is the expert on organizational renewal and complexity, and I was interested in the service science theory, which was part of the Human performance in innovative organization course as offered during the master program. Service-oriented thinking was my starting point of finding a topic to write my thesis. This search process was intermittent by my Erasmus semester in Berlin. After coming back
from my Erasmus in April 2012 I had to finish one course and restarted the process of finding a research topic. The ‘after-Erasmus syndrome’, made it a difficult period for me to start up again, especially because you have to do your thesis work on your own. I had problems by finding a research topic. I discussed this service-oriented thinking with friends of mine, this resulted in a conversation with a friend who started to talk about hospital organization, and the transitions are happening at the moment. It interested me, and I started to look on the internet about healthcare management, where I found out that it has a broad range of research topics. At this point, I decided to focus my master thesis project on hospital organizations. The master thesis project showed me that a hospital organization is a challenging environment, because of the conflicting interests between stakeholders.

Now I am facing the end of this master thesis project, and also the end my student life. This master innovation management was the intelligent challenge that I needed after graduating for my bachelor at Avans University of Applied sciences. The courses in this master gave me insights of a broad arrange of topics. My international semester gave me a lot of personal experiences. This master thesis project learnt me to develop a scientific research by myself. With all this intellectual luggage, I feel ready to start looking for a job.


http://www.jhdgroup.com/jhd_pdfss/JHDgroup_monograph_Hospital_Physician_ClinicalIntegration.pdf


Investopedia. (2013). *Definition of ‘deregulation’*. Retrieved from 
http://www.investopedia.com/terms/d/deregulate.asp


