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Examining the controller activities at MST

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Management Summary

MST needs to get more efficient in total. As a result the financial manager would like to address the efficiency and effectiveness of the controllers. Therefor he needs a clear overview of activities performed by the controllers and would like to compare these outcomes with activities controllers perform in peer hospitals. As a result of this provocation we formulated the following central research question.

What are the main activities of a controller in respect to the literature and in comparison to peer hospitals to improve effectiveness and efficiency of the controllers at MST.

We started this research with an extensive literature study from which we created our theoretical framework around the concept, role and activities of a controller. Besides this theoretical framework we performed a corporate style benchmark as suggested by Ammons (1999) existing of semi-structured interviews (N=22) and a questionnaire (N=25).

In the literature there is little consensus on the exact definition of the controller (or management accountant) due to the fact that literature more speaks about the different roles of a controller. We found two profound roles a controller can execute: the control role and the service role (Sathe, 1983). The controle role: "*To ensure that reported financial information pertaining to the relevant organizational unit is accurate and conform formal regulations and that internal control practices are conform to informal corporate policies and procedures".* The service role: "*to assist and support the management team in their business decision-making."*

The literature widely claims the change in the role of the controller over time: the shift from bean counters to business partner (Siegel, 1999, p.20) and often even member of the management team. However some researchers question whether this shift actually takes place, or should only be regarded as an ideal develop model (Knoop, 2015). Further, Sathe (1983) claims that when the controller is expected to fulfill both the control- and the support role at the same time, a role conflict could arise.

Verstegen (2007) performed an extensive literature research distinguishing 37 different activities for controllers. We grouped the activities and enhanced them with hospital specific activities.

Categories of controller activities	
A. Activities regarding the control system of the organization	G. Exchange of information
B. Maintenance of (financial) information systems	H. Activities regarding (operational) support role
C. Activities related to planning within the planning and control cycle	I. Activities regarding strategic support role
D. Activities related to control within the planning and control cycle	J. Activities regarding information generation
E. Processing information	K. Other activities
F. Activities related to audits and risk	L. Activities related to care administration

We tested the provocation of this study and two different calculations support the managers feeling that MST employs too much FTE in their controlling function in comparison with the benchmark. We carefully concluded that the controllers operate in a less efficient way.

MST's main categories of activities relate to performing audit and risk (F), operational support (H) and activities related to care administration (L). Followed by activities related to information generation (J) and processing (E). The benchmark's main categories of activities relate to the strategic support role (I), control within the planning and control cycle (D), maintenance of (financial) information systems (B) followed by activities related to planning within the planning and control cycle (C). A Mann-Whitney U test shows that on the activities with the significant differences (I and F) and trends (H, D and L) are also opposites to each other (benchmark more strategic, MST more operational).

Combined with the interviews, we concluded that the main activities of MST controllers are primarily of an operational/executive nature and the benchmark of a strategic support nature. The benchmark is therefore further in their development into the (strategic) service role.

We concluded that business structure is the main cause for inefficiency at MST. This is mainly due to the physical location of the controller in the organization, the functional control of the controller and the absence of a separate care administration. Besides this some boundary conditions contribute to the problem: strong leadership, vision, and strategy, ICT and standardization, the maturity of the financial administration and the involvement in strategic decision making.

We strongly recommend MST to make adjustments in the business structure by centralizing all controllers and establish a separate and centralized care administration. Beside this we recommend to: show strong leadership, formulate a clear job description, invest in the knowledge of the financial administration and standardize management reports.

Preface

In front of you is the master thesis “Examining the controller activities at MST”. This research has been conducted within The Medical Spectrum Twente, one of the largest non-academic hospitals in the Netherlands and three benchmark hospitals of comparable size .

This thesis has been written in the context of my graduation for the study Master Business Administration at the University of Twente, and commissioned by the Medical Spectrum Twente, Department of Finance & Information.

In close cooperation with my supervisor at MST, Ir. Ben Schukkink, I've managed to formulate a clear research question. The research has been conducted in an complex environment as the healthcare sector is, and in an turbulent context (financial distress for MST). This made it difficult to conduct a research for assessing the efficiency and effectiveness and the involvement of human research entities at the same time. However after an extensive literature research and both quantitative and qualitative research, we managed to solve the research question. And we believe that we succeeded to deliver a research report that has both a theoretical contribution and at the same time pragmatic solutions for MST.

I had great support from Ben Schukkink, in the contact with the benchmark hospitals and the numerous sparring sessions. As well from my supervisors at the University of Twente: Berend Roorda, Peter Schuur and Henk Kroon who supported me in directing this research. And of course my brother in law Robert Leusink, which has been a great support, critical sparring partner and inspiration for me.

I'd like to use this moment for thanking my supervisors at both the University of Twente and MST. As well as all my colleges at MST department F&I, who gave me a warm welcome and supported me in writing this thesis. And this research couldn't have succeeded without the cooperation of the managers and controllers of both MST and the benchmark hospitals.

And last but not least my family, and in special my parents and girlfriend for their support and motivating words.

I wish you a lot of pleasure during reading this thesis.

Edwin Bies

Enschede, 20 August 2017

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1. Introduction

1.1 Medical Spectrum Twente

Medical Spectrum Twente (MST) was founded in 1989 after a merger between two existing hospitals in Enschede (Ziekenzorg and the Stadsmaten) and the Roman Catholic hospital ''Heil der Kranken'' in Oldenzaal. In addition, MST has two outpatient clinics in Losser and Haaksbergen. MST is one of the largest non-university hospitals in Netherlands. The catchment area MST serves comprises about 264.000 people. MST employs about 4.000 employees, from which about 260 medical specialists. Their mission statement is formulated in the following manner: "*MST was created to improve the health of the inhabitants of our region, by offering general and top clinical specialized medical care, education and research. MST strives to ensure that patients do not have to leave the region for their healthcare.*

For the years 2015-2018 MST has developed a vision, which will serve as a guideline for testing decisions in the field of care and management.

Vision 2015-2018:

- All employees in MST, are constantly working on a culture in which improvement of the healthcare, reducing risks and unintended risk to the patient, are central.
- MST, is a safe environment for patients, visitors and employees and provides high quality specialized medical care to the patient.
- Depending on the type of healthcare we work with other healthcare institutions to have a wide range of general, as well as complex care, available in the region.

MST expresses the ambition to become ''the best improve hospital'' of the Netherlands.

For a clear overview of the organization chart see appendix A. Since January 1st, 2008 MST has a new organizational structure: the RVE-model.

The main purpose of the RVE-model is the decentralized allocation of responsibilities, as much as possible. These responsibilities include quality, efficiency and financial performance (in terms of revenues and costs). This is realized by involving the business- and medical management closer, and making them in duality responsible for the business processes and the financial performance (RVE's in MST, internal document, May 2010).

1.2 Provocation

From a conversation with the financial manager of MST the following issues appeared. At this moment it's not clear whether the activities that central- and decentralized controllers perform match with the activities a controller is supposed to perform. The manager likes an overview of the activities performed by the controllers, and compare these outcomes with activities controllers perform in peer hospitals.

The manager has also mentioned a study deducted by PWC in 2012 concerning the financial department as a whole, which indicated several inefficiencies. And least but not least the financial manager highlighted that in his opinion there are too much FTE in the controlling function in comparison with peer hospitals. He would like to verify his thoughts and opinion by analyzing the process of controlling within MST and benchmark these results with the peer hospitals.

During my first period within MST additional challenges concerning MST and the financial department have occurred. The challenges MST is facing are to get more efficient in total.

To summarize the provocation of this study:

- The manager likes a clear overview of the activities performed by their controllers, and compare these outcomes with the activities controllers perform in the benchmark , in the light of relevant controller activities in the literature;
- According to the opinion of the manager, there are too much FTE in the controlling function;
- In 2012 a study from PWC shows there is much room for improvement in the financial function as a total in comparison to peer hospitals;
- MST needs to get more efficient in total; so also within the financial department.

1.3 Problem statement

The provocation of this study leads to the following problem statement:

Provide insight in the efficiency and effectiveness of activities executed by controllers by designing and performing a benchmark research.

1.4 Research questions

To solve the prior mentioned problem statement of this study we have formulated a central question and several sub questions.

Central research question

What are the main activities of a controller in respect to the literature and in comparison to peer hospitals to improve effectiveness and efficiency of the controllers at MST.

Sub questions

The following sub research questions have been established to answer the central research question. These sub research questions will also serve as a structure for the research and make the central research question more tangible.

1. *What is according to the literature the definition of a controller, what are the activities and how has the controller developed over time?*
2. *What is the definition of a benchmark study and how is a benchmark study designed?*
3. *What are the main activities of the controllers at Medisch Spectrum Twente and in the benchmark?*
4. *How is the controlling function organized in MST and the benchmark?*
5. *Which differences between literature, MST and the benchmark lead to superior performance ('best practices')?*

1.5 Research design

Below you'll find an overview of the research design of this study. The numbers mentioned refers to the sub questions as stated in the previous paragraph.

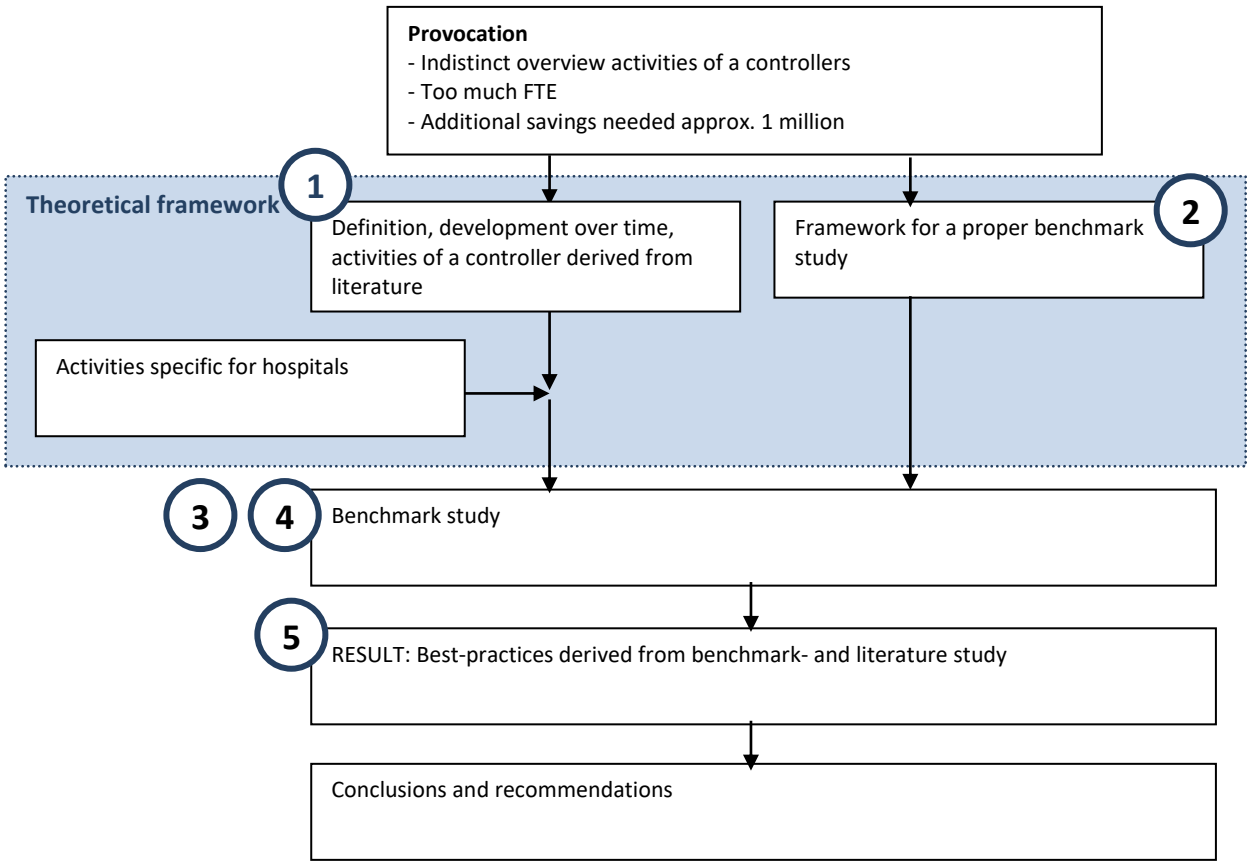


Figure 1 – Research design

1.6 Limitations

Below we will discuss the limitations of the conducted research (methods). It's important to acknowledge these limitations while reading this thesis.

Controller function instead of financial function

One of the main limitations of this research is that the focus is restricted to the controller function instead of the financial function as a whole. To ensure enough depth in this research we decided to limit the scope to the controller function instead of screening the organization of the administrative and financial organization as a whole. This means we don't assess the presence of supportive services in depth.

Context of conducting the research

The context in which the research is conducted could be a possible limitation of this research as well. At the moment this research is conducted, MST is in financial distress because of among other things, a decline in the growth of revenues and increasing (capital) costs. This has several implications that could influence the results of this research. The CFO has announced, and partially already executed, the plan of reducing the amount of FTE's employed in the controlling staff. This resulted in agitation among the group of controllers. At the controller meeting where the financial manager presented the plans for the reorganization, at least one of the controllers mentioned that she was not going to cooperate with this research because of the following reason: *"by giving disclosure about her activities as a controller, she digs her own grave"*. Controllers could for example exaggerate the problems/situation because of displeasure with the situation. Furthermore they might not be willing to give full disclosure about the activities they perform. Other controllers might also be dissatisfied with the situation or afraid of being fired. This sentiment could lead to biased results.

Categorization of activities

In order to be able to compare the activities of a controller we need to categorize them. Both the words tasks and activities are used in this research and refer to the same concept. By providing a list of categories with the most common controller activities, there might be a chance that we direct the interviewees in their thinking this could possibly affect the answers they give. Asking the controllers to specify every task in detail might provide more details, however this makes it more difficult to compare these results and will probably decrease the response rate because of the time needed to fill in the surveys. So a concession has to be made to increase the comparability and response rate. However, a potential benefit of the list of controller activities we used in our questionnaire is that it has been tested and used several times to investigate controller activities.

Translation and aggregation of activities

The initial list of controller activities in this survey was written in English. Several controllers acknowledged that they had problems with understanding the definitions written in English. So for a sufficient understanding of the activities, we decided to translate the list into Dutch.
In this process, translation errors could have occurred, the perception/interpretation of the activities written in English, can be different from the activities translated in Dutch. Next to the translation problems, some of the controllers acknowledged that they had problems with the meaning of the activities formulated in the survey. We tackled this problem by grouping the activities in understandable categories and providing the controllers with a short clarification of the activities.

2. Theoretical framework

Within this chapter we provide a comprehensive overview of the theories that will be used in this research. First of all a literature review is conducted to build a comprehensive understanding of the concept and context of a controller.

Therefore we discuss in following order its position in the organizational context (§2.1) and the evolution of the controller over time (§2.2). The definition of the controller (§2.3) and the possible roles of the controller according to the literature (§2.4). This together serves as the basis on how we see the main roles of the controller according to the literature, in this research. (§2.5). Then we describe the possible role conflict of the controller (§2.6) and eventually in the last paragraph we describe the activities and responsibilities of the controller (§2.7).

In advance we would like to state that in our literature review, and also acknowledged by the research of Weber (2011, p.26), Ahrens (1999) and Messner et al. (2008) we noticed that the term 'management accountant' is practically equivalent for 'controllers'. Verstegen et al. (1997, p.9) acknowledges this as well and indicate that both management accountant and controller are commonly used in this field of research, however the term management accountant is more often and commonly used then controller.

In this study, we use the name as the author has used it in reference literature. In all other cases, we use the term controller because this is most tangible to MST. In case we use the term controller we also mean management accountant.

2.1 The position of the controller in the organization

In order to build a good understanding of the controller in the organization, it's important to clarify the context it's operating in. After we have charted that, we will discuss the evolution in controllers' roles over time.

The International Federation of Accountants (IFAS) provides a widely accepted model (figure 2) for the Financial Management (Financial and Management accounting) context. The aim here is not to clarify every concept in the model in detail but to provide the reader an understanding of how the controllers' main activities (financial- and managerial accounting) are embedded in the financial management context. Therefore this model provides us with a good overview of the context in which the controller is acting.

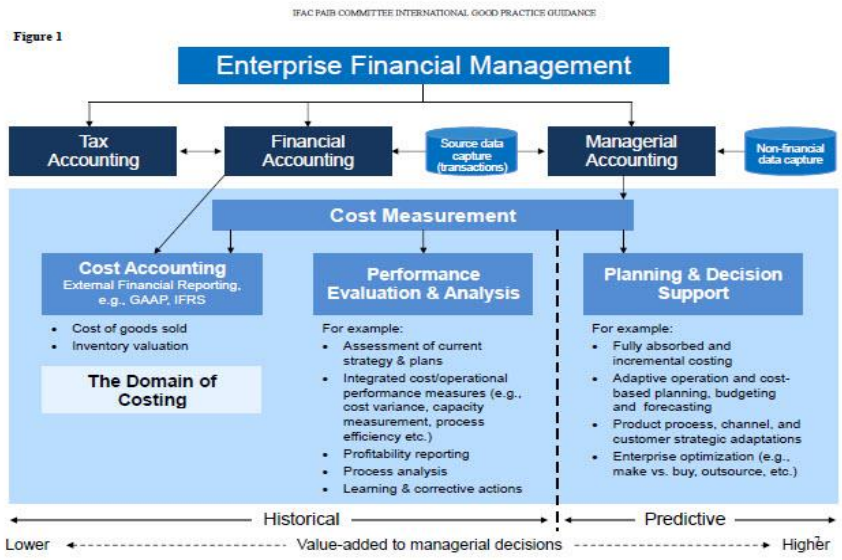


Figure 2 – Enterprise financial management according to IFAC (2009, p.7)

In an document written by Savage and Jasch (2005, p.12), commissioned by the International Federation of Accountants (IFAC), they have defined two broad categories regarding the accounting practices in organizations. In which the following categories of practices are often encountered in organizations:

- **Financial Accounting (FA**) is concerned with the more pure accounting activities and delivering financial statements for the purpose of the external stakeholders of the organization. However this doesn't mean that the products delivered by Financial Accounting are not used internally.
- **Management Accounting (MA)** is more directed towards the internal stakeholders (Knoop, 2016, p.15) and focuses on providing financial and non-financial information to the management of the organization, in which the latter uses this information for internal decision making.

As we can see in figure 2, the more we go to the right horizontally, the nature of the activities shifts from historical (backwards looking) to predictive (forward looking). FA and MA can therefore respectively be associated with historical information (generating) and predictive information supply.

2.1.1 Positioning of the controller in Dutch healthcare organizations

An often encountered organization chart regarding the financial functions in Dutch healthcare organizations is shown in figure 3. Knoop and Van de Ven (2016, p.231) developed this organization chart on basis of their empirical multiple-case study in ten Dutch healthcare organizations.

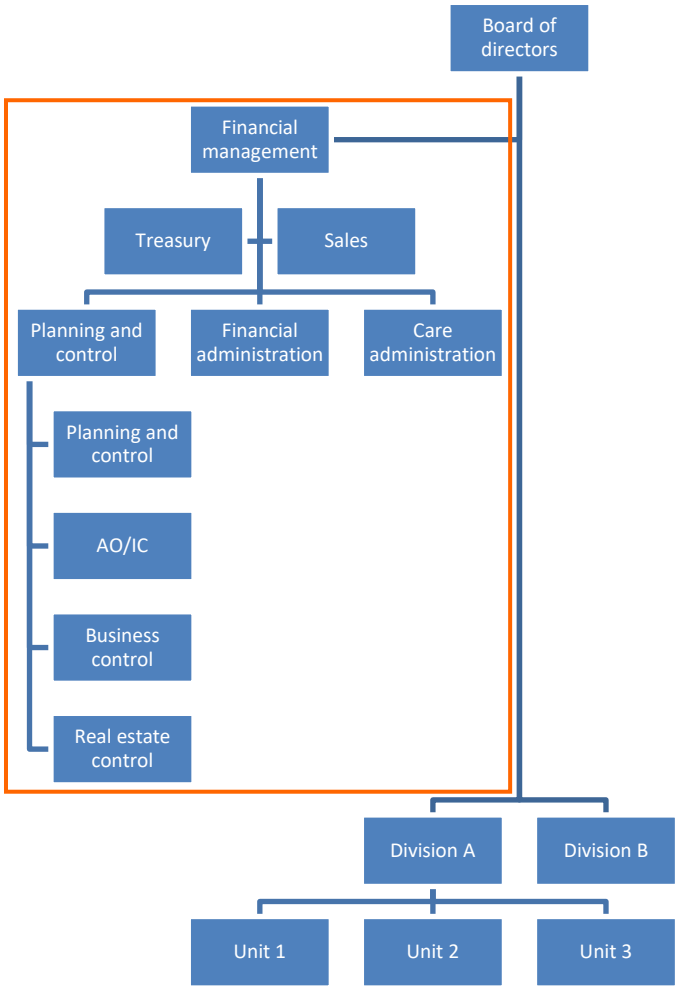


Figure 3 - Common position of the financial- and control function in a Dutch healthcare organization (Knoop and Van de Ven, 2016, p.231)

When we take a second look on the common organization chart (figure 3) of Dutch healthcare organizations we find in the vertical column of this organization chart (upper orange box) the central financial function. The financial function of the healthcare organizations in their research, appear to be highly specialized. Knoop and Van de Ven (2016, p.230) indicate that in this central financial function we can distinguish: business control, treasury, real estate control, care control (also called production control), planning and control and the administrative organization/internal control (AO/IC).

2.2 Evolution of the controller

The controller and its equivalent, the management accountant has a rich history. In the late 19th century the concept of a controller (also called comptroller, in the US) was firstly introduced by the American railroad organizations (Kristofersson et al., 2008). At that time the main responsibilities of the controller were taking care of accounting routines and asset management, in other words the prior mentioned more pure financial accounting activities. Roehl-Anderson and Bragg (2004, p.1) conclude: "*the controller was originally nothing more than a bookkeeper"* and *"traditionally the controller, or management accountant, was tolerated as a necessary evil, viewed as a bean counter or a corporate cop*'' (Rouwelaar, 2007, p.6).

In the IFAC's statement *"Management accounting concepts"* (IFAC, 1998) the evolution and main focus in the Management Accounting practice, is described in headlines as well. They distinguish four stages in the field of Management Accounting practice development over time and provide us with an overview of the main focus in every stage.

Stage 1: Before 1950
The focus in Management accounting is on cost determination and financial control.

Stage 2: Around 1965
The main focus is on providing information to enact managements' planning and control.

Stage 3: Around 1985
The main focus is on resource waste reduction, used in the business processes e.g. Lean Management.

Stage 4: Around 1995
The main focus is on value creation through the effective use of (human) resources.

The main drivers that rapidly change the management accountant's environment are improvements in information technology (IT), changes in organizational structures, higher complexity and competitiveness in the external market and new management practices (Ezzamel et al., 1993, 1996).

Regarding the main changes and evolution in the role of the controller the one thing we need to keep in mind is that: the emphasis shifted from **a passive** role in which capturing and processing (historical) accounting data is paramount, towards a more **active** role, in which an interpretation of the data and advisory is main important.

Especially this shift from 'bean counter' to 'business partner' is a trending topic in the management accounting literature (see for example Kaplan (1995), Siegel (1999), Weber (2011) and Rouwelaar (2007), in which the bean counter role represents the financial accounting role and the business partner role represents a more management accounting role. Many researchers recognize and acknowledge the shift in the management accountant's role, over time, from the pure 'financial controller' and 'scorekeeper' into 'the strategic internal consultant role'. See for example the often cited research paper of Burns and Scapens (2000) into the change in management accounting.

Grandlund and Lukka (1998, p.187) found, in their research, a similar development in the roles of the controller. They found with regard to the changing role of the controller throughout time, the following development:

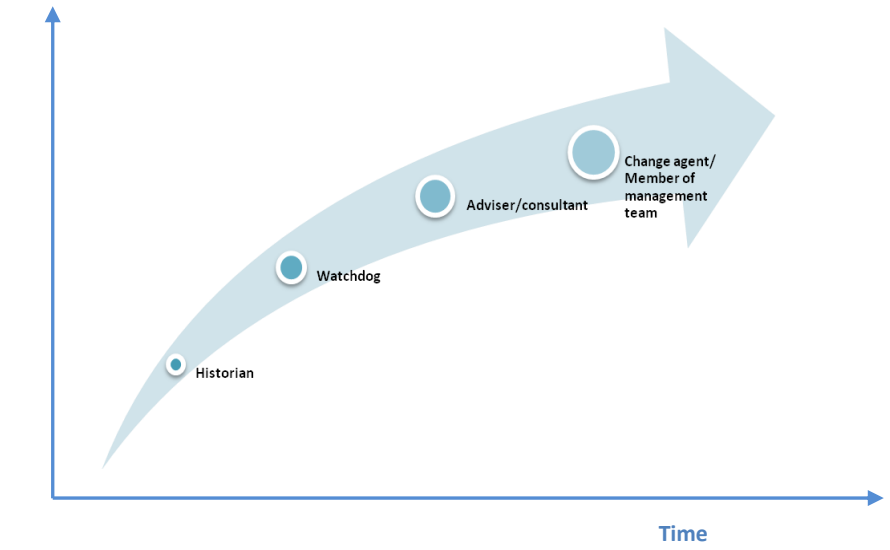


Figure 4 - Development of controller role over time according to Grandlund and Lukka (1998, p.187)

Knoop (2015, p.18-19) studied several models e.g. Van Veen and Van der Wal (1996), De Waal (2003) and Weber and Schäffer (2013), regarding the development of the traditional controller into the business partner role and discovered that the three models fitted as a blueprint over each other. This resulted in the following model:

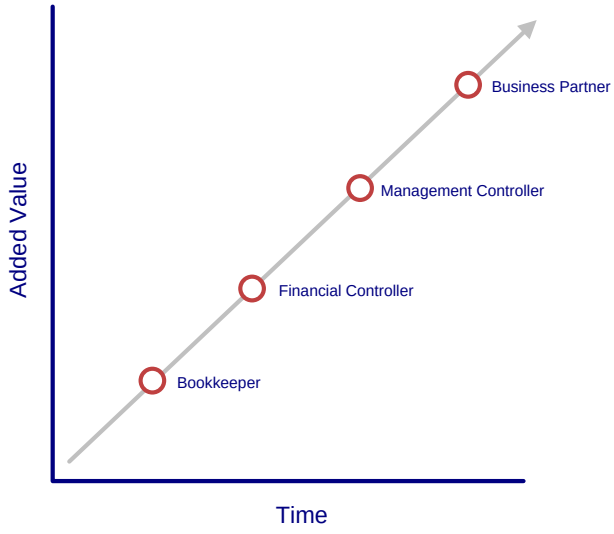


Figure 5 – Interpretation of the future of the financial function (Knoop, 2015, p.19)

Knoop (2015, p.19) adds an important remark with this model as described in the management literature. So far there has been few empirical evidence in the literature that the role of the controller in practice is **actually developing** in the direction in of business partner, rather it should be considered as an ideal model of the development of the controller.

The growth of the management accountant into the direction of business partner is acknowledged by the Institute for Management Accountants (IMA) as well. In the research "counting more, counting less" (Siegel, 1999, p.20) commissioned by the IMA, the following phrase is characteristic for the current development of the management accountant:

"The management accounting profession has made a quantum leap. Over the past 10 years, management accountants have been transformed from bean counters and corporate cops on the periphery of decision making to business partners and valued team members at the very strategic activity".

To summarize and conclude, in the different literature we encounter largely the same global developments in the role of the controller:

- From pure financial accounting role (bean counter/bookkeeper) and financial control role (corporate cops/corporate watchdogs/financial controller) into the financial management accounting role (management controller/business partner/member of management team);
- Shift in nature of the role from operational towards more strategic;
- Shift from taking care of the record, accuracy and reliability of the (financial) numbers, into gathering the proper numbers, enriching this data and using this data to support management decision making.

2.3 Definition of a controller

Now we understand the position, history and evolution of the controller, it's important to develop a deeper understanding of the definition of a controller. This will contribute to a higher validity of the research, because it will increase the likelihood that we measure, what we intended to measure.

In this paragraph we will discuss and triangulate the different definitions and eventually, present the definition we use during our research. By triangulating, we mean using multiple sources (both multiple reputable dictionaries and consulting the management accounting literature) in order to build a more complete definition (Baarda et al., 2009, p.188) and eventually an higher validity of the definition used in this research.

When we consult reputable dictionaries, regarding the concept of a controller we find the following phrases:

Van Dale:	*"a controller is the financial expert in a company"*
Oxford Dictionary:	*"a person in charge of organization's finance"*
Cambridge University:	*"an executive who is the head of a company's finance or accounts department"*

All dictionaries give a similar broad and at the same time, vague definition of the controller. Striking is the fact that all three dictionaries, use the terms: *finance* and *financial* prominent in their definition to describe the controller. In other words, according to these dictionaries the primary activity and responsibility of the controller seems to '*take care for the finance of a company'.* That while we just acknowledged during our literature review that the controller should/is no longer restricted to only the financial aspects of the organization.

When we consult the dictionary for the term 'management accountant' we are redirected to the term *'Management Accounting'* and the prominent dictionaries provides us with the following phrases:

Oxford Dictionary: *"The provision of financial data and advice to a company for use in the organization and development of its business"*

Cambridge Dictionary: *"an accountant who helps managers decide how to make profits or save money by examining information relating to the costs of running a business and analyzing how much profit different parts of the business are making"*

Based on these definitions so far we can cautiously conclude that the controller/management accountant is a (chief) executive which is responsible for the financial matters in an organization. It's expected to gather, analyze financial information and advice on financial aspects for the purpose of organizational decision making. This definition is anything but clear, and needs to be deepened by definitions from the literature.

In the literature, there seems to be little consensus on the definition of the controller. Kristofersson et al. (2008) acknowledge the buzz around the definition of a 'controller' and found that there is a lack of agreement about the exact definition. During their research, they found that in interviews with people currently working as a controller, these interviewees acknowledge that even if you have the same title, the activities differ from organization to organization. The following general definitions are found in management literature:

Different definitions of the controller found in the management literature
"Controller is the person in charge of both management accounting and financial accounting in an organization; usually the chief accountant." (Zimmerman, 2005, p.784)
"A controller: the top managerial and financial accountant in an organization. Supervises the accounting department and assists management at all levels management at all levels in interpreting and using managerial accounting information." (Hilton, 2002, p.836)
"Professionals active as management accountants, financial managers, and CFO's, who are positioned as financial representative of the business unit." (Rouwelaar, 2007, p.3) *"Management Accountants or Controllers are the professionals who are responsible for the financial reports and the management accounting control system within an organization (control role) But beside this role the controllers also provide information to their mangers."* (Rouwelaar, 2007, p.3) *"Controllers are the financial measurement experts within their firm or business unit and are key members of management teams. As a member of the management team, they can influence the decisions taken by the members (act before the fact). In addition to the controller's role of contribution in business decisions, the controller is responsible for the accuracy of financial reporting and for the integrity of internal control (after the fact reporting)."* (Rouwelaar, 2007, p.5)
"A function name or person term. Controllers are service providers for other executives and are responsible for economical services. Service means support and consultation/advising and sometimes also servicing of an operational matter. Controllers are Service-partners in different functional areas." (Biel, 2007)
The professionals responsible for delivering all kinds of information are the management accountants or so called controllers. Accounting information plays an important role in organizations. Rouwelaar (2007, p.3) describes the purpose of accounting information as follows: "accounting information is designed to serve as the basis for many important decisions, both within and outside the organization".
Management accounting: "it's the process of guarding the economic vitality of the organization, by translating wishes and plans on the one hand, and the results and performance on the other hand. All in the financial dimension in which the goals of the organization have been formulated". (Boons , 2006, p.15)

Table 1 – Different definitions of the controller or management accountant

After triangulating the several definitions found in the dictionaries and the management accounting literature we can cautiously conclude that the controller:

> *Is often a (high) placed financial professional, who deals mainly with the financial aspects of the organization; the controller provides and advises the management with financial- and non-financial information, for the purpose of decision making and is responsible for accurate financial in- and external reporting and internal control.*

As we can see, this is still a very broad definition of the controller. And especially the fact that the controller can be responsible for such a large number of subjects makes it so difficult to provide an unambiguous definition. However in the next paragraph we elaborate on the possible roles a controller can serve, this will provide us a deeper understanding of the concept of the controller.

2.4 Roles of a controller

In this third part of the literature review we start by providing multiple author's definitions on the potential controller's roles in an organization. Problematic is the fact that "very different definitions of the controller (as we could read in the prior paragraph) and controller roles are used" (Verstegen et al., 2007, p.10). So there appears to be a lack of agreement on the exact definition of the role of the controller. Especially because of this lack of agreement and variety in the definition of the controller and its roles we believe that it's difficult, but highly important, to elaborate on these different views in order to build a clearer and more extensive understanding of the potential roles of a controller.

In an document written by Savage and Jasch (2005, p.12), commissioned by the International Federation of Accountants (IFAC) they have defined two broad categories regarding the accounting practices in organizations, in which the following categories of practices are often encountered in organizations:

- ***Financial Accounting*** is mostly directed at providing accurate and standardized (financial) information/ accountability to the external stakeholders of the organization (Knoop, 2015, p.15). Among these external stakeholders are for example investors, shareholders and (tax) authorities. In contrary to Management Accounting, Financial Accounting is bounded by (inter)national laws and standards like the IFRS (International Financial Reporting Standards) which is obligated for companies in the European Union. According to the IFAS, part of the financial accounting is among other things the collecting relevant data, balance accounting, financial statements auditing and the prior mentioned reporting for external stakeholder. The data that Financial Accounting delivers is primarily based on a historical data and therefore more backwards looking.
- ***Management Accounting*** is in contrast to FA more inside directed and not bounded by formal regulations. The focus in this practice is delivering financial and non-financial information for stakeholders inside the organization. The provided information will help managers in their decision making. Since there are no formal regulations for management accounting, we could expect more inter-organizational difference between the practices performed by the controllers. Important activities in MA are for example the collection of relevant data, subsequently enriching this data and eventually the strategic analysis of this particular data by using proper methods in order to support management's planning and (strategic) decision making. Regarding the activities on can think about planning, budgeting, efficient and effective resource management, monitoring performance and last but not least the design of policies and strategy.

	Financial Accounting	Management Accounting
Standardization	Accurate and standardized	Non-standardized
Stakeholders	External Focused	Internal focused
Regulations	Formal regulations	Non/ In-formal regulations
Data	Historical/ backward looking Mostly financial	Predictive/ forward looking Financial/ Non-financial
Level	Operational	Strategic
Value added to management planning and strategic decision making	Low	High

Table 2 – Main differences between Financial Accounting and Management Accounting

Anderson (1947) gave an early description of the role of a controller, and defines three main global categories: (1) Taking care for a reliable and complete financial reporting; (2) controllers are responsible for delivering information needed to evaluate managers' performance; (3) the controllers support the managers with operational decisions by delivering information and financial analyses on request.

Sathe (1983, p.31) describes the role of the controller based on its two major responsibilities: (1) to help the management team in the business decision-making possible, also referred to as the management-service responsibility; (2) to insure that reported financial information pertaining to the relevant organizational unit is accurate and that internal control practices are conform to corporate policies and procedures, also referred to as the financial reporting and internal control responsibility.

The first controller role is related to the financial reporting and internal control, and is important to organizations because they function as a local guardian (most large companies have a decentralized structure we multiple business units) against financial misreporting and signaling (managers) behavior that's not in the best interest of the company as a whole. Despite most companies have a substantial internal audit staff, and regularly visit the decentralized locations, they just can't provide the same amount of security as the controller can. The controller has, in contrary to the internal audit staff, not the same *"depth of knowledge about local systems, people and practices to be able to detect subtle misrepresentations or inadequacies."* (Sathe, 1983, p.33).

The second controller role Sathe (1983) identified is the management-service role. To effectively support the management team in the business-decision making process, the controller needs to have a high level of involvement in this process. And when the controller is more (directly) involved, it's less likely that the controller remains independent from the business unit and eventually reports objectively to the corporation's management. So a conflict of interest could arise.

Verstegen et al. (2007, p.11) describes the role of a controller as: the controller supports and advises the management of an organization in realizing their economic, public and/or financial goals. Support is interpreted in terms of the design and maintenance of management control and accounting information systems, and the procurement and distribution of information.

Boons (2006) stated that management accountants are responsible for maintenance and improvement of the economic vitality of the organization. Boons (2006) distinguishes three different roles (see figure 6).

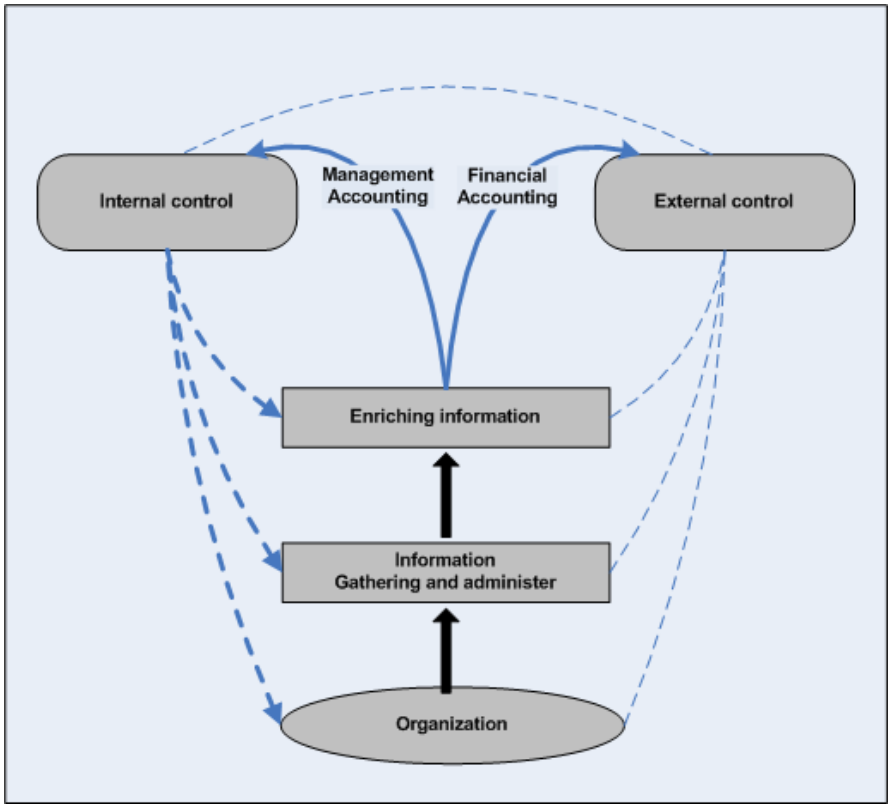


Figure 6 - Boons (2006, p.14)

First off all they provide an impression of the economic vitality of the business by selecting, registering and enriching the data needed to assess this vitality. Common activities in this sub-role are for example financial administration and gathering, recording and assessing data with regard to financial and non-financial operational processes and environmental phenomena.

Secondly, they participate in controlling/navigating the organization towards the organizational objectives. The information provided by the controllers, serves as the basis on which organizational decision making is supported and eventually initiated. *"Reversely, this decision making directs and determines the nature and reach of the information system"* (Boons, 2006, p.13). The 'navigating' role of the controller can be interpreted as optimizing the financial-economical future of the organization and preventing decision making which could harm the short and long term economic vitality of the organization.

Thirdly, the last role of the controller is the management control role that focuses on influencing the behavior of the people in the organization. It's considered as a controversial role (Boons, 2006, p.15). The fact that certain decisions have been taken, will not guarantee that the organization will move in the intended direction.

The second and third role have according to Boons (2006, p.14) the following goal: *"the central question in the management accounting and control discipline: supporting and initiating the decision making in organizations by providing information about the consequences of future decision possibilities on the financial economic vitality of the organization*".

There is another factor that makes it difficult to delimit the role of a controller. According to Boons (2006) in the management literature, one acknowledges the overlap between the responsibilities of the manager and the controller.

In line with the ideology of Anderson (1947), Sathe (1983) and Boons (2006), Hopper (1980) sketches a similar role for management accountants (controllers).

Acknowledged by the research of Mouritsen (1996), Hopper (1980) has divided the role of the management accountant into two: (1) the scorekeeping role and (2) the customer service role. In addition Hopper found that both roles are often conflicting with each other. The decision support needs of the line management (customer service role) conflicted with the needs of the central management to control line management actions (control role). His advice was to separate both functions, and assign it to two or more separate employees.

Hopper's two roles and the mutual role conflict are substituted by the research of Sathe (1983) as well. The controller's major responsibility in the management-service role is to actively aid the management team in their decision-making process. The controller is actively involved in the business decision-making process by *"recommending courses of action and by challenging the plans and action of operating executives".* We will dive deeper into this potential role conflict in paragraph 2.6.

That the two or three different roles haven't changed drastically over time, is clear from the more recent research Merchant and Van der Stede (2003), they recognized the fiduciary responsibility, supervisory role (both roles are equivalent for the financial control role of Anderson's) and the management support role (equivalent for the management control/ service role of Anderson's). All together the roles seem to have a high resemblance with the previous roles as defined in 1947 by Anderson.

2.4.1 Roles of a controller within Dutch healthcare organizations

Knoop and Van de Ven (2016, p.231) made an empirical multiple-case study in ten Dutch healthcare organizations. The purpose of their research was to assess whether decentralized controllers are really developing into business partners.

In nine out of the ten cases, there was a centralized financial function (see figure 3), in which the decentralized controller was part of a separate department **business control**. This department is subordinate to the director of the financial function as a whole. This means that in this business structure, the decentralized controller serves/supports the needs of the division directors and/or business unit managers (on location) however remains subordinate to the director of the centralized financial function.

The financial function of Dutch healthcare organizations in their research on the other hand, appear to be highly specialized. Knoop and Van de Ven (2016, p.230) state that in this central financial function we can distinguish:

- **Financial control**
  - Treasury function because of its scale and the high risks involved, assigned to specialist.
  - The real estate function is from the beginning of time an important point. Because of the many changes in regulation, there is an increased risk with regard to the management of real estate, and therefore financial specialist have been appointed
  - Because of the increasing complexity of regulations regarding the care production, most care and cure organizations decided that it was not desirable to combine it with the controller function and it needed a separate function.
  - In most organizations the AO/IC function is combined with internal audit and appointed to specialists like concern controllers or internal audit employees, which are part of the planning and control function.
- **Business control**

According to the empirical research of Knoop and Van de Ven (2016, p.231) in Dutch healthcare organizations the main activities of the controller in practice are still especially budget estimate, budgeting and financial reporting. Therefore the emphasize is on financial control, and they little develop towards the management control role.

2.5 Our view on the roles of a controller

When we put the different theories to each other we get the following overview:

Author	Sathe (1983)	Anderson (1947)	Hopper (1980)	Merchant and Van der Stede (2003)	Boons (2006)	Van Veen-Dirks and De Loo (2011)	Knoop (2015)
Role 1	Financial reporting and internal Control role	Taking care for reliable and complete financial reporting	Scorekeeping	fiduciary responsibility	Financial accounting role	Financial Account-ability role	Financial control
Role 2		Monitoring managers performance on achieving budget agreements and delivering the information needed to evaluate managers performance		supervisory role	Management accounting role		
Role 3	Management-service role	Supporting managers in operational decision making by delivering information and analysis on request	Customer-service role	Management service role	Management control role	Service directed role	Business control

Table 3 - Overview of the different roles derived from literature

As we can see the different theories have similar roles. We chose to use the concept of Sathe (1983) for the following reasons: (1) he has described the different roles in more detail then the other authors; (2) as we will read in paragraph 2.6 he described different types of controllers and (3) the roles as defined by Sathe (1983) show a high resemblance with the roles as described by Knoops (2015) who conducted his research in Dutch healthcare organizations, the same sector as this research is being conducted.

Our view on the roles of the controller:

1. **Financial reporting and internal control role >>** for the remainder of this research we will use the term 'control role' to indicate this role.
   Our definition: To ensure that reported financial information pertaining to the relevant organizational unit is accurate and conform formal regulations and that internal control practices are conform to informal corporate policies and procedures.
2. **Management service role >>** for the remainder of this research we will use the term 'service role' to indicate this role.
   Our definition: to assist and support the management team in their business decision-making.

Within these two roles the focus is respectively on financial control and management control. Subsequently the link can be made with the roles as described in the model of Grandlund and Lukka (1998), regarding the controller's development from bean counter to business partner.

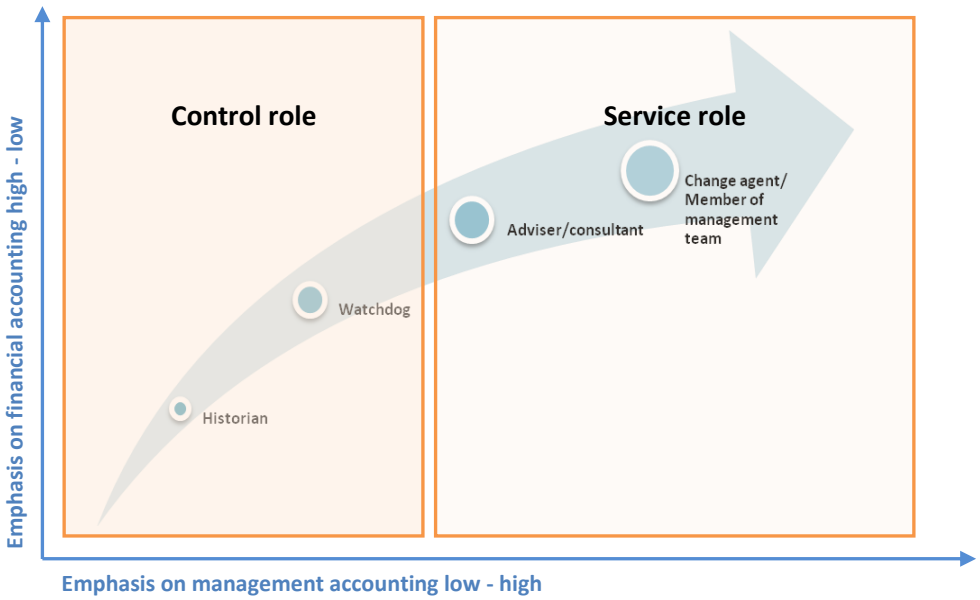


Figure 7 – Combining the development and different roles

Therefore, if we follow the suggested development of Grandlund and Lukka (1998), we could expect the modern controller to shift towards the service role and move away from the control role.

2.6 Role conflict

The prior paragraph taught us that the controller has two major roles: (1) control role and (2) service role. Sathe (1983) was one of the first authors to acknowledge the problems that could arise when one controller conducts both roles at the same time. The different nature of both roles and especially the conditions needed to conduct both roles at the same time, are such significant that it's difficult to conducted them in an effective way.

In order to fulfill the financial reporting and internal control role in an effective and integer way, the controller needs to retain a high degree of independence from the business unit and at the same time win the confidence of the (division) manager and staff to disclose every detail about the business unit operations and situation. It needs to assess whether the managers decisions are in the best interest of the company, and the manager might be reluctant to disclose sensitive information and this will lead to an information a-symmetry between the controller and the manager. In other words the controller is expected to retain a high degree of independence from the business unit in order to be able to report integer to the corporate management. Especially this required independence could conflict with the second role of the controller, in which the controller needs a high degree of involvement in the business unit.

Hopper (1980) also found that both roles are often conflicting with each other. The decision support needs of the line management (service role) conflicted with the needs of the central management to control line management actions (control role). His advice was to separate both roles.

The controller's role regarding the financial reporting and internal control is important for organizations because they function as a local guardian against financial misreporting. Despite most companies have a substantial internal audit staff, and regularly visit the decentralized locations, they can't provide the same amount of security as the controller can. The controller has, in contrary to the internal audit staff not the same *"depth of knowledge about local systems, people and practices to be able to detect subtle misrepresentations or inadequacies"* (Sathe, 1983, p.33).

When the controller is involved in the decision making of the business unit and at the same time responsible for providing independent financial reporting (control role) on the outcomes of these local business decisions, a conflict of interest could arise. A striking citation of Sathe (1983, p.33), which express the dual role problem: "*many controllers and operating executives believe that, in general, controller involvement and controller independence are more or less mutually exclusive. Emphasis on one makes effective performance of the other more difficult."*

Sathe (1983, p.34) emphasizes the importance of both roles and has designed a framework with four ideal types on the controller's roles. For every role type he defines the controller's role, required behavior, potential benefits and potential risks. We'll describe the roles and behaviors, the potential risks and benefits are mentioned in appendix C.

Name	Role	Required behavior
The Involved controller	The controller is mainly focused on the management-service role and less on the financial-reporting and internal control role.	Pro-active involved in the business unit decision making
The independent controller	The controller is mainly focused on the financial-reporting and internal control responsibility and less on the management-service role.	Remain objective and independent from the business unit managers it serves
The split controller	The financial reporting and internal control role on the one hand, and the management-service role has been assigned to different individuals in the organization. This enables the organization to put high emphasis on both roles, something which is not possible if both roles are assigned to one individual.	The controller with the management-service role is expected to be actively involved in business unit decision making. The controller with the financial reporting and the internal control responsibility is expected to report objective and independent from the business unit.
Strong controller	Both the management-service role and the financial reporting/internal control role are united in one individual. The controller is expected to put high emphasize on both of them.	Both the management-service role and the financial reporting/internal control role are united in one individual. The controller is expected to put high emphasize on both of them.

Table 4 – Overview of different types of controllers according to Sathe (1983)

The different roles of a controller works as a good filter to address potential problems we encounter within MST. However in order to have a deeper understanding of the actual activities of a controller and to increase the practical relevance for MST we need a list of actual activities of a controller. We have built a framework by specifying the role of a controller. In the next paragraph we will enhance this framework by adding the activities and responsibilities of a controller.

2.7 Activities of a controller

In this paragraph we will conduct a literature review on the papers, available in the field of management accounting, regarding the actual activities of a controller.

In the literature there is confusion about the specific activities of a controller. Currently little effort has been done in the literature to bring order in the diversity on controller activities. Weber (2011) describes is as: *''in the recent past, controllers have become responsible for an increasingly broad range of tasks''(p.25).* This is no surprise, as we concluded in the prior paragraphs, that the role of the controller has expanded from the pure control role into the control role plus the service role.

Weber (2011) also stated: *''the literature focuses much more on the controlling function per se rather than on the actual tasks of controllers''* (p.26). Despite there has been little effort by authors to explore the activities of the controller we found three authors who have more explored the specific activities of controllers.

Ax et al. (2005, p.15) identified the following main function of a controller: *''planning, implementing, following up, evaluating, and adapting the organization's function''*. Resulting from these main functions of a controller, Ax et all. (2005, p.82) identified the following activities:

- Plan, follow up and control the organization.
- Provide decision makers with sufficient information and follow up taken decisions.
- Distribute responsibility.
- Gather, analyze, compile, report and communicate financial information.
- Analyze variance and suggest actions for improvement.
- Contribute to the prerequisites of the learning organization.
- Contribute to a positive organizational culture
- Perform different ad hoc investigations for example changes in external factors and how other organizations function.
- Provide advice for the organization regarding financial questions.
- Develop and update control and accounting systems
- Educate employees in financial questions.

Knoop has investigated the most important activities of the controller in Dutch healthcare organizations (2015, p.30):

- Taking care of a good financial administration.
- Budgeting and forecasting.
- Monitoring budget and performance evaluation.
- Periodical financial information supply.
- Financial analyses.
- Financial support business cases and cost price calculations.
- Taking care for management information.
- Internal advisory.

A positive exception is the research of Verstegen et al. (2007). They have developed a framework in which 37 controller activities have been distinguished (see appendix D for a complete overview). This list of controller activities has been established by an extensive literature research in the management accounting and controlling literature, by two separate researchers.
They managed to cluster the 37 activities into five coherent combinations of activities (Verstegen et al. 2007, p.15):

1. Designing and changing control systems and supporting change processes;
2. Internal reporting;
3. External reporting;
4. Supervising and maintaining accounting information systems;
5. Risk monitoring.

The three theories compared:

	Category of activities	Ax et al. (2005, p. 82)	Knoop (2015)	Verstegen et al. (2007)
Service role <<>> Control role	**Category 1**	Plan, follow up and control the organization	Taking care of a good financial administration Budgeting and forecasting Periodical financial information supply	Internal reporting; Risk monitoring.
	Category 2	Provide decision makers with sufficient information and follow up taken decisions	Financial analyses Financial support business cases and cost price calculations	Designing and changing control systems Supporting change processes
	Category 3	Develop and update control and accounting systems		Supervising and maintaining accounting information systems
	Category 4	Gather, analyze, compile, report and communicate financial information	Monitoring budget and performance evaluation Taking care for management information	External reporting
	Category 5	Analyses variance and suggest actions for improvement.		
	Category 6	Provide advice for the organization and educate regarding financial questions	Internal advisory	
	Category 7	Perform different ad hoc investigations for example changes in external factors and how other organizations function		
	Category 8	Contribute to the prerequisites of the learning organization		
	Category 9	Contribute to a positive organizational culture		
	Category 10	Distribute responsibility		

Table 5 - Unified theories of different activities of a controller

The civilities described by different authors have similarities and differences. The most obvious reason to use the concept of Verstegen et al. (2007) is that their framework is based on an extensive literature review and tested in practice. Besides this the 37 activities in their framework are far more detailed and numerous then the activity frameworks from the other authors mentioned.

3. Methods and methodology

In this chapter we will highlight the research methods that has been followed for answering the sub research questions and eventually the central research question. In the section methods we will elaborate further on the specific methods used to solve these research questions. An overview of the methods that will be used in this research:

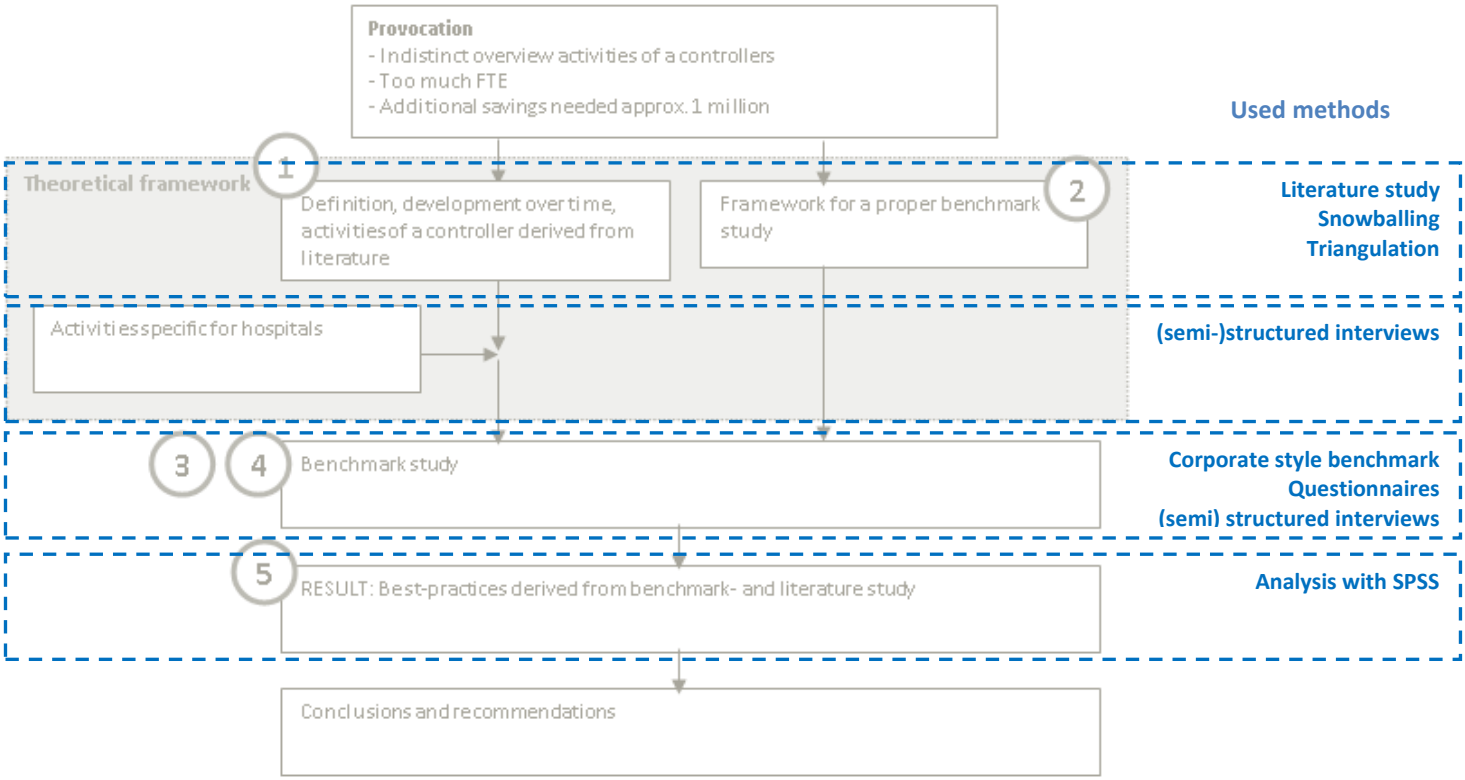


Figure 8 – used methods as parts of our research

3.1 Literature review method

Before we can initiate a benchmark study for the activities of the controller we need to frame the concept of a controller. In paragraph 2.3 we attempted to find a clear definition of a controller in the field of the management accounting literature. Because of the many different interpretations and the lack of agreement on the definition of a controller, we have performed an extensive literature review to reach a comprehensive definition of the concept of a controller.

Multiple search engines, including Google Scholar, Scopus, and the University of Twente's library search engine, will be used to find relevant literature. By including multiple search engines one protects himself against bias from favoring one specific publisher above others (Wohlin, 2014, p.2-3).

Instead of starting a systematic literature in the traditional way, the literature study will be structured according to the snowballing procedure (see appendix B) (Wohlin, 2014). Snowballing refers to: *"using the reference list of a paper or the citations to the paper to identify additional papers"* (Wohlin, 2014, p.1). The Snowball method can be split into two types of snowballing: backward- and forward snowballing. Backward snowballing refers to scanning the reference list of an article to find new relevant articles to include in the research, see the left side of appendix B. Forward snowballing on the other hand, refers to finding new papers by looking at the papers citing the article, we used the latter to check if the literature is still relevant today. See the right side of appendix B, for an explanation of the forward snowballing method.

According to traditional guidelines for conducting a systematic literature research, the objective is to include all relevant research. This is absolutely a good objective, however in practice this is hard, almost, impossible to achieve. This is mainly due to for example the problems arising in the first phase of the literature review: selecting the right words/terms and to choose the right literature in the search engines for academic literature. We, as suggested by Baarda et al. (2009, p.56), checked for every relevant paper what the keywords or so called 'descriptors' were. These are keywords, authors use to make their research easier to find in search engines.

To find all relevant synonyms, related terms and keywords the hyperdictonary.com is used as well to identify synonyms and related terms for these keywords. For example: because of prior mentioned lack of definition on the name of a controller, we tried to find synonyms for the term controller like 'business controller' and 'management accountant'. By performing these checks, we increase the likelihood that we don't miss relevant literature because of not including existing synonyms and related terms (Baarda et al., 2009, p.56).

The eventual literature framework, consist of the main literature available regarding the definition, roles and activities of the controller. These frameworks are established by selecting current relevant literature, using the reverse snowballing method of Wohlin (2014) and triangulation. In this way we aim to provide a solid theoretical foundation for the rest of this research.

In part 2 of paragraph 3.1 we raise the question: what are, and maybe even more important, what aren't the main activities of a typical controller according to the current management accounting literature. The multiple studies will be examined in the same way as in part one of this paragraph to create a comprehensive list of activities of a controller. Thus, this literature study is designed in the same way as the literature study performed in part one.

3.2 Preliminary research

The list of activities mentioned in paragraph 2.7 serve as a good starting point for the benchmark study. However this list might not be complete. Before we start sending questionnaires to the controllers as described in the following paragraph, we need to be sure we miss at least as possible activities. There might be some hospital/branch specific activities, that are not included in the list of controller activities as compiled in the literature by Verstegen et al. (2007).

Following from some informal talks with the financial manager, controllers and observations in the field, it appears that 'care administration' for example, appears to be a time-consuming activity of the controller in MST. In order to make this list as complete as possible (taken the restrictions of this research in account), we need to identify if there are any specific hospital activities missing.

To examine this, we will take (semi-)structured interviews (Drever, 1995) with managers of each hospital (n=6), to identify these additional activities. During these interviews, the managers have been asked to describe the situation in their hospital regarding the controlling function and share their thoughts on the problem statement as well. This helps us a lot to gain insights in the problem, that is central in this research, and possible solutions ('best practices') to overcome this.

According to Herbert and Rubin (1995):*"design and qualitative interviewing is iterative, this means that each time you repeat the basic process of gathering information, analyzing it, winnowing it, and testing it, you come closer to a clear and convincing model of the phenomenon you are studying".*

Therefore, next to the interviews with the managers in MST, more than 85 percent of the total population of MST controllers have been interviewed (semi-structured) as well. And last but not least informal observations on the work floor and attending meetings have been taken into account in designing the survey list of controller activities.

By using data from multiple sources (also called triangulating; Baarda et al., 2009, p.188) we increase the probability that we include as much controller activities as possible. In case the list of activities is still not sufficient, the controllers always have the option and freedom to add their activities in the survey section 'other' controller activities.

So the initial list of controller actvities of Verstegen et al. (2007) serves as the basis for our questionnaire. Some of the activities have been merged to reduce the amount of controller activities and to keep to list more clear to the controllers. Then from observations, the interviews and informal chats with the controllers, we added some additional activities. We decided to categorize activities with a high resemblance in to order to make the list easier to understand for the controllers and added a short description. And to be as complete as possible we added two categories: 'other activities' and 'other activities related to care administration' to provide the controllers the freedom to add activities not pre-defined in the prior categories.

This will serve as the structure for the activities framework used in the benchmark study survey as described in the following paragraph.

Overview of the structure of the activity framework used in the benchmark survey:

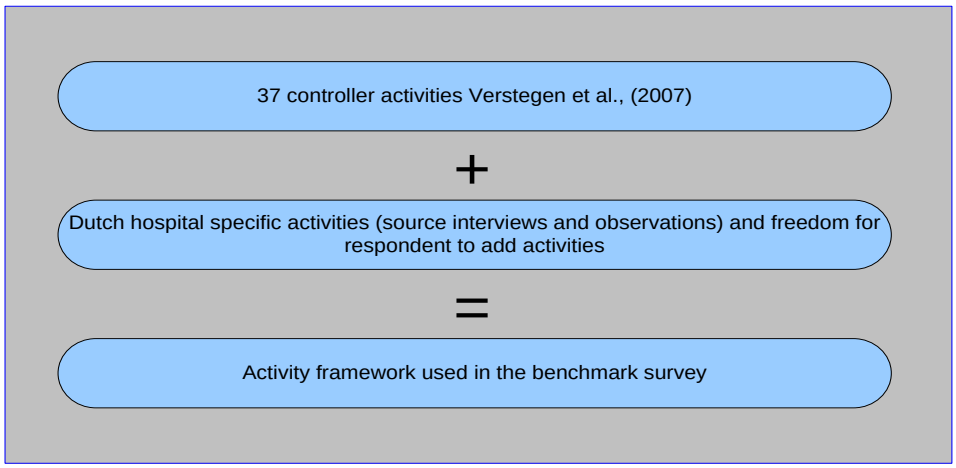


Figure 9 - Overview of the structure of the activity framework used in the benchmark survey

3.3 Benchmark design methods

For answering sub research question 2, a literature review has been performed according to the same method as described in paragraph 3.1. To find a comprehensive definition of a benchmark study and an appropriate benchmark study design the corporate-benchmark method (Ammons, 1999) provides a good structure for the benchmark study design.

The theory of Ammons, D. N. (1999, p. 107) suggests using the following framework for conducting a corporate-style benchmark study:

1. ''Decide what process to benchmark
2. Study the process in your own company
3. Identify the benchmarking partners
4. Analyze the process of the benchmarking partners in order to identify the differences that result in the superior performance (''best practices'').
5. Adapt and implement these ''best practices''
6. Monitor and Revise''

Box 1 – Corporate style benchmark (Ammons, 1999, p.107)

As Ammons (1999, p.107) describes in step 4 of the corporate-style benchmark research: ''*Analyze the process of the benchmarking partners in order to identify the differences that result in the superior performance (''best practices'')''.* So after we have completed the internal research we will reproduce the research for the activities in the peer hospitals in the same way as we did in MST.

Step 1 and 3

We build further on the outcomes of the Price Waterhouse Coopers' (PWC) study performed in 2012 regarding the financial function of MST. This study puts forward the big differences regarding the size (Full time employment, FTE) of the controller function of MST with the Santeon group. So to provide a deeper understanding of the causes of differences in FTE's, we will investigate among other, the specific activities and time expenditure of a controller through a benchmark study. In the PWC study they benchmarked MST in the Santeon group. Santeon is a group of Dutch hospitals in different areas of the Netherland (no direct competitors) and comparable to each other in types of cure functions in the hospital and size. For this study, we will use the Santeon group as well.

Step 2 and 4

We investigate whether a controller in MST performs the activities as described in the literature. In addition to the activities mentioned in the literature there might be some hospital specific controller activities. Examination of the current literature regarding the activities of controllers in the hospital sector shows that there are no studies undertaken in the hospital sector yet. These hospital branch specific activities that might exist will be an addition to the already existing list of activities mentioned in the financial literature, as described in step 2 of this research. So we investigate whether a controller in the hospital branch performs branch specific activities in addition to a general controller in for example the commercial sector.

In the benchmark study, questionnaires will be send to the respondents to measure whether the general and hospital specific activities as found in the literature emerge within MST and benchmark and how much time they spend on each category. Questionnaires are used because in this matter we can analyze and process the results of the research in a more quantitative manner (Babbie, 1998). Besides these questionnaires, also semi-structured interviews with the controllers and managers will be held to complement the information derived from the questionnaires.

We analyze the data gathered from the questionnaires in MST and the benchmark in SPSS and we aim to identify the main differences in time expenditure and eventually the best practices that can lead to success. These outcomes will be fortified and verified if possible, by information derived from the semi-structured interviews with managers and the controllers.

For this research step four of the benchmark framework, will be the last one we will elaborate on. Due to the limited time available for conducting this research, we decided to leave step 5 and 6 up to the company. We do provide MST with the results and best practices.

Remarks regarding the survey design methods

The initial list with 37 controller activities defined by Verstegen et al. (2007) (see appendix D), appeared to be difficult to interpret by the controllers. The initial list of controller activities was written in English and multiple controllers at MST appeared to have difficulty with understanding and translating the activities. We are aware that translating the controller activities in Dutch, can possibly lead to translation- and interpretation errors. However, we should weigh the disadvantage of the latter with the risk that controllers will drop out of the survey because of the language barrier and the problem of a lack of understanding the controller activities. We tried to overcome the latter problem by giving a definition or an example of the controller activity. We do acknowledge that giving examples and definitions for the controller activities can direct the behavior and thoughts and thus the answers of the respondents in the survey. However providing no direction at all can possibly lead to a great variety of interpretations of the controller activities and eventually become a threat to the internal validity and in special the content- and construct validity.

3.4 Ethical considerations

Since this research involves human entities as research objects, it's important to address some ethical considerations and the guidelines we follow in this research.

In this research, there are three main stakeholders with an interest in this research; the client (MST), the author of this research and finally the research entities (the controllers). These interests can possibly conflict with each other (Baarda et al., 2009, p.32). The client wants a complete picture of the activities of the control in their hospital and wants to assess their efficiency and effectiveness. The author of this research wants to conduct its research in order to graduate and eventually contribute to the academic literature in this field of research. And the controllers have indicated that they have a need for clarity about their role and activities in the organization. Especially the interests of MST and the controllers could conflict. MST wants a picture of the effectiveness and efficiency of the controllers and as stated earlier, MST is currently in financial distress. The controllers might be reluctant to disclose the information needed to assess the efficiency and effectiveness, that might harm their position and future in the organization. However, on the other hand the controllers explicitly indicated their need for a clear description of their roles and corresponding activities.

To counter these ethical considerations as much as possible, we decided to follow the guidelines for conducting a proper ethical responsible research as developed by Baarda et al. (2009, p.32) when conducting our field research. In for example the interviews and the surveys we clearly stated towards the controllers that (as advised by Baarda et al., 2009):

- Participation in the research is voluntary and by no mean obligated.
- No false representation of the matters is provided.
- Their interview results and completed surveys will be processed and presented anonymous and therefore do not have negative consequences for the respondent.
    - At the start of the interview the controller is asked if it's ok if the conversation is taped, in order not to have to write the whole conversation, but to have complete attention for the controller. We've clearly emphasized that the conversation is not handed over or reported individually to anyone but the researcher itself and will be erased after processing of the information. This ensures that the controller cannot be addressed individually for what he has said in the interview.
    - The survey has been sent to the managers of MST and the benchmark and they have been asked to distribute it to the controllers. The controllers are asked to send the completed survey to the researchers email address directly, to ensure the privacy of the respondent.

We believe this approach will enhance the freedom with which the controllers speak/respond.

Towards MST, again in line with the guidelines of Baarda et al.(2009, p.33) we have emphasized that the research is conducted in an honest and objective way and most importantly the results and the eventual research report will not be distributed to other without previous permission of MST.

4. Results

In this chapter, we provide the results of our benchmark study. Therefore we present our research group (paragraph 4.1), a challenge of the provocation of this research (paragraph 4.2), the qualitative results of the in- and external interviews and observations (paragraph 4.3) and the quantitative results of the questionnaire regarding the controllers' activities (paragraph 4.4).

4.1 Research group

Within the different hospital there have been extensive research taken place. Semi-structured interviews have been taken in MST (N=19) and the benchmark hospitals (N=3) with employees at several levels in the organization and a questionnaire is send to all employees.

Semi-structured interviews

Level	Central Organization	Decentralized business units
Chief Financial Officer (CFO)	1 interview	-
Financial manager	2 interviews	-
Controllers	7 interviews	9 interviews

Table 6 - Overview employees interviewed within MST

Because of the large number of interviews conducted and their duration (> 1 hour each) we didn't fully elaborate these interviews word by word. By using the prior mentioned condensation method, we categorized the useful citations on some main topics. These citations will help us to understand, triangulate and substantiate the results of our questionnaire and eventually more solid conclusions. The interview results will be used to identify the drivers behind the best practices as well.

Level	Central organization	Decentralized business units
Financial Manager	3 interviews	No decentralized controllers

Table 7 - Overview employees interviewed within Benchmark hospitals (three members of Santeon group)

Besides the interviews a questionnaire has been send to controllers in all the organizations.

The questionnaire

In table 8 we find the SPSS frequency output of the questionnaire we have sent to the controllers of MST (hospital 1) and the benchmark hospitals (hospitals 2-4). In MST, the questionnaire has been completed by 13 out of the 20 controllers, and therefore has a 65% response rate. The response rate of the CWZ and Martini Hospital is in both cases with 35%, significantly lower than the response rate in MST. Although we believe 35% response rate is, taken the length of the survey into consideration and the complexity of it, not too bad.

Still we decided to group the results of both hospitals with the results of the Catharina hospital (75% response rate) into one group: 'the benchmark group'. In this way, the size of both groups is more comparable: MST (13 respondents) versus the benchmark group (12 respondents) and we decrease the chance that potential large outliers have a big impact on the results.

	Frequency	Percentage	Response rate	
1 MST	13	52,0%	65,00%	
2 CWZ	3	12,0%	35,29%	Benchmark group 2-4
3 Catharina ziekenhuis	6	24,0%	75,00%	
4 Martini	3	12,0%	35,29%	
Total	25	100,0%	55,56%	

Table 8 - SPSS Output MST and benchmark response rate questionnaire

4.2 Efficiency MST compared to the benchmark

In the provocation of this research we could read the following:

"The financial manager highlighted that in his opinion there are too much FTE in the controlling function in comparison with peer hospitals. He would like to verify his thoughts and opinion by analyzing the process of controlling within MST and benchmark these results with the peer hospitals."

In order to verify his thoughts on whether MST employs too much controllers (FTE) we constructed the following hypotheses:

> ***In relation to annual revenues:***
> *H_0 In comparison to the benchmark hospitals, MST employs a moderate amount of FTE in respect to their annual revenues.*
> *H_a In comparison to the benchmark hospitals, MST employs more/less than moderate amount of FTE in respect to their annual revenues.*
>
> *And*
>
> *In relation to total FTE:*
> *H_0 In comparison to the benchmark hospitals, MST employs a moderate amount of FTE in respect to the company's total amount of FTE employed (organization wide).*
> *H_a In comparison to the benchmark hospitals, MST employs more than moderate amount of FTE in respect to company's total amount of FTE employed (organization wide).*

Box 2 - Hypotheses regarding the efficiency MST versus benchmark

We tested both hypotheses by asking the managers of MST and the benchmark during the interview about the exact amount of controllers FTE in their organization. Besides the amount of FTE, we consulted the financial statement 2016 of each organization, for their total revenues over 2016.

We made the following calculations to test the above hypotheses:

Hypothesis 1

$$\frac{\text{Total revenues over 2016}}{\text{Amount of controller FTE employed}}$$

Hypothesis 2

$$\frac{\text{Amount of controller FTE employed}}{\text{Total amount of FTE employed}}$$

In the first case (hypotheses 1) the higher this ratio, the more efficient the controllers operate. In other words, one controller FTE is responsible for a higher amount of revenues. In the second case (hypotheses 2) the lower this percentage is the more efficient the controller operates. In other words, less controllers are needed as percentages of the total employees to serve the organizational needs on financial issues.

The results of the calculations are as following:

Hospital	Total amount of controllers (FTE)	Total amount of FTE	% FTE controllers of total FTE	Total revenues 2016 (mEUR)	mEUR / FTE ratio
1 MST	20	2.884	0,69%	418,5	20,93
2 CWZ	8,5	2.677	0,32%	299,5	35,24
3 Catharina ziekenhuis	8	3.024	0,26%	418,5	52,31
4 Martini	8,5	2.129	0,40%	311,5	36,65
Benchmark 2-4 together	25	7.830	0,32%	1.029,5	41,18
Total benchmark and MST	45	10.714	0,42%	1.136,5	25,26

Table 9 - results of the hypotheses to test the provocation

If we look at the percentage of controllers FTE in respect to the total amount of FTE employed in MST and the benchmark we see the following picture: MST employs significantly more controllers in respect to the total amount of FTE employed in the benchmark. As we can see in table 9, MST employs with 0,69% significant more than the best in class Catharina hospital (0,26%), and even the second worst in class the Martini (0,40%). If we group the benchmark hospital 2-4 into one group we get 0,32% and this significantly better (two times less) than MST employs.

If we look at the revenue per FTE controller ratio we see the same picture: MST has in respect to the benchmark a significant lower revenue in millions to FTE ratio (20,9 mEUR per FTE). In other words, MST employs more controllers FTE for every million of revenue. The Catharina scores best in class with a stunning ratio of 52,31 mEUR per FTE followed by the Martini 36,65 mEUR per FTE and CWZ 35,24mEUR per FTE. This is 150% less than in case of the Catharina, which is best in class. Even if we take the second worst (CWZ with 35,23 mEUR per FTE) this is still 68% less. The benchmark group's average is 41,18mEUR per FTE and therefore is 98% better than MST.

Based on this outcome we carefully and preliminary conclude that the controllers operate in a less efficient way then the controllers in the benchmark organization.

Preliminary conclusion on MST controller efficiency: these two figures support the managers feeling that MST employs too much FTE in their controlling function in comparison with the benchmark.

However, as we could read in the literature section of this research, there is a lack of clarity about the actual role and activities of a controller. So, there could possibly be one or more sound explanations for the fact MST employs more than two times the amount of FTE in their controlling function in respect to the benchmark. In the next paragraphs we will elaborate further on these main activities the controllers perform at MST and the benchmark hospitals.

4.3 The conducted research of the main activities of a controller

To identify the explanation for the fact that MST employs more controller FTE in comparison with its benchmark partners, we need to know more about the activities of these controllers and the amount of time they spend on each category of activities.

Before we elaborate further we like to make an important notation: In the interpretation of the results of this questionnaire the reader should keep in mind that the time expenditure we measured on each category is indicative. By no mean we would like to provide a statistical significant list of time spend on each category and make a judgment on their efficiency based on these quantitative outcomes. It's purely intended to identify the categories in which the controllers spend most of their time. By identifying the categories MST and the benchmark spend most and least of their time on, this provides us the direction in which categories MST has potential to improve and learn from best practices in the benchmark group.

By using SPSS we were able to determine the time expenditure of MST and the benchmark on each of the categories in table 10.

Categories of controller activities
A. Activities regarding the control system of the organization
B. Maintenance of (financial) information systems
C. Activities related to planning within the planning and control cycle
D. Activities related to control within the planning and control cycle
E. Processing information
F. Activities related to audits and risk
G. Exchange of information
H. Activities regarding (operational) support role
I. Activities regarding strategic support role
J. Activities regarding information generation
K. Other activities
L. Activities related to care administration

Table 10 - Categories of controller activities

Before we've analyzed these categories of controller activities we've formulated some expectations regarding the amount of time, the controllers spend on some specific categories.

As we could read in our theoretical framework, regarding the desired development of the modern controller, the controller is expected to develop itself from 'bean counter' towards the strategic business partner role, in which it is even part of the management team.

In other words, to increase their value for the company, the controller should focus (and thus spend most of its time) on activities with a service/strategic support nature and decrease the amount of time spend on control activities like recording, correcting, controlling and reporting data.

If we follow this reasoning, and this development is taking place we should expect to see:

> *Controllers spend more time on activities related to the strategic support of management (e.g. category C and I) then on activities related to the operational support of the management (e.g. category E, H and L).*

Based on the outcomes of the research of Knoop and Van de Ven (2016) and what we know from the interviews with the controllers, we expect the controllers to:

> *Controllers spend more time on activities related to the operational support of the management (e.g. category E, H and L) then on activities related to the strategic support of management (e.g. category C and I).*

It's clearly evident that both theories are contrary and we believe that the outcomes of our empirical research can contribute to some extend by either conforming that the controller is developing into the strategic business partner role or as opposed by Knoop, that the controllers' role does still not go beyond the control role.

In the next two paragraphs will give answer to the third sub question of our research: *What are the main activities and responsibilities of the controllers at Medisch Spectrum Twente and in the benchmark?*

4.4 Main activities of a controller within MST

We first identify the main categories of activities (where they spend most of their time on) of the controller at MST by using the results of the questionnaire on controller activities. And after that, we try to identify the potential main reasons why the controller spends just this time on these activities?

In the table underneath, we see the time expenditure per week in hours of the total MST population of controllers on each of the categories:

Categories of controller activities	Hours spend
F. Activities related to audits and risk	15,92
H. Activities regarding (operational) support role	15,50
L. Activities related to care administration	14,81
K. Other activities	12,92
J. Activities regarding information generation	12,69
E. Processing information	12,54
G. Exchange of information	12,46
A. Activities regarding the control system of the organization	12,00
C. Activities related to planning within the planning and control cycle	11,69
B. Maintenance of (financial) information systems	11,00
D. Activities related to control within the planning and control cycle	10,58
I. Activities regarding strategic support role	9,04

Table 11 – Overview of hours spend on each category of controller activity within MST

As we can see from these results MST spends most of its time on category F, H and L. These categories are respectively overall related to performing audit and risk, operational support and activities related to care administration. Category J and E consume a substantial part of the controllers' time as well and are related to activities like information generation and processing. With the information, we obtained in the interviews with the controllers, we can place these activities in a context and conclude that most of these activities are primarily of an operational/executive nature.

Next to the fact that the controllers spend least of their time on category I this is also the case for category C and B. These are also of a more policy creating and strategic nature. As we can see MST spends the least time on these three categories. While by performing just these categories of activities, the modern controller can be more valuable to the company as a true business partner.

So in answer to the hypotheses we stated earlier we can pre-cautiously conclude for the controllers at MST that:

Hypotheses	*Check*
Controllers spend more time on activities related to the strategic support of management (e.g. category C and I) then on activities related to the operational support of the management (e.g. category E, H and L).	✗
Controllers spend more time on activities related to the operational support of the management (e.g. category E, H and L) then on activities related to the strategic support of management (e.g. category C and I)	✓

This raises the question why these controllers mainly perform activities with an overall operational character instead of the latter activities with a service/strategic nature. That's after all the desired role in the literature, as we elaborated on in the literature section of this research. We'll elaborate further on these potential causes in paragraph 4.6.

4.5 Main activities of a controller within the benchmark

To answer/identify the main activities of the benchmark we again identify the main categories of activities (where he spends most of his time on) of the controller in the benchmark group by using the results of the questionnaire on controller activities.

First we identify the main activities of the controllers in the benchmark group, in the same way as we did for the controllers at MST. In the table underneath we see the time expenditure per week of the total benchmark population of controllers on each of the categories, sorted from high to low:

Categories of controller activities	Hours spend
I. Activities regarding strategic support role	17,29
D. Activities related to control within the planning and control cycle	15,63
B. Maintenance of (financial) information systems	15,17
C. Activities related to planning within the planning and control cycle	14,42
A. Activities regarding the control system of the organization	14,08
G. Exchange of information	13,58
E. Processing information	13,50
J. Activities regarding information generation	13,33
K. Other activities	13,08
L. Activities related to care administration	11,04
H. Activities regarding (operational) support role	10,29
F. Activities related to audits and risk	9,83

Table 12 – Overview of hours spend on each category of controller activity within the benchmark

As we can see from these results the benchmark spends most of its time on category I, D, B and C. These categories are respectively overall more related to the strategic support role, control within the planning and control cycle, maintenance of (financial) information systems and activities related to planning within the planning and control cycle.

Next to the fact that the controllers spend least of their time on category F this is also the case for category H, K and L. These are activities related to the operational support role, other activities and activities related to care administration. It looks like the benchmark controllers are developing more into a modern controller whom can be more valuable to the company as a true business partner.

So in answer to the hypotheses we stated earlier we can pre-cautiously conclude for the controllers at the benchmark that:

Hypotheses	Check
Controllers spend more time on activities related to the strategic support of management (e.g. category C and I) then on activities related to the operational support of the management (e.g. category E, H and L).	✓
Controllers spend more time on activities related to the operational support of the management (e.g. category E, H and L) then on activities related to the strategic support of management (e.g. category C and I)	✗

This raises the question why the controllers within the benchmark more than within MST, perform activities with an overall more strategic character and are further in their development towards the service role. We'll elaborate further on these best-practices causes in paragraph 4.6.

4.6 Comparison of main activities MST and the benchmark

We will compare the different results of the previous paragraphs with each other by using SPSS. In order to identify the categories of activities in which there is a significant difference ($p<0,05$) or trend ($p<0,15$) we performed a Mann-Whitney U test between the time expenditure of MST and the benchmark.

And after we've identified these categories we try to identify the potential main reasons why the controller spend different time on these particular activities, by using the information obtained from the interviews with the managers of the benchmark. This information obtained from the interviews in the benchmark can provide best practices for MST and can potentially lead to a higher efficiency and effectiveness of the controllers and the controlling function as a whole in MST.

Mann-Whitney U test

In order to identify the categories in which the controllers at the benchmark hospitals spend significantly (or at least trend) less or more hours than the controllers at MST, we decided to use the Mann-Whitney U test. We chose the Mann-Whitney U test over for example the t-test because of the relatively low N (samples) in both groups, however both MST and the benchmark group are comparable regarding their size, 13 versus 12.

We tested in SPSS also for normal distribution of both groups, an requirement for the t-test, and this appeared not to be the case. Since the Mann-Whitney U is in contrast to the t-test a non-parametric test, and therefore doesn't require a normal distribution we decided that therefore the Mann-Whitney U test is more suitable then the t-test. The results of the Mann-Whitney U test are shown in the table below:

Categories of controller activities	MST	Benchmark	Significant value*
I. Activities regarding strategic support role	9,04	17,29	0,005
F. Activities related to audits and risk	15,92	9,83	0,026
H. Activities regarding (operational) support role	15,50	10,29	0,076
D. Activities related to control within the planning and control cycle	10,58	15,63	0,084
L. Activities related to care administration	14,81	11,04	0,137
B. Maintenance of (financial) information systems	11,00	15,17	0,155
C. Activities related to planning within the planning and control cycle	11,69	14,42	0,353
A. Activities regarding the control system of the organization	12,00	14,08	0,477
G. Exchange of information	12,46	13,58	0,701
E. Processing information	12,54	13,50	0,742
J. Activities regarding information generation	12,69	13,33	0,827
K. Other activities	12,92	13,08	0,932

Table 13 – Results of the Mann-Whitney U test (* A Mann-Whitney U test is conducted)

Reading the table from above we find two first to activities with a significant difference, category I and category F. Besides these significant differences we find trend in the categories H, D and L.

No significant differences or trends are found within the categories B, C, A, G, E, J and K.

4.7 Causes and best-practices for differences

The most important question is: what are main causes for these significant differences and trends between MST and the benchmark and what can MST learn from these differences?

All the different groups of activities are interrelated and influence each other. More time spend on the one means less time spend on the other (e.g. more time needed for operational support means less time for strategic support). Because of this influence the causes are also interrelated. Therefore we don't present per category of activity the causes and best-practices, but an overview around themes.

These themes are derived from the interviews and include causes, examples and best-practices. We distinguish the following themes:

- **Business structure**
  - The physical location of the controller in the organization
  - The functional control of the controller
  - The existence of a separate care administration
- **Boundary conditions**
  - Strong leadership, vision, and strategy
  - ICT & IT systems and standardization
  - The maturity of the financial administration
  - Involvement in strategic decision making

Before we make the shift to the details we first give an overview of the themes and which category of activities it influences the most in an decrease or increase of hours spend.

Theme	Mainly influences activity (in hours)	
	Increase	Decrease
The physical location of the controller in the organization	I, D	H
The functional control of the controller		H
The existence of a separate care administration		L
Strong leadership, vision and strategy	I, D	H, L, F
ICT and standardization		H
The maturity of the financial administration		H
Involvement in strategic decision making	I	

Table 14 – Relations between themes and activities of controllers with the most differences

4.7.1 Preliminary - They all know, but can't make the change

Let's start with the fact that almost all the interviewed controllers at MST admitted that, in their opinion, they spend too much time on activities with an operational/executive character and that they envy to move towards the strategic service role. So at least the ambition seems to be there. This is for example illustrated with the following striking quotes:

- *MST: "We'd like to do more analysis. However, we are also very busy with for example cost prices."*
- *MST: "We'd like to do more analysis and take on the advice role."*
- *MST: Answer to the question: do you have enough time for strategic service activities? "No, I don't think we are there yet"*
- *MST: Answer to the question: does your daily work has priority on your strategic activities? "Often the issues of the day (in Dutch: de waan van de dag) and there is no progress at all. It's just what is actual for the Business manager, that day."*

4.7.2 Root cause - The physical location of the controller in the organization

Important for understanding the differences in time expenditure and therefore the role of the controller between the benchmark and MST, is to know how the controllers are located physically in the organization. In the interviews we asked the controllers how the controllers are located physically in the organization and why they decided for a centralization, decentralization or a combination of both. And second if the controllers are subordinated to the centralized management or the business unit manager.

As we could read earlier at MST the controllers are located physically both centralized and decentralized. According to the previous research conducted in the healthcare sector by Knoop (2015), he concluded that all of the hospitals that participated in his research had a centralized controlling function.

At MST the partly decentralized physical location of the controllers has consequences related to the risk of losing control over the activities of the controllers and the amount of reliance of the business unit manager on the controller and as you will read soon. Both aspects lead to the second consequence: the large administrative load.

All of the benchmark hospitals have their controllers exclusively located central. In the majority of the benchmark hospitals they worked in the past with decentralized controllers but decided for clear reasons to locate them exclusively central. All of the managers emphasize that they don't want back to a business structure in which the controllers are located decentralized, in business units. These problems are amongst others, related to: subjective financial reporting and risk of losing control over the activities of the controllers.

Consequence: Risk of losing control over the activities of the controllers and the amount of reliance of the business unit manager on the controller

As we will read later the decentralized controllers are involved in a lot of administrative activities for the business unit manager and its business unit. As we could read in the provocation of this research, the centralized financial manager has because of the large distance between the decentralized controllers and the central financial function, no clear view of their activities. MST could as itself, how can you exercise control of the activities of the controller, if you don't even have a clear picture of their activities? This lack of control over the controller activities leads to the fact that controllers perform a lot of operational activities and therefore largely explains the high time expenditure on category H.

In the benchmark the business unit managers are expected and able to perform a lot of analysis their selves. Only when things get to complicated and the controllers expertise is really needed, they consult the controllers. This is able because of a reliable and easy to understand management dashboard, which provides the managers the information for about 90% of their questions. When questions from the business unit managers can't be answered with the management dashboard, the controllers and the business unit manager sit down together, on how the management dashboard and information structures can be altered in order to provide the manager the information needed.

In the benchmark they consciously chose for a centralized controlling function in which the controllers, perform an account manager role and are assigned to 5-10 fixed business units and provide order-directed support to the business unit managers.

The managers of the centralized financial function believe that in case of decentralized controllers they would lose too much control over the activities of the controller. In this case the distance between the controller and the central financial function is large and therefore the supervision over the controllers activities is very limited. The managers acknowledge that even when the controllers are located centrally, they have the tendency to perform these kind of administrative and registering activities for the business unit managers.

- *Benchmark: "How do you keep control when they are located far away from your supervision?"*

- *Benchmark: "How do you prevent the controllers to become the personnel assistant of the business unit manager?''*

A manager of the benchmark indicates that a decentralized physical location of the controller leads to an increase of the operational activities performed for the business unit manager:

- *Benchmark: ''I would certainly not favor a decentralized controlling function because I believe that the controllers become quickly an administrative/registering function. Almost an helper of the business unit manager. I would have this situation because activities that belong on an administration or care administration department shift away from where they belong, and how do you keep this in control?''*

The benchmark managers acknowledge that in their hospital the business unit managers are expected and able to perform a lot of analysis their selves. Only when things get to complicated and the controllers expertise is really needed, they consult the controllers. This is able, as we elaborate later of easy to understand management dashboard, which provides the managers the information for about 90% of their questions.

The managers indicate that's very important to communicate what the business unit managers can expect from the controllers. And that only when questions from the business unit managers can't be answered with the management dashboard, they consult the controllers.

- *Benchmark: ''What are the business unit managers expectations of the controller? It's make a great difference if the controller is regarded as someone who is assigned to the business unit manager and is expected to support you with the interest of the organization as a whole, then when the controller is regarded as someone who is at the service of the business unit manager''.*

Consequence: The administrative load

MST controllers indicate that a lot of information is not correct, insufficient and untimely and therefore unreliable and that they must correct this to be able to analyze this information.

- *MST: ''Administrative record is poor due to lack of focus on the process ''*
- *MST: ''You must correct a lot of data and registration''*

The controllers indicate that there is a management dashboard in which the information should normally be available. However as we will read later, due to problems in the IT infrastructure, the quality of data and a lack of standardization the management information in the management dashboard is often incorrect or insufficient. For example the information regarding the human resources is not available and the controllers have to gather and correct the data in order to generate this report manually their self, which is very time consuming.

- *MST: ''Since for more than three years there is no direct HR management information available in the management dashboard- we just started to make our own. A lot of time has been lost in doing this''*
- *MST: ''Often, I can't rely on numbers in the management dashboard and sometimes I get a lot of criticism when I use these numbers and thus then I start making my own forecasts again''*
- *MST: ''A lot of KPI's that must be filled, with a lot of administration''*
- *MST: ''Each time everything must be done manually again, however it won't go quicker after three times''.*

So the because the decentralized structure can lead to an increased administrative load for the controllers, it's one of the potential cause for MST controllers' high time expenditure on activities related to operational support activities (category H) and therefore decreases the time available for performing strategic support activities (category I). By implementing the following best practices MST can decrease the amount of time spend on activities related to the operational support and increase the amount of time spend on the desired strategic support of the management. Important for a successful implementation is, as we will read later, for the management to show strong leadership.

Best practices derived from physical location of the controller in the organization:

- The benchmark managers indicate that in order keep tight control over the controllers activities, a centralized controller function is required.
- Clearly communicate what the business unit managers can expect from the controllers and keep them self-sufficient as possible.

4.7.3 Root cause - Functional control of the controller

This problem doesn't have a direct effect on the time expenditure of the controllers however it is close related to the previous mentioned physical location of the controller. As we indicated above a substantial amount of the controllers at MST are located physically in the decentralized business unit. Next to this, they are also under the functional control of the business unit manager they represent. This raises questions regarding their ability to fulfill their financial reporting role in an objective way. The controllers performance is after all, determined by the business unit manager.

The managers acknowledge this suspicion:

- *Benchmark: "For seven years ago we had decentralized controllers as well, however one of the problems was that they were too much intertwined with the business unit and lacked a critical objective attitude".*
- *Benchmark: "When I got the controllers here in the central function, they functionally report to me. If I got them decentralized, to whom do they report? To the concern controller or the business unit manager?"*

In the benchmark hospitals the controllers are therefore subordinated to the manager of the centralized financial function. This in contrast to MST where only the centralized controllers are subordinated to the manager of the centralized function and the decentralized controllers are subordinated to the business unit manager.

Since the controllers at MST are expected to fulfill both the objective financial control role and the management service role it can as we conclude earlier lead to a role conflict. By centralizing the controllers and placing them under central functional control, this will support them to report in a more objective way. However as we could read in the literature part, according to Sathe (1983) it will be at the expense of the service role. Because we believe that, taken the situation and the past and current experiences of the benchmark hospitals into account, it's important to secure the objective financial reporting by the controllers. One of the benchmark hospitals decided to, not only centralize their controllers but also assign the objective financial report role and the business control role in two separate employees. The latter is as we elaborated on in theoretical framework, described by Sathe (1983): the split controller.

Consequence: to intertwined with the business unit manager

Just as with the physical location of the controllers, the benchmark managers clearly favor the situation in which the controllers are under their central functional control. They believe that in order to have reliable and objective financial reporting, the controllers need their functional control from the centralized financial function, which serves the interests of the organization as a whole.

- *Benchmark: '' I prefer a financial in a completely independent role, and not a controller who goes left when the business unit manager says left''*

They acknowledge when the benchmark had decentralized controllers in the past, they struggle with the problems to keep a critical attitude towards the business unit manager and to remain objective in their financial reporting. The managers indicate that it's a good thing to occasionally put the controllers on other business unit managers, this decreases the likelihood that controllers get to intertwined with the business unit managers.

Even now, in the situation where the controllers are both physically located and functional controlled by the central function, they struggle to say no to the business unit managers. The managers acknowledge how important it's to support and especially coach these controllers in these hard decisions. One of the managers illustrates this with an striking example the conflicts controllers often encounter in the budgeting process:

- *Benchmark: "We see the conflict for controllers especially during the budgeting process. In this process the budget for the next period is prepared by the business controllers in close cooperation with the business unit manager. What will you do when the controllers ascertains that it's possible for the business unit to cut for example 1000 euro's in their budget, and the business unit manager says I don't think so. And what if the business unit manager eventually shares the budget without the savings, with the board of directors? What will you do? Do you place a critical remark about it, during the meeting and therefore loose the trust of the business unit manager?"*

So even if the controllers at the benchmark hospitals experience difficulties to remain critical towards the business unit managers and on the other hand providing the business partner role.

How difficult must it be for the controllers at MST to fulfill the role of strong controller (Sathe, 1983). As we already elaborated on in the theoretical framework, the strong controller is expected to be on the one hand, the business partner and on the other hand the true critic counterpart of the business unit manager. The latter makes it possible to (financially) report in an objective way to the central financial function.

This all in a situation where the controller is physically decentralized far from the control of the central financial function and is even functional subordinated to the business unit manager. At MST, it's likely that both elements could lead to a situation in which the controllers experience even more role conflict then the controllers in the benchmark hospitals.

By centralizing the controllers and placing them under central functional control, this will support them to report in a more objective way. However as we could read in the literature part, according to Sathe (1983) it will be at the expense of the service role. Because we believe that, taken the situation, the past and current experiences of the benchmark hospitals into account, it's important to secure the objective financial reporting by the controllers.

One of the benchmark hospitals decided to not only centralize their controllers but also assign the objective financial report role and the business control role in two separate controllers. The latter is as we elaborated on in theoretical framework, described by Sathe (1983) as the split controller.

Best practices derived from functional control of the controller:

- Place the controllers under centralized functional control to ensure reliable financial reporting.
- Introduce the split controller: assign the financial control role and business control role to two separate employees.

4.7.4 Root cause - Existence of separate care administration

There are potential causes for the fact that the controllers of MST spend a substantial amount of time on activity L as well. These activities are related to care registration and administration.

Following from the survey, activities related to category L are the third largest time expenditure of the controllers at MST. That these activities are a time-consuming job for the controllers follows also from the interviews. In the interviews with controller responsible for business units in the primary process (and involved in delivering care/cure services and products to the patients), it appears that they are often involved in activities related to care registration and administration.

At MST there is no separate (central) care administration department in place, which is normally responsible for the registration and administration of the DOT/care products MST delivers to the patient. The regulations around this registration and administration is increasingly complex, comprehensive and changing. Keeping up and communicating these changes in the regulations regarding the registration and administration of DOT, is something that's normally the responsibility of the central care administration. At MST this is often the responsibility of the controllers. The controllers consider these activities as improper.

- *MST: "Because of a lack of a central care administration we are supposed to keep up with the knowledge about new developments in legislation concerning DOT."*

During the interviews appeared that the staff of the business units, who are responsible for the administration and registration, often lack the knowledge and knowledge capacity to correctly register and administrate the delivered care products in a correct way. Next to this, these staff members can't consult a central care administration for their questions and therefore it's logical and frequently the case that they consult the controller for these questions.

- *MST: "I'm often confronted with the fact that that the more complex questions about care administration an registration can't be asked to anyone. No one knows and I would prefer an centralized care administration."*
- *MST: "Central care administration is missing. I would like to spend my time on other activities…"*

The controllers often perform the more complex care administration as well and manually correct incorrect registrations by the staff as well.

Worth mentioning as well is the fact that several controllers are almost solely busy with activities and answering questions around the administration, registration and correction of administration/registration and the prior mentioned changes in regulation. The AO/IC officer for example, is for at least 70% of its time busy with DOT registration related activities and is regarded as the expert, because of his experience in this field. This to his own displeasure, because he doesn't hold enough time for his other important AO/IC activities. He coordinates to his best the DOT administration, but emphasizes the importance of a separate care administration.

The often incorrect DOT administration doesn't only lead to corrective activities for the controllers, but also to the fact that the registration at the source is often incorrect, incomplete and untimely. Which makes it for the controllers difficult to use this improper information in their analyzes and reporting for the purpose of controlling the organization.

The existence of a separate care administration

In general, none of the controllers in the benchmark hospitals perform activities related to the administration, registration and corrections of care administration. All hospitals of the benchmark have a separate centralized care administration. In this department the administration, registration and corrections on these takes place. Within this department there is an 'expert centre' as well of about two FTE, which are specialized in the regulation and changes in the regulations. When one of the employees of the business units has a more complex question regarding the administration or registration, they are able to answer these. The managers are remarkably positive about the existence of this separate centralized care administration.

- *Benchmark: "The care administration process runs perfect since the existence of the care administration."*
- *Benchmark: "I would certainly recommend a separate centralized care administration, this both saves and generates a lot of money"*

By centralizing the care administration and setting up an expert center you prevent that the knowledge about care administration is scattered all over the different departments. The complexity and volatility of the regulations make it more effective and efficient to have this function physically in one and the same department, under central control. Next to the fact that the care administration performs in an more efficient and effective way, the controllers are not responsible for activities related to these care administration. They don't have to answer ad-hoc questions, keeping up with the regulation and the administration, registration and the corrections of the latter. This will decrease the amount of time spend on category L, activities related to care administration.

Best practices derived from separate care administration:

- Establish a separate and centralized care administration

4.7.5 Leadership, vision and strategy

The controllers at MST acknowledged in the interviews that there was a great lack of in leadership, vision and strategy. Which resulted in a difficulty to plan activities in an proper way, a short term focus and therefore a lot of ad-hoc activities and problems with setting priorities. Both the controllers and the manager doesn't communicate and draw a clear line in fact, what may and may not be expected from the controlling function.

- *MST: "We're a little bit steer steering less / out of control."*
- *MST: "There is not really learned from, it lacks vision."*

A clear vision is important for setting long term goals. The controllers acknowledge that because of the lack of a clear vision and strong leadership the focus is almost solely on the very short term. The controllers proposed the following examples to illustrate the ad-hoc culture, short-term planning and lack of long term vision:

- *MST: Response on the controllers' question to the manager, what to do with the activities of a controller who decided to leave the organization on short term, how are we going to catch this? Answer: "We will see that later when it's that time."*
- *MST: "Often the issues of the day (in Dutch: de waan van de dag) and no there is no progress at all. It's just what is actual for the business manager, that day."*
- *MST: "Everybody is in a hurry, and because of that there is a lack of cooperation and knowledge sharing."*

One of the provocations of the research was the fact that MST and it's controllers had the need for a clear description, and in particular, a clear demarcation of their activities. Just as described by researchers in the literature MST struggles to come up with a clear job description with the activities they should and should not fulfill.

- *MST: "Basically, you can do and leave what you want."*

We asked the controllers if there was a job description available, this was not the case. Hereupon the manager of controlling has been consulted and after that the human resource manager. The only 'thing' available is a very limited and general version available (1/3 a4). Both the manager and controller acknowledged that this job description did not honor the true activities of the controller.

Because of this lack of a clear job description the controllers experience troubles in communicating the activities they should and should not perform and the manager lacks to support the controllers towards stakeholders on a good demarcation of the activities of the controller by their managers.

- *MST: "We need to be much stronger and tell them that we don't do that, however we need the support of our team manager for that".*

The benchmark indicate that they have formulated a clear vision to establish a long term focus and to be where they want to be within 3 years. The strategy for the coming year is set in close cooperation with the controllers to increase commitment. Also for the short term planning of the activities of the controller, multiple managers emphasize the importance of the management role. The managers coach the controllers in both, the planning process of their activities and to be more assertive towards the business unit managers about their expectations.

- *Benchmark: ''Every controller must fill in a planning with their activities for the next two weeks, what business cases they expect and I want to discuss the usefulness and need of these business cases and if they are feasible at all. If this is not the case, we should not start with these at all and then we communicate with the business unit manager that what he wants is probably not possible and the business unit manager often disagrees and tells us that he will go directly to the board of directors. But then I already have a line with the CFO and communicated the issue.''*

In the benchmark hospitals the managers acknowledge that they act vigor on activities which should not be executed by the controllers.

- *Benchmark: ''The controllers struggle here as well with which activities they should and shouldn't perform. For example when there are registration issues and they have already asked three times the care administration to fix these problems, but nothing happens. Then the controllers think, I will do these corrections myself. I don't want that, push it back, the care administration has to fix that. Then I say to the controllers: we are not going to do this''.*
- *Benchmark: Manager sits every two weeks with the controllers to check the work that has to be done. "We speak about necessity, usefulness and feasibility with the controllers. I coach the controller in which activities should and shouldn't performed by them"*

The managers push the incorrect administration back to the department where it went wrong in the administrative process. The manager therefore doesn't only avoid that the controllers loose valuable time on these corrections, but also that in the future the information is correct before the fact. This has the positive side-effect that reports consist directly of correct and reliable information (see also ICT and standardization).

Best practices derived from leadership, vision and strategy:

- Formulate a vision for the financial department what to achieve in the next five years
- Formulate a clear job description for the controllers and managers
- Managers should frequently discuss the upcoming 'projects' with the controllers on the short and medium term.
- Possible improper activities should be 'pushed back' to the department where in went wrong.

4.7.6 ICT and standardization

As we could read previously the controllers at MST indicate that they have a lot of administrative activities. Standardization seems to be a recurring problem, which forces the controllers for example to run different reports over and over again. The controllers report during the interviews:

- *MST: "Forecasts must be more uniform, a lot of manually work and needs to be automate. They tried this before however it was too expensive. Sometimes it costs me a week"*
- *MST: "There is still no standardized reporting format, why don't we decide on this?"*
- *MST: "Three different business managers prefer different reporting formats and different responsibilities"*

Beside standardization the information/data needed to compile proper management reports, comes from a large amount of different ICT information systems. These different ICT systems do not properly interact with each other. Which results in a time-consuming job to manually combine the information over and over again into one report.

- *MST: "There is an issue with the IT landscape and its policy. A lack of policy regarding record/administration. Registrations with policy afterwards. That these systems and the information in it don't interact with each other, delivers us a lot of work-->very complex to correct afterwards"*
- *MST: "We have so many ICT systems we can't do anything with. Systems are mutually not proper linked to each other and therefore we still should generate and combine lists of information, manually."*
- *MST: "Information in these systems is often not linked to each other, this is a pity and costs a lot of time and work."*

The benchmark acknowledge the importance of a good ICT infrastructure, reliable IT systems, and a good configuration key is to standardize the reporting and other management information. According to the managers of the benchmark, in order to supply the business unit managers with the information they need for steering the business unit, the IT systems and especially the management dashboard has to be complete, easy to use and reliable.

- *Benchmark: "When I entered this organization the controllers spend a lot of time on manually cutting and pasting information from diverse information systems in order to generate a management report. I immediately automated this reporting process by standardizing the management reports and using the software of Cognos Café. It automatically generates these standardized management reports in an clear way directly in an power point presentation."*

The benchmark stated that by ensuring a reliable and complete management dashboard, the business units information needs are directly available.

Also within the benchmark the business unit managers have the tendency to ask the controllers for more and more information. When the management dashboard doesn't fulfill the business unit managers' information needs, they will in consultation with the controllers, decide how they can redesign the reports in a way that this information will be available in the future. This is to ensure that the business unit manager is self-sufficient and the controllers don't need to answer each question every time again.

According to the benchmark, the key is to discipline the manager to first consult the management dashboard to find information and to perform small analysis themselves. The hospitals strive for a 90% information supply directly available in the management dashboard. The processes related to this information generation is as automated and standardized as possible. This to avoid that every controller has to run every report each time again, manually. This saves the controllers a substantial amount of time.

- *Benchmark: "I'm really glad with the management dashboard 'slim fit' (Cognos Cafe)."*

But how do they guarantee that the information in the information systems is correct and automatically available? Earlier in the report we stressed the importance of the maturity of the financial administration and the existence of a separate care administration. These conditions will ensure that the information needed is correct and available at the moment the report is generated.

Best practices derived from benchmark regarding ICT and standardization:

- Make sure all IT systems work properly together by adding a reporting tool like Cognos Café.
- Standardize the management dashboards for all the business managers.
- Strive for the fact that the management dashboards answer 90% of de business unit managers questions.
- If not, business managers consult controllers how to redesign the management dashboard so it will answer 90% of the questions.

By implementing these best-practices MST will decrease the time spend on activities regarding the operation support role (activity H) of the controllers.

4.7.7 The maturity of the financial administration

From the interview we can conclude that the financial administration within the benchmark is an issue as well, however we believe less then within MST. Controllers within MST stated:

- *MST: "FA and controlling is considered as one. This also means that we are in a bad daylight in case of failures and errors at the FA."*

The benchmark acknowledge that in their organization they have increased and continue to do so, the knowledge level of the employees and the processes at the financial administration since a couple of years. The employees of the financial administration were enabled to develop themselves by education and the ones who couldn't or didn't want to developed themselves in the desired direction they were located elsewhere in the organization and replaced by new employees.

- *Benchmark: "We have replaced for 4 years ago several employees in order to increase the knowledge level of the financial administration."*

In contrary to MST, the controllers of the benchmark support the financial administration not by helping them to correct information and doing the things for them, but in a constructive way to enable them to do it eventually themselves. Things like the financial statement, which is considered by MST as one of their improper activities, is within the benchmark the responsibility of the financial administration and not the controlling function.

- *Benchmark: "FA is responsible for delivering the financial statement".*
- *MST: "If the information we receive is not correct we correct it our self and make our own forecasts while we should actually put it back to the source of the error (e.g. FA)."*

Two out of the three managers of the benchmark acknowledged that they appointed a data-analyst, who thinks about the design of the information systems and optimizes the configuration between the financial administration and the management information (within MST DataWareHouse). According to the managers of the benchmark this increases the reliability and completeness of the management dashboard and therefore the business unit managers are less dependent on the controllers for their information needs.

Best practices derived from benchmark regarding maturity of financial administration:

- Appoint an employee (e.g. data-analyst) in order to optimize the configuration between the financial administration and the management information.
- Appoint activities between FA and controlling (e.g. the financial statement).
- Invest in the employees of the FA in order 'they can do it their self'.

By implementing these best-practices MST will decrease the time spend on activities regarding the operation support role (activity H) of the controllers.

4.7.8 Involvement in strategic decision making

Both the central- and decentralized controllers at MST acknowledge that they are too invisible for the 'decision makers' in the organization like the business unit managers and the Board of Directors. They indicate that they are often passed by/not consulted in business cases and strategic business decision making by the board of directors, while providing solicited and unsolicited advice should be one of their key activities and responsibilities. According to the controllers, external advisory companies are used for this and they question why this is necessary, while they can they can do it as well.

- *MST: "We should report more straight to the Board of Directors."*
- *MST: "We need to present ourselves more."*

The service unit Finance & Information consists of among others, the business units controlling and financial administration (FA). The latter is regarded as a business unit that makes a substantial amount of errors (see also maturity of financial administration) and leans heavily on the business unit controlling. The controllers indicate that the FA and controlling are regarded as one and that the reputation of FA has a negative influence on how the rest of the organization see and values the capacities of the controlling unit. As a result controlling is less consulted by business unit managers and Board of Directors:

- *MST: "FA and controlling is considered as one. This also means that we are in a bad daylight in case of failures and errors at the FA."*

The same applies for the decentralized controllers with MST and is more due to time spend on mainly operational activities (see also physical location of the controller and functional control of the controller).

In the benchmark, all of the three managers confirm that the controlling function is visible enough for the business unit managers and in specific the board of directors. They indicate that the controlling function is often consulted in strategic decisions and business cases. One of the managers responded as follows, on the question whether the controllers are frequently involved and consulted in the strategic decision making:

- *Benchmark: "Before decisions are taken by the Board of Directors, they go to us (management control)."*
- *Benchmark: "If you do the right things and stand out, you will we visible naturally. This is something that's in your own hands."*

In the benchmark hospitals the controllers or manager controlling reports directly to the board of directors without an additional management level in between. This keeps the lines short of course and increases the visibility of the controlling function. Earlier in this report we stressed the importance of strong leadership, vision and strategy. This will help to 'promote' the controlling function and to get more involved in strategic decision making.

Best practices derived from involvement in strategic decision making:

- Strong leadership is key to 'promote' the controlling function by business unit managers and board of directors.
- 'Do the right things' and you will be visual naturally.

By implementing these best-practices MST will increase the time spend on activities regarding the strategy support role (category I) of the controllers.

Activities related to audit and risk

The controllers at MST spend a significant amount of time more on category F than the benchmark. This effect could possibly be explained by the fact that the interviews indicated that there is no separate AO/IC officer outside the controlling function, this activity is assigned to the controlling function. This in contrast to the benchmark where the AO/IC is not part of the controlling function but the FA. So it could be that a large part of this time expenditure at MST is explained by the AO/IC which performs self-assessment related activities.

4.8 To conclude

As we can see in the results above we can conclude that the benchmark hospitals have made some profound adjustments in their business structure and the way they control their controlling functions in order to increase the efficiency and effectiveness of the controllers.

As the results of the questionnaire already showed us, and fortified by the interviews with the managers, the benchmark hospitals seem to better succeed in fulfilling the strategic service role and that in a more efficient way.

The practices which enable them to do so are overall related to: the centralized positioning of the controllers and their centralized functional control, which both prevent the controller to become a disguised administrative supporter of the business unit manager and the controller to become too much intertwined with the business units interests and therefore loses its ability to objectively report on the business units' financial matters.

5. *Conclusions and recommendations*

The central research question we formulated in this research: What are the main activities of a controller in respect to the literature and in comparison to peer hospitals to improve effectiveness and efficiency of the controllers at MST.
The central research question will be answered through this paragraph. We will highlight the conclusions and recommendations of the conducted research. In the recommendations the best-practices are discussed which will lead for MST to increased efficiency and effectiveness of the controllers.

5.1 Conclusions

The controller evolution from bean counter to business partner

In the past century the controllers role has changed drastically. From a pure financial accounting role into the financial management role. A shift in nature of the role from more operational towards more strategic. And a shift from taking care of the record, accuracy and reliability of the (financial) numbers into gathering the proper numbers, enriching this data and using this data to support management decision making.

Lack on agreement about the definition of a controller

In the literature is lack on the agreement of the definition of the controller. The most solid definition we found: *a controller is often a (high) placed financial professional, who deals mainly with the financial aspects of the organization and provides and advises the management with financial- and non-financial information, for the purpose of decision making and is responsible for accurate financial in- and external reporting and internal control.*

Control- and service role can be distinguished with potential role conflict

There is a shift from the financial reporting and internal control (the control role) towards the management service role (the service role). However, there is no agreement about if this shift is actually taking place. Besides this a role conflict could arise if one employee is expected to do both roles at the same time.

MST is less efficient then benchmark

Two different calculations support the managers feeling that MST employs too much FTE in their controlling function in comparison with the benchmark. We carefully concluded that the controllers operate in a less efficient way.

Benchmark performs more service role than MST

MST's main categories of activities relate to performing audit and risk, operational support and activities related to care administration. Followed by activities related to information generation and processing. The benchmark's main categories of activities relate to the strategic support role, control within the planning and control cycle, maintenance of (financial) information systems followed by activities related to planning within the planning and control cycle. A Mann-Whitney U test shows that on the activities with the significant differences and trends are also opposites to each other (benchmark more strategic, MST more operational).

Combined with the interviews, we concluded that the main activities of MST controllers are primarily of an operational/executive nature and the benchmark of a strategic support nature. The benchmark is therefore further in their development into the service role.

Business structure main cause for inefficiency

Possible causes and best practices for these differences are related to:

- **Business structure:** the physical location of the controller in the organization, the functional control of the controller and the existence of a separate care administration.
- **Boundary conditions:** strong leadership, vision, and strategy, ICT and standardization, the maturity of the financial administration and the involvement in strategic decision making.

5.2 Recommendations

In order to increase the efficiency and effectiveness of the controllers, we strongly recommend the management of the controlling function to consider implementing the 'best practices' presented in our research. Successful implementation, can enhance, as we could see in the benchmark hospitals, the controllers to develop further into the desired service role.

Centralize all controllers

As we already concluded, key is to make some major adjustments in the current business structure. By physically locating the controllers in the central function and placing the controllers under central functional control, MST can decrease the potential role conflict problem as well by adding the two different roles to two different employees. It's also helps the manager to keep tighter control on the activities performed by the controller.

Establish a separate and centralized care administration

A separate centralized care administration will not only help MST to save money and to improve the care administration process, but will also prevent that controllers are busy with operational activities related to this care administration.

Show strong leadership

When the managers has his controllers under central control and at the same time, shows strong leadership this can help the controllers to decrease the amount of time spend on operational support (such as administrative activities) and supporting the controllers to stop correcting incorrect information and put it back at the place where it belongs.

Formulate a clear job description

We strongly recommend MST to formulates a clear job description, vision and strategy. It will help the controllers to plan their activities, to reduce the amount of ad-hoc activities and therefore perform the desired strategic activities.

Invest in the knowledge of the financial administration

The benchmark managers seem to be overall more content then MST with their financial administration. We recommend MST to invest in the knowledge level of the FA, and the controllers to stop correcting incorrect data and to let it escalate, in order to force the FA to solve the problem their selves. And hopefully eventually resulting in more reliable information.

Standardize management reports

We recommend MST to review their management dashboards and other IT systems as well. By standardizing reports and increasing the quality of information, the reporting process can be automated which saves the controllers a substantial amount of time on preparing manually reports and correcting incorrect management reports.

6. Contribution

6.1 Academic Relevance

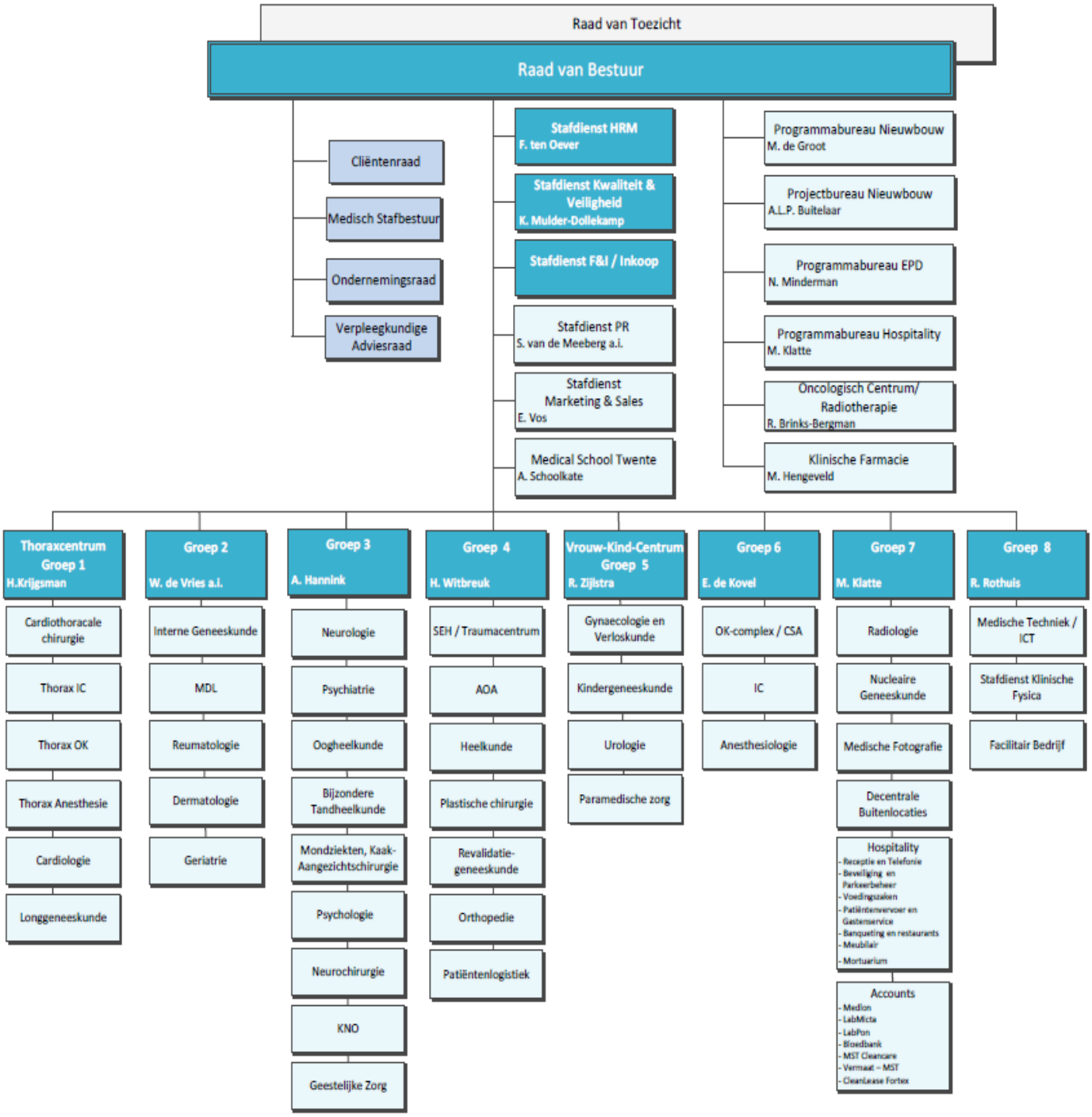
Currently little effort has been done in the literature to bring order in the diversity on controller activities. According to Weber (2011): *''the literature focuses much more on the controlling function per se rather than on the actual tasks of controllers''* (p.26). This study aims at bringing more insights in the actual activities of controllers, especially in the healthcare sector. So this research attempts to supplement the existing list of general controller activities with the activities specific for the controller in a hospital environment.

Next to more clarity in the activities of the business controller, this study attempts to give more insight in the place of the controller on the vertical and horizontal hierarchy. Also the associated political problems, in particular, with having to report and advise, simultaneously to the centrally located financial manager on the one hand, and the decentralized business unit manager on the other hand.

6.2 Practical Relevance

The practical relevance of this research is clear, and largely corresponds to the research goal of this study: *Provide insight in the efficiency and effectiveness of activities executed by controllers by designing and performing a benchmark research.* So this research will provide the financial manager of MST, with some deeper understanding of the activities of the controller in his organization. With a clear overview of these specific activities, the financial manager as well the controller itself is able to prioritize activities. With this list of activities the controller can communicate in a clear way, to other people in the organization, what his activities are and more important, what aren't. And the best practices provided in this research can help MST to further develop their controllers towards the service role and eventually become a strategic business partner to the management.

Appendix A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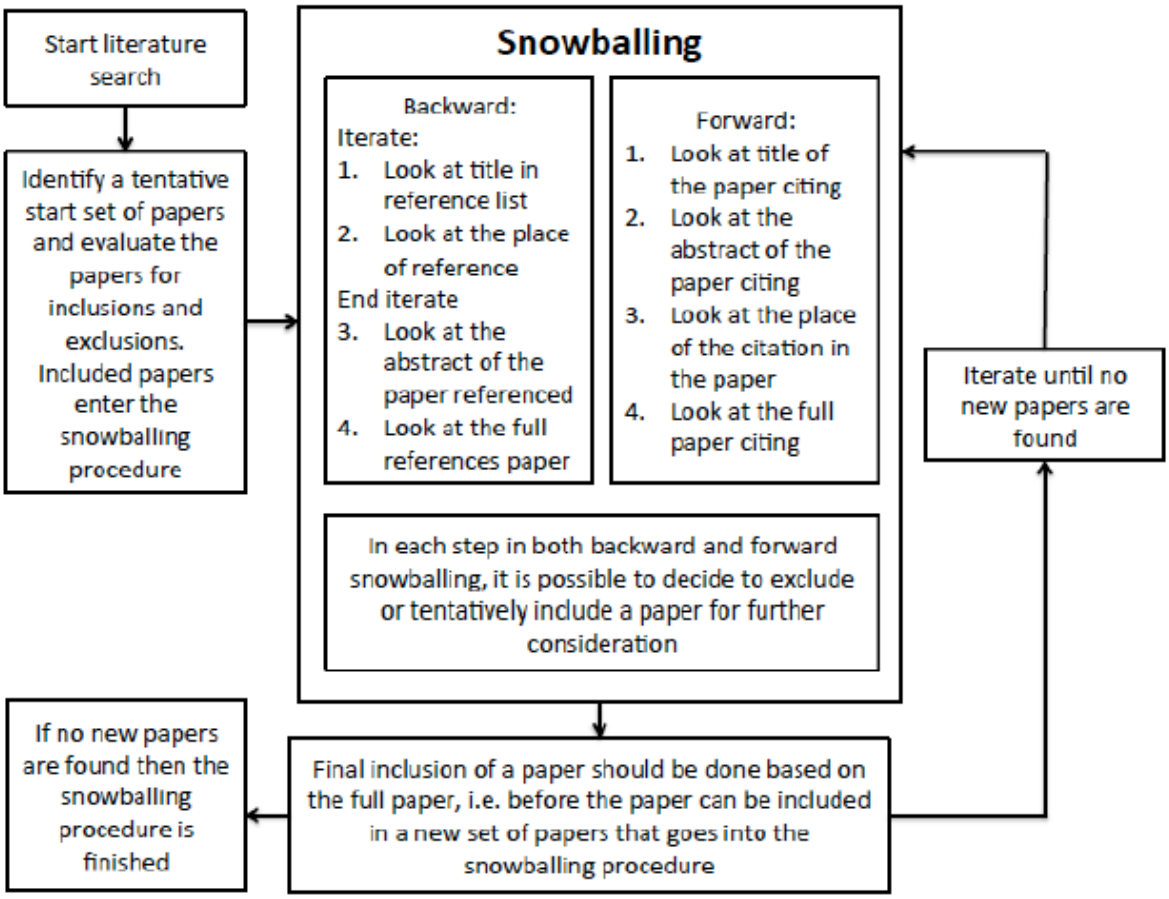
F. ten Oever
Stafdienst Kwaliteit & Veiligheid
K. Mulder-Dollekamp
Stafdienst F&I / Inkoop
Stafdienst PR
S. van de Meeberg a.i.
Stafdienst Marketing & Sales
E. Vos
Medical School Twente
A. Schoolkate
Programmabureau Nieuwbouw
M. de Groot
Projectbureau Nieuwbouw
A.L.P. Buitelaar
Programmabureau EPD
N. Minderman
Programmabureau Hospitality
M. Klatte
Oncologisch Centrum/ Radiotherapie
R. Brinks-Bergman
Klinische Farmacie
M. Hengeveld
Thoraxcentrum Groep 1
H.Krijgsman
Cardiothoracale chirurgie
Thorax IC
Thorax OK
Thorax Anesthesie
Cardiologie
Longgeneeskunde
Groep 2
W. de Vries a.i.
Interne Geneeskunde
MDL
Reumatologie
Dermatologie
Geriatrie
Groep 3
A. Hannink
Neurologie
Psychiatrie
Oogheelkunde
Bijzondere Tandheelkunde
Mondziekten, Kaak-Aangezichtschirurgie
Psychologie
Neurochirurgie
KNO
Geestelijke Zorg
Groep 4
H. Witbreuk
SEH / Traumacentrum
AOA
Heelkunde
Plastische chirurgie
Revalidatie-geneeskunde
Orthopedie
Patiëntenlogistiek
Vrouw-Kind-Centrum Groep 5
R. Zijlstra
Gynaecologie en Verloskunde
Kindergeneeskunde
Urologie
Paramedische zorg
Groep 6
E. de Kovel
OK-complex / CSA
IC
Anesthesiologie
Groep 7
M. Klatte
Radiologie
Nucleaire Geneeskunde
Medische Fotografie
Decentrale Buitenlocaties
Hospitality
- Receptie en Telefonie
- Bewaking en Parkeerbeheer
- Voedingszalen
- Patiëntenvervoer en Gastenservice
- Banqueting en restaurants
- Meubilair
- Mortuarium
Accounts
- Medion
- LabMicta
- LabPon
- Bloedbank
- MST Cleancare
- Vermaat – MST
- CleanLease Fortex
Groep 8
R. Rothuis
Medische Techniek / ICT
Stafdienst Klinische Fysica
Facilitair Bedrijf

Appendix B



Snowballing procedure (Wohlin, 2014, p.4)

Appendix C

Name	Required behavior	Potential benefit	Potential risk
The Involved controller	Pro-active involved in the business unit decision making	High added value in business decision making	It can block the manager's creativity and initiative. "since the essence of controller involvement is to recommend courses of action and to challenge the plans and actions of operating executives, such involvement could stifle operating executives' exercise of creativity and initiative'' (Sathe, 1983, p.36). The manager needs some steering in his actions, but the risk is that it will be over challenged)
The independent controller	Remain objective and independent from the business unit managers it serves	Reliable objective financial reporting and internal control. This is ''after the fact'' control, which means after the business decisions have been made.	Controller is regarded by the business unit management as an 'outsider' who is spying on the business unit decisions and outcomes.And thereby it's difficult for the controller to achieve ''before the fact control'' because the controller is not involved in the business decision making process. Because of that they can only check the outcomes of the business decisions after they have been taken and thus bad or illegal decisions cannot be prevented.
The split controller	- The controller with the management-service role is expected to be actively involved in business unit decision making. - The controller with the financial reporting and the internal control responsibility is expected to report objective and independent from the business unit.	Both contribution to business unit decision making and objective and independent reporting are assured.	Because both roles require to a large extend the same activities, this is less efficient then when both roles are united in one individual. Just as with the involved controller and the independent controller they can respectively block management creativity and initiative and before the fact control is difficult because the roles are separated. And finally coordination problems could arise.
Strong controller	The management service role and the financial reporting/internal control role are united in one individual. The controller is expected to put high emphasize on both of them.	- the controller is still actively involved in the business unit decision making; - the controller is still able to objectively report on financial matters and internal control; - because the controller is involved in the decision making, the control has access to all the business sensitive management information and therefore the controller can execute before the fact control and thus identify and eventually stop misbehavior before it's conducted.	The same as the involved controller: It can block the manager's creativity and initiative; In order to be able to perform both tasks in an effective and proper way the controller needs certain strengths and character. It's not the objective of this research to go in depth on these requirements to be(come) a ''strong controller'' however according to Sathe (1983, p.34) strong controllers are: ''those who have the strength of character and interpersonal skills and other skills needed to achieve both high involvement and high independence.

Appendix D

A	**Activities regarding the control system of the organisation**
3	**Designing the control system of an organisation**
4	**Changing the control system of an organisation (like its budget cycles)**
5	**Maintaining the control system of an organisation without making changes**
18	**Negotiating with auditors about proposed changes in the control systems of an organisation**
B	**Maintainance of (financial) information systems**
1 and 2	**Constructing and maintaining accounting information systems**
	Correction incorrect financial information/data
	Communication with others about the prevention of incorrect data
C	**Activities related to planning within the planning and control cycle**
	Budgetting
	Longterm budgetting (> 1 yr.)
	Future investments
	Costprices
D	**Activities related to control within the planning and control cycle**
9	**Preparing reports for responsibility accounting purposes and organisational control**
10	**Presenting reports for responsibility accounting purposes and organisational control**
11	**Preparing reports for third parties (for example for accountants)**
12	**Presenting reports for third parties (for example for accountants)**
27	**Reporting financial information prospectively (before the fact control)**
32	**Reporting financial information retrospectively (after the fact control)**
33	**Reporting non-financial information prospectively (before the fact control)**
28	**Reporting information retrospectively (after the fact control)**
E	**Processing information**
29	**Processing information from formal, financial systems**
30	**Processing information from formal, non-financial systems (like operational systems)**
31	**Processing information from informal systems (like social systems)**
F	**Activities related to audits and risk**
6	**Protecting organisational assets through internal control**
7	**Assessing the risk connected with business conduct**
8	**Performing audits in an organsation (eg. self examination)**
G	**Exchange of information**
19	**Exchanging information vertically**
20	**Exchanging information horizontally**
21	**Exchanging information with third parties**
	Exchanging knowledge horizontally
H	**Activities regarding support role**
22	**Supporting the goals of the top management of an organisation**
23	**Supporting the goals of the line management of an organization**
14	**Interpreting business analyses**
15	**Giving advice proactively**
16	**Giving advice reactively**
I	**Activities regarding strategic support role**
24	**Supporting the goals of external parties**
34	**Supporting change processes**
36	**Supporting strategy formulation processes**
13	**Performing business analyses**
17	**Leading the administrative departement of an organisation**
35	**Leading change processes**
37	**Leading strategy formulation processes**
J	**Activities regarding information generation**
25	**Providing information on a "need to know" basis**
26	**Providing information to those who may be interested**

Original controller activities and numbers (derived from Verstegen et all. (2007, p.23-24), the supplement tasks derived form observations and interviews and the main groups of activities.

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