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Master Thesis European Studies

EU Grant Procurement in the Modern European University

The Role of University Research Management Structures

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Preface

The document in front of you is my final master thesis. With this document I finalize my double degree program in European Studies. The program was followed at both the University of Twente (The Netherlands) as the University of Münster (Germany). The topic of the thesis results from a research-internship which I have completed at PNO consultants. I am honoured to now be able to present the results of the research in this thesis.

A warm gratitude goes out to those who have been involved in the process of carrying out this research. First of all I want to thank Arno Schoevaars and his colleagues from PNO Consultants for giving me a revealing time within the company as well as the great help in steering the research. Additionally I have experienced great benefit from the constructive feedback from both of the supervisors, dr. Paul Benneworth (Twente) and prof.dr. Oliver Treib (Münster).

Abstract

The goal of this research is to find out how research management can contribute to enhancing successful grant proposals for the EU Framework Programs. During the last decades, universities have gone through a transformation from being 'loosely coupled systems' to more corporate systems. This transformation also had effects on research management structures. Based on a model developed by De Boer et al. (2007), four case studies are to be carried out to find out to what extent specific research management items affect the success of universities' grant procurement in the EU Framework Programs. The case studies consist of four universities that are within the top-5% of increase in participation rates from FP5-FP7. It turns out that these universities see increased importance in lobbying strategies, clear hierarchical structures and better registration and overview of results. One can clearly recognise an increasingly performance-based and market-driven form of university governance.

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1. Introduction

1.1. Increasing Universities' Research Competitiveness

This thesis study concerns an analysis of the main success factors for universities to procure grants from the European Commission's Framework Programs. To compete within a funding area in which success rates range between 10-37% per program, with an average of 16%, a researcher's excellence alone will not suffice. Every factor that determines a university's capacity building quality (in excellent research) will have to be optimized (Grimpe 2012). Seeing universities as loosely coupled organizations (Weick 1976) that are transforming into 'corporate actors' (De Boer, Enders and Leisyte 2007), value can be added to the capacity building qualities of a university by strategically organizing the management of individual researchers. The latter can increase the effectiveness of output to excellent research (Conraths and Smidt 2005; Hendriks and Sousa 2012). Seen the fact that research management is in many facets a factor that can be transformed with a relatively low amount of resources (Bammer 2008), an attempt will be made to find out how institutional research management structures can contribute to successful participation in the EU Framework Programs.

The study contains a theoretical analysis of the transitions that universities have gone through in the last decades in relation to their research management- and funding structures. Subsequently, this is to be linked to the developments within the Framework Programs and the approach that successful universities take in the matter.

1.2. Universities in Transition

As stated, universities are increasingly transforming into corporate actors (De Boer *et al.* 2007). Initial models of university governance concerned for example the loosely coupled organisation model (Weick 1976), the organized anarchy model (Cohen, March and Olsen 1972), the professional bureaucracy (Mintzberg 1979) and the collegial organization (Goodman 1962; Millett 1962). The particularity of these models is that they all recognize universities as organizations in which individuals cooperate without (or with a low level of) central coordination. Due to various factors, as to be discussed more extensively within this thesis universities have been forced to increase the coordination and control and to commercialize as an organization. One major factor in this process has been the promotion of New Public Management (NPM) structures in higher education, seeing the market as a more suitable tool to allocate services (De Boer *et al.* 2007). Introducing the market as a guide for research management, requires a more corporate approach to the latter.

Realizing that, new models of governance in higher education have been introduced. These are *e.g.* the corporate model (Bleiklie 1994), the entrepreneurial model (Clark 1998), the enterprise model (Marginson and Considine 2000), the service model (Tjeldvoll 1997) and the stakeholder model (Jongbloed and Goedegebuure 2001). In these models universities are described as institutions with an increasingly clearer central coordination and control policy. They are increasingly market-driven and their funding base either has already changed or is changing significantly. Research funds are more diverse and increasingly granted on a basis of competition (Taylor 2006).

This process is also partly enhanced by the EU's Framework Programs. The programs cause a fragmented and project-based funding environment and a general strive for excellent research. Hence, the Framework Programs cause more competition between universities. Increased competition raises the importance of effective valorisation (output quality) of research and a

constructive dialogue with the private sector is essential. These developments naturally cause universities to change their organizational, research management structures.

1.3. Research Motive

The research is commissioned by PNO Consultants. They have interest in the know-how of university management in relation to grant-procurement. Apart from that, knowing what universities can do to perform better in acquiring research grants from the Framework Programs, can facilitate more universities to compete in the grant-environment.

1.4. Research Questions

As argued, research management can contribute to capacity building qualities of a university (Hendriks et al. 2012) and such institutional characteristics can contribute to more successful Framework Program grant proposals (Grimpe 2012). I aim to find out when these research management structures can be considered effective in such a way that they contribute to higher success in the Framework Programs. Therefore I have formulated my main research question as follows:

'*How can institutional changes to research management within universities contribute to increasing individual success in Framework Program projects?*'

First I tried to find out how performance patterns from FP5-FP7 have changed among universities and what universities have performed above average in EU grant procurement. This allows for an analysis on what these universities have changed in their research management structure to enhance greater activity in the Framework Programs. The relating questions are as follows:

1. What universities have increased their participation rates from FP5-FP7 significantly more than average?
2. From a sample of those universities, how have research management structures changed in recent years in relation to the Framework Programs?
3. How can the changes in research management be related to the modern theories of university governance?

2. Reforms in Higher Education

2.1. Increased Importance of the Third Money Stream

2.1.1. A Shift in Balance

As stated before, funding bases of universities are rapidly changing in nature. Where the first money stream (direct and structural governmental funding) used to be the main stream of money, nowadays (a) the second and third money stream are gaining importance and (b) also the first stream of money is often changing in nature (De Boer et al. 2007). National governments tend to increasingly emphasize the need for universities to become competitive actors. Especially with the current situation of (economic) crisis, governments tend to use budgetary problems as an argument to strengthen the emphasis on self-sufficiency for university based research and development (Hicks 2011). This shift in balance causes new challenges that universities have to cope with. In order to stay competitive, their institutional research management structures need to be adapted to the changing environment. This chapter gives an overview of how universities have transformed in the last decades and what this means for the modern university.

2.1.2. EU Funding

With the EU 2020 Strategy the EU stated the ambition to become the "most dynamic competitive knowledge-based economy in the world" (European Commission, 2013). The EU's 7th Framework Program, and in the future Horizon 2020, have and will put increased emphasis on collaborative research and increasing the overall excellence of European research. For universities, funding from the Framework Programs is by far the most important of the international funds to be acquired (Conraths et al. 2005). Yet, the overall importance of EU grants increases, as national budgets for research tend to shrink or at least tend to be redistributed (Conraths et al. 2005). Nevertheless, the EU- and other international funds still only account for a tiny percentage of total research funding. It is especially their effect on for example research collaborations and PPP's that make EU funding important. The latter development thus further forces universities to effectively organise their bid- and research management procedures (Hendriks et al. 2012).

2.2. Governance Reform: Research Management

The change in money streams has caused an overall institutional change of universities (Hendriks et al. 2012). However, this research only concerns the reforms in research management. As stated before, the research management structure within this very study mainly concerns *ex ante* research management. The goal of the research is to be able to state something about research management in relation to successful participation in the EU Framework Programs. Hence, the most important *ex ante* research management process to be kept in mind concerns the bid-management procedures within universities. Based on the change from traditional to modern models models, a set of hypothesis is to be derived.

2.3. Models of University Governance

In the last decades, universities have drastically changed in nature. A general transition, regardless of the different theories, is that universities have more and more become market-driven and dependent institutions rather than individual fragmented institutions. This transition means that there are new challenges to cope with. Universities have to deal with increased competition on performance and output and organizational structures have to be re-structured. These new challenges require new strategies. As De Boer et al. (2007) describe, new strategies are to be formed on the level of a university's identity, hierarchical structures and rationality within the organization. To get an understanding of the significance of research management therein, this chapter introduces the main traditional and modern theories of university governance. Subsequently, the dynamics of change from a traditional to a modern system and the general challenges therein are be used to draw hypotheses.

2.3.1. Traditional Models

The traditional models of university governance all outline the particularities of a university as an organization (De Boer et al. 2007). Clark (1983) claimed that the traditional university is 'bottom heavy' and has remarkably limited capacity for collective action. Compared with other, 'regular' organizations, central coordination was weak. Action on this level most likely has only minimal and local effects (Weick 1976). One can therefore imagine that a drastic culture change from these models to more strictly organized structures simply cannot be a fluent process.

2.3.1.1. The Loosely Coupled Organization

The theory of the 'loosely coupled organization' exists out of various interpretations and explanations. The mainstream argument was that elements of educational organizations are 'loosely coupled' (Weick 1976). A situation where elements "affect each other suddenly (rather that continuously), occasionally (rather than constantly), negligibly (rather than significantly), indirectly (rather than directly) and eventually (rather than immediately)" (Weick 1982a, p.380). Or as Glassman (1973) indicates, loose coupling occurs when systems either share a limited amount of variables or the variables they share are weak.

Chu (1995) explains that educational organizations lack tight coupling of elements (e.g. the existence of rules, agreement on their existence, inspection of compliance, and feedback to improve compliance). Results of his research show that the 'looseness' of the organization is caused by the very content of communications with regard to as well the role as the function of collection development (Chu 1995). Taking into consideration research management structures, one could say that in this form of university governance, there is no fixed form of research management present. All the research management structures present are a result of communications; they are negotiated. Rapping these statements together, a loosely coupled system is fully based on ad hoc communications. Research management is voluntary and partial and differs from case to case (depending on which research management elements match each other).

2.3.1.2. Organized anarchy

The organized anarchy is a model that is derived from what theorists describe as a 'garbage can' model. The garbage can model refers to an organization in which no clear organizational structure can be identified (anarchy). Therein the organized anarchy refers to the extent to which an apparent anarchy is naturally forced to structure itself against extreme uncertainty (Moch and Pondy 1977). Unlike the in theory of 'loosely coupling', the claim is that a research management structure occurs naturally.

2.3.1.3. Professional Bureaucracy and the Collegial Organization

The last two traditional models are strongly linked together. The original professional bureaucracy (or bureaucratic model), as described by Stroup (1966), can be seen as a Weberian model of governance, which was to be recognized within many universities. Organizations can be seen as rational institutions with clearly established lines of authority. Critics like Baldridge (1971) and others pointed out that the latter model is incomplete. The bureaucratic model only focuses on legitimate and formalized power. It fails to include forms of power like mass movement, expertise and appeals to emotion and sentiment (Pusser 1999). The latter has led to a re-conceptualization to the latest model of 'professional bureaucracy'. Mintzberg (1991) outlines that indeed authority is present in higher education organizations but it is based on professional norms and expertise rather than institutional organization. There is thus no institutionalized research management structure. There are discrepancies between the theoretical and the practical side of research management.

Also the collegial organization model is linked to the critiques by e.g. Baldridge (1971) on the original bureaucratic model. Millett (1962) outlines that a university can be seen as a community of scholars. Professional expertise and a shared value system are the basis of determining and controlling organizational goals (Pusser 1999). An emphasis is put on consensus as well as decentralized structures (Pusser 1999). In this case, research management can be seen as a purely bottom-up phenomenon.

2.3.1.4. Conclusion

Though the different traditional models of university governance differ, they all address a few general characteristics of the traditional university. There are different theories about the extent to which actions are intentionally organized. However, there is a general agreement that the traditional university did not have a strong central coordination. The individual researcher is the most important determinant of research execution. Hence, it is hard to recognize any form of research management within the traditional university. It is however important to keep the traditional models of university governance in mind to create an understanding of the challenges with which the modern university has to cope.

2.3.2. The main challenges of transition in models of university governance

As mentioned earlier, universities are in transition. They have moved from these traditional models of university governance to modern models of university governance. Before getting into the modern models, it is essential to know that changing the statutory governance comes along with the need to change the academic culture. Larsen, Maassen and Stensaker (2009) have identified six main challenges that express the complexity of changing the governance structures of a university:

- Increased emphasis on performance and output
- Greater formalization of roles and responsibilities, especially concerning leadership, often combined with stronger task specialization.
- More power to the consumers and users of public goods.
- Decentralization of tasks from the central level combined with increased institutional autonomy.
- Increased competition between public and private organizations.
- Privatization of public service by transforming public enterprises into stock companies

As according to Deem (2010), challenges as these are especially inherent for research intensive universities. She claims that managing academics is extraordinary challenging, as they are educated to be critical. Also, if the managers happen to be academics, they mostly fulfil the managing position only temporarily and because they like to occupy leadership. However, they often do not meet with their responsibilities with regard to budget-holding and line-management, making them 'amateur leaders' (Deem 2010). It is therefore extremely hard to implement organizational hierarchies within a university.

Additionally, an increased focus on market related output performance calls for a rational management structure. With the mentioned challenges at hand, the governing institutions can be rational, but the effectiveness of this rationality may be only incremental due to a lack of support from the researchers. The next paragraphs introduce how the modern university is governed. Making the link to the how and why universities have gone through this transition, the challenges of becoming a 'modern university' are extremely important.

At the end of this chapter a model by De Boer et al. (2007) is introduced. Within this model, also the challenges as introduced by Larsen et al. (2009) are (indirectly) included. The model gives a complete overview of how a modern university should be organised. It includes organizational aspects of 'identity', 'hierarchy' and 'rationality'. With this model, a link is to be made with university performance in the EU Framework Programs. Having conducted four different case-studies, the empirical data received from these case studies can be tested along this model. The universities studied are all universities that have experienced a growth in their participation numbers from FP5-FP7. With the evidence analyzed according to the model, one can say what features and to what extent these features of a modern university matter in successful EU grant procurement. Before introducing this model, an overview is to be given of the underlying theories of modern university governance.

2.3.3. Modern Theories of University Governance

Changing an organization hardly ever happens without any challenges. Also in changing the nature of a university, different challenges can severely affect the dynamics of this change. The goal of this section is to formulate hypotheses that state something about research- and bid management structures and challenges therein. This is done by laying down the modern theories of university governance and, at the same time, keeping in mind the initial situation of university governance.

2.3.3.1. The Entrepreneurial Model

Clark (1998) is one of the most famous theorists with regard to the entrepreneurial model of university governance. He claims that "an entrepreneurial university, on its own, actively seeks to innovate how it goes about its business. It seeks to work out a substantial shift in organizational character so as to arrive at a more promising posture for the future. Entrepreneurial universities seek to become 'stand-up' universities that are significant actors on their own terms" (Clark 1998, p.4).

As Etzkowitz (2001) describes, this type of university governance makes universities, and especially the different research groups, share increasingly more qualities with regular firms. Also the quickly changing nature of research funding (nationally as well as internationally) has caused universities to be pushed into a more competitive nature. Also, more transparency and interaction with firms becomes necessary to achieve a vast level of competitive qualities. Table 1 shows how Etzkowitz (2001) sees the role of the university being expanded in this regard.

Table 1: Expansion of University Mission

Expansion of university mission		
Teaching	Research	Entrepreneurial
Preservation and dissemination of knowledge	First academic revolution	Second academic revolution
New missions generate conflict of interest controversies	Two missions: teaching and research	Third mission: economic and social development; old missions continued

(Etzkowitz 2001, p.110)

In governance terms, the latter implies that the structure of a university as such has to be redefined. For an effective entrepreneurial university, Clark (1998) suggests:

1. A strengthened steering core;
2. Expanded developmental periphery;
3. Diversified funding base;
4. A stimulated academic heartland;
5. An integrated entrepreneurial culture.

All these aspects are closely intertwined with one another. A strengthened steering core of 'managers' is necessary to increase the entrepreneurial power of a university. These managers should not (only) be scientists. They should be experienced business-men. Where academics develop a periphery of other scholars, the strengthened steering core has to facilitate in an expanded network of commercial actors. As governmental research funding is either decreasing or getting a more competitive nature, a sustainable and diversified funding base is essential for a guaranteed level of research funding. Hence, the networks with commercial actors are essential. Realizing all these aspects requires an integrated and open entrepreneurial culture.

One can thus already see some possible challenges in the transformation to a modern university. A culture change is necessary in authoritative sense, but also fundamental research gets a whole different meaning. It now needs to be directly linked to what the market demands.

2.3.3.2. The Enterprise Model

The 'enterprise university' is to be seen as a university that has become more than a place for civil servants who act according to the public interest (Mariginson and Considine 2000). The prupose of the university is set out by strong executive control and the creation of new middle-management positions (Marginson et al. 2000). The quality and the lines of accountability are increasingly determined by the private sector. The main paradox evolving from this development is a "process of 'isomorphistic closure' through which universities with diverse histories choose from an increasingly restricted menu of commercial options and strategies" (Marginson et al. 2000, p.4).

2.3.3.3. The Stakeholder Model

As according to Ackhoff (1981), Allen (1988) and Benneworth and Jongbloed (2010), stakeholders are actors that are affected by an organizations' activities, and thus have an interest in the latter's performance. For a university, these stakeholders are actors that are in a position in which they may benefit from the social impacts of a university's output (Freeman 1984). These include the international scientific community, industry, politics, the public sector and the general public (Jongbloed, Enders and Salerno 2007).

Within the stakeholder model, universities are claimed to be influenced in their decision-making processes by these different actors. Stakeholder theory devoted different levels of salience to actors, ranking the extent to which an actor is influential (Jongbloed and Goedegebuure 2001).

2.3.4. A Model of Concepts and Facets and Research Management Items

As De Boer et al.(2007) state, for a modern university it has to be clear in what way a university is unique and adds extra value compared to its competitors. De Boer et al. (2007) have developed a model of those different concepts (hierarchy, identity and rationality) that are seen as essential qualities of the modern university. I used this model with its different facets and research management items to test what aspects of research management are of significant importance for successful grant procurement for the EU Framework Programs.

De Boer et al. (2007) argue that universities in transition have to deal with numerous aspects of governance concerning the construction of *identity*, *hierarchy* and *rationality*. Expanding these concepts, they have identified different facets of the latter. For *identity* these facets concern 'constructing boundaries', 'controlling collective resources' and 'being special as an organization'. *Hierarchy* goes along with the facets 'central coordination and control', 'allocating responsibility' and 'constructing management'.

The main reason for using this model is that it overarches the different models of modern university-governance. The different research management items that are included in the model, directly imply several potential challenges. As also indicated by Larsen et al. (2009), effective research management is something that comes along with balancing. This means balancing between e.g. central coordination and decentralization of tasks and greater formalization of roles and responsibilities, often combined with stronger task specialization. This along with the fact that researchers are hard to govern (Deem 2010).

With this model, an analysis can be made of what the universities that have increased their participation rates in the Framework Programs have changed within their research management structures. This is done by looking at how the different research management items, as indicated by De Boer et al. (2007) apply to the universities in question. Table 2 is thus a scheme to analyse which of the independent variables (research management items) are related to the dependent variable (success) and how and how strong they are related.

Table 2: Concepts, Facets and Research Management Items

(De Boer et al. 2007, p.35: *Transforming organizations: concepts, indicators and items defining resposibility*)

Concept	**Facet**	**Affected Research Management Item**
Identity	Constructing boundaries	- Defining own activities, environments and organizational boundaries. - Defining relations with other organizations and government.
	Controlling collective resources	- Having financial discretion (e.g. block grants and diversification of funding base). - Employing your own staff and setting labour conditions.
	Being special as an organization	- Having a special task, purpose, competence, resources, structure, way of working, or representing special ideas. - Marketing profiles through logos and (new) brand names. - Emphasizing differences between your organization and others.
Hierarchy	Central coordination and control	- Organizing hierarchies in layers of 'leaders and lead' - Authoritative centre directs action - Planned action guided by organizational policies
	Allocating responsibility	- Identifying units/individuals as being in control and bearing responsibility - Assigning more responsibility to leaders - Accounting to the superior (hierarchy) or external stakeholders
	Constructing management	- Chief executives are not professional bureaucrats (civil servants) but managers - Creating new middle management positions - Recruiting new leaders from outside
Rationality	Setting objectives	- Setting single or a limited number of goals - Separating services in units - Management-by-objectives (internal and external)
	Measuring results	- Registration of results - Accounting for actions (systematic connection between goals and actions) - Expectations to be efficient - Benchmarking - Support by management accounting techniques (financial as well as performance related) - Assigning numerical values (detailed performance indicators) - Performance agreements and, consequently, frequently monitoring.

2.3.4.1 Identity

Part of the 'modern university' is the need of having a clear identity. One of the important facets of identity is the (re)construction of boundaries. In the modern form, universities are effectively competing when they are open to the market. They need to for example actively look for allies or participate in research consortia and mergers (Beerkens 2004). This may happen through cross-sector alliances with other universities as well as with the private sector. Eventually, a clear identity helps to become a 'business- like company' that valorises and exploits scientific knowledge (De Boer et al. 2007).

The strength of an identity also depends on the extent of control on collective resources. De Boer et al. (2007) for example indicate that the modern university (in this case especially the Dutch universities) by now have developed into more private actors when it comes to human resources, financial resources and real estate. As pointed out by De Weert (2001), this extent to which universities can control their collective resources important. It mainly depends on national policies to what extent universities are granted financial discretion.

All together, a clear identity means that a university has a distinct profile. However, the development towards more distinct profiles may also lead to major challenges. Universities strive for excellence. They aim to supply relevant and excellent programmes in teaching and research. Nevertheless, applied research, knowledge transfer and valorisation, or community services (being features of the 'modern university') do not necessarily fit the traditional and distinctive profile. Therefore it may be a challenge to create meaningful statements that say something substantial about the university's identity.

2.3.4.2 Hierarchy

The modern university has a more vertical decision-making process. There are clear and transparent lines of management control and hierarchy. This means that new middle-management positions are to be created. One of them is the change in (managerial) tasks for a dean. A dean becomes more of a manager, and not necessarily a scientist from a specific field. Yet, it can even be that a dean is recruited from outside a faculty to be able to transfer management experiences. Though strategic policy-making is more centralized, an organization not necessarily run top-down. Management still depends on the individual academics' goodwill. Therefore a consultative style of managing the faculty is still usual (Currie et al. 2003, pp. 98-111).

2.3.4.3 Rationality

De Boer et al. (2007) explain that the modern (in this case Dutch) universities are increasingly exposed to a need for more rationality. The commercialised form of university-practices requires universities to rationally compete with other universities. This means that it is essential to set clear objectives and introducing efficient self-reflecting mechanisms to measure results. In this way rational monitoring becomes a major tool to secure the improvement of research performances, and thus excellence.

2.3.5. Hypotheses

In order to be able to formulate decent hypotheses it is important to return to the core goal of this thesis. The goal is to find out to what and to what extent the different features of the modern university affect bid management procedures for EU grant procurement. The model as given by De Boer et al. (2007) in a certain way provides for an ideal type of research management. This research mainly concerns the bid-management part of research management within universities.

Before identifying the modern theories of research management, several suspected challenges in effective research management were posed. In relation to universities' bid management procedures in the EU Framework Programs, some expectations arise. First of all, EU grant procurement is a competitive tender-based procedure. It is not only research excellence, but also the entrepreneurial, commercial qualities that take an essential role in the procedure. Without the proper research networks a project proposal cannot be successful. Therefore is can be expected that clear and effective research management can add value to what should become a successful grant procurement procedure. A first hypothesis is therefore:

1. *An effective research management structure is essential for successful grant procurement.*

The goal of the research is to find out which of the particular research management structures matter when it comes to bid-management and how. Therefore I carried out interviews at different universities that have significantly increased their participation rates over the last 15 years. Coming to the specific expectations for the way in which these universities have implemented the different research management items as described in the model by De Boer et al. (2007), a few hypotheses can be formulated. Having special attention for the bid-management procedures of the universities, I would expect the financial aspects of the modern theories on university governance to play a big role. Hence, I expect the following:

2. *Having financial discretion is essential for an effective bid-management structure;*
3. *In financial terms, central coordination and control is crucial for successful bid-management;*
4. *Support by management accounting techniques can help researchers to not only deliver high-quality research projects in terms of content, but also financially.*

There should be no doubt about the fact that all the different items mentioned in the model somehow relate to successful bid-management. However, in taking a more market-driven form, I would expect the financial issues to have most effect on successful competition in bid-management procedures.

3. Methodology

3.1.1. Variables

a. Success

Conceptualization. Success in the sense of this research refers to the capacity to write effective Framework Program proposals. Success is the main dependent variable of the research.

Operationalization. The concept cannot be measured in terms of success rates of universities; these are not freely available. Therefore success is be measured along the lines of increase of activeness in terms of participations relative to entire population of universities.

b. Research Management

Conceptualization. Research management is an extremely broad concept. The thesis study will only consider these facets of research management that can be transformed with a low amount of resources and that concern *ex ante* management. This because we want to look at the financing of research, something that is to be cared for before the actual research starts. Research management is the main independent variable of the study, enhancing a set of sub-variables.

Operationalization. Measuring changes in research management, there will be special focus to how it can add value to increasing a critical mass for a research, strengthening consortia, raising awareness and facilitate in other non-scientific skills required for an effective Framework Program bid procedure. This will be done along a model of De Boer et al. (2007) which will be further elaborated on in the next chapters. It will be analysed how the model can contribute to challenges of organizational reform that are recognized by Larsen et al. (2009). The model by de Boer et al. (2007) will be used; it enhances the link between transformation theorists and new institutional theorists.

Each of the different research management items within the model will be tested on its relationship with success. This will be done by looking how different universities that have experienced growth in participations in the Framework Programs experience the different items as essential factors in successful grant procurement.

For each of the items a scale will be used to assess in how far the specific research management has been introduced into the organization in the last 15 years. This scale will range as follows:

--	= The item is not inherent within the organization
-	= This item is hardly gaining importance within the organisation
+/-	= This item has partly found its way into the system
+	= This item has found its way into the system
++	= This item prominently found its way onto the system and is now fully and dominantly present.

The main concepts within the model are:

i. Identity

Conceptualization. The concept concerns "*a socially constructed concept of what the organization is or would like to be"* (De Boer et al. 2007, p.33). It is the cognitive side of the organization and its "*role in stimulating new ideas, changing attitudes and new frames for action"* (De Boer et al. 2007, p.33).

Operationalization. The concept will be analysed by looking to the extent to which the attached indicators have been included in a university's strategy. These indicators are 'constructing boundaries', 'controlling collective resources' and 'being special as an organization'. An assessment will be made on the basis of the given scale. The four universities will thus be assessed by using the following table and filling in the scale on the basis of the empirics:

Table 3: Assessment model for Identity.

Facet	**Affected Research Management Item**	**Change Assessment (--/++)**
Constructing Boundaries	Defining own activities, environments and organizational boundaries.	
	Defining relations with other organizations and governments	
Controlling Collective Resources	Having financial discretion	
	Employing your own staff and setting labour conditions.	
Being Special as an Organization	Having a special task, purpose, competence, resources, structure, way of working, or representing special ideas.	
	Marketing profiles through logos and (new) brand names.	
	Emphasizing differences between your organization and others.	

ii. Hierarchy

Conceptualization. Hierarchy refers to an organisations' capability to coordinate action, mostly seen as the main purpose of creating organizations (De Boer et al. 2007). This concept is highly relevant, as the thesis study will look at universities as entities being (in transition to becoming) corporate organizations.

Operationalization. The concept will be analysed along changes that have taken place in the elements of hierarchy, being 'central coordination and control', 'allocating responsibility' an 'constructing management'. An assessment will be made on the basis of the given scale. The four universities will thus be assessed by using the following table and filling in the scale on the basis of the empirics:

Table 4: Assessment model for Hierarchy

Facet	**Affected Research Management Item**	**Change Assessment**
Central Coordination and Control	Organizing hierarchies in layers of 'leaders and lead'.	
	Authoritative centre directs action.	
	Planned action guided by organizational policies.	
Allocating Responsibility	Identifying units/individuals as being in control and bearing responsibility.	
	Assigning more responsibility to leaders.	
	Accounting to the superior (hierarchy) or external stakeholders.	
Constructing Management	Creating new middle management positions.	
	Recruiting expertise from outside.	
	Chief executives are not professional bureaucrats but managers.	

iii. Rationality

Conceptualization. Rationality refers to the fact that organizations should have 'specific goals through formal and rational means' (De Boer et al. 2007). Organizations (universities) have to be intentional to be effective and efficient.

Operationalization. The concept will be analysed through looking at how universities have been setting objectives and how they have measured and dealt with the results. An assessment will be made on the basis of the given scale. The four universities will thus be assessed by using the following table and filling in the scale on the basis of the empirics:

Table 5: Assessment model for Rationality

Facet	**Affected Research Management Item**	**Change Assessment**
Setting Objectives	Setting a single or limited number of goals	
	Separating services in units	
	Management-by-objectives	
Measuring Results	Registration of results	
	Accounting for actions	
	Expectations to be efficient	
	Benchmarking	
	Support by management accounting techniques (financial as well as performance related)	
	Assigning numerical values	
	Performance agreements and, consequently, frequent monitoring.	

3.1.2. Method of Data Collection and Analysis

The research was carried out in a three-step process. First of all, the theoretical framework as identified in the previous chapters has been introduced. The goal of this theoretical framework was to create a model to be able to link research management structures with success in the EU Framework Programs. Before getting to this relationship, the second step of this research was to identify the main developments within the EU Framework Programs in the last fifteen years. In the next section an elaboration will be given on the data describing the developments of the EU Framework Programs in the last fifteen years (FP5, FP6 and FP7). This will be done by creating a database of all European universities and including the development of their number of project participations. The data are to be retrieved through a CORDIS tool provided by PNO Consultants. These data will be analysed in statistical terms, looking at the averages in relative increase per university, per country, but also the total increase of university participations over the years.

The third step of this research was to from this data set pick four universities to conduct the case studies. After the analysis it became visible which universities have best improved their participation rates in the relative sense. This allower for a selection of universities that have performed best in procuring grants.

The latter selection of 'successful' universities happened in the following way:

- The universities that have experienced a relative growth in the number of participations over the last three Framework Programs were identified.
- As there was an error for the limited number of universities that started off with no projects in FP5 (no percentage of increase can be calculated), these universities are left out.
- To account for a certain sense of similarity between the universities to be compared, the research staff of a university shall not be bigger than 5000 Fte.

The final part of the analysis concerns the four actual case studies. The universities are selected from the pool of 'potential suspects' from the selection list. As the potential list of suspects contains the universities with the best chances to be interesting, the final selection was done in pragmatic terms; they concern universities that are accessible and that are interesting for PNO Consultants, as the research is conducted for them. These universities are located in different countries as much as possible. Subsequently, an interview was planned with a research management officer, if possible responsible for EU funding.

The interviews took up around an hour each. Within the interviews I tried to find out what has been changed in the research management structures in the last decade. Questions will concern the changes that have taken place in the budget formation, management structures per organizational level, their experiences, what they see as success factors for grant applications, how they established their networks (and how this differs from the past), how communication structures are organized, etc. These interviews give a good insight of what these universities have changed. Any similarities between the universities may suggest for a factor to be adding value to the competitiveness of a university in the grant application procedures. Based on the answers given in the interviews, an assessment was made per university, per research management item according to the ++/-- scale as described earlier.

4. Developments in the EU Framework Programs

As outlined, universities are increasingly expected to deal with competitive funding bases for their research. The latter is mainly caused by shifting governmental policies on national, but also on EU level. With the competitive nature of the EU's Framework Programs, universities are stimulated to perform excellent research in cooperation with the private sector. The latter can be seen as a factor that speeds up the need for university governance reform.

4.1. General Developments

For the last decades, the EU has initiated different Framework Programs. This report deals with the programs FP5-FP7 (1998-2013), which cover the main time span in which the transitions in university governance and research management are claimed to have taken place. Starting off with the Fifth Framework Programme, the EU aimed to facilitate the 'transition to a knowledge-based society' (European Commission 2013). Different thematic and horizontal programs have been developed to realize the latter. The main challenge that has been experienced by researchers within this programme was to enhance effective interdisciplinary research by carefully developing high-quality consortia and to therein deal with team building between them (Bruce, Lyall, Tait and Williams 2004). Apart from that, the lacking experience in management of the communication agendas between the different specializations was seen as a major challenge slowing down the achievement of the goals that were set (Bruce et al. 2004).

With a broader set-up, the Sixth Framework Program was introduced in 2002 to succeed the fifth one. Where FP5 focused on the transition into the knowledge-based society, it is clearly visible that FP6 already focused more on the management and governance of research in a knowledge-based society. New issues that were addressed were for example IT, nanotechnology and aeronautics and space. The main distinguishing factor in this program is the introduction of the European Research Area (ERA) (Wu 2003). Unlike its predecessors, FP6 was to generate lasting impacts by adding more focus to a smaller set of priorities. A clearer set of criteria in which the European added value has to be extremely clear for a project to possibly receive funding has been developed (Wu 2003).

Subsequently, the Seventh Framework Program (FP7) was introduced in 2007. The program was to "strengthen the scientific and technological base of European industry and to encourage its international competitiveness" (EFTA 2013).

Table 6: Budgetary Developments in the Framework Programs

	FP5	FP6	FP7
Budget	€13700 mln	€17500 mln	€50251 mln
Projects	17203	10078	21570
µBudget/project	€796,373.-	€1,736,456.-	€2,329,671.-

As visualized in table 3, a significant shift has taken place in the budgetary structure of the Framework Programs, as well as in the number of projects that were granted.

Taking into account these developments, it is important to see that each program is different in scope and size, both financially and project-wise. This raises questions about the extent to which

changes in the number of project participations can be generalized. Therefore changes are to be encountered in a relative sense.

4.2. Participation Patterns

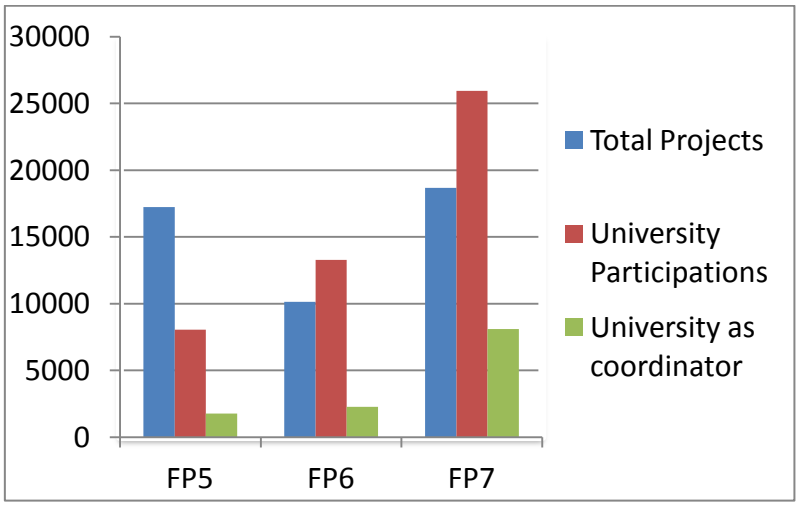
Within the patterns of participation from FP5-FP7 and changes therein, several interesting facts can be identified. All the retrieved data on participations within this chapter are retrieved through a CORDIS-software tool developed by PNO Consultants, and the data are as recent as until December 2012 (which means that the participation patterns for FP7 may have slightly changed since).

Looking at the role that universities have taken within projects over the years, some significant changes are to be recognized. Graph 1 shows that in FP5 universities did not have a significant role in the funded projects; the total number of projects is more than twice as large as the total number of participations of universities. Apart from that, the role that universities had within projects was overall not too prominent; in only a marginal number of cases universities were project-coordinators.

FP6 already shows an entirely different trend; with a lower absolute number of projects, the absolute number of university-participations has increased, and even exceeds the number of projects. The latter means that also inter-university cooperation is gaining importance. The absolute number of coordinating positions for universities did however not significantly increase. Despite the fact that the relative amount of projects in which universities were coordinator did naturally increase (as the total number of projects was lower), there is no striking change in the dominance and hierarchical positions of universities within consortia.

A significant change in participations, cooperation and coordination by universities is to be recognized in FP7. FP7 focused on the competitiveness of academic research and development through public-private partnerships, and that is to be recognized in the data. The number of university-participations exceeds the number of projects by far and an increasing number of universities coordinate a project

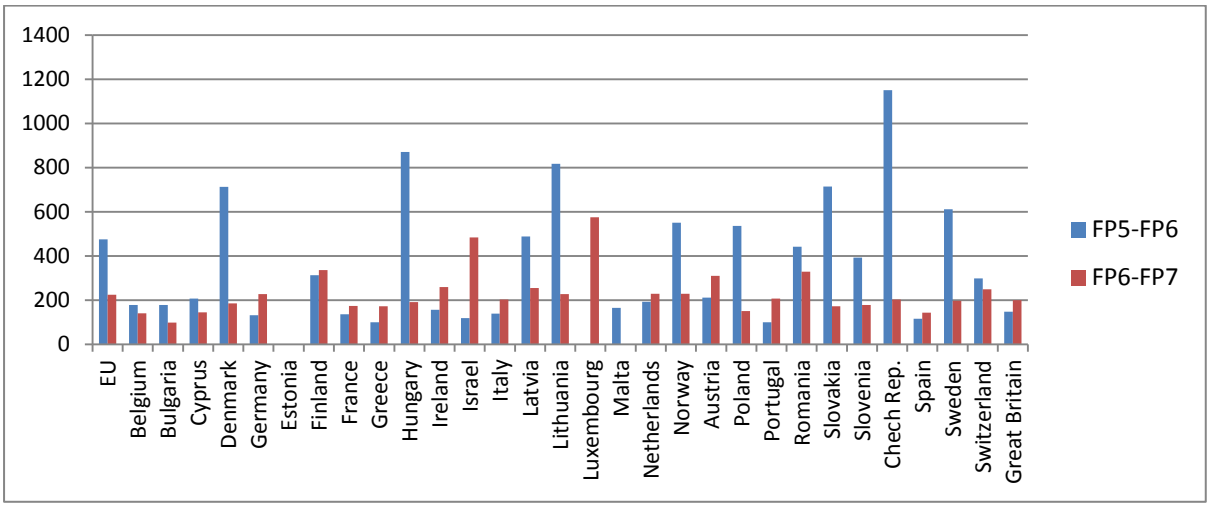
Graph 1: Participation Numbers FP5-FP7.



Source: CORDIS

Graph 2 offers another insight in the increased importance of university-participation from FP6 onwards. In many cases the relative growth of university participations was bigger from FP5 to FP6 than from FP6 to FP7. The graph on its own does not yet tell us a lot, but adding these data to graph 1, table 3 and the theoretical sources, the evidence suggests that in FP6 the role of universities started to matter and this trend continued significantly in the process of getting to FP7.

Graph 2: Change-rate in participation values.



Source: CORDIS

One peculiar issue within Graph 2 is that a few cells are missing. Changes in Estonia, Malta and Luxembourg have fallen off the grid, since the scores exceeded the range of the graph by far. As in all of these countries only represent one (Malta and Luxembourg) or three (Estonia) universities, their figures are not representative. I have therefore chosen to not include them into the graph.

4.3. Analysis: Picking a Case-Study Sample

The main goal of the research is to say something about university research management structures in relation to the Framework Program. Therefore four universities have been selected for case-study purposes. In Chapter 3.1.2. the entire method of getting to those four universities has been described. In short, the following method has been used:

- The universities that have experienced a relative growth in the number of participations over the last three Framework Programs are to be identified.
- As there will be an error for the limited number of universities that started off with no projects in FP5 (no percentage of increase can be calculated), these universities are to be left out.
- To account for a certain sense of similarity between the universities to be compared, the research staff of a university shall not be bigger than 5000 Fte.
- From the top-5% of universities that have gone through the biggest change in number of participations, four universities will be chosen. The choice will be based on simple availability of data and interest of PNO.

Like in every study, also these choices bring about consequences to the possibilities of generalization of the final results. The main undesirable consequences of this study are (1) that one only

encounters successful universities and (2) that only a very limited range of successful universities is included for potential analysis. The first issue is dealt with by adding the element of time into the definition of 'success'; the successful universities are selected because their participation behaviour changed over the last fifteen years. As their participation patterns changed over time, some sort of culture-change must have taken place within the universities' management structures. The second issue of having a limited range is made redundant by the previous comment.

In cooperation with PNO a selection of universities has been made. To have a determined degree of similarity, the selection exists of relatively broad universities in the sense of their research focuses. They are in the top-5% of increase in participations over FP5-FP7, but we have consciously not taken the first few outliers, as they may not be representative. The universities that have been chosen are next to that either contacts or clients of PNO or PNO wishes to know more about the institution for strategic reasons. Apart from that, these universities are easier accessible for information. I do not see this as a thread to validity or bias in selection; as long as the universities fall within the range that has been set out, the generalizability of the results will stay as high as it would have for any other university within the top-5%.

Three of the universities are similarly moderate in size, and though high quality institutions, not commonly known to be producers of extraordinarily excellent research. These universities are the University of Warwick, University of Antwerp and the University of Maastricht. The last university, the University of Utrecht is slightly different in terms of size and general research excellence. As it is however also a 'general' university in terms of research focus; it may function as a control variable for the other three universities. This because a university with the size of Utrecht will encounter other challenges in research management than smaller ones. However, when it turns out that their efforts in bid-management procedures somehow equal, the reliability of the outcome rises.

Table 7: The Top-5% of European Universities in Change in Participations FP5-FP7

University	Change Index (1=100%) FP5-FP7	University	Change Index (1=100%) FP5-FP7
1.CHALMERS TEKNISKA HOEGSKOLA AB	92.5	19.Universiteit Gent	13.9
2.THE UNIVERSITY OF MANCHESTER	82	20.LUNDS UNIVERSITET	13.8
3.UNIVERSITY COLLEGE DUBLIN, NATIONAL UNIVERSITY OF IRELAND, DUBLIN	68.5	21.UNIVERSITE DE LAUSANNE	13.8
4.GOETEBORGS UNIVERSITET	61.5	22.Universiteit Antwerpen	13
5.SVERIGES LANTBRUKSUNIVERSITET	36.5	23.LUDWIG-MAXIMILIANS-UNIVERSITAET MUENCHEN	12.9
6.UPPSALA UNIVERSITET	33.8	24.UNIVERSITETET I BERGEN	12.8
7.UNIVERZITA KARLOVA V PRAZE	29	25.AARHUS UNIVERSITET	12.3
8.UNIVERSITAIR MEDISCH CENTRUM UTRECHT	28.5	26.UNIVERSITEIT MAASTRICHT	11.8
9.UNIVERSITAET BERN	28	27.THE UNIVERSITY COURT OF THE UNIVERSITY OF ABERDEEN	11.7
10.THE UNIVERSITY OF WARWICK	26.3	28.UNIVERSITEIT UTRECHT	11.7
11.THE UNIVERSITY OF READING	23.7	29.KUNGLIGA TEKNISKA HOEGSKOLAN	11.3
12.UNIVERSITAET INNSBRUCK	22.7	30.THE UNIVERSITY OF NOTTINGHAM	10
13.TURUN YLIOPISTO	20.7	31.UNIVERSITETET I OSLO	10
14.THE UNIVERSITY OF BIRMINGHAM	18.8	32.UNIVERSITA DEGLI STUDI DI TORINO	9.9
15.TECHNISCHE UNIVERSITAET DRESDEN	16	33.RIJKSUNIVERSITEIT GRONINGEN	8.7
16.BEN-GURION UNIVERSITY OF THE NEGEV	15	34.THE UNIVERSITY COURT OF THE UNIVERSITY OF ST ANDREWS	8.1
17.UNIVERSITAET ZUERICH	14.3	35.UNIVERSIDAD DEL PAIS VASCO	7.8
18.UNIVERSITEIT LEIDEN	14		

Although the top-5% of universities does not directly include the 'usual suspects', being the universities that top the world-wide rankings, almost all of the universities are concentrated in the North of Europe. Eight of the universities are Scandinavian, seven are British and the rest is spread over the rest of Northern and central Europe with two exceptions in Spain and Italy. One could therefore ask the question why some countries seem to have improved more than others in the last decades. Within the next chapter I will attempt to shed some more light on the latter situation, as also the national systems of higher education funding may matter for a university's budget strategies.

5. Higher Education Reform and Financing in the Netherlands, the United Kingdom (UK) and Belgium

5.1. European Funding Mechanisms

Focusing on the bid-management component of university-research management structures, this chapter introduces the context of the national funding systems of the countries that host the case-study universities. Next to that, some short thought will be given on why the top 5% of universities is so geographically concentrated. With considerable differences among Member States' individual funding systems (Conraths et al. 2005), universities most probably have different motivations to become active in EU Framework Programs. This may also have an effect on the participation patterns for universities.

Table 8: Extent of autonomy experienced by universities.

Type of budget	
Line-item budget	BG, CY, GR, LV, LT, RS, TR
Block-grant budget	AT, BE nl, BE fr, HR, CZ, DK, EE, FI, FR, HU, IS, IE, IT, LU, MT, NL, NO, PL , PT, RO, SK, SI, ES, SE, CH, UK
Ability to keep potential surplus from state funding	
Universities may keep surplus on state funding	AT, BE nl, BE fr, BG, HR, CZ, DK, EE, FI, FR, GR, HU, IS, IE, IT, LU, MT, NL, NO, PL , SK, SI, ES, SE, CH, UK
Universities may not keep surplus on state funding	CY, LV, LT, PT, RO, RS, TR
The setting of tuition fees	
No tuition fee	Austria, Czech Republic, Denmark, Finland, Iceland, Malta, Norway, Slovakia, Sweden, Cyprus*, Greece*, Scotland*, Slovenia*
Government sets fixed amount	Belgium / Wallonia, Bulgaria, France, Ireland, Netherlands, Slovenia, Spain, Switzerland, Turkey
Universities decide but ceiling set by public authorities	Italy, Portugal, UK: England*
University sets fees	Croatia, Estonia, Greece, Hungary, Latvia, Luxembourg, Poland, Romania, Serbia, UK
Fees set on basis of some form of Cooperation between university and public authorities	Cyprus, Belgium / Flanders, Lithuania
Ability to borrow money	
Universities are able to borrow money	AT, BE nl, BE fr, HR, CY, CZ, DK, EE, FR, IE, IT, LV, LU, NL, NO, PL , RO, RS, SK, ES, SE, UK
Universities are not able to borrow money	BG, FI, DE, GR, HU, IS, LT, MT, PT, SI, CH, TR
Ability to raise money on the financial markets	
Universities are not able to raise money on financial markets	BE nl, BG, CY, FI, FR, DE, IE, LT, MT, NL, NO, PL , PT, RO, RS, SI, SE, CH, TR
Universities are able to raise money on financial markets (to some degree)	AT, BE fr, CZ, DK, EE, HU, IT, LV, LU, ES, UK
Ownership of university buildings	
University	BE fr, HR, CY, CZ, EE, GR, IE, IT, LV, MT, NL, NO, PL , PT, RO, SI, ES, UK
Public authorities	BE nl, BG, DK, HU, LT, LU, RS, TR
Public real estate companies	AT, FI, DE, SE
Variations	FR, IS, SK, CH
Sale of university-owned real estate	
Universities may freely sell real estate they own	BE fr, CZ, EE, IT, NL, ES, CH, UK
Sale of real estate requires permission of public authorities	HR, CY, IS, IE, LV, MT, NO, PL , PT, RO, SK, SI
Universities may not sell real estate they own	GR

* indicates the situation for bachelor students
Source: Estermann & Nokkola (2009)

Source: Jongbloed (2010)

As indicated in table 8, there is a variety in the autonomy that universities experience in funding their own research. Hence, this factor should not be underestimated in a university's drive to gain additional funding. The result of the latter can be found in table 5, where an indication is given of the budget division within a sample of universities from a few Member States.

Table 9: Shares (%) of revenues for a sample of European universities, 2006.

	UK	ES	DE	IT	NL	SE	DK	BE	IE	CH
Tuition and fees	23	16	1	12	7	0	0	5	32	3
Government core funding	35	62	73	63	68	60	70	65	38	72
Competitive research grants	21	10	22	12	15	34	19	21	18	18
Other sources	20	13	4	9	10	6	2	9	12	7
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Jongbloed 2010.

Striking within the data in Table 6 is the enormous difference in funding division per Member State. Where Belgium and The Netherlands do not differ too much from each other in these terms, the UK has a remarkably low amount of government core funding, and a high amount of competitive grants.

With the UK being an exception, all the top-5% countries that are represented in Table 6 have no or very low tuition fees. The government core funding of e.g. Denmark, the Netherland and Germany is relatively high, though the importance of competitive research grants gains importance. Especially Swedish universities are for 34 % the most dependent on competitive research grants. The latter confirms that indeed universities within these countries are most forced to adapt to competitive funding sources. This might also explain why they have been able to improve their strategies in such a way that they exceed their competitors in FP project participations.

The rest of this chapter will cover how the funding systems of the different case-study countries look like. The latter is to create a context in which also national factors affecting university-governance structures are identified.

5.2. The Netherlands

The higher education system in The Netherlands is a binary system. Originally, there was a high level of *ex ante* regulation and planning, for which a major role was dedicated to the government. Gradually this system has been replaced by a system in which *ex post* audits have taken the lead and a more general approach is taken by the Higher Education and Research Act (WHW) (Maassen 2000).

Regarding the financing of higher education, the first money stream in The Netherlands comes from the national ministry of Education, Science and Technology, and represented around 73% of the total financial sources of a university in 2000 (Maassen 2000). In 2009, Jongbloed (2009) claimed this amount to be around 60%, which is significantly lower. About 10% of the Dutch research funding comes from research councils, accounting for the second money-stream. The remaining 30% is to be subjected to the third money stream (Jongbloed 2010).

The first money stream in divided according to the BAMA model, composed of both a teaching component (based on new entrants allocation, diploma-based allocation and a basic allocation) and a research component ((1) an amount for each university based on the number of BA and MA

diplomas; (2) allocation for dissertations and designer certificates; (3) allocation for research schools; (4) Smart Mix and (5) strategic considerations allocation) (Jongbloed 2010).

More important is the increasing pressure of external demands through policy objectives (second and sometimes third stream financing) and commercial demand (third stream financing). On a national level, The Netherlands for example enhanced policies to promote science and innovation by the "Science Budget 2004: Focus on Excellence and Greater Value" (Jongbloed 2010). With such a way of introducing priorities and active cooperation between research institutions and industry, a system of performance-based research funding was born (Jongbloed 2010). The three top priorities of Dutch university research are set to be ICT, genomics and nanotechnology.

The funding of Dutch universities happens to great extend through a lump-sum budget, granting the university financial discretion and opportunities for cross-subsidizing teaching activities (De Boer et al. 2007.). Additionally, universities have autonomous borrowing powers and can also borrow from commercial banks. Therefore their incentive to do well in the Framework Programs may be different from those of universities in the other mentioned countries.

5.3. The UK

Already in the 1990's the UK knew a call for more added value to academic research through better cooperation with the private sector (Deem 1998). In combination with the active policies to stimulate enhanced institutional autonomy as well as increased competition (Deem and Lucas 2006), the latter has caused universities to increasingly look and compete for private- and other third stream research funding. As the University of Warwick is located in England, this paragraph will deal especially with governmental funding policies in England. One should however be aware that within the UK, different sub-national policies are in force per country.

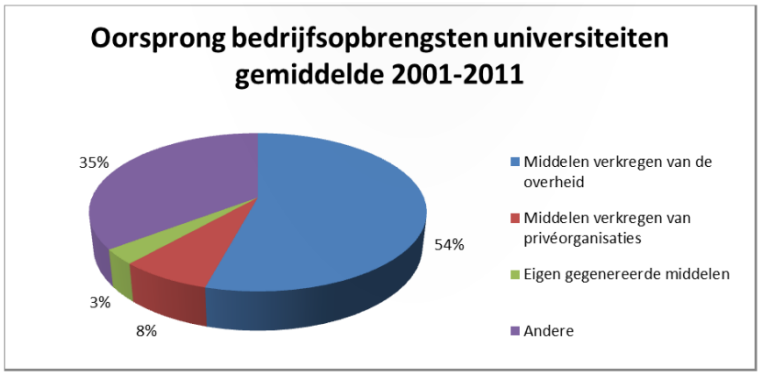
As of 1992, the UK has independent, regional, non-departmental Higher Education Funding Councils (HEFC's). Each university receives an annual grant from its respective HEFC in the form of partly (1) a block grant and partly (2) formula-based funding. For UK universities also other income from a diversified set of public and private sources is highly important, as indicated in Table 4. Major changes to the financing of higher education in the UK have taken place due to the 2004 Higher Education Act. The piece of legislation introduced higher tuition fees, as universities were underfunded (Higher Education Act 2004). Although the latter did not directly mean something to the government funding as such, is certainly significantly changed around the balances in university funding resources.

In 2012, the funding- and loan system in the UK has changed again. However, this is not relevant within the scope of this research. The effect of these last few months will not be visible when considering fifteen years.

5.4. Belgium

Within Belgium, most universities and academic activity is situated in Flanders. As Belgium is divided in three communities, with each having legislative autonomy regarding their higher education sector, the focus here will be on the Flanders community.

Graph 3: Income Sources of Flamish Universities from 2001-2011.



Source: Vlaamse Overheid 2012

In 2008, the Flamish government significantly reformed the distribution of financial assets for universities. The first money stream now partly exists of block grants (€105 mln) and partly of a variable, partly competition based grant-system (€176 mln). To receive the block grants, a university will need to employ at least 50 doctorate candidates and to produce at least 1000 publications per year. The other, partly competitive, financial assets are to be divided according to (a) the share of academic bachelors- and master degrees within the association (24%); (b) the share of doctorates (40%); (c) the share in publications and citations (30%) and (d) on the basis of a diversifications coefficient (6%) (Vlaamse Overheid 2008).

5.5. Implications for the Case-Study Analysis

Keeping in mind the indicated main characteristics of the funding systems of the Member States, one could expect a few differences in the way in which universities organise their bid-management structures. As stated by Frølich, Schmidt and Rosa (2010), funding systems for higher education have a significant effect on institutional strategies and individual academia.

I therefore expect the motivation in organizing bid-management procedures per university to be different. However, when the results of my study turn out to be largely the same for each university, one could say that there is no direct link visible between national funding systems and institutional bid-management strategies.

6. Research – and Bid Management: Four Case-Studies

6.1. Introduction

This chapter will give an overview of the changes that the four universities have gone through and how they currently deal with research- and bid-management. The outline will be given in a schematic way, based on the model given by De Boer et al. (2007). Per university an assessment will be made on how the model can be applied to the university in question. The data are retrieved through both desk research as well as through face-to-face depth-interviews. Logically, the main focus will be on bid-management procedures. The research management items introduced by De Boer et al. (2007) that concern the teaching aspects of a university, are left out of the considerations within this research.

6.2. University of Maastricht

6.2.1 Identity

Regarding the importance of identity construction in the modern university, the University of Maastricht certainly does not lack behind. Table 10 displays the extent to which identity has been incorporated in the research management structures of the University of Maastricht.

Table 10: Identity and the University of Maastricht

Facet	Affected Research Management Item	Change Assessment
Constructing Boundaries	Defining own activities, environments and organizational boundaries.	
	Defining relations with other organizations and governments	
Controlling Collective Resources	Having financial discretion	
	Employing your own staff and setting labour conditions.	
Being Special as an Organization	Having a special task, purpose, competence, resources, structure, way of working, or representing special ideas.	
	Marketing profiles through logos and (new) brand names.	
	Emphasizing differences between your organization and others.	

Constructing boundaries

The results of the case studies are confidential.

Controlling collective resources

The results of the case studies are confidential.

Being special as an organization

The results of the case studies are confidential.

6.2.2 Hierarchy

As according to The University of Maastricht (2013), significant changes have taken place in the research – and bid management hierarchies over the last decade. Table 11 shows the change assessment of the relevant research management items in hierarchy.

Table 11: Hierarchy and the University of Maastricht

Facet	Affected Research Management Item	Change Assessment
Central Coordination and Control	Organizing hierarchies in layers of 'leaders and lead'.	
	Authoritative centre directs action.	
	Planned action guided by organizational policies.	
Allocating Responsibility	Identifying units/individuals as being in control and bearing responsibility.	
	Assigning more responsibility to leaders.	
	Accounting to the superior (hierarchy) or external stakeholders.	
Constructing Management	Creating new middle management positions.	
	Recruiting expertise from outside.	
	Chief executives are not professional bureaucrats but managers.	-

Central coordination and control

The results of the case studies are confidential.

Allocating responsibility

The results of the case studies are confidential.

Constructing management

The results of the case studies are confidential.

6.2.3 Rationality

Also when it comes to the development of rationale research management structure, the University of Maastricht can be seen as one of the front runners. Table 12 gives an insight of how changes in rationality are to be assessed for the university.

Table 12: Rationality and the University of Maastricht

Facet	Affected Research Management Item	Change Assessment
Setting Objectives	Setting a single or limited number of goals	
	Separating services in units	
	Management-by-objectives	
Measuring Results	Registration of results	
	Accounting for actions	
	Expectations to be efficient	
	Benchmarking	
	Support by management accounting techniques (financial as well as performance related)	
	Assigning numerical values	
	Performance agreements and, consequently, frequent monitoring.	

Setting objectives

The results of the case studies are confidential.

Measuring results

The results of the case studies are confidential.

6.3. University of Utrecht

6.3.1. Identity

The most structurally organized university within this study is the University of Utrecht (UU). The University of Utrecht is very much aware of the necessity to have a clear identity. Table 13 shows the overall assessment for 'identity' at the University of Utrecht.

Table 13: Identity and the University of Utrecht

Facet	Affected Research Management Item	Change Assessment
Constructing Boundaries	Defining own activities, environments and organizational boundaries.	
	Defining relations with other organizations and governments	
Controlling Collective Resources	Having financial discretion	
	Employing your own staff and setting labour conditions.	
Being Special as an Organization	Having a special task, purpose, competence, resources, structure, way of working, or representing special ideas.	
	Marketing profiles through logos and (new) brand names.	
	Emphasizing differences between your organization and others.	

Constructing boundaries

The results of the case studies are confidential.

Controlling collective resources

The results of the case studies are confidential.

Being special as an organization

The results of the case studies are confidential.

6.3.2. Hierarchy

The UU knows an extremely clear hierarchy in which clear protocols exist on who leads who. The empirics are shown in table 14.

Table 14: Hierarchy and the University of Utrecht

Facet	Affected Research Management Item	Change Assessment
Central Coordination and Control	Organizing hierarchies in layers of 'leaders and lead'.	
	Authoritative centre directs action.	
	Planned action guided by organizational policies.	
Allocating Responsibility	Identifying units/individuals as being in control and bearing responsibility.	
	Assigning more responsibility to leaders.	
	Accounting to the superior (hierarchy) or external stakeholders.	
Constructing Management	Creating new middle management positions.	
	Recruiting expertise from outside.	
	Chief executives are not professional bureaucrats but managers.	

Central coordination and control

The results of the case studies are confidential.

Allocating responsibillity

The results of the case studies are confidential.

Constructing management

The results of the case studies are confidential.

6.3.3. Rationality

If the general attitude during the interview with the University of Utrecht (2013) (the research management director and the liaison-officer) had to be described, pragmatism would have been one of the key-words. Table 15 shows how I have assessed the different research management items for 'rationality' at the university of Utrecht.

Table 15: Rationality and the University of Utrecht

Facet	Affected Research Management Item	Change Assessment
Setting Objectives	Setting a single or limited number of goals	
	Separating services in units	
	Management-by-objectives	
Measuring Results	Registration of results	
	Accounting for actions	
	Expectations to be efficient	
	Benchmarking	
	Support by management accounting techniques (financial as well as performance related)	
	Assigning numerical values	
	Performance agreements and, consequently, frequent monitoring.	

Setting objectives

The results of the case studies are confidential.

Measuring results

The results of the case studies are confidential.

6.4. University of Warwick

6.4.1. Identity

The following interview was held at the University of Warwick (2013). With regard to the concept of 'Identity', Table 16 displays the outcomes of this interview.

Table 16: Identity and the University of Warwick

Facet	Affected Research Management Item	Change Assessment
Constructing Boundaries	Defining own activities, environments and organizational boundaries.	
	Defining relations with other organizations and governments	
Controlling Collective Resources	Having financial discretion	
	Employing your own staff and setting labour conditions.	
Being Special as an Organization	Having a special task, purpose, competence, resources, structure, way of working, or representing special ideas.	
	Marketing profiles through logos and (new) brand names.	
	Emphasizing differences between your organization and others.	

Constructing boundaries

The results of the case studies are confidential.

Controlling collective resources

The results of the case studies are confidential.

Being special as an organization

The results of the case studies are confidential.

6.4.2. Hierarchy

Within the research management structure, not being different for the grant-support office, a clear hierarchy has been developed in the last decade. Table 17 shows which research management items have been introduced into the organization most prominently.

Table 17: Hierarchy and the University of Warwick

Facet	Affected Research Management Item	Change Assessment
Central Coordination and Control	Organizing hierarchies in layers of 'leaders and lead'.	
	Authoritative centre directs action.	
	Planned action guided by organizational policies.	
Allocating Responsibility	Identifying units/individuals as being in control and bearing responsibility.	
	Assigning more responsibility to leaders.	
	Accounting to the superior (hierarchy) or external stakeholders.	
Constructing Management	Creating new middle management positions.	
	Recruiting expertise from outside.	
	Chief executives are not professional bureaucrats but managers.	

Central coordination and control

The results of the case studies are confidential.

Allocating responsibility

The results of the case studies are confidential.

Constructing management

The results of the case studies are confidential.

6.4.3. Rationality

With the increased dependence on varied financial resources (though in the UK block grants have massively increased over the last decade, as according to The University of Warwick (2013)) and having clear strategic support shows a degree of pragmatism.

Table 18: Rationality and the University of Warwick

Facet	Affected Research Management Item	Change Assessment
Setting Objectives	Setting a single or limited number of goals	
	Separating services in units	
	Management-by-objectives	
Measuring Results	Registration of results	
	Accounting for actions	
	Expectations to be efficient	
	Benchmarking	
	Support by management accounting techniques (financial as well as performance related)	
	Assigning numerical values	
	Performance agreements and, consequently, frequent monitoring.	

Setting objectives

The results of the case studies are confidential.

Measuring results

The results of the case studies are confidential.

6.5. University of Antwerp

6.5.1. Identity

When describing the interview held at the University of Antwerp (UA), one could state that the UA is in many terms different in organizational sense than the other three universities. Table 19 shows how the UA was assessed in terms of 'identity'.

Table 19: Identity and the University of Antwerp.

Facet	Affected Research Management Item	Change Assessment
Constructing Boundaries	Defining own activities, environments and organizational boundaries.	
	Defining relations with other organizations and governments	
Controlling Collective Resources	Having financial discretion	
	Employing your own staff and setting labour conditions.	
Being Special as an Organization	Having a special task, purpose, competence, resources, structure, way of working, or representing special ideas.	
	Marketing profiles through logos and (new) brand names.	
	Emphasizing differences between your organization and others.	

Constructing boundaries

The results of the case studies are confidential.

Controlling collective resources

The results of the case studies are confidential.

Being special as an organization

The results of the case studies are confidential.

6.5.2. Hierarchy

As shown in Table 20, the UA lacks behind when it comes to hierarchical structures.

Table 20: Hierarchy and the University of Antwerp.

Facet	Affected Research Management Item	Change Assessment
Central Coordination and Control	Organizing hierarchies in layers of 'leaders and lead'.	
	Authoritative centre directs action.	
	Planned action guided by organizational policies.	
Allocating Responsibility	Identifying units/individuals as being in control and bearing responsibility.	
	Assigning more responsibility to leaders.	
	Accounting to the superior (hierarchy) or external stakeholders.	
Constructing Management	Creating new middle management positions.	
	Recruiting expertise from outside.	
	Chief executives are not professional bureaucrats but managers.	

Central coordination and control

The results of the case studies are confidential.

Allocating responsibility

The results of the case studies are confidential.

Constructing management

The results of the case studies are confidential.

6.5.3. Rationality

Although one could say that the attitude taken within the UA and the manner in which research management is taking place most probably is a result of rational choices, it hardly matches the idea of rationality given by De Boer et al. (2007).

Table 21: Rationality and the University of Antwerp

Facet	Affected Research Management Item	Change Assessment
Setting Objectives	Setting a single or limited number of goals	
	Separating services in units	
	Management-by-objectives	
Measuring Results	Registration of results	
	Accounting for actions	
	Expectations to be efficient	
	Benchmarking	
	Support by management accounting techniques (financial as well as performance related)	
	Assigning numerical values	
	Performance agreements and, consequently, frequent monitoring.	

Setting objectives and measuring results

The results of the case studies are confidential.

6.5.4 The total scores

Rapping things together, Table 19 shows the context of the total scores among the different universities. In the next chapter these results of the case studies will jointly analysed. It will reflect on the results in relation to the theory, and with the theory explain the main outcomes of the case-studies.

The table gives an overview of the extent to which the different research management items have been changed or introduced per individual university. Next to that, an indication is given for the extent to which a total as well as an aggregate pattern is to be recognized, scaled from 1-4:

1= no pattern (all items different for each university)
2= slight pattern (two equal outcomes)
3= pattern (three equal outcomes)
4= full pattern (all outcomes are equal)

Table 22: Assessing university research management structures.

Concept	Facet	Affected Research Management Item	UM	UU	UW	UA	Aggregate pattern (average)	Similarity Pattern (scale 1-4, nr of equal items)
Identity	Constructing boundaries	- Defining own activities, environments and organizational boundaries.						
		- Defining relations with other organizations and government.						
	Controlling collective resources	- Having financial discretion (e.g. block grants and diversification of funding base).						
		- Employing your own staff and setting labour conditions.						
	Being special as an organization	- Having a special task, purpose, competence, resources, structure, way of working, or representing special ideas.						
		- Marketing profiles through logos and (new) brand names.						
		- Emphasizing differences between your organization and others.						
Hierarchy	Central coordination and control	- Organizing hierarchies in layers of 'leaders and lead'						
		- Authoritative centre directs action						
		- Planned action guided by organizational policies						
	Allocating responsibility	- Identifying units/individuals as being in control and bearing responsibility						
		- Assigning more responsibility to leaders						
		- Accounting to the superior (hierarchy) or external stakeholders						
	Constructing management	- Creating new middle-management positions						
		- Recruiting external expertise						
		- Chief executives are not professional bureaucrats but managers.						

Rationality	Setting objectives	- Setting single or a limited number of goals						
		- Separating services in units						
		- Management-by-objectives (internal and external)						
	Measuring results	- Registration of results						
		- Accounting for actions (systematic connection between goals and actions)						
		- Expectations to be efficient						
		- Benchmarking						
		- Support by management accounting techniques (financial as well as performance related)						
		- Assigning numerical values (detailed performance indicators)						
		- Performance agreements and, consequently, frequently monitoring.						

7. Analysis

7.1 The Results

7.1.1. The most important facts

The first paragraph of this chapter is confidential. It contains the analysis on the main results and gives the main conclusions on the patterns.

7.1.2. Identity

The results of the case studies are confidential.

7.1.3. Hierarchy

The results of the case studies are confidential.

7.1.4. Rationality

The results of the case studies are confidential.

8. Conclusion and Reflection

8.1. Conclusion

Binding together the different results and keeping in mind the theoretical framework, something can now be said about my different hypotheses. The hypotheses were:

- *An effective research management structure is essential for successful grant procurement.*
- *Having financial discretion is essential for an effective bid-management structure;*
- *In financial terms, central coordination and control is crucial for successful bid-management;*
- *Support by management accounting techniques can help researchers to not only deliver high-quality research projects in terms of content, but also financially.*

Linking these to the research, one could state that indeed an effective research management structure is essential for successful grant procurement. However, it is still not entirely clear what that structure should look like. The universities that were interviewed overall do their best to effectively control their researchers.

The rest of this conclusion is incomplete due to confidentiality. However, it gives a general overview of how the theories have been implemented and how they are reflected within the different research management structures within the four case studies.

When linking the outcomes to the theories of modern university governance specifically to bid management, the theories can be largely , though not completely confirmed. Also the hypotheses can be confirmed. However, they do not provide the full scope of what is important for effective bid management. The conclusions have to be read in the context of the theories of modern university governance. In the form of the model provided by De Boer et al. (2007), the these theories have been leading in the assessment of which research management items are most inherent for successful participation in the Framework Programs. Also, it has been an interesting phenomenon to

see that the interviewed universities indeed have to cope with the challenges described by Larsen et al. (2009) within the complexity of changing the governance structures of a university.

It is especially the increased market-driven way of emphasis on performance and output that raises concerns about the future of fundamental research within the EU. This means that in strategic terms, several aspects from the model by De Boer et al. (2007) are essential. In all three concepts (identity, hierarchy and rationality) there are research management items that stand out with regard to bid management procedures.

With regard to research management as such, one can say that the model by De Boer et al. (2007) can be fully confirmed. All mentioned research management items have been somehow implemented by most of the interviewed universities. As there are still plenty of research management items that until now have either been implemented to a limited extent or within only a few of the universities, one can recognize that the transition is still in process.

All together, one can confirm that indeed the university has become an entrepreneurial, competitive, market-driven actor in, say, the last fifteen years.

8.2. Reflection

With a lot of pleasure I have carried out this research. However, one has to be very much aware that the research has only been exploratory. With a limited amount of time for the actual research and limited resources, several choices had to be made. One major issue is that there is a population of only four successful universities involved in the case study. This means that the generalizabilty of my conclusions is only limited. First of all because the sample is small, secondly because they are only successful universities (though this problem has been partly dealt with by adding the element of time). It does however not mean that the case studies cannot give a rough and reliable understanding of how universities experience the changing nature of funding environments and how they cope with their research management structures in relation to grant procurement.

The last paragraphs of this chapter are confidential.

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Appendices

Transcript Interview University of Maastricht

Confidential