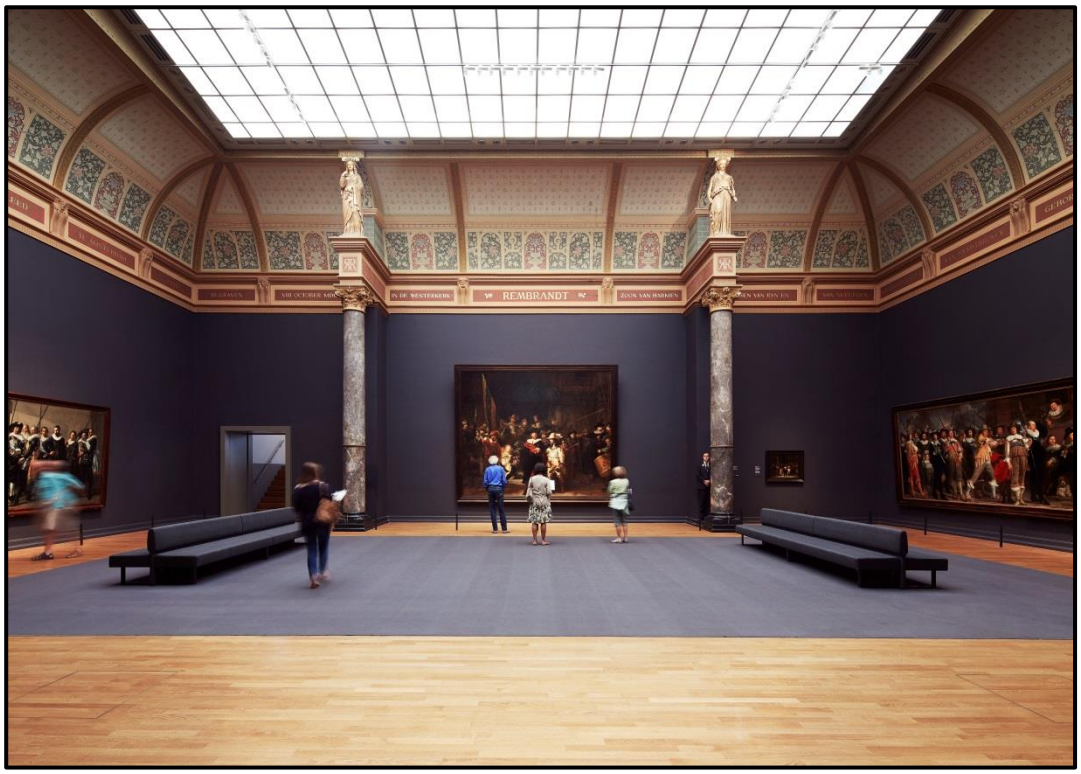
The financial structure influencing the performance of museums

A research on the relation between the level of self-generated income and the performance of Dutch art museums



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ABSTRACT

The financial resources of a museum originate from two different sources: private and public. In the current economic climate, the amount of financial resources received from public sources, such as the government, has decreased, resulting in a necessary increase of the resources from private sources. Or in other words, the percentage of self-generated income of museums had to increase to compensate for the decrease of the public support. This requires a more market oriented attitude of museums; an orientation towards the needs of their public and donors. As a result of this development, the question arises whether this increase in the market orientation and the level of self-generated income influences the performance and behavior of museums. This study investigates the relation between the level of self-generated income and the performance of Dutch art museums. Due to the diversified character of the goals and activities of art museums, this research adopts a multidimensional measurement method using different perspectives of performance. Using multiple perspectives, it is investigated if the perspectives are related differently to the percentage of self-generated income. In this study, evidence is found of the existence of a relation between the performance of Dutch art museums and the percentage of self-generated income. This relationship differs among the different perspectives of performance. A positive correlation is found between the percentage of self-generated income and the perspectives focused on the public and the financial state of the museums, while a negative correlation is found between the percentage of self-generated income and the perspective concerned with the art collection and publications of a museum. These findings support the assumption that Dutch art museums with an increased market orientation are more focused on their public and on its financial health and less on the art collection.

KEYWORDS: *Museums*, *Performance measurement*, *Performance indicators*, *Financial structure*, *Market orientation*

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1 Introduction

Museums fulfill an exceptional function within our society. They maintain, collect and exhibit the art collection of our and other societies and preserve cultural heritage for future generations. The art collections preserved in art museums have been described as the shared history and identity of a society and can function as the collective memory of a society (Van Hamersveld, 2003). They can safeguard the artworks a society feels most proud of, as for example Rembrandt's *Nachtwacht* or Van Gogh's *Zonnebloemen* in the Netherlands, but also serve as a way in which people can get to know and learn other societies and cultures. The goals and objectives of an art museum are diversified, which explains the diverse activities pursued by museums. Besides the preservation and exhibition of the art collection, educational activities play an important role, as do the research conducted by a museum in terms of its contribution to scholarship (Pignataro, 2011).

Due to their exceptional responsibility and function within society, the Dutch government has guaranteed the autonomy of art museums and protected them against any market interference for many years by providing them with financial support. The focus on safeguarding the autonomy of museums (and other cultural organizations) stems from the 19th century, when Johan Rudolph Thorbecke declares the autonomy of art and science as the basic principal of cultural policy (Pots, 2000). Safeguarding the autonomy of the arts has been a common thread running through cultural policy in the Netherlands (Pots, 2000). Both on a national, provincial and local level, the Dutch government supports numerous museums with financial resources. In this manner, art museums were provided with a substantial part of their revenues from the government and could function, more or less, autonomous from the market (Pots, 2000).

Since the most recent economic crisis, which started in 2007, Dutch cultural policy has undergone several changes and developments, which has influenced the cultural sector as a whole and subsequently has influenced museums. Within the current economic climate, the Dutch government had to make cuts in the cultural budget and reduced the amount of public support available to the cultural sector substantially. During the economic crisis the former Minister of Education, Culture and Science, Halbe Zijlstra, announced a turning point in cultural policy in the annual memo on culture (Zijlstra, 2011). A cutback from 900 to 700 million Euros available for the support of cultural organizations in the Netherlands has to be resolved by the sector itself. Cultural organizations, among them art museums, have to generate a larger amount of their revenues. Or in other words, the percentage of self-generated income of art museums in comparison to the total income has to increase to compensate for the effect of the declined public support and museums are forced to be more focused on the market in order to generate revenues (Pots, 2000).

This development has changed the funding structure of art museums and has increased the focus of art museums on other sources of revenues besides public support from the government. As a

result of the declined cultural budget from the government, province and municipalities, and the increased focus on other sources of financial resources, the question arises whether this development influences the performance and behavior of art museums in the Netherlands or whether nothing changes in the performance of a museum as long as the revenues stay the same, but originate from a different source.

When discussing the performance of art museums, this concept includes many different perspectives due to the diverse goals and objectives of an art museum. Following the question arising from the former described developments within the cultural sector, the question arises which parts or perspectives of performance are influenced the most by the method of funding. Can a difference be found between the different perspectives of performance or are all the perspectives influenced to the same extent? This matter will be studied in this thesis and will be guided by the following research question:

Is there a relationship between the percentage of self-generated income and the performance of Dutch museums and are the multiple perspectives of performance influenced differently by the level of self-generated income?

Answering this question will contribute to the understanding of the current developments within the cultural sector in the Netherlands, and in specific Dutch art museums. It provides a context and background to the discussion on the impact of the cuts in the cultural budget of the Dutch government on the performance of art museums.

The structure of this thesis is as follows: to place this research in a theoretical framework, studies conducted on the topic of the influence of the method of funding on the behavior of museums and on the topic of performance measurement of museums are discussed in chapter 2. Subsequently, the operationalization of the research question is described in chapter 3. Chapter 4 discusses the findings of this research and answers the research question. Finally, a conclusion summarizes the findings and addresses the limitations of this research in chapter 5.

2 Theoretical Framework

2.1 Introduction

The following chapter conceptualizes the topic of this study – the relationship between the amount of self-generated income of museums and their performance – and provides a theoretical guideline and context for this thesis. This theoretical framework serves as a point of departure and reference for the empirical section (Bryman, 2015).

The structure of this literature review is as follows; the first section is concerned with the sources of financial resources of a museum and its possible influence on the museum itself. The second section is focused on the measurement of the performance of a museum. It provides an overview of the important aspects of performance measurement of museums and concludes with the measurement method used in this study.

2.2 Influence of the financial structure on museums

Museums can be interpreted as any other organization in which substantial amounts of labor and capital are being used to perform the museological functions. According to Johnson and Thomas, museums can be seen as productive units in which, to achieve their goals and objectives, a transformation process takes place and a mix of inputs is transformed in a number of outputs and outcomes (1998). One of the inputs needed for this transformation process and the realization of the goals and objectives of museums, are the financial inputs (Johnson & Thomas, 1998).

The available financial resources of a museum are one of the most important constraints on a museum's behavior, according to Frey and Meier (2002). Of course, other constraints can be distinguished, such as the amount of physical space or legal burdens, but the most important constraint is the financial resources available to the museum, which can function as a limitation in the behavior of a museum (Frey and Meier, 2002). The revenues of museums can be grouped into two different sources: public and private funding (Camarero, Garrido & Vicente, 2011). Public support derives from the cultural policy of the government of a country or location of the museum and private sources of income are derived from donations and customer services (Camarero, Garrido & Vicente, 2011). The ratio of sources of income of a museum differ widely from one museum to another. Some rely mostly on public support, while others depend for the largest part on private sources of income (Frey and Meier, 2002).

The museum sector in the Netherlands has undergone considerable changes in the cultural policy and the financial support from the Dutch government in the recent years; the main result of these changes concerns a decrease in the available financial resources for museums in the Netherlands, which results in changes in the financial structure of several Dutch museums (Algemene Rekenkamer, 2015). Besides the changes in the Dutch cultural policy, other developments have influenced the financial structure of museums (Camarero, Garrido & Vicente, 2011). The growth of the leisure

industry affected the competitive environment of museums, who are now competing with other emerging venues and attractions within the leisure market instead of solely competing with each other. Both of these developments have resulted in an increased focus on a wider range of financial sources, and an increase in financial resources obtained from private sources (Camarero, Garrido & Vicente, 2011).

According to multiple authors, the source of the financial resources of a museum can influence the behavior and subsequently the performance of a museum (Alexander, 1996; Camarrero, Garrido & Vicente, 2011; Frey and Meier, 2002), which would imply that the financial structure of a museum can be described as a determinant factor in the behavior of a museum. This also implies that the cultural policy of a country can have a substantial impact on museums. Several scholars have conducted research on this topic and showed how the behavior and the focus of museums can change as a result of changes in the financial structure of the museums.

Alexander incorporates the resource dependency theory in her research on this topic (1996). Resource dependency theory suggests that those who control the essential resources of an organization can influence the organizational decision making process and subsequently the behavior of an organization in order to meet the demands of the funder (Alexander, 1996). This theory is applicable to museums, which indicates that museums are influenced by those who provide the museum with financial resources. To guarantee the revenues obtained from customers, donors and other funding bodies, the museums must please and comply with the demands of these funders (Alexander, 1996).

According to a research conducted by Camarero, Garrido and Vicente, the studies exploring the influence of the type of funding on the performance of museums is considered to be scarce, but the available studies can be divided into two groups (2011). The first group of scholars argues that private funding will lead to an increase in the business or market orientation and will lead to an increased focus on consumer services, whereas public funding will have a negative effect on this focus on the consumer (Camarero, Garrido & Vicente, 2011). The second group of scholars states that public funding has a positive effect on innovation and risk taking of cultural organizations as a result of having to prove their efficiency to secure funding in the future. Also because public funding can be seen as a financial cushion, cultural organizations are more likely to take risks, which encourages innovation (Camarero, Garrido & Vicente, 2011).

Museums have become more externally oriented during the last several years, according to Alexander. This external orientation can be expressed as a market orientation of a museum. This is the result of the decline in the available public support and an increase in the amount of private support obtained by museums. In compliance with the first group of scholars and the resource dependency theory, Alexander argues that the behavior and the following performance of museums is shaped by the goals of the financers (1996). In the case of public support, the goals of the government play an important role. The goals of government agencies are often concerned with bringing art to the public, art preservation and a focus on scholarship (Alexander, 1996). On the other hand, museums with a

high level of private funding focus more on attracting audiences and satisfy the needs of their audience, which can be described as a market orientation (1996). The development and offerings of more educational activities is an example of one of the focus points of these museums in the attraction of audience (Alexander, 1996).

Comparable findings are presented by Camarero, Garrido and Vicente. These authors argue that the funding system of a museum influences the decisions of the management to focus on different aspects of the organization (2011). Based on their own research, Camarero, Garrido & Vicente argue that museums which are completely publicly funded are less inclined to search for additional revenue elsewhere, which decreases the attention paid to the preferences of the consumers and the customer services (2011). On the contrary, museums that receive more funding from private sources have an incentive to engage themselves in market-oriented activities in order to enhance the revenues from their customers and gain a better competitive position in relation to their competitors. The need to survive will encourage museums to be more focused on attracting visitors and enhancing customer services to comply with the visitor's needs (Camarero, Garrido & Vicente, 2011). Museums with a high level of public funding should perform better on the dimensions of preservation of the collection and the dissemination of culture through the community. This is the result of the goals of public funders, which are accessibility for all the citizens and the realization of positive externalities for society (Camarero, Garrido & Vicente, 2011). Which means that museums with a higher level of private funding will perform better on an economic level and a market level, but will also perform lower on a social level in comparison to museums with a high level of public funding (Camarero, Garrido & Vicente, 2011).

The findings of Camarero, Garrido and Vicente are supported by Frey and Meier, who investigated the differences between publicly and privately funded museums and their behavior (2002). In their research, they focus on the extreme cases, in which a museum is either completely publicly or privately funded. According to Frey and Meier, it is expected that public museums are more inclined to distance themselves from the market, be less interested in the amount of visitors because they are not dependent on the income of entrance fees or shops, visitors' amenities are less developed and little attention is paid to the profitability of museum shops or restaurants (Frey & Meier, 2002). On the other hand, private museums are expected to have a strong incentive to increase their income through entrance fees, shops and additional money from donors and sponsors, are more concerned with attracting visitors, are more focused on the attractiveness of the visitors' amenities and to try to satisfy the visitors at the lowest possible cost (Frey & Meier, 2002). As shown in the research of Frey and Meier, the financial structure of a museum can have a substantial influence on the incentives of the museum directors to behave and prioritize in a certain matter, based on the goals and the needs of the funders of a museum (2002). However, it has to be noted that most museums can be placed in the middle of these extreme cases and have a financial structure based on both private and public financial sources. Based on a case study of a private museum, Frey and Meier draw a number of

conclusions on the influence of the financial structure on the behavior of a museum (2002). Firstly, a museum with a high amount of private sources as income is more likely to adopt a market oriented policy, which is best shown in the focus on the amenities provided for the visitors. It's expected that museums with a high level of private funding have a high expenditure on customer services (Frey & Meier, 2002). Secondly, the attraction of visitors is of main concern for a museum with more private financial sources due to the fact that a large part of the revenues is obtained from the visitors (Frey & Meier, 2002). Lastly, Frey and Meier draw the conclusion that a combination between public and private sources of income works best, because of the benefits gained from both sources (2002).

2.2.1 Market-orientation

As mentioned before, Dutch museums has undergone several major changes concerning the financial structure of their organizations due to the declining public support. The need for revenues from private sources increased, which led to a rise in the market orientation of museums (Gainer & Padanyi, 2002; Hughes & Luksetich, 2004; Kirchner, Markowski & Ford, 2007). A market orientation is defined as a focus on the determination and satisfaction of the needs, wants and aspirations of target markets, which can increase the competitive position of museums (Maymoud & Yusif, 2012).

Camarero and Garrido provide a definition of market orientation in the context of museums. It concerns a customer orientation, a donor orientation and a competitor orientation. Customer orientation is explained as understanding and focusing on the needs of the visitors and aiming at satisfying these needs. Donor orientation can be understood as knowing the donors and other financial stakeholders of a museum and their accompanying needs and taking these into account. Competitor orientation is concerned with exploring the possibilities of cooperation with other similar organizations as well as with the public and private sector (Camarero & Garrido, 2008).

Several scholars found a positive relation between market orientation and the economic and social performance of museums (Camarero & Garrido, 2006; Camarero & Garrido, 2008; Gainer & Padanyi, 2001; Kirchner, Markowski & Ford, 2007; Mahmoud & Yusif, 2012). The economic performance is explained as the financial results of a museum; whether a museum can reach its financial goals and obtain a sufficient amount of financial resources. The social performance is concerned with the satisfaction of the needs of the visitors of the museum (Camarero & Garrido, 2008). This positive relation can be explained by the high level of customer and donor satisfaction as a result of the market orientation (Camarero & Garrido, 2008). A market orientation provides an understanding of its customers and donor's needs, that will allow the museum to achieve this high level of satisfaction (Camarero & Garrido, 2008). A high level of customer satisfaction is often achieved by focusing on customer services, such as educational activities (Camarero & Garrido, 2006). Another effect of a market orientation by museums is the increase of the reputation of a museum among (potential) visitors and peer institutions (Gainer & Padanyi, 2002; Mahmoud & Yusif, 2012).

In the cultural world, a debate exists on whether a market oriented approach should be used by cultural organizations. On the one side are those who argue that cultural organizations should respond more to the market forces of the sector in order to be able to compete with other competitors and to cope with the declining public support (2002). On the other side are those who argue that cultural organizations are functioning outside the world of market forces and that they should be protected from these forces. According to this side of the debate, cultural organizations should receive public support in order to pursue their artistic goals, which may not be compatible with the forces of the market (Gainer & Padanyi, 2002).

It has to be noted that the method of measuring the performance of museums and the definitions of performance used influences the results of these conclusions. As a result of the multiple goals and missions of museums, the definition of performance and the measurement method used to assess the level of performance is critical in investigating this relation (Gainer & Padanyi, 2002). The different methods of measuring the performance and the definitions of performance will be discussed in the following section of this chapter.

2.2.2 Concluding remarks

Summarizing the findings of this section; financial inputs are necessary to produce the outputs and outcomes of a museum. Financial resources may be derived from either public or private sources. According to several scholars, the sources of funding influences the behavior and the performance of the museums obtaining these resources. A positive relation was found between a market orientation and the level of private funding of a museum, which indicates that the higher the level of private funding, the more market orientated a museum is. A high level of market orientation indicates a focus on the demands and needs of the customers and the donors, which results in an increased level of customer and donor satisfaction, which again results in a better performance in economic and social terms.

2.3 Performance measurement

2.3.1 Difficulties in the assessment of the performance of museums

Measuring the level of performance or level of success of an organization is essential for every organization, both for the profit and the nonprofit sector (Peacock, 2003). According to Peacock, any organization designed to provide a service to the public should be able to determine the overall performance of the organization (2003). In the for profit sector and the commercial market, the performance of an organization is determined by the level of profit or return on investment (ROI), which is relatively easy to measure (Peacock, 2003). In contrast, the performance measurement of nonprofit organizations, such as the museum sector, is much more complicated. This complicity is the result of a number of characteristics of this sector: the non-market character, the diversified goals and missions of a museum, the difficulties of measuring quality and the distinction between output and outcome (Peacock, 2003; Gorri & Fissi, 2013; Paulus, 2003; Zorloni, 2010).

The non-market character of museums results in a need for other measurement systems for performance than the for profit sector (Pignataro, 2011). A museum cannot be evaluated based on the same metrics as for profit organizations, because the goals and missions of a museums differ from profit organization and are diversified of nature (Madden, 2005; Zorloni, 2010). The International Council of Museums defines a museum as: *A non-profit making, permanent institution in the service of society and of its development, and open to the public, which acquires, conserves, researches, communicates and exhibits, for purpose of study, education and enjoyment, material evidence of people and their environment* (2007). In this definition, the diverse goals and activities of a museum are shown, which explains the complex character of performance measurement on all of these aspects. All of these aspects should be taken into consideration when measuring the performance of a museum (Gstraunthaler & Piber, 2007).

The second important characteristic of museums relates to the subjective nature of the evaluation of the artistic quality of museums (Zorloni, 2010). Artistic quality is a highly subjective topic, which makes it almost impossible to objectively measure this aspect of the performance of a museum (Chiavaralotti, 2014). Different stakeholders, such as visitors or donors, perceive different levels of artistic quality due to the differences in the evaluation, which results in different interpretations of the artistic quality of a museum (Zorloni, 2010) and these interpretations can even be conflicting (Turbide & Laurin, 2009). The measurement of artistic quality of a museum is seen as the main complexity of performance measurement of museums by multiple scholars (Baily & Richardson, 2010; Chiavaralotti, 2014; Gorri & Fissi, 2013; Selwood, 2002; Turbide & Laurin, 2009; Zorloni, 2010).

A third problematic characteristic in the performance measurement of museums are the concepts of output and outcome and the distinction between these two (Pignataro, 2011). Output can be defined as the direct product of the services of a cultural organization, which are generated through

the combination of the available resources or inputs. On the other hand, the outcome of a museum is the ultimate goal of a museum and its impact on society. An example of the output of a museum is the number of visitors and an example of the outcome is the learning experience of the visitors (Pignataro, 2011). According to Pignataro, the output is relatively easily measurable through the use of performance measurements, but the outcome is complicated to measure since most of the outcomes are qualitative, subjective aspects, which can differ between varied stakeholders (Pignataro, 2011). Outputs can often be measured as specific volumes or quantities and are easy to compare to other outputs of other museums or other variables. Outcomes are more complicated to measure, because they are not connected with specific characteristics of an artistic product, but with the objectives pursued in carrying out art production or bringing people into contact with art. Due to the less complex measurements of the outputs of a museum, most measurement systems are merely focused on the output of a museum (De Bruijn, 2002).

In order to accurately measure the performance of a museum, the diversified goals and mission of a museum should be taken into consideration. Also attention should be paid to both the output and the outcome of a museum and the subjective nature of artistic quality (Bailey & Richardson, 2010). This cannot be done without a measurement system that applies a multi-dimensional approach, focused on the different aspects of the performance of a museum (Basso & Funari, 2004; Gstraunthaler & Piber, 2007; Schuster, 1996; Turbide & Laurin, 2009; Zorloni, 2010).

2.3.2 Different methods of performance measurement

The literature on performance measurement of museums and cultural organizations in general is extensive. A variety of different methods can be distinguished; in this theoretical framework attention will be paid to the most commonly used measurement techniques: the Balanced Scorecard, efficiency measurements (frontier techniques) and performance indicators.

2.3.2.1 The Balanced Scorecard

The Balanced Scorecard (BSC) was first designed by Kaplan and Norton in 1992 as a performance measurement method in which the performance of an organization is viewed from different dimensions of various stakeholders surrounding an organization (Gstraunthaler & Piber, 2007; Zorloni, 2010). By adding strategic and non-financial performance measures to the traditional measures, such as return on investment, the importance of using multiple dimensions of performance is recognized in this method (Turbide & Laurin, 2009; Zorloni, 2010). The BSC is suitable for the performance measurement of museums because multiple dimensions are used, reflecting the diverse goals and activities of a museum (Gstraunthaler & Piber, 2007).

Even though this method seems suitable for the measurement of the performance of museums, several criticisms are found in the literature. One of the main points of critic is the exclusion of artistic quality in this method. Secondly, a benchmark process is needed to interpreted the results of this method, because the results have no meaning by themselves (Gstraunthaler & Piber, 2007).

2.3.2.2 Efficiency measurements (frontier techniques)

A frequently used method of performance measurement is the assessment of the efficiency of a museum. The definition of efficiency mostly used in this type of studies is the definition of technical efficiency: the capacity of a museum to maximize the outputs and outcomes with the available inputs or to minimize the inputs needed to produce the same outputs and outcomes (Basso & Funari, 2004). The inputs used by museums are, among others, the exhibition space, the equipment, employees and the financial resources. A few examples of the outputs are the services provided by the museum, the publications and the number of visitors (Basso & Funari, 2004). To determine the level of efficiency, a frontier technique is often used. When applying a frontier technique, the optimal level of efficiency is determined by comparing all of the museums included in the research. The individual efficiency levels of the museums are then determined by comparing them to the optimal level of efficiency (Carvalho, Costa & Carvalho, 2014).

The advantage of this method is the possibility of investigate multiple inputs and outputs and outcomes at the same time (Basso & Funari, 2004; Del Barrio, Herrero & Sanz, 2009). On the downside, only a partial view of the performance of a museum is provided by this method (Del Barrio, Herrero & Sanz, 2009).

2.3.2.3 Performance indicators

Performance indicators in the museum sector are defined as virtual measures, set in measurable and quantifiable form to evaluate the performance of a museum (Madden, 2005; Pignataro, 2011). A distinction is made between qualitative and quantitative indicators. Quantitative indicators are defined as statistical measures based on numerical facts, while qualitative indicators are described by Madden as 'language-based descriptions of cultural phenomena' (Madden, 2005, p.220). In the appliance of quantitative indicators, the use of ratios is most accurate because it makes comparisons between museums of different sizes possible (Ames, 1990).

Performance indicators are suitable for measuring the performance of a museum because they can provide a multi-dimensional image of the performance by using a set of indicators. It should always be kept in mind that a complete image of the performance of a museum cannot be provided by a single performance indicator and multiple indicators should be used to evaluate the different goals and activities of a museum (Pignataro, 2011). Also, the difference between output and outcome should be taken into consideration when applying performance indicators. To measure the outputs of a museum, quantitative data can be used to calculate the indicators, which makes the evaluation of output relatively easy compared to the outcome. The data needed for the calculation of the outcome of a museum is difficult to obtain due to its subjective character because it represents the subjective perceptions of individuals (Pignataro, 2011).

In the appliance of performance indicators, the researcher selects the indicators relevant to her or his research (Pignataro, 2011). The selection of performance indicators is a complex undertaking

and can influence the usefulness of the indicators (Pignataro, 2011; Schuster, 1996). Several requirements have been formulated about the selection of indicators. Firstly, consistency must exist between the choice of the indicator and the purpose of measurement or in other words, the indicator should measure what the researcher want to investigate (Pignataro, 2011; Schuster, 1996). Secondly, the performance indicator is expressible in quantitative terms, otherwise it won't be possible to measure and compare the changes in the performance of a museum or to compare museums to each other (Peacock, 2003; Schuster, 1996). Thirdly, a performance indicator only obtains meaning when the relationship between the volume of an activity and the total volume are shown and for that reason, ratios are often used (Ames, 1990; Peacock, 2003). Lastly, it preferable to use cross-sectional data because of the possibility to compare the performance of a museum to other museums. This provides the researcher with a benchmark to evaluate the performance of a museum (Peacock, 2003; Pignataro, 2011; Schuster, 1996).

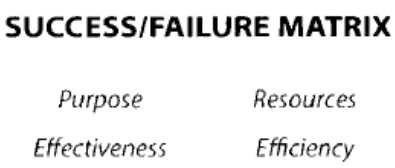
2.3.3 Dimensions of success

Once a measurement method is selected, the question arises what is seen as a successful performance of a museum. The definition of success in the museum sector is one of the most fundamental and difficult questions in the determination of the performance of a museum (Zorloni, 2012). Several scholars have attempted to define what a successful museum entails.

One of the scholars concerned with the definition of success in the museum sector is Maxwell Anderson. He argues that the traditional measures of success, such as the number of major exhibitions and the number of members of a museum, are outdated and a new set of measures should be formulated (2004). Various scholars have been focused on the formulation of these new dimensions of success and a variety of similar dimensions are published.

Both Odile Paulus (2003) and Stephan Weil (2005) presented four perspectives of success; two frameworks with many similarities. The framework of Weil is referred to as the *Success/Failure Matric* and is presented in figure 2.1. This matrix contains four dimensions of a successful museum: (1) the ability of a museum to formulate a clear purpose of its existence, (2) the ability to obtain the resources needed to achieve this purpose, (3) the possession of the skills necessary to use these resources to create and present public programs carrying out and achieve the purpose of the museum and (4) the possession of the managerial skills necessary to create and present these public programs using the resources in an efficient manner (Weil, 2005).

Figure 2.1: The Success/Failure Matrix of Stephan Weil



Source: Weil, 2005

The framework introduced by Paulus in 2003 is comparable to the four dimensions of Weil. Paulus introduces four perspectives on which the level of success of a museum can be evaluated: the four P's. The four P's are: efficiency, effectiveness, economy and equity (Paulus, 2003). The dimensions of efficiency and effectiveness of Paulus are comparable to the dimensions of Weil, but Paulus adds two dimensions of success to the framework of Weil: economy and equity. The concept of economy refers to the ability of a museum to handle the different types of costs within a museum. The concept of equity refers to the accessibility of a museum and is divided into three parts: social, regional and intergenerational. The social dimension is explained as the distribution of the accessibility among social- economic groups, the regional dimension is concerned with the accessibility of the museum within the region and the intergenerational dimension focusses on the accessibility and the preservation of the benefits of the museum for future generations (Paulus, 2003).

Anderson and Alesia Zorloni both formulated a list of dimensions of success. Anderson presents eleven dimensions of success focused on both the output and outcome of a museum (2004). The first dimension of success is the quality of the experience of the visitor, providing a measurement of how well a museum is serving its audience. The second dimension of success of a museum is the fulfillment of educational mandate, concerning the quality of the educational activities of a museum. The third dimension of success of a museum is the institutional reputation of a museum, focused on the image of the museum to the outside world. The fourth dimension of success is the management priorities and achievements, indicating the performance of the museum's leadership and management activities. The fifth dimension of success is the caliber and the diversity of the staff of a museum, described as the competences of staff members concerned with the core activities of the museum, such as the curators and educational employees. The diversity of the staff is explained as the diversification of the employees. The sixth dimension of success is the standard of government of a museum, which indicates the standards of trusteeship at museums. This dimension is explained as the level of awareness of the employees about the core activities and mission of a museum. The seventh dimension of success is the scope and the quality of the collection of the museum. The eight dimension of success is the contribution to scholarship by the museum. The ninth dimension of success is the contribution to art conservation by the museum. This dimension is only applicable to museums with a conservation department. The tenth dimension of success is the quality of the exhibitions of a museum. The eleventh and final dimension of success is the facilities' contribution to the core mission of the museum, for example the use of the building of the museum and whether this use is optimally contributing to the museum's activities (Anderson, 2004).

Based on her research on the dimensions that determine a successful museum, in which several museum executives were interviewed, Zorloni identified six dimensions of success (2010). Three of these dimensions are similar to the dimensions of Anderson: (1) the artistic quality, (2) the reputation of a museum and (3) the quality of the management, but three dimensions can be added to

the list of Anderson. Firstly, the ability of a museum to innovate and the willingness to take risks. Innovation and risk-taking can be seen as fundamental for any organization striving for success and excellence according to Zorloni (2010). The second dimension is the ability of a museum to build and maintain external relationships, both on a national and international level. The importance of building external relationships has increased due to the globalization and museums need to engage themselves on an international level in order to maintain their competitive advantage (Zorloni, 2010). Lastly, the ability of a museum to act as a learning entity, which entails the ability of a museum to manage existing knowledge and to create new knowledge (Zorloni, 2010).

In 2012, a new framework was developed by Zorloni in which the former described dimensions of success are all incorporated. In table 2.2, an overview is presented, showing how this framework is an accumulation of the former mentioned dimensions of success. Zorloni's framework consists of four perspectives of a successful museum, each containing multiple Critical Success Factors (CSF's) with a total of nine CSF's. CSF's are described as key areas in the performance of a museum and are unique to the museum sector (Zorloni, 2012). The four perspectives are: (1) the intellectual perspective, (2) the public perspective, (3) the learning and growth perspective and (4) the governance and financial perspective.

The intellectual perspective consist of two CSF's: the preservation of collections and development of knew knowledge. The preservation of collections entails the management of artworks, artistic vision, quality of collection and the public access to the collection, both physical and digital. The development of new knowledge involves two activities: research associated with original exhibitions and the publication of articles (Zorloni, 2012).

The public perspective revolves around the relationship with its communities, the experience of the visitors and the visitor services provided by the museum. This perspective is divided into two CSF's: the public engagement and knowledge diffusion and collaboration. The public engagement and knowledge diffusion involves the constant need of the museum to enlarge its audience, expand its degree of engagement with the public and to improve visitor's physical comfort through additional services. Collaboration relates to the willingness of the museum to partner up with other cultural institutions, both national and international (Zorloni, 2012).

The third perspective is the learning and growth perspective, which relates to an organization in which learning is part of the internal process. It's divided into three different CSF's: enabling the mission through organizational excellence, the attraction and development of staff capacity and the improvement of competitor intelligence. The first CSF is concerned with the ability of a museum to monitor internal processes and achieve their goals. The second CSF involves the development and training of their employees. The third CSF of the learning and growth perspective is the improvement of competitor intelligence, focusing on the awareness of the competitors in the surrounding environment of a museum (Zorloni, 2012).

The fourth perspective is the governance and financial perspective, concerned with the efficient use of resources and the financial health of a museum. This perspective is divided into two CSF's: the museum governance and accountability and the management of financial resources. The first CSF revolves around the quality of the board and the management of the museum and the level of accountability to its stakeholders. The second CSF is concerned with the ability of a museum to obtain financial resources and its overall financial health (Zorloni, 2012).

Table 2.2 Accumulation of the dimensions of success in the framework of Zorloni

Critical Success Factors:	Dimensions of success:
1. Intellectual perspective	- Scope and quality of the collection (Anderson, 2004)
CSF 1: Preserve collection	- Quality of the exhibitions (Anderson, 2004)
CSF 2: Research and collection building	- Artistic quality (Zorloni, 2010)
	- Contributions to scholarship (Anderson, 2004)
2. Public perspective	- Quality of experience (Anderson, 2004)
	- Equity (Paulus, 2003)
CSF 3: Public engagement	- Fulfillment of educational mandate
CSF 4: Collaborations	(Anderson, 2004)
	- Facilities Contribution to core mission (Anderson, 2004)
	- Building external relationships (Zorloni, 2010)
	- Reputation (Anderson, 2003; Zorloni, 2010)
3. Learning and Growth perspective	- Organization as learning entity (Zorloni, 2010)
CSF 5: Organizational excellence	- Caliber and diversity of staff (Anderson, 2004)
CSF 6: Staff capacity	- Effectiveness (Paulus, 2003)
CSF 7: Competitor intelligence	
4. Governance and Financial perspective	- Managerial priorities and achievements (Anderson, 2004)
CSF 8: Accountability	- Standards of government (Anderson, 2004)
CSF 9: Manage and increase financial support	- Quality of management (Zorloni, 2010)
	- Economy (Paulus, 2003)
	- Efficiency (Paulus, 2003)

Source: based on Anderson, 2004; Paulus, 2003; Zorloni, 2010; Zorloni, 2012

2.3.4 The performance measurement method of this research

Zorloni's framework is applied to determine the performance of the museums included in this research. The strength of this method is the use of a multi-dimensional approach, capable of evaluating the different perspectives of the performance of a museum. As presented in table 2.2, this framework incorporates different dimensions of success into one method, which is the second reason for choosing this method.

Performance indicators are used to determine the performance of the museums on each of the perspectives of Zorloni's framework. Performance indicators are chosen because the accurate indicators can be selected based on the perspectives and the aim of measurement of a specific perspective. The other two commonly used performance measurement methods are not used for the following reasons: the frontier technique to determine the level of efficiency is not applied because it provides a partial view of the performance of the museums. The BSC is not used because it cannot be combined with Zorloni's framework; a combination would imply the merge of two separate frameworks into one.

The indicators for this research are selected based on: the availability of data to calculate the indicators, Zorloni's framework and the former mentioned requirements for an accurate indicator. Table 2.3 presents an overview of the performance indicators applied in this study.

Table 2.3: Performance measurement method used in this study

CSF's:	Performance Indicators:
1. Intellectual perspective	
CSF 1: Preserve collection and accessibility	Number of curators
	Physical accessibility of the collection
	Financial importance of the collection
CSF 2: Strengthen research and knowledge	Contribution to literature
2. Public perspective	
CSF 3: Increase public engagement and knowledge diffusion	Visits of schoolchildren
	Educational staff
	Number of visitors willing to pay full admission
CSF 4: Maximizing interlinking and collaboration	No data available
3. Learning and growth perspective	
CSF 5: Enabling the mission through organizational excellence	No data available
CSF 6: Attract and develop staff capacity	No data available
CSF 7: Improve competitor intelligence	No data available
4. Governance and financial perspective	
CSF 8: Advance museums governance and accountability	Obligation to ANBI organizations
CSF 9: Manage and increase financial support	Fundraising ability
	Available budget per visitor
	Revenues per visitor

Source: own elaboration, based on Ames,1990; Zorloni, 2012

As presented in table 2.3, the third perspective (learning and growth perspective) and its corresponding performance indicators will not be applied in this research due to a unavailable data to calculate these indicators. Also CSF 4 and 8 are not used because of a lack of available data and in the case of CSF 8, the disclosure requirements in the Netherlands, since January the 1st of 2014, state that

every ANBI organization[1] is obligated to publish its annual report, which makes this indicator irrelevant in this research.

2.4 Conclusion theoretical framework

This theoretical framework discussed two main topics: the influence of the financial structure on the performance of museums and performance measurement of museums.

Firstly, it can be concluded from the literature on the relationship between the financial structure and the performance of a museum that financial resources may be derived from either public or private sources and this source can influence the behavior and performance of a museum. In order to ensure the revenues from a certain financial source, museums have to focus on the demand and needs of a financer. Museums with a high level of private funding will adopt a more market oriented attitude because they are focused on the needs of the customers and donor, which will result in an increase in customer services. This will lead to an enhancement of the customer and donor satisfaction. On the other hand, museums with a high level of public support are focused the goals and needs of governmental funders, such as the art collection and providing a contribution to scholarship.

Secondly, from the literature on performance measurement methods is concluded that a multi-dimensional method is the most appropriate method to apply to museums in order to capture the different goals and activities of a museum. To determine the level of success of a museum, it is necessary to determine the definition of a successful museum. Multiple studies on this topic were discussed, but the method used in this research is Zorloni's framework, consisting of four perspectives of performance. Performance indicators are used to evaluate the performance of the museums on the different perspectives.

[1] An organization with an ANBI status are organizations which are pursuing public benefits, such as museums. ANBI stands for *algemeent nut beogende instelling*, which is translated as institution for public benefit (http://anbi.nl/publicatieverplichting, viewed on 18-04-2016)

3 Method

Bridging the literature review and the results of this study, this chapter explains the chosen research design and the method of operationalization. The connection between theory and the research itself is clarified as follows: first the choice for the research design is justified, followed by the explanation of the chosen methodology. The individual steps of the methodology are described in the subsections sampling, data collection and data analysis.

3.1 Research design

The main goal of this research is to determine the relation between the level of self-generated income of Dutch art museums and the different perspectives of the performance and to investigate whether this relation is nonexistent, positive or negative and how strong it is. Based on the determination of these relations, it is investigated which perspectives are influenced most by fluctuations in the level of self-generated income of Dutch art museums. To achieve this goal, a cross-sectional research design is chosen.

A cross-sectional research design is defined as a type of observational research that involves the analysis of data collected from a population at one specific point in time (Bryman, 2015). In this research, data is collected from 60 Dutch art museums at one specific point in time: the year of 2014. The year 2014 is chosen because of the availability of data and to ensure the analysis of the maximum number of museums. Dutch museums with an ANBI status[2] are obligated to publish their annual reports since January the 1st of 2014, which ensures the availability of the data in 2014. The number of museums with available data decreases when we go back in time further, for example in 2013 only 48 and in 2012 only 37 Dutch art museums published their annual reports. The year 2015 is not used in this research because most museums have not published the annual report of this year, most of these will be published in the course of the current year. By analyzing the year 2014, the largest number of museums can be examined in this research.

3.1.1 Variables

This research consists of one independent variable and ten dependent variables[3]. The independent variable is the percentage of self-generated income of the 60 Dutch art museums included in this research. This variable is defined as the percentage of the total revenues of a museums generated by the museum itself. This contains the revenues obtained from private sources, including customer services, such as the entrance fee, sales of shops, revenues from the restaurant and guided tours, contributions of donors and revenues obtained by fundraising.

The dependent variables consist of the ten performance indicators who combined provide an image of the performance of the museums. As discussed in the second section of the theoretical

[2] An explanation of an ANBI status can be found in the theoretical framework.
[3] Appendix B presents overview of the variables in the form of a codebook.

framework, the performance of museums is divided into different perspectives and Critical Success Factors (CSF's), which are measured by the performance indicators. Table 3.1 provides an overview of the indicators used in the identification of the performance of the museums. In this section, each of the performance indicators, their meaning, the corresponding formulas and the expected relation with the level of self-generated income is discussed.

Table 3.1: Performance indicators used in this research

Perspectives	CSF's	Performance indicators
1. Intellectual Perspective	**CSF 1**: Preserve collection and accessibility	1. Number of curators
		2. Accessibility of the museum
		3. Financial importance of the collection
	CSF 2: Development of new knowledge	4. Contribution to literature
2. Public perspective	**CSF 3**: Public engagement en knowledge diffusion	5. Visits of schoolchildren
		6. Educational staff
		7. Willingness of visitors to pay full admission
3. Governance and financial	**CSF 4**: Manage and increase financial support	8. Fundraising ability
		9. Available budget per visitor
		10. Revenues per visitor

Source: Ames, 1990; Zorloni, 2012

The performance indicator concerned with the number of curators employed at a museum is calculated by the ratio of the number of curators to the total staff members, measured in fte's[4]. This ratio provides an indication of the attention paid to the collection and the exhibitions of a museum; a high ratio implies more attention paid to these aspects of a museum (Ames, 1990; Zorloni, 2012). However, it should be kept in mind when interpreting this indicator that a high number of total employees can influence the outcome downwards. This may occur when, for example, a museum possesses a large restaurant with many employees. Based on the theoretical framework, it is expected to find a negative relation between the level of self-generated income and this indicator because a high level of self-generated income will relate to more attention paid to customer services, the public perspective of Zorloni's framework, and less attention paid to the collection, the intellectual perspective.

The second performance indicator used in this study is the accessibility of the museum, calculated by dividing the opening hours per week by the total hours of a week. This indicator illustrates the physical accessibility of a museum for the visitors (Ames, 1990). The expected relation between this indicator and the level of self-generated income is a positive relation, which is based on

[4] Fte's stands for full-time equivalent, indicating that one fte is a full-time employment

the customer orientation of museums with a high level of self-generated income. Museums with a high level of self-generated income are more market oriented and thus more customer oriented. It is expected that museums with a high customer orientation will be more customer-friendly and have a higher accessibility and thus more opening hours a week.

The financial importance of the collection is calculated by the ratio of the budget spend on the collection and exhibitions to the total budget of a museum. Comparable to the first indicator, this performance indicator provides an indication of the attention paid to the collection and the exhibitions, in which a high ratio illustrates more attention paid to the collection. While the first indicator is concerned with the number of human resources dedicated to the collection and exhibitions, this indicator shows the financial attention. In compliance with the first indicator, it is expected to find a negative relation between the level of self-generated income and this indicator because a high level of self-generated income will result in less attention paid to the collection.

The number of articles published divided by the number of employees of a museum is the fourth indicator applied in this research. This ratio provides an indication of the museum's contribution to the literature, which is part of the intellectual perspective. It is expected to find a negative relation between the number of publications and the level of self-generated income because museums with a high level of self-generated income are less inclined to focus on publishing and more likely to focus on customer and donor related activities. The outcome of this indicator can also be influenced by the total number of staff, just like the first indicator.

The number of children visiting a museum is calculated by the ratio of the number of children to the number of total visitors and a high ratio indicates that a museum has a high percentage of children visiting the museum. This can possibly be explained by a focus on children as a target group by the museum. Based on the theoretical framework, a high level of self-generated income relates to a high level of market orientation and thus customer orientation, including children. For that reason, it is expected to find a positive relation between the level of self-generated income and the number of children visiting a museum.

An indication of the attention paid to educational activities by a museum is provided by the ratio of the number of educational employees to the total number of employees in fte's, in which a high ratio illustrates much attention paid to the educational activities. It is expected to find a positive relation between this indicator and the level of self-generated income of the Dutch art museums because a high level of self-generated income relates to a high level of attention paid to customer services and educational activities are part of customer services. Just as the first and the fourth indicators, this ratio may be influenced by the total number of employees and this should be kept in mind when interpreting the results.

The willingness of visitors to pay full admission is calculated by the number of visitors paying full admission divided by the total number of visitors. This indicator provides an indication of how much visitors are willing to pay full price in order to gain access to a museum; a high ratio indicates a

high willingness to pay full admission and a low ratio the other way around. The willingness of a visitor to pay full admission is influenced by many factors, such as the price elasticity of the demand for a museum, the price of an entrance ticket to the museum, the quality of the exhibitions and individual characteristics of the visitors, such as the income level, education and occupation in daily life (Kirchberg, 1998). Besides these influences, it is also expected to find a positive relation between the level of self-generated income of a museum and the willingness of the visitors to pay full admission. This expectation is based on the market orientation of museums with a high level of self-generated income, which is likely to result in better customer services. It is expected to find that customers are more willing to pay full admission when the customer services of a museum are of good quality.

The ability of a museum to raise funds is calculated by the ratio of raised funds to the total revenues and provides an indication of the capacity of a museum to increase its revenues by raising funds. It is expected to find a positive relation between this indicator and the level of self-generated income of the Dutch art museums for the following two reasons: firstly, a high ability to raise funds will result in a higher amount of self-generated income and secondly, the market orientation of museums with a high level of self-generated income indicate a focus on the market, customers and (potential) donors. An increased focus on these groups will result in a better ability to raise funds compared to museums less focused on their (potential) donors.

The performance indicator on the available budget per visitor is calculated by dividing the total annual budget by the total number of visitors. This ratio provides an indication of the amount of money which can be spend per visitor; a high number implies more available budget per visitor. The formulation of the expected relation between this indicator and the level of self-generated income is difficult because the outcome of this indicator will depend to a large extent on the total budget of a museum, which could originate either from public or private sources.

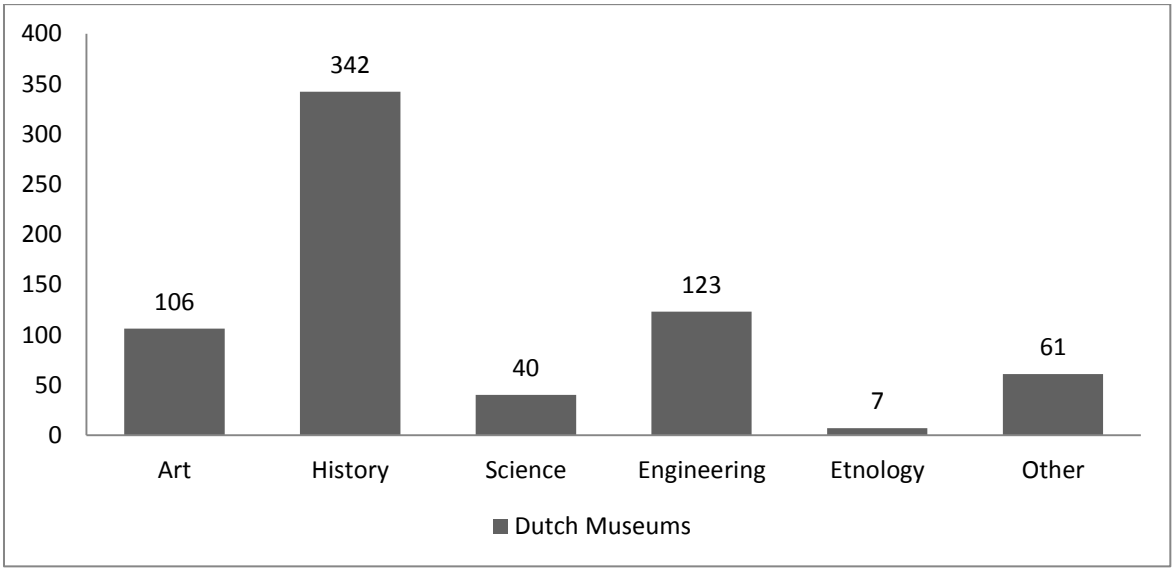
The revenues per visitor are calculated by dividing the total revenues of a museum by the total number of visitors. This ratio provides an indication of the museums earnings per visitor: a high number implies a high revenue per visitor and a low number the other way around. The amount of revenue gained per visitor will directly influence the amount of self-generated income of a museum; the more a museum earns, the higher the level of self-generated income. As a result, it is expected to find a positive relation between this indicator and the level of self-generated income. The second argument for this expectation is the market orientation of a museum with a high level of self-generated income. The corresponding market orientation results in an increased focus on customer services, which will possibly result in customers spending more on these services.

3.2 Methodology

3.2.1 Sample

The total number of museums in the Netherlands is 679 and is divided in six categories, from which one category are art museums. Figure 3.1 provides an overview of the distribution of the total museums in the Netherlands over the categories.

Figure 3.1: Categories of Dutch museums



Source: http://erfgoedmonitor.nl/indicatoren/musea-aantal-categorie

This study focuses on Dutch art museums, and for that reason the population of this study consists of 106 museums. The choice to focus solely in Dutch art museums arises from the diversified character of museums, which makes it difficult to compare different types of museums. When museums from different categories are compared, their missions, goals and activities are too diverse to make an accurate comparison (Pignataro, 2011; Zorloni, 2012). To ensure an accurate analysis, only one category of Dutch museums is analyzed in this research.

Even though the population of Dutch art museums is 106, which would be preferable to analyze as a complete population, only 60 museums are analyzed in this study due to the following set of requirements to the museums included in the study; the availability of the data to calculate all the performance indicators, the museums need to have one location only and the museum building should be used for museological activities only. Concerning the availability of the data; even though all the museums are obligated to publish their annual reports, not all of the museums provide enough information in these reports to calculate all the performance indicators. The calculation of all the indicators is necessary to obtain a complete overview of the performance of the museums on the different perspectives of performance (Zorloni, 2012) and for that reason the museums with insufficient data are excluded from the research. Regarding the locations of the museums; the museum should be located at one location or the annual reports should make a distinction between the multiple

locations. When a museum has multiple locations and the annual report combines the revenues and other data of both locations, it distorts the image of the museum's performance because it combines the results of two locations. The last requirement concerns the use of the building of the museum. A museum should not be merged with, for example, a theatre in one building. Visitors of the theatre are possibly also visiting the museum, even though they would not have visited this museum if they would not have gone to the theatre. This provides a distorted image of the performance of a museum because it potentially inflates the performance unjustly. Museums not complying to the last two requirements are also excluded from the research.

A number of 60 Dutch art museums complies with these requirements, which indicates that *N=60* in this research[5]. A sample of 60 museums has its limitations because the size of the analyzed sample is not ideal and it would be preferable to analyze a bigger number of museums, but there's potential in analyzing these Dutch art museums. Besides the relatively small sample, several analysis can still be conducted and conclusions can be drawn based on this amount of museums.

A sampling method is not necessary in this research because all the museums meeting the former mentioned requirements are analyzed.

3.2.2 Data collection

The data was collected between March and May 2016 from the annual reports of 2014 and websites of the museums analyzed and a report of the Dutch government, called *Cultuur in Beeld 2015* (translated: *Focus on Culture 2015*). The choice for the year of 2014 is explained in the previous section.

The data used in this research is secondary data, derived from official documents. Documents deriving from private sources, such as the annual reports of museums, are useful in a research, but it should always be kept in mind that these documents are written with a certain objective (Bryman, 2015). In the case of the annual reports of the museums, these documents are often written to justify the financial support received by governmental sources, donors or to attract new financers. These documents should provide a positive image of the museum to the financers and for that reason the positive aspects of the organizations are highlighted and any negative aspects are concealed (Peacock, 2003). To minimize the influence of this characteristic of annual reports and to ensure the use of reliable data, the performance indicators used in this research are based on quantitative data derived from the annual reports, websites and the report from the Dutch government.

The performance indicators and the necessary data to calculate the indicators was used as a guideline in the data gathering process.

3.2.2 Data analysis

The data analysis was carried out in three parts. First of all, the performance indicators were calculated to provide a general image of the performance of the museums. Secondly, a factor analysis was

[5] A list of the museums included in this research can be found in appendix A.

performed to investigate the underlying relations between the different performance indicators. Lastly, multiple Spearman's correlation coefficients were calculated to measure the correlations between the percentage of self-generated income and the different perspectives of performance.

3.2.3.1 Performance indicators

The process of data analysis in this research started with the calculations of the performance indicators of the 60 Dutch art museums. The performance indicators, based on the framework of Zorloni (2012), are operationalized using the formulas provided in table 3.2.

Table 3.2: Operationalization of the performance indicators

Performance Indicator	Formula
1. Curators	Number of curators/total staff
2. Accessibility of the museum	Average hours open per week/total hours in a week
3. Financial importance of the collection	Budget devoted to the collection and exhibitions/total budget
4. Contribution to literature	Number of articles published by staff members/total staff
5. Visits of children	Number of children/total visitors
6. Educational staff	Number of educational employees/total staff
7. Willingness of visitors to pay full admission	Number of visitors paying full admission/total visitors
8. Fundraising ability	Total amount of fundraising received/total revenues
9. Budget per visitor	Total budget/total visitors
10. Revenues per visitor	Total revenues/total visitors

Source: Ames, 1990; Zorloni, 2012

3.2.3.2 Factor analysis

A factor analysis was conducted to investigate the underlying relations between the dependent variables, the performance indicators, of this research (Williams, Brown & Onsman, 2012). The goal of conducting this analysis was two-fold: firstly, by analyzing the relations among the performance indicators, it was investigated if several performance indicators were related to such an extent that they could be combined into one indicator. Secondly and more importantly, the model of Zorloni was explored by looking for underlying dimensions between the different perspectives of her framework. By exploring the interrelationships between the indicators, it was investigated if the perspectives are correlated to each other and how this influences the application of the framework.

Prior to conducting the factor analysis, the data is tested to confirm the suitability of the data for a factor analysis. The first requirement for performing a factor analysis is the size of the dataset. Opinions about the required sample size differ among various scholars, but several studies have confirmed that a study with a sample of at least 50 cases is suitable for a factor analysis (Williams,

Brown & Onsman, 2012). In this case, the sample consists of 60 cases, each containing 10 variables, indicating that the size of this dataset is suitable for a factor analysis. Secondly, the correlations between the variables are checked for non-correlating variables and variables with an extremely high correlation, such as multicollinearity and singularity ($R > 0,9$). To confirm the suitability of the dataset in terms of correlations, a Bartlett's test of sphericity and a Kaiser-Meyer-Olkin test (KMO) are conducted (Field, 2005). A Bartlett's test of sphericity measures whether enough correlation exists between the variables in order to conduct a factor analysis. The general rule is when $p < 0,05$, a factor analysis can be applied to the dataset. The KMO test determines to what extent a variable can be explained by other variables. The factor analysis can be performed when the KMO score > 0,5 (Field, 2005). Based on the results of these tests, the dataset is suitable for factor analysis: the exact results are presented in the following chapter.

A Exploratory Factor Analysis (EFA) with a orthogonal varimax rotation is conducted, illustrating the exploratory nature of the analysis (Williams, Brown & Onsman, 2012). Using the eigenvalues and the screeplot, the results of the factor analysis are interpreted and the number of underlying factors are determined. The general rule applied to the interpretation of the results is to use as much factors as the number of variables with an eigenvalue > 1 (Field, 2005).

The Cronbach's alpha is not applied in this analysis. A Cronbach's alpha is used when a factor analysis is performed to validate a questionnaire and to test the reliability of the scale used in the questions of the questionnaire (Field, 2009). Since this is not the case in this research, it is not necessary to perform this test.

3.2.3.3 Spearman's correlation coefficient

The final part of the data analysis is the determination of the relation between the independent variable, the percentage of self-generated income, and the dependent variables, the performance indicators. Prior to the choice of the type of correlational test, the data was checked for normality using a Shapiro-Wilk test. A non-significant result of this test indicates a normal distribution of the data, while a significant result indicates a distribution significantly different from a normal distribution or in other words, a non-normal distribution (Field, 2005). The results of this test showed that the data in this research are not normally distributed, which requires a non-parametric correlational analysis. The precise results of this test are presented in the following chapter.

Based on the results of the former test, the Spearman's correlational coefficients are calculated to determine the correlations between the percentage of self-generated income and the different performance indicators. The Spearman's correlational coefficient is a non-parametric test which can be used when the data does not met the requirements of parametric test, such as the distributional requirements in this research (Field, 2009). Multiple correlations are calculated between the different indicators and the percentage of self-generated income to find the different correlations and the strengths of these relations between the variables.

4 Results

4.1 Performance indicators

The performance indicators are calculated for each of the 60 Dutch art museums included in this research. Based on these calculations, several conclusions are drawn about the general performance of the museums. Table 4.1 presents an overview of these descriptive statistics.

Table 4.1: Descriptive statistics performance indicators

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Curators	59	0,80	0,01	0,81	0,3	0,21
Accessibility of the museum	60	0,42	0,10	0,51	0,23	0,06
Financial importance collection	60	0,67	0,01	0,68	0,18	0,15
Contribution to the literature	59	0,56	0,00	0,56	0,23	0,17
Visits of children	59	0,71	0,01	0,72	0,12	0,11
Educational staff	60	0,24	0,00	0,24	0,09	0,07
Willingness to pay full admission	59	0,93	0,06	0,99	0,36	0,22
Fundraising ability	59	0,96	0,00	0,96	0,11	0,15
Budget per visitor	60	71,51	6,21	77,71	37,29	19,79
Revenues per visitor	59	24,2	0,19	24,39	7,89	4,48
Percentage self-generated income	60	0,97	0,04	1,00	0,46	0,29

Source: own elaboration

Dutch art museums generate on average 46% of their own income (*M = 0,46 SD = 0,29*). It is difficult to compare this percentage to other countries due to a lack of information. However, it can be concluded that this percentage is increasing during the last several years in the Netherlands. In 2011 this percentage was 31,1 percent, in 2009 24,2 percent, in 2007 21,6 percent and in 2005 18,3 percent (Centraal Bureau voor Statistiek). This increase is linked to the changes in the Dutch cultural policy and the pressure on museums to raise their revenues from other sources besides the government (Zijlstra, 2011). It is noteworthy that the percentages of self-generated income differ strongly between the museums; several museums generate 100 percent of their revenues, while others only generate 3,5 percent and rely for the remaining 96,5 percent on public support from the government. Appendix C1 presents an overview of the percentages of self-generated income per museum. As shown in the graph, the five museums generating 100 percent of their revenues are Tassenmuseum Hendrikje, Museum Nagele, Anton Pieck Museum, Museum Bommel van Dam and Dordrechts Museum. All other museums rely to some extent on the public support obtained from the government.

On average 0,3 of the employees of the Dutch art museums included in this research are curators (*SD=0,21*), indicating that 3 out of 10 employees are curators. This number fluctuates between the museums; the lowest ratio found is 0,01 and the highest ratio is 0,81, as presented in table 4.1. In the interpretation of this ratio, it should be kept in mind that this ratio is influenced by the total

number of employees of a museum. If a museum possesses, for example, a large restaurant with many employees, this will influence the ratio of curators to the number of staff members. For example, the Stedelijk Museum Amsterdam has a ratio of 0,075, which seems low but the museum has employed 15 curators; a relative high number in comparison to other museums. The ratio is pushed downwards by a total staff number of 170 fte's. Even though the interpretation of this performance indicator demands some extra attention, it still provides an indication of the amount of attention paid to collection and the exhibitions in terms of human resources focused on this aspect of the organization. An overview of the ratio of curators to the total employees per museum is presented in graph C2 in the appendix.

The accessibility of the Dutch art museums included in this research is on average 0,23 (*SD=0,06*), indicating an average of 39,2 hours per week physically accessible for the public. This result is not surprising because 40 hours a week is an average week of work. As shown in graph C3, included in the appendix, the variety of this ratio among the museums is minimal with some outliers above and below the average. For example, the Van Gogh Museum is 67 hours a week open, EYE 86 hours a week, while on the other hand Museum Nagele is open for only 16 hours a week.

On average 18,25 percent of the total budget of the museums is spend on the art collection and the exhibitions (*M=0,18 SD=0,17*). The minimum and maximum of this percentage differs quit strongly between the museums, as shown in graph C4 in the appendix. The lowest percentage is 0,7 percent (Stedelijk Museum Vianen), while the highest percentage is 67,7 percent (Marie Tak van Poortvliet Museum). Whether this percentage is explained by the percentage of self-generated income of the museums is discussed in the last section of this chapter.

The results of the performance indicator about the contribution to the literature show that on average 0,23 publication is produced per employee of the museums (*SD=0,17*). As shown in table 4.1 and graph C5 in the appendix several museums do not produce any publications at all, while the Zeeuws museum for example, produces 0,56 publication per employee, indicating that approximately 1 out of 2 employees produces a publication.

On average 11,8 percent of the visitors of the Dutch art museums included in this research are younger than the age of 18 (*M=0,12 SD=0,11*). As shown in graph C6 in the appendix, most museums have a percentage of children visiting the museum below 20 percent, with the lowest percentage being 1.4 percent (Marie Tak van Poortvliet Museum). Some outliers upwards are found, for example the Nederlands Fotomuseum has a percentage of 72,3 percent. These variations in percentages can possibly be explained by differences in the focus on target groups, such as educational activities especially designed for children and visits of large groups of children from, for example, school trips.

The average number of educational employees in relation to the total number of employees is 0,09 (*SD=0,07*), indicating that on average 9 out of 100 employees are educational employees. The highest ratio of educational employees to the total number of employees found, is 24.1 percent (Anton Pieck Museum) and four museums have no educational staff members at all. These numbers and the percentages of the other museums can be found in graph C7 of the appendix. This graph also shows

that the percentages differ quit strongly between the different museums, whether this is influenced by the percentage of self-generated income is discussed in the last section of this chapter. In compliance with the indicator on the number of curators, this indicator can also be influenced by the total number of staff members of a museum.

On average 36,2 percent of the visitors of the Dutch art museums included in this study are willing to pay full admission for their entrance ticket (*M=0,36 SD=0,22*). The difference between the highest and the lowest percentage of visitors paying full admission is quite substantial; the highest percentage of 98,9 percent is found at the Limburgs Museum and the lowest percentage of 6,1 percent at the Puremerends Museum. Both these percentages and the percentages of the other museums are presented in graph C8 in the appendix.

The average percentage of the total revenues obtained by raising funds is 10,8 percent (*M=0,11 SD=0,15*). Graph C9 in the appendix shows the percentages of funds raised by all the museums included in this research. As shown in this graph, most museums generate less than 20 percent of their revenues by raising funds, but some outliers are found. The biggest outlier is Stedelijk Museum ‘s Hertogenbosch with a percentage of 96,1 percent. On the other hand, 15 museums did not raise any funds.

The average budget available per visitor is 37,29 euros (*SD=19,79*), indicating that the Dutch art museums included in this research have an average of a little over 37 euros to spend on each visitor. This number varies between the museums, as shown in graph C10 in the appendix. The highest budget available per visitor is 77,71 euro at Museum Catharijneconvent and the lowest budget per visitor is 6,21 at Marie Tak van Poortvliet Museum. The differences between these numbers indicate either a small budget with the same number of visitors or the same number of visitors with a smaller budget.

On average 7,98 euros is earned per visitor (*SD=4,48*), illustrating that for each visitor, a museums earns on average almost 8 euros. This will logically influence the amount of self-generated income, the strength of this relation will be discussed in the last section of this research. The revenues per visitor differ between the lowest revenue of 0,19 euros per visitor (Stedelijk Museum Zwolle) and 24,39 euros (Teylers Museum). The variation between the museums is narrow, as presented in graph C11 in the appendix.

4.2 Factor analysis

A principal component analysis with an orthogonal varimax rotation is performed on the ten performance indicators of the Dutch art museums. The Kaiser-Meyer-Olkin (KMO) test verified the adequacy of the data (*KMO = 0,62*). This result is described as mediocre by Field (2009), but still suitable for a factor analysis. The Bartlett's test of sphericity indicated that the correlations between the variables are also sufficient to conduct a factor analysis (*p <0,001*).

A factor analysis is performed to determine the eigenvalues of the variables (the performance indicators). Three eigenvalues have an eigenvalue > 1, who combined explain 56,78 percent of the variance. This result suggests that three factors are formed within the dataset. The same conclusion is drawn from the screeplot, in which the graph is clearly kinked after the third component and also the variables after the third one have an eigenvalue < 1. The table with the eigenvalues and the screeplot can be found in appendix D.

It is expected to find that the performance indicators of one perspective are positively related to each other, for example a positive relation between the number of curators and the financial importance of the collection and the accessibility of a museum. This expectation is based on the idea that a good performance on one of the perspectives indicates a good performance on all the indicators of that perspective. The indicators of one perspective should be related to each other to make it possible to achieve a high performance on all of the indicators of one perspective at the same time. Table 4.2 presents an overview of the indicators clustered on the same factors. In the following section, the factors formed in the factor analysis are discussed, followed by a discussion of the relations found between the indicators of the same perspective.

Table 4.2: Performance Indicators: item loadings on a three factor principal components solution

	Performance Indicators	Factors		
		1	**2**	**3**
Intellectual Perspective	1. Curators	-0,86		
	2. Accessibility of the museum			-0,75
	3. Financial importance collection	-0,55		
	4. Contribution to literature		0,81	
Public Perspective	5. Visits children		0,55	
	6. Educational staff		-0,49	
	7. Full admission paid	0,75		
Governance and financial perspective	8. Fundraising ability	0,46		
	9. Budget per visitor		0,79	
	10. Revenues per visitor	0,74		
	Eigenvalues:	**2,64**	**1,93**	**1,11**

Source: Own elaboration

4.2.1Descriptions of the factors

Two large factors, containing five and four indicators, and one small factor, containing one indicator, are found in the factor analysis. The results of the factor analysis suggest that the indicators clustered into a factor are connected to each other, this can be a negative or positive relation. Notably from table 4.2 is that the indicators related to the perspectives are dispersed over the factors and not clustered together into one factor; factor 1 and 2 contain both indicators from all three perspectives, which indicates that the perspectives are connected to one and other and can influence each other.

The factors found in this factor analysis are used solely to investigate the operation and functioning of Zorloni's framework and the performance indicators as operationalized in chapter 3 are used to determine the correlations between the percentage of self-generated income and the different perspectives of performance. Hence, the findings of this factor analysis will not be used in the correlational analysis and multiple performance indicators are not combined into one indicator because the use of only three factors does not reflect the diversified character of a museum's performance.

4.2.1.1Factor 1

Table 4.3: Correlations factor 1

	Curators (1)	Budget collection (1)	Full admission paid (2)	Revenues per visitor (2)	Fundraising ability (2)
Curators (1)	1,00	0,43	-0,51	-0,57	-0,28
Budget collection (1)	0,43	1,00	-0,33	-0,19	-0,14
Full admission paid (2)	-0,51	-0.33	1,00	0,5	0,24
Revenues per visitor (2)	-0,57	-0,19	0,5	1,00	0,25
Fundraising ability (2)	-0,28	-0,14	0,24	,25	1,00

Source: Own elaboration

The performance indicators clustered in factor 1 can be divided into two groups; (1) the number of curators and the budget devoted to the collection and exhibitions and (2) visitors paying full admission, revenues per visitor and the fundraising ability. Within those groups, the indicators are positively related to each other, for example the number of curators is positive related to the amount of budget devoted to the collection and exhibitions. The correlations between the indicators of factor 1 are presented in table 4.3. The indicators of the first group and the indicators of the second group are negatively related, indicating that when the indicators of the first group increase, the indicators of the second group will decrease.

The performance indicators of group 1 are both from the intellectual perspective, while the indicators from the second group are from the public and the governance and financial perspectives. This illustrates that an increase in the performance indicators of the intellectual perspective relate to a decrease of the indicators of the public and the governance and financial perspective. It is argued that more attention paid to the collection (in financial terms and the number of curators) is related to a lower performance on revenues per visitor, the percentage of the visitors paying full admission and the amount of funds raised by a museum and also the other way around. These results show that the performance on one perspective will influence the performance on the other perspectives.

4.2.1.2 Factor 2

Table 4.4 Correlation factor 2

	Publications (1)	Budget per visitor (1)	Children visiting (1)	Educational staff (2)
Publications (1)	1,00	0,57	0,20	-0,40
Budget per visitor (1)	0,57	1,00	0,19	-0,32
Children visiting (1)	0,20	0,19	1,00	-0,02
Educational staff (2)	-0,40	-0,32	-0,02	1,00

Source: Own elaboration

Just as the first factor, two groups are found within factor 2: (1) the number of publications, the budget per visitor and the number of children visiting and (2) the educational staff. The performance indicators of the first group are positively related to each other, for example an increase in the budget per visitor relates to an increase in the number of children visiting a museum. It is not possible to explain these relations based on the theory on this topic, but it is imaginable that a relation exists between the budget available and the number of publications: more budget available in general results in more budget for the production of publications. The relation between the available budget and the number of children visiting and the relation between the publications and the number of children is not possible to explain based on the information obtained in this research.

The indicators of the first group are negatively related to number of educational staff members. This relation indicates that an increase in the number of educational employees relates to a decrease in the budget per visitor, the number of children visiting and the number of publications produced by a museum. The logical reason behind the relation between the number of educational employees and the number of publications is the more educational employees, who must be paid, the less budget is available to the production of publications. The relations between the number of educational employees and the number of visiting children is difficult to explain and further investigation would be necessary to explain these relations. It can however be concluded that the perspectives influence each other.

4.2.1.3 Factor 3

The third factor consists of one performance indicator: the opening hours of the museums. This indicator is not influenced by any of the performance indicators and forms a factor on its own, indicating that the opening hours of a museum are independent and stand on its own.

4.2.2 Relations between the indicators of the perspectives

Besides the identification of three factors of connected indicators, the factor analysis also illustrates how the indicators of the same perspectives are connected to each other. It was expected to find a positive relation between the performance indicators of each perspective, but the results of the factor analysis did not support this expectation. Table 4.5 presents an overview of the correlations between the performance indicators of the individual perspective and shows how they are both positively and negatively related.

Table 4.5: Correlations between the performance indicators of the perspectives

Intellectual perspective				
	Number of curators	**Opening hours**	**Budget collection**	**Publications**
Number of curators	1,00	-0,15	0,43	0,18
Opening hours	-0,15	1,00	-0,15	0,21
Budget collection	0,43	-0,15	1,00	-0,02
Publications	0,18	0,21	-0,02	1,00

Public perspective			
	Visits of children	**Educational staff**	**Willingness to pay full admission**
Visits of children	1,00	-0,02	-0,16
Educational staff	-0,02	1,00	0,41
Willingness to pay full admission	-0,16	0,41	1,00

Governance and financial perspective			
	Fundraising ability	**Budget per visitor**	**Revenues per visitor**
Fundraising ability	1,00	-0,18	0,25
Budget per visitor	-0,18	1,00	-0,08
Revenue per visitor	0,25	-0,76	1,00

Source: Own elaboration

Concerning the indicators of the intellectual perspective, it's found that the opening hours of a museum are negatively related to the three other indicators of this perspective (number of curators, budget devoted to the collection and the number of publications). Also the number of publications and the budget devoted to the collection are negatively related, but this correlation can be qualified as a very weak correlation. These negative relations indicate that it is not possible to score high on all the indicators of the intellectual perspective at the same time because a high performance on the indicator on the opening hours relates to a low performance on the three other indicators.

The same observation is found within the public perspective and the governance and financial perspective. In the public perspective, the number of children visiting a museum is negatively related to the number of educational staff members and the number of visitors willing to pay full admission, indicating that an increase in the number of children visiting is related to a decrease in the number of educational staff members and the amount of visitors willing to pay full admission. In the governance and financial perspective, the budget per visitor is negatively related to the amount of funds raised and the revenues generated per visitor.

The negative relations between indicators of the same perspective indicate that it is not possible to achieve a high performance on all of the indicators of the same perspective simultaneously. This result is remarkable because the indicators of the same perspective are combined measuring the performance of a museum on a perspective. The causes of these correlations are difficult to explain based on this research and further research will be necessary to investigate the nature of these relations. It can however be concluded that these negative correlations between the indicators of the same perspectives provide several implications for Zorloni's framework.

4.2.3 Implications for Zorloni's framework

In this factor analysis, the underlying connections between the performance indicators are investigated. Two implications for Zorloni's framework are formulated based on the findings of this analysis. Firstly, the relations between the indicators of the different perspectives were discussed and a negative relation was found between the indicators of the intellectual perspective and the indicators of the public perspective and the governance and financial perspective. This negative relation implies that it is not possible to achieve a high performance on all perspectives at the same time, because a high performance on the indicators of the intellectual perspective relates to a low performance on the other two perspectives and the other way around. The impossibility of a high performance on all three perspectives at the same time can possibly be explained by the diversified character of the goals and activities of museums, indicating that a high performance on all the goals and activities is difficult or impossible to achieve . Whether this is an inaccuracy of Zorloni's framework or this is the situation in reality should be investigated in further research.

Secondly, the performance indicators of the individual perspectives are both positively and negatively related to other indicators of the same perspective. The negative relations between some of the indicators of the same perspective are surprising because it was expected to find exclusively positive relations between these indicators considering they are combined measuring the performance of a museum on a perspective. The following indicators relate negatively to the other indicators of the same perspective: the opening hours (intellectual perspective), the number of children visiting a museum (public perspective) and the available budget per visitor (governance and financial perspective). It is not coincidental that precise these three indicators are measured as not statistical significant in the following section on the correlations between the performance and the level of self-generated income of Dutch art museums. Based on these findings, adjustments can be made to Zorloni's framework with the aim of preventing the occurrence of negative relations between the indicators of the same perspective.

4.3 Correlations

In this research, the relationship between the percentage of self-generated income of Dutch art museums and the different perspectives of performance of museums is investigated by calculating the correlations between them, using a Spearman's correlation coefficient. In this research correlational analysis is applied to determine the relations between the variables. It is important to keep in mind that based on these calculations it is not possible to make any conclusion about causation, only about the existence of a relationship. The non-parametric Spearman's correlation coefficient is used because the data does not comply with the distributional requirements of parametric tests.

In order to draw this conclusion and to check whether the data is complying to the distributional requirements for a parametric test, a Shapiro-Wilk test is performed. The p-values of all of the indicators are significant ($p<0,05$), which indicates that all the indicators are significantly non-normal and do not comply with the distributional requirements of parametric tests and for that reason a non-parametric test is conducted. Table 4.6 presents the results of the Shapiro-Wilk test.

Table 4.6: Shapiro-Wilk test of normality

	Statistic
Accessibility of the museum	0,81*
Financial importance collection	0,89*
Contribution to literature	0,93**
Educational employees	0,88*
Visiting children	0,68*
Willingness to pay full admission	0,89*
Fundraising ability	0,65*
Budget per visitor	0,95**
Revenues per visitor	0,92*
Curators	0,93**
Degrees of Freedom	**50**

Note: * Significant at 0,01 ** Significant at 0,05

Source: Own elaboration

Following the test of normality, the correlations between the percentage of self-generated income and the performance indicators are calculated. Table 4.7 provides an overview of these correlations. A negative relation is found between the performance indicators of the intellectual perspective and the percentage of self-generated income and a positive relation is found between the performance indicators of the public and the governance and financial perspective and the percentage of self-generated income of Dutch art museums.

Table 4.7: Correlations and test significance between the percentage self-generated income and the perspectives

		Intellectual Perspective			Public perspective	
		Budget devoted to the collection	Publications	Curators	Educational staff	Visitors paying full admission
Percentage self-generated income	Correlation coefficient	-0,53*	-0,24**	-0,73*	0,53*	0,63*
	Sig. (2-tailed)	0,00	0,02	0,00	0,00	0,00

		Governance and Financial Perspective		Statistical not significant		
		Fundraising	Revenues per visitor	Opening hours	Children visiting	Budget per visitor
Percentage self-generated income	Correlation coefficient	0,48*	0,81*	0,03	0,05	-0,19
	Sig. (2-tailed)	0,00	0,00	0,84	0,70	0,16

Note: * Correlation is significant at 0,01 (2-tailed), ** Correlation is significant at 0,05 (2-tailed)[6]

Source: Own elaboration

4.3.1 Performance indicators of the intellectual perspective

The results of the Spearman's correlation coefficients show that a negative relation exists between the performance indicators of the intellectual perspective and the percentage of self-generated income of Dutch art museums, measured by: the financial importance of the collection, the number of publications, the number of curators and the physical accessibility of a museum. The intellectual perspective involves the preservation of the art collection and the development of new knowledge. The negative relation between this perspective and the percentage of self-generated income indicates that the more revenues are generated by a museum itself, the lower the museum's attention to the preservation and exhibition of the collection and the development of knowledge in the form of publications.

A possible explanation of this relation is the following; the behavior of a museum is partly explained by the sources of financial assets (Alexander, 1996). A low percentage of self-generated income associates with a high level of public support. As mentioned in the theoretical framework, governmental funders are interested in the preservation and the accessibility of the art collection to the society and the creation of new knowledge (Camarero, Garrido & Vicente, 2011). Therefore, a high level of public support can function as an explanation for the attention paid to the collection and the

[6] Concerning the interpretation of the strengths of the correlations: 0 to 0,10 is very weak, 0,11 to 0,3 is weak, 0,31 to 0,5 is moderate, 0,51 to 0,8 is strong, 0,81 to 0,9 is very strong and 1 is perfect (Field, 2009).

exhibitions and the production of publications: the intellectual perspective. The cuts in the cultural budget of the Dutch government of the last several years will relate to the changes in the performance on this perspective, because less public support relates to more self-generated income, which again relates to less attention paid to this perspective. It is not possible to talk about causation and whether the decrease in public support will influence the performance on the intellectual perspective, but it is argued that the decrease in public support relates to a decrease in attention paid to this perspective. A second possible explanation of the negative relation is the increased market orientation of museums with a high percentage of self-generated income. As a result of having to generate more revenues and rely less on the financial support from the government, museums will focus more on their customers and less on the intellectual perspective and for that reason a negative relation is found between the level of self-generated income and the performance on the intellectual perspective.

The relation between the level of self-generated income and the physical accessibility (the opening hours) of a museum is not statistically significant and will be discussed later on in this chapter.

4.3.1.1 The financial importance of the collection

A significant, strong negative correlation is found between the percentage of self-generated income and the budget devoted to the collection and exhibitions of a museum (r_s*= -0,53, p<0,001*). As mentioned in the previous section, this negative relation can possibly be explained by the attention paid to the collection and exhibitions, in the case of this indicator the financial attention, by museums with a high level of public support because this is one of the main goals of the government (Alexander, 1996). A decrease in the public support indicates an increase in the level of self-generated income, which relates to a decrease in the amount of attention paid to the collection in financial terms.

4.3.1.2 The contribution to the literature

A significant, weak negative correlation is found between the percentage of self-generated income and the number of publications (r_s*=0,24 p=0,024*). Two possible explanations of this correlation come to mind. Firstly, just as the general explanation on the relation between the intellectual perspective and the level of self-generated income, a museum with a high level of self-generated income is generally less concerned with the goals of governmental funders, such as the development of knowledge in the form of publications. Secondly, a museum with a high level of self-generated income is more market oriented, which can possibly lower the focus on non-consumer related activities, such as producing publications.

As mentioned in the descriptions of the performance indicators, the total number of employees of a museum can influence the outcome of this indicator. A high number of employees, as a result of for example the possession of a large restaurant with many employees, will lower the outcome of this indicator. For that reason, the total number of employees is considered in the interpretation of this indicator.

4.3.1.3 The number of curators

A significant, strong negative relation is found between the number of curators employed and the percentage of self-generated income ($r_s=0,73$ $p<0,001$). The explanation of this relation is similar to the explanation of the financial importance of the collection and exhibitions. While the first indicator was concerned with the financial attention paid to the collection, this indicator illustrates the amount of human resources devoted to the collection and exhibitions.

In compliance with the former indicator, the total number of employees can influence the outcome of this indicator and should be taken into consideration in the interpretation.

4.3.2 The public perspective

A positive relation is found between the level of self-generated income and the public perspective, measured by the following indicators: the number of educational employees, the number of children visiting and the number of visitors willing to pay full admission. The public perspective revolves around the relationship of the museum with its customers and donors, such as the visitor's experience and the customer services. The positive relation illustrates that an increase in the revenues generated by the museum itself relates to an increase in the attention paid to the customers and donors of a museum and the accompanying customer services.

The increased market orientation of museums with an enhanced percentage of self-generated income is a possible explanation of this correlation. According to the literature, a market oriented museum is more focused on customer services, such as educational activities or the provision of a quality restaurant, and on donor orientation (Alexander, 1996; Camarero & Garrido, 2006; Camarero, Garrido & Vicente, 2011). A second explanation is related to the resource dependency theory, stating that the needs of the funders of a museum have to be satisfied to guarantee that the financial resources generated from this source are retained (Alexander, 1996). When the level of self-generated income of a museum increases, it becomes more dependent on the customers and donors as a source of financial assets. For that reason, the needs of the customers are satisfied by offering customer services and improving the customer's experience, which possibly results in more attention paid to the public perspective, which explains the positive relation found between this perspective and the level of self-generated income. However, based on this research it is not possible to draw conclusions about the causation and how these variables influence each other. It is only concluded that a positive correlation exists.

The relation between the level of self-generated income and the number of children visiting is not statistically significant and will be discussed later on in this chapter.

4.2.3.1 The number of educational employees

The correlation found between the number of educational employees and the percentage of self-generated income is a significant, strong positive correlation ($r_s=0,53$ $p<0,001$). This outcome indicates that an increase in the percentage of self-generated income relates to an increase in the

number of educational employees. A possible explanation of this relation is provided in the general explanation of the relation between the public perspective and the level of self-generated income: an increased focus on customer services, including educational activities, relates to more educational employees.

The total number of staff members can influence the outcome of this ratio downwards, just as the second and third indicator.

4.2.3.2 The number of visitors willing to pay full admission

A significant, strong positive relation is found between the percentage of self-generated income and the number of visitors willing to pay full admission for their entrance to the museum ($r_s=0,63$ $p<0,001$). Two reasons come to mind to explain that an increase in the percentage of self-generated income relates to an increase in the amount of visitors willing to pay full admission. Firstly, when more visitors pay full admission, the revenues increase. Secondly, the general explanation of the public perspective applies here too: the increased market orientation relates to better customer services, such as museum stores or restaurants. Better restaurants, for example, can possibly influence the willingness of a visitor to pay for a service that is deemed good.

4.2.4 The governance and financial perspective

A positive relation is found between the percentage of self-generated income and the performance indicators of the governance and financial perspective: the fundraising ability, the revenues per visitor and the budget per visitor. This perspective is concerned with the efficient use and generation of financial resources. The positive relation illustrates that an increase in the revenues generated by the museum itself relates to an increase in amount of funds raised and revenues earned per visitor.

The possible explanation of this relation is two-folded. Firstly, an increase in the amount of raised funds and the revenues earned per visitor relate to more self-generated income, because these are included in the self-generated income. Secondly, the market orientation of museums with an increased percentage of self-generated income relates to an increased tendency to obtain more revenues from private sources such as customers and donors (Alexander, 1996; Camarero & Garrido, 2006; Camarero, Garrido & Vicente, 2011) . By focusing on the needs of the customers and donors, museums try to increase the financial assets obtained from these sources, which is a possible explanation of the positive relation between this perspective and the level of self-generated income. However, just as the former two perspectives, these explanations are all possible explanations of the positive correlation found. No conclusions are made about the influence of one variable on another.

The relation between the level of self-generated income and the available budget per visitor is not statistically significant and will be discussed later on in this chapter.

4.2.4.1 The fundraising ability

A significant, moderate positive relation is found between the amount of funds raised by a museum and the percentage of self-generated income ($r_s=0,48$ $p<0,001$). Two possible explanations come to mind to clarify how the increase in raised funds is related to an increase in the percentage of self-generated income. Firstly, when more funds are raised, the revenues will increase as well. Secondly, focusing on donors is part of a market orientation, which can possibly result in an increase in raised funds.

4.2.4.2 The revenues per visitor

A significant, very strong positive correlation is found between the revenues earned per visitor and the percentage of self-generated income ($r_s=0,81$ $p<0,001$). Two possible explanations come to mind to explain that an increase in the percentage of self-generated income relates to an increase in the revenues earned per visitor. Firstly, the more revenues earned per visitor, the higher the self-generated income. The second explanation is the market orientation of museums, as clarified in the general explanation on the relation between the percentage of self-generated income and the governance and financial perspective. A market oriented museum is more inclined to generate revenues from private sources, such as the revenues per visitor.

4.2.5 The opening hours, number of children visiting and the budget per visitor

The last three performance indicators are discussed separately because the correlations between these variables and the percentage of self-generated income are statistically not significant. Interesting to conclude is that these indicators were all negatively related to the other indicators of their perspectives, as discussed in the factor analysis. Based on the results of the factor analysis and the correlational coefficients, it is argued that these indicators do not suit the framework properly and should not be used or replaced in the appliance of this framework.

The relation found between the opening hours and the percentage of self-generated income is statistically not significant ($r_s=0,027$ $p=0,84$), illustrating that these variables do not relate to each other. The same conclusion is drawn for the number of children visiting a museum ($r_s=0,051$ $p=0,70$) and the available budget per visitor ($r_s=-0,19$ $p=0,16$).

A possible explanation of the non-significant relation between the opening hours and the percentage of self-generated income is that both museums with a high and a low level of self-generated income have different reasons for their opening hours: a market orientation of attracting more visitors or supported by the government to be accessible to a broad public. The non-significant correlation between the number of children visiting and the percentage of self-generated income is difficult to explain based on the findings of this research and further research would be necessary to explain this relation. Lastly, the non-significant correlation between the budget per visitor and the percentage of self-generated income can possibly be explained by the different sources of a museum's budget. Dutch art museums can receive their financial resources from either a private or a public

source, but the source doesn't imply anything about the amount of financial resources obtained. This suggests that the amount of budget available per visitor is not connected to the source of the financial resources, but to the amount obtained from this source.

5 Conclusion

5.1 Conclusion

This thesis discussed the relation between the method of funding and the performance of Dutch art museums, specially focused on the relation between the level of self-generated income and the performance. This research was conducted by calculating the correlations between the percentage of self-generated income and the different perspectives of the performance of a museum. The perspectives were each represented by a set of performance indicators, measuring the performance of 60 Dutch art museums included in this study.

It can be concluded from the literature that a museum's behavior and performance are influenced by the source of funding. In order to retain the financial assets gained from either public or private sources, a museum has to comply with the needs and goals of a financer. A high level of self-generated income indicates a high level of private support (financial resources obtained from customers and donors) and a low level public support (governmental funders). This would imply, based on the literature, that a museum with a high level of self-generated income is more concerned with the needs of the customer and the donors and less with the needs and goals of the government because most of its financial resources are originated from customers and donors. The orientation on customers and donors is defined as a market orientation, indicating that a museum with a high level of self-generated income would be more market oriented and a museum with a low level of self-generated income would be less market orientated and more orientated towards the goals of the government.

The findings of this research support the literature on this topic. Firstly, this research provides evidence of the existence of a correlation between the level of self-generated income and the performance of a museum. This illustrates that fluctuations in the level of self-generated income are related to changes in the behavior and performance of Dutch art museums. Secondly, it is found that an increase in the level of self-generated income is related differently to the multiple perspectives of performance: a negative relation is found with the intellectual perspective and a positive relation is found with the public and the governance and financial perspectives. These relations indicate that an increase in the percentage of self-generated income relates to a decrease of the performance on the intellectual perspective and an increase of the performance on the public and governance and financial perspective.

The intellectual perspective is concerned with the preservation and exhibition of the art collection and the contribution to the literature in terms of publications, which is in line with the goals of governmental funders. The public perspective involves the attention paid to the public, customer services and the visitors experience, which indicates that much attention is paid to the customer and its needs. Lastly, the governance and financial perspective is concerned with the ability of a museum to generate revenues from private sources and the financial health of a museum.

The positive and negative relations found between these perspectives and the level of self-generated income illustrate that a museum is concerned with the needs and goals of their funders. An increased level of self-generated income relates to an increase in the revenues gained from customers and donors and for that reason more attention is paid to the two perspectives concerned with the customers, donors and generating additional revenues from private sources: the public and the governance and financial perspective. This explains the positive relation between these perspectives and the level of self-generated income. On the other hand, museums with a low level of self-generated income, which indicates a high level of public support, are more concerned with the goals and needs of the governmental funders, expressed in the intellectual perspective, which serves as a possible explanation for the negative relation between this perspective and the percentage of self-generated income.

Based on the calculated correlations in this research, it has to kept in mind that no conclusions are made about causation and whether the level of self-generated income is actually influencing the performance on the perspectives of the Dutch art museums. However, it is concluded that a relation exist between these variables, indicating that an increase in the percentage of self-generated income is both negatively and positively related to the performance of these museums on the different perspectives. In conclusion is argued that the goals and needs of the funders are reflected in the behavior and performance of museums and for that reason a relation exists between the source of financial resources and the performance of Dutch art museums.

The results of this study are relevant in the current developments within the cultural sector as a result of the changes in Dutch cultural policy. The decrease of the level of public support in the recent years in the Netherlands is associated with an increase in the level of self-generated income of Dutch art museums. Based on this study, it is argued that this development possibly relates to a decrease in the performance on the intellectual perspective and an increase in the performance on the public and the governance and financial perspective. Or in other words, it relates to less attention paid to the preservation and exhibition of the collection and producing publications and more attention paid to the customer and his or her experience, customer services and generating additional revenues from private sources.

5.2 Limitations

The biggest limitation involved with a study focusing on the performance of a cultural organization is the measurement of the performance of these organizations. As discussed in the theoretical framework, the method for evaluating the performance of a museum is difficult due the subjective and diversified character of a museum and the choice for a measurement method influences the results of a research. To minimize the effect of this limitation as much as possible, a method was chosen in which multiple views of other researchers were incorporated and the choice was made to focus solely on objective measurable performance indicators which could not be influenced by the subjective view of the

researcher. In this method the measurement of artistic quality of a museum was excluded from the performance assessment due to its subjective nature. This is a limitation in this research because it entails a substantial part of the performance of a museum. This choice was made because the data to measure this aspect of performance was not available and it could not be included in this type of quantitative research due to the subjective character.

Also the choice for the performance indicators representing and measuring the different perspectives of performance influence the outcome of this research. In this research the choice was made to apply a limited number of indicators per perspective to the museums. By increasing the number of indicators, the performance measurement of the museums would, possibly, be more complete and would have provided a more thorough image of the performance of the museums. The choice for this set of indicators was based on the availability of data and the indicators used and proposed by Zorloni in her framework.

The number of museums used in this research was another limitation of this study. This was partly the result of the available data on Dutch art museums, but also due to the limited number of art museums in the Netherlands, which made the total population already relatively small. The number was too small to be able to conduct parametric statistical methods, which narrowed the possibilities of statistical tests which could be applied.

Another limitation of this study is the use of correlations to describe the relation between the percentage of self-generated income and the performance. A correlation can be used to describe whether a relation exist and if this relation is positive or negative, but it cannot be used to make any conclusions about causation (Field, 2009). Based on this research, it is not possible to make any conclusions about the influence of the percentage of self-generated income on the performance on the different perspectives, only the existence, the strength and the direction of the relation. Due to the use of this type of analysis, this research could be described as not thoroughly and remaining on the surface of this topic. However, by providing proof of the existence of a relation between the level of self-generated income and the different perspectives of performance, further investigation about the nature of these relations is possible.

5.3 Recommendations for future research

This research could be extended and supported by adding a qualitative analysis to the research design. Interviewing employees of different departments concerned with different perspectives of the museums could function as a valuable tool to countercheck the outcomes of this quantitative analysis and add further findings. These interviews could contribute to the understanding of the effect of the method of funding and the relationship between the percentage of self-generated income and the different perspectives of performance. By applying a qualitative research method, the subjective indicator of artistic quality could be added to the analysis as well.

This thesis only investigates the correlation between the percentage of self-generated income and the different perspectives of performance. In future research, the nature of this relation could be investigated more comprehensively. In future research, the relations between the percentage of self-generated income and the perspectives of performance could be investigated and conclusions could be drawn about how these variables influence each other. A better understanding of how this relations function could enhance the understanding of the influence of the cultural policy of a country and can result in better informed decisions concerning the financial support provided by a government to museums.

In future research, the sample could also be expended. Other museums besides art museums could function as an alternative research sample. It would be interesting to see whether the focus on the intellectual perspective, which mainly entails the preservation of the art collection, of Dutch art museums with a lower percentage of self-generated income changes when other museums are under investigation, for example museums focused on biology and science. Besides the extension of the research subject to other museums, this research could also be extended to other types of cultural organizations, such as movie theaters or orchestra's.

References

Alexander, V. D. (1996). From philanthropy to funding: The effects of corporate and public support on American art museums. *Poetics*, 24(2), 87-129.

Algemene Rekenkamer (2015). Bezuinigingen op Cultuur: realisatie en effect.

Ames, P. (1990). Breaking new ground: Measuring museums' merits. *Museum Management and Curatorship*, 9(2), 137-147.

Anderson, M. L. (2004). *Metrics of success in art museums.* Los Angeles, CA: Getty Leadership Institute.

Bailey, J., & Richardson, L. (2010). Meaningful measurement: A literature review and Australian and British case studies of arts organizations conducting "artistic self-assessment". *Cultural Trends*, 19(4), 291-306.

Basso, A., & Funari, S. (2004). A quantitative approach to evaluate the relative efficiency of museums. *Journal of Cultural Economics*, 28(3), 195-216.

Bonus, H., & Ronte, D. (1997). Credibility and economic value in the visual arts. *Journal of Cultural Economics*, 21(2), 103-118.

Bryman, A. (2015). *Social research methods.* Oxford :Oxford University Press.

Camarero, C., & Garrido, M. J. (2007). How alternative marketing strategies impact the performance of Spanish museums. *Journal of Management Development*, 26(9), 809-831.

Camarero, C., Garrido, M. J., & Vicente, E. (2011). How cultural organizations' size and funding influence innovation and performance: The case of museums. *Journal of Cultural Economics*, 35(4), 247-266.

Camarero, C., & Garrido, M. J. (2006). The influence of market and product orientation on museum performance. *International Journal of Arts Management*, 10(2), 14-26.

Camarero, C., & Garrido, M. J. (2011). Fostering innovation in cultural contexts: Market orientation, service orientation, and innovations in museums. *Journal of Service Research*, 15, 39-58.

Carmen, C., & Garrido, M. J.. (2008). The role of technological and organizational innovation in the relation between market orientation and performance in cultural organizations. *European Journal of Innovation Management,* 11(3), 413-434.

Carvalho, P., da Silva Costa, J., & Carvalho, A. (2014). The economic performance of Portuguese museums. *Urban Public Economics Review,* 20, 12-37.

Chiaravalloti, F. (2014). Performance evaluation in the arts and cultural sector: A story of accounting at its margins. *The Journal of Arts Management, Law, and Society,* 44(2), 61-89.

De Bruijn, H. (2002). Performance measurement in the public sector: Strategies to cope with the risks of performance measurement. *International Journal of Public Sector Management,* 15(7), 578-594.

Del Barrio, M. J., Herrero, L. C., & Sanz, J. Á. (2009). Measuring the efficiency of heritage institutions: A case study of a regional system of museums in Spain. *Journal of Cultural Heritage,* 10(2), 258-268.

Evans, G. (2000). Measure for measure: Evaluating performance and the arts organization. *Studies in Cultures, Organizations and Societies*, 6(2), 243-266.

Field, A. (2005). Factor analysis using SPSS. *Retrieve February, 25,* 2008.

Field, A. (2009). *Discovering statistics using SPSS.* Thousand Oakes: Sage publications.

Frey, B. S., & Meier, S. (2002). *Museums between private and public the case of the Beyeler museum in Basle.* Zurich: University of Zurich.

Gainer, B., & Padanyi, P. (2002). Applying the marketing concept to cultural organizations: An empirical study of the relationship between market orientation and performance. *International Journal of Nonprofit and Voluntary Sector Marketing,* 7(2), 182-193.

Gori, E., & Fissi, S. (2013). From cash to accrual accounting: A model to evaluate the performance of public museums. *Revista De Management Comparat International,* 14(4), 519.

Gstraunthaler, T., & Piber, M. (2007). Performance measurement and accounting: Museums in Austria. *Museum Management and Curatorship,* 22(4), 361-375.

Hart, H., Boeije, H. R., & Hox, J. (2005). *Onderzoeksmethoden.* Amsterdam: Boom Onderwijs.

Hughes, P., & Luksetich, W. (2004). Nonprofit arts organizations: Do funding sources influence spending patterns? *Nonprofit and Voluntary Sector Quarterly,* 33(2), 203-220.

Janssen, I. M., Gubbels, G. J., & van Hemel, A. (2003). *Bedrijvige musea: Private betrokkenheid in de praktijk.* Amsterdam: Stichting DOEN.

Johnson, P., & Thomas, B. (1998). The economics of museums: A research perspective. *Journal of Cultural Economics,* 22(2-3), 75-85.

Keller, G., & Gaciu, N. (2012). *Managerial statistics.* Boston: South-Western Cengage Learning.

Kirchberg, V. (1998). Entrance fees as a subjective barrier to visiting museums. *Journal of Cultural Economics,* 22(1), 1-13.

Kirchberg, V. (2003). Corporate arts sponsorship. In R. Towse, *A Handbook of Cultural Economics* (143-151). Cheltenham: Edward Elgar Publications.

Kirchner, T. A., Markowski, E. P., & Ford, J. B. (2007). Relationships among levels of government support, marketing activities, and financial health of nonprofit performing arts organizations. *International Journal of Nonprofit and Voluntary Sector Marketing,* 12(2), 95-116.

Madden, C. (2005). Indicators for arts and cultural policy: A global perspective. *Cultural Trends,* 14(3), 217-247.

Mahmoud, M., & Yusif, B. (2012). Market orientation, learning orientation, and the performance of nonprofit organizations (NPOs). *International Journal of Productivity and Performance Management,* 61(6), 624-652.

McGee, J. (2005). *Strategy.* New York: McGraw-Hill education.

Ministerie van Onderwijs, Cultuur en Wetenschap (2015). *Cultuur in beeld 2015: de stad als cultureel knooppunt.* Den Haag: Rijksoverheid Nederland.

Paulus, O. (2003). Measuring museum performance: A study of museums in France and the united states. *International Journal of Arts Management,* 6, 50-63.

Peacock, A. (2003). Performance indicators and cultural policy. *Economia Della Cultura,* 13, 1-10.

Pignataro, G. (2011). Performance indicators. In R. Towse, *A Handbook of Cultural Economics* (366-372). Cheltenham: Edward Elgar Publications.

Pots, R. (2000). *Cultuur, koningen en democraten. overheid & cultuur in Nederland.* Nijmegen: Uitgeverij Sun.

Schuster, J. M. (1996). The performance of performance indicators in the arts. *Nonprofit Management and Leadership,* 7(3), 253-269.

Selwood, S. (1999). Access, efficiency and excellence: Measuring non-economic performance in the English subsidized cultural sector. *Cultural Trends,* 9(35), 87-137.

Selwood, S. (2002). What difference do museums make? producing evidence on the impact of museums. *Critical Quarterly*, 44(4), 65-81.

Sorjonen, H., Ruusuvirta, M., & Kajalo, S. Organizational level effectiveness of a state funding increase to arts organizations.

Throsby, D., & Throsby, C. (2001). *Economics and culture*. Cambridge: Cambridge university press.

Towse, R. (2011). *A handbook of cultural economics.* Cheltenham: Edward Elgar Publishing.

Turbide, J., & Laurin, C. (2009). Performance measurement in the arts sector: The case of the performing arts. *International Journal of Arts Management,*11 , 56-70.

van der Hoeven, Q. (2012). *Van anciaux tot zijlstra: Cultuurbeleid en cultuurparticipatie in Nederland en Vlaanderen.* Den Haag: Sociaal en Cultureel Planbureau.

Raad voor Cultuur. (2012). *Slagen in cultuur*. Den Haag: Raad Voor Cultuur.

Weil, S. E. (2005). A success/failure matrix for museums. *Museum News,* 84(1), 36-40.

Williams, B., Brown, T., & Onsman, A. (2012). Exploratory factor analysis: A five-step guide for novices. *Australasian Journal of Paramedicine,* 8(3), 1.

Zijlstra, H., van Onderwijs, M., & en Wetenschap, C. (2011). *Meer dan kwaliteit: Een nieuwe visie op cultuurbeleid.* Den Haag: Rijksoverheid.

Zorloni, A. (2010). Managing performance indicators in visual art museums. *Museum Management and Curatorship,* 25(2), 167-180.

Zorloni, A. (2012). Designing a strategic framework to assess museum activities. *International Journal of Arts Management,* 14(2), 31-47.

Appendices

Appendix A: Museums included in this study

The list of the Dutch art museums included in this study:

1. Aboriginal Art Museum
2. Boijmans van Beuningen
3. Bonnefanten Museum
4. Centraal Museum Utrecht
5. COBRA
6. Dordrechts Museum
7. Drents Museum
8. EYE
9. FOAM
10. Frans Hals Museum
11. Fries Museum
12. Gemeentemuseum Den Haag
13. Groninger Museum
14. Hermitage Amsterdam
15. Katwijks Museum
16. Keramiekmuseum Princessehof
17. Kröller Müller Museum
18. Kunsthal Rotterdam
19. Letterkundig Museum
20. Limburgs Museum
21. Marie Tak van Poortvliet
22. Museum Belvédere
23. Museum Catharijneconvent
24. Museum Gouda
25. Museum Valkhof Nijmegen
26. Museum Rijswijk
27. Museum Hindeloopen
28. Museum van Bommel van Dam
29. Museum de Fundatie
30. Museum voor Moderne Kunst Arnhem
31. Nederlands Fotomuseum
32. Noord-Brabants Museum
33. Purmerends Museum
34. Rijksmuseum Amsterdam
35. Rijksmuseum Twenthe
36. Sieboldhuis
37. Singer Laren
38. Stadsmuseum Ijsselstein
39. Stedelijk Museum Amsterdam
40. Stedelijk Museum 's Hertogenbosch
41. Stedelijk Museum Alkmaar
42. Stedelijk Museum de Lakenhal
43. Stedelijk Museum Zwolle
44. Teylers Museum
45. Van Abbemuseum
46. Van Gogh Museum
47. Witte de With
48. Zeeuws Museum
49. Anton Pieck Museum
50. Beelden aan Zee
51. Breda's Museum
52. CODA
53. Het Schip
54. Museum Nagele
55. Museum Slager
56. Stedelijk Museum Schiedam
57. Stedelijk Museum Vianen
58. Tassenmuseum Hendrikje
59. Villa Mondriaan
60. Stadsmuseum Woerden

Appendix B: Codebook variables

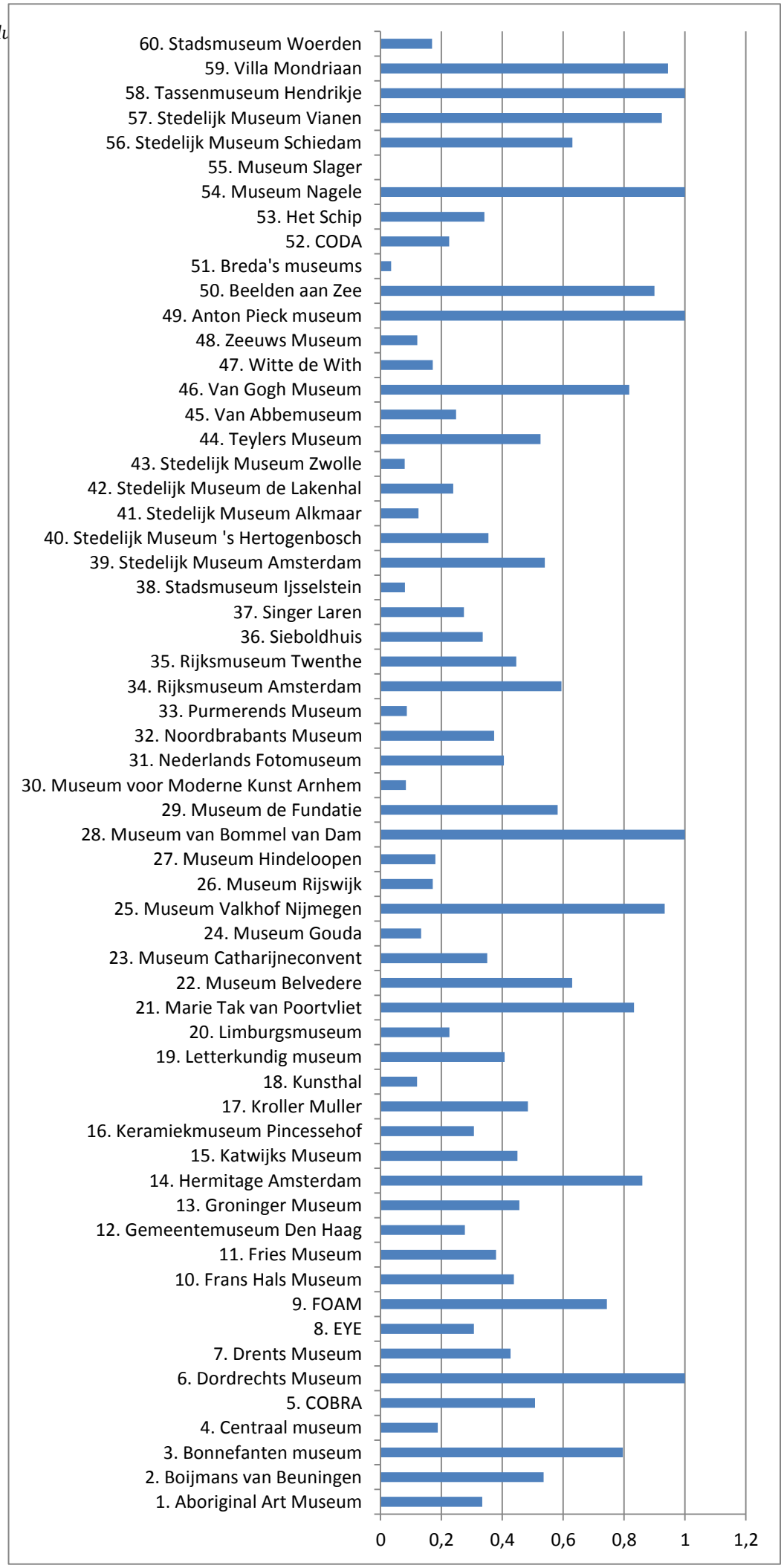
Table B1: Codebook variables

Name	Type	Measure	Formula	Description
Museums	String	Nominal	No formula	Names of the museums included in the research
Percentage of self-generated income	Numeric	Ordinal	Self-generated income/total income	Measured in percentages with a maximum of 1.00
Curators	Numeric	Ordinal	Number of curators/total staff	Measured in fte's (full-time employees) and presented as a percentage, with a maximum 1.00
Accessibility of the museum	Numeric	Ordinal	Hours open per week/total hours in a week	Measured in hours and presented as a percentage, with a maximum of 1.00
Financial importance collection	Numeric	Ordinal	Budget to collection and exhibitions/total budget	Measured in euros, represents a percentage, with a maximum of 1.00
Contribution to literature	Numeric	Ordinal	Number of articles published/total staff	Represents the number publications per employee, with an infinite maximum
Visits of children	Numeric	Ordinal	Number of children visiting/total visitors	Measured in percentages, with a maximum of 1.00
Educational staff	Numeric	Ordinal	Number of educational employees/total staff	Measured in fte's (full-time employees) and presented as a percentage, with a maximum of 1.00
Willingness of visitors to pay full admission	Numeric	Ordinal	Number of visitors paying full admission/total number of visitors	Measured as a percentage, with a maximum of 1.00
Fundraising ability	Numeric	Ordinal	Total amount of fundraising received/total budget	Measured in euros and presented as a percentage, with a maximum of 1.00
Budget per visitor	Numeric	Ordinal	Total budget/total number of visitors	Measured in euros and represents the amount of budget per visitor in euros, with an infinite maximum
Revenues per visitor	Numeric	Ordinal	Total revenues/total number of visitors	Measured in euros and represents the amount of euros available per visitor, with an infinite maximum

Source: Own elaboration

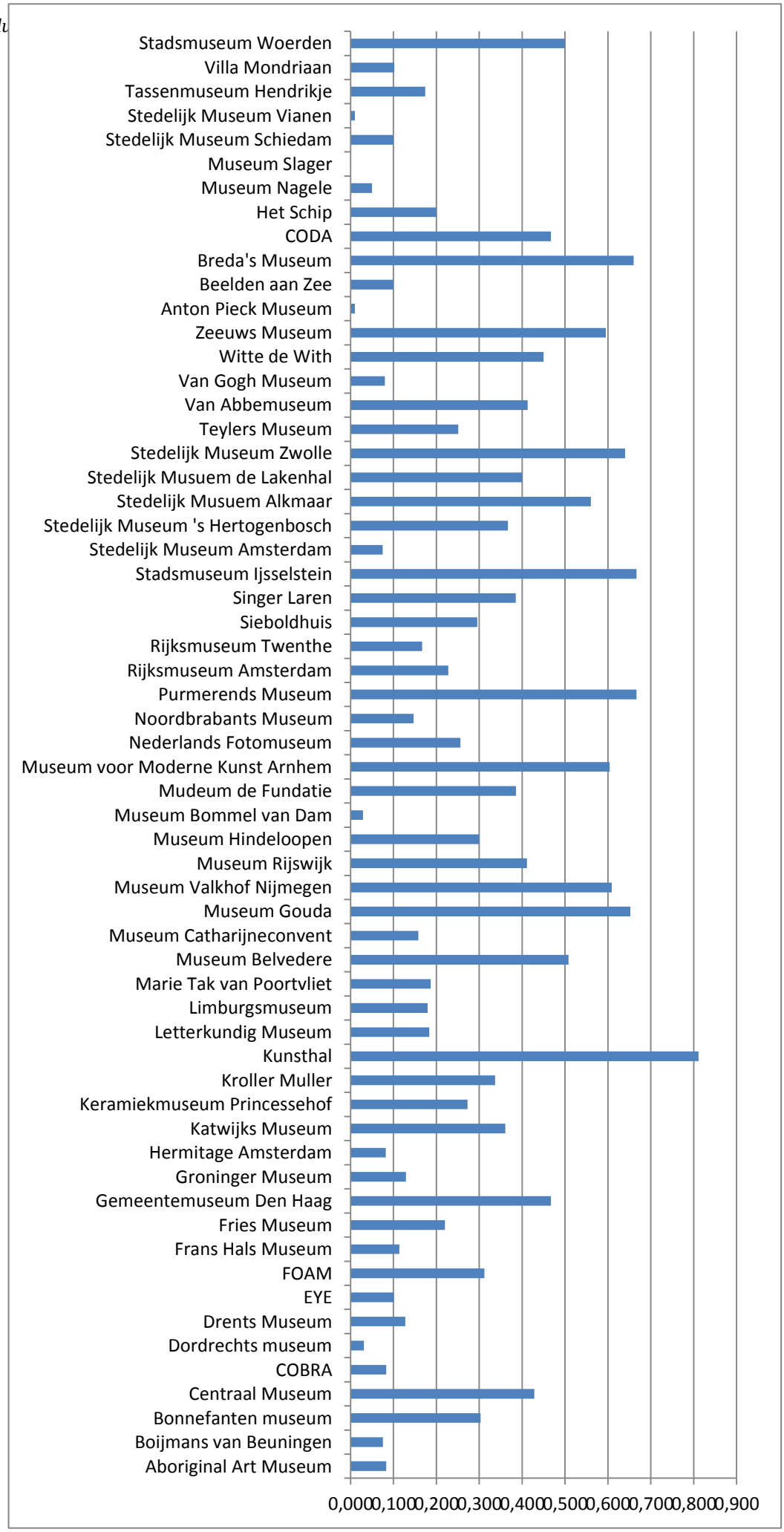
Appendix C: Performance Indicators

Graph C1: Percentage self-generated income Dutch art museums



Source: Own elaboration

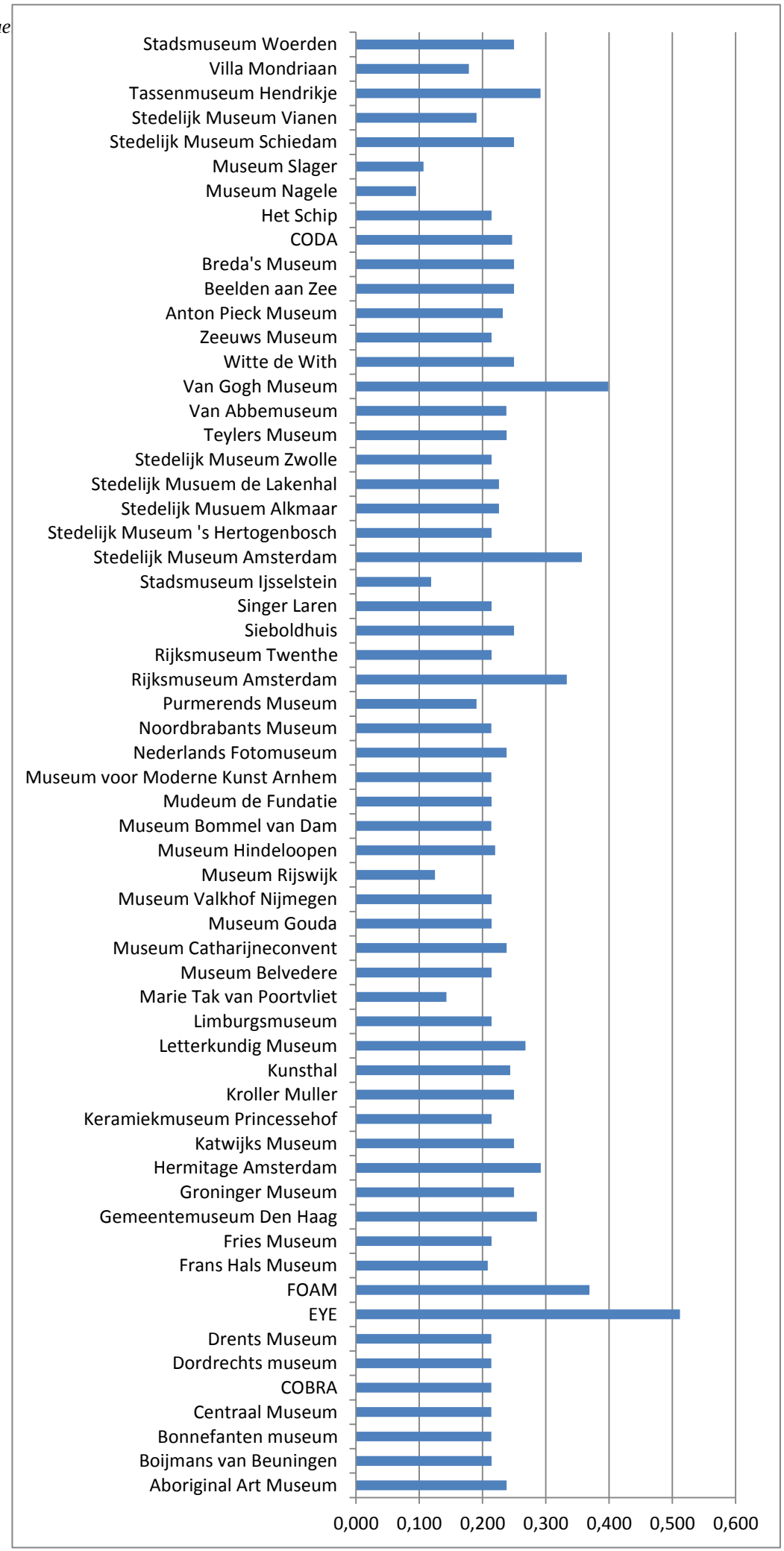
Graph C2: The number of curators per museum



Source: Own elaboration

The financial structure influe

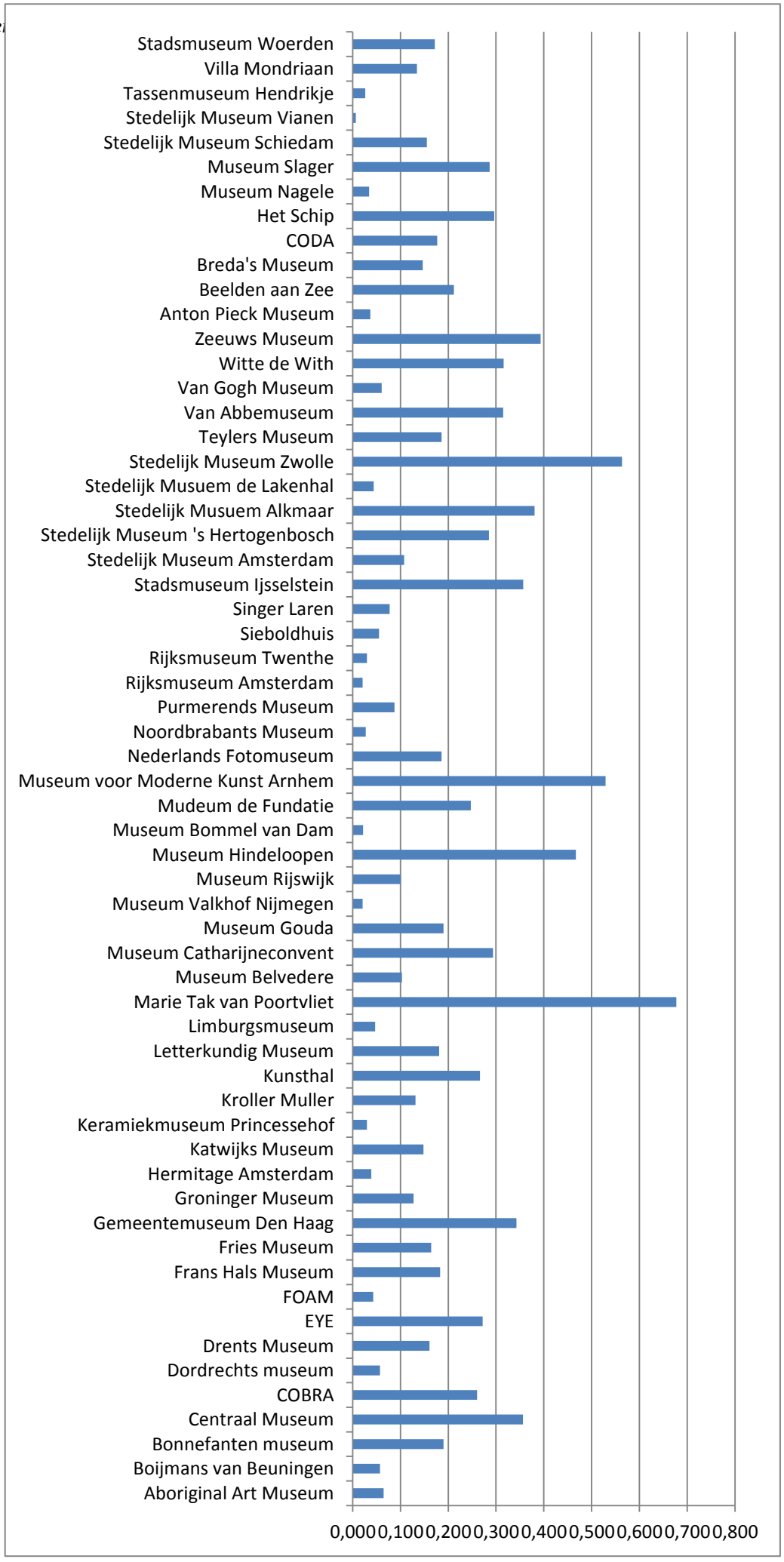
Graph C3: Accessibility per museum



Source: Own elaboration

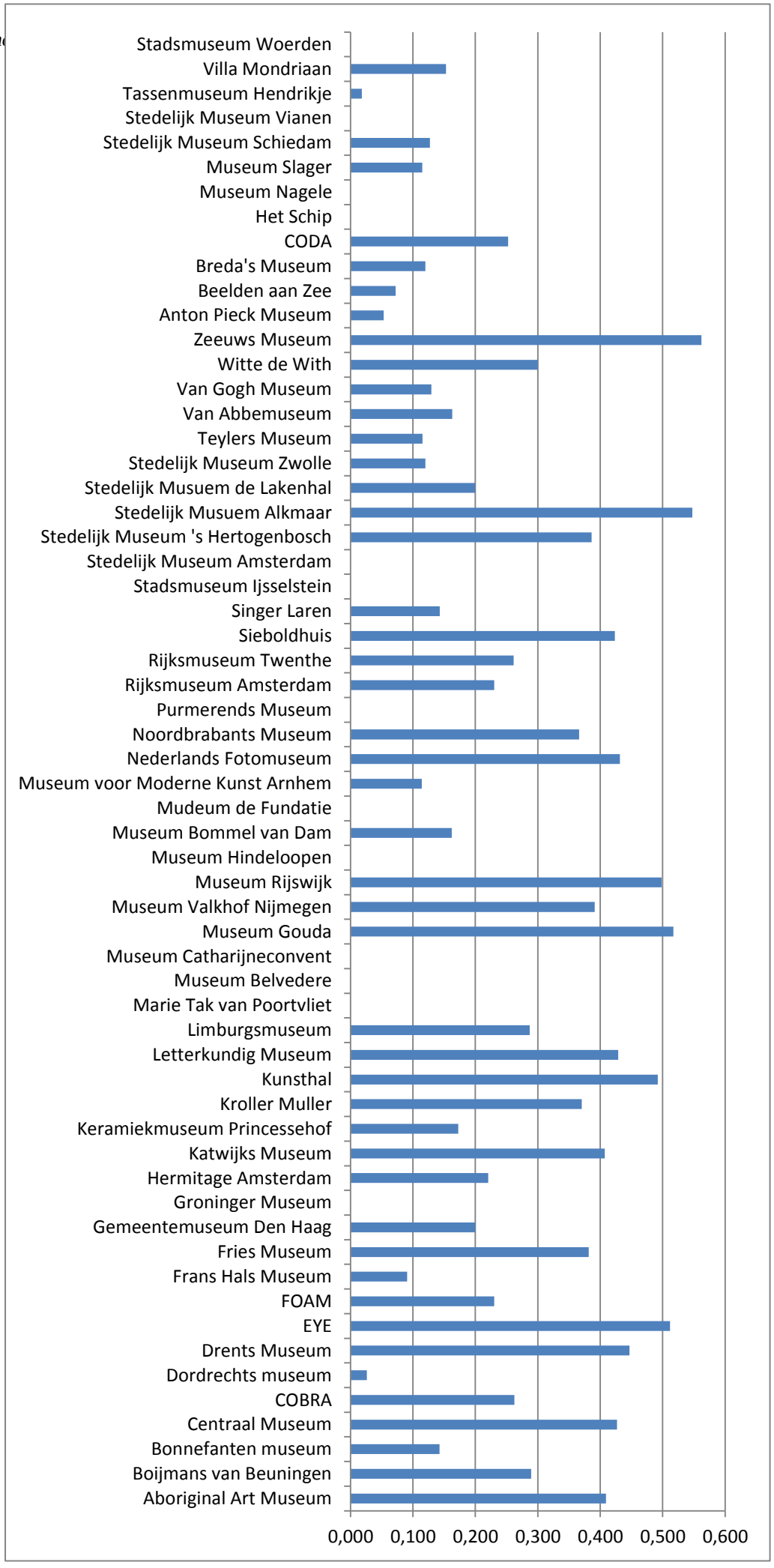
The financial structure influe

Graph C4: Financial importance of the collection and exhibitions per museum



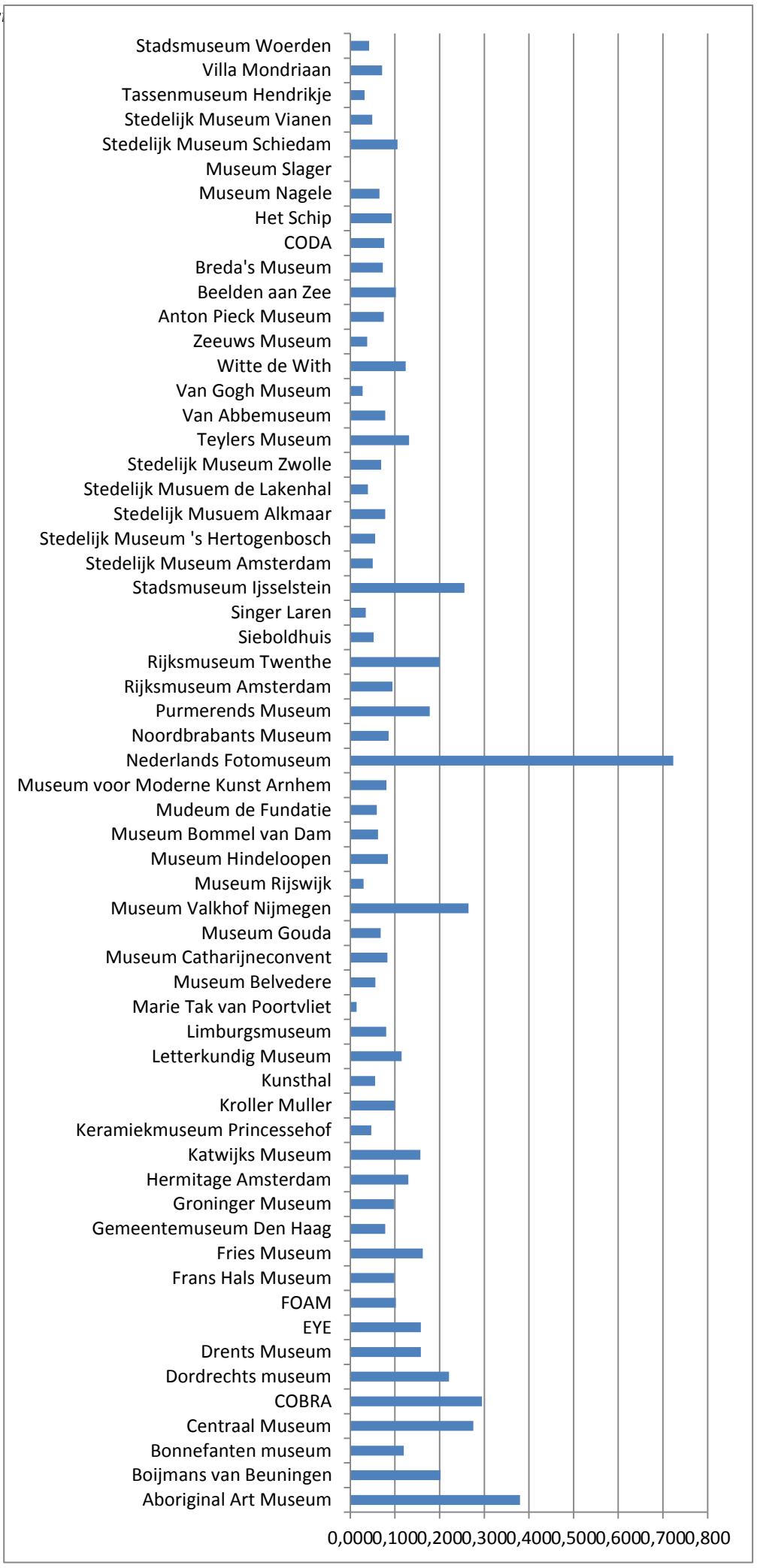
Source: Own elaboration

Graph C5: Contribution to the literature per museum



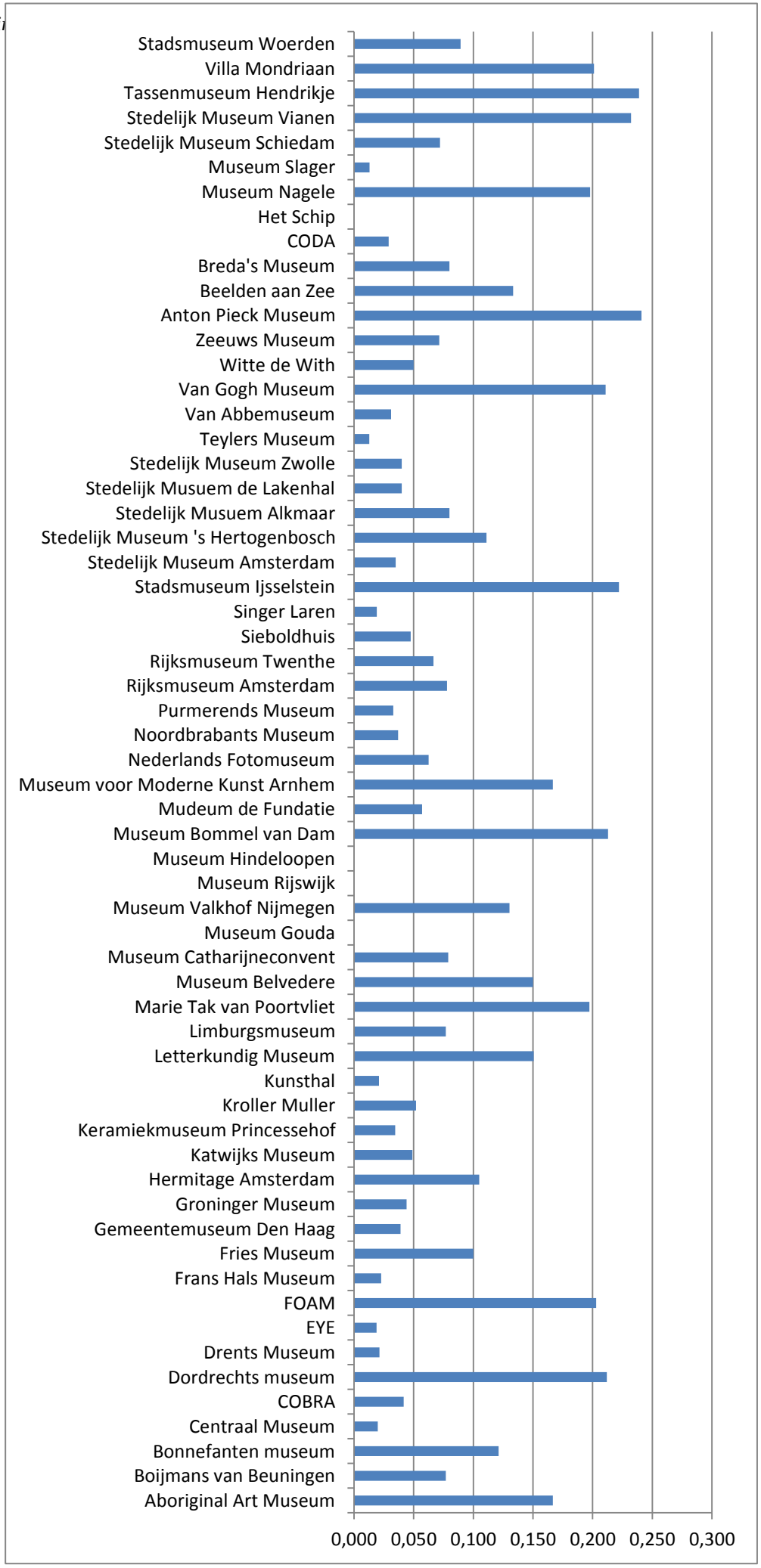
Source: Own elaboration

Graph C6: Visits of children



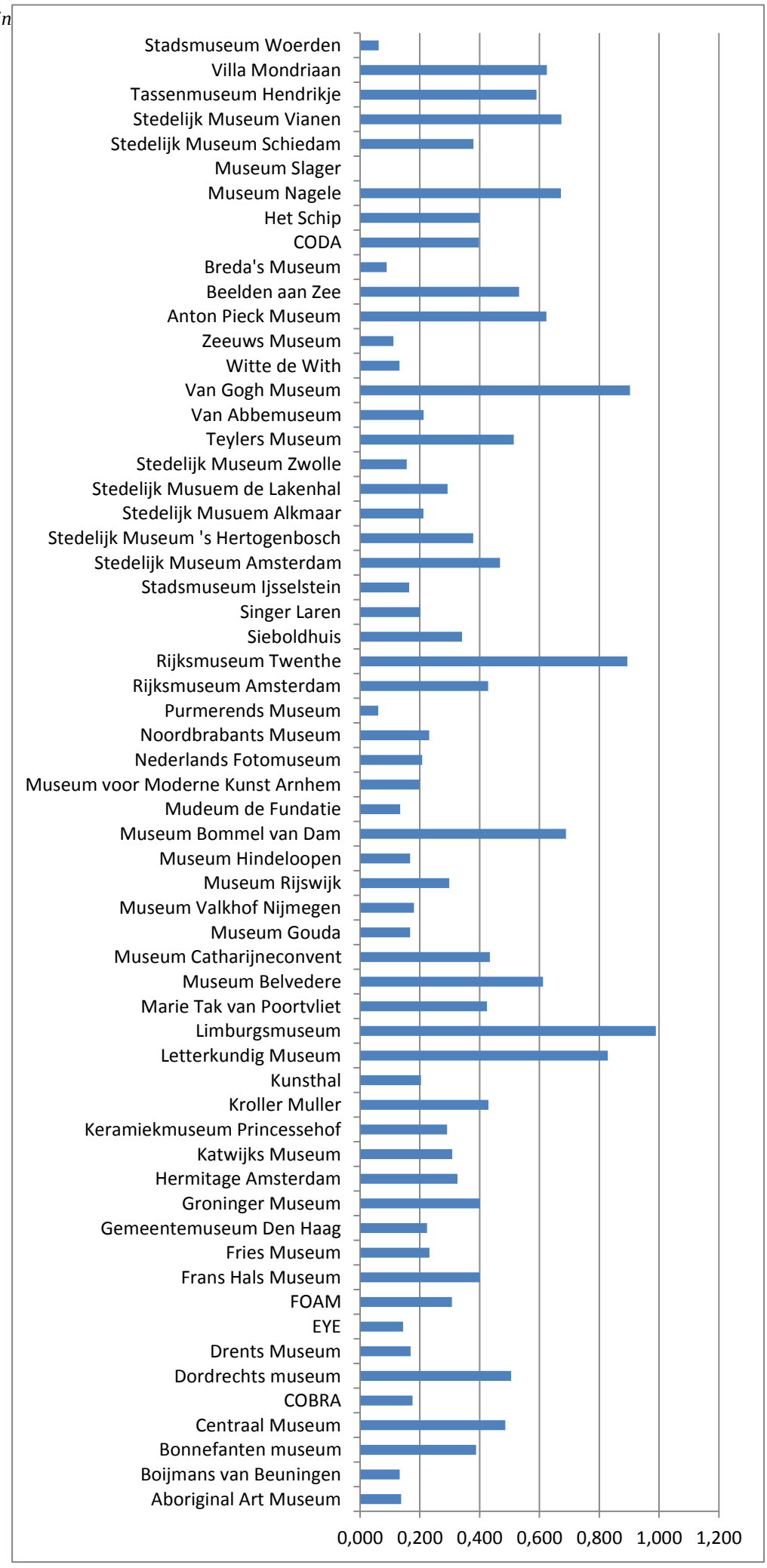
Source: Own elaboration

Graph C7: Educational staff per museum



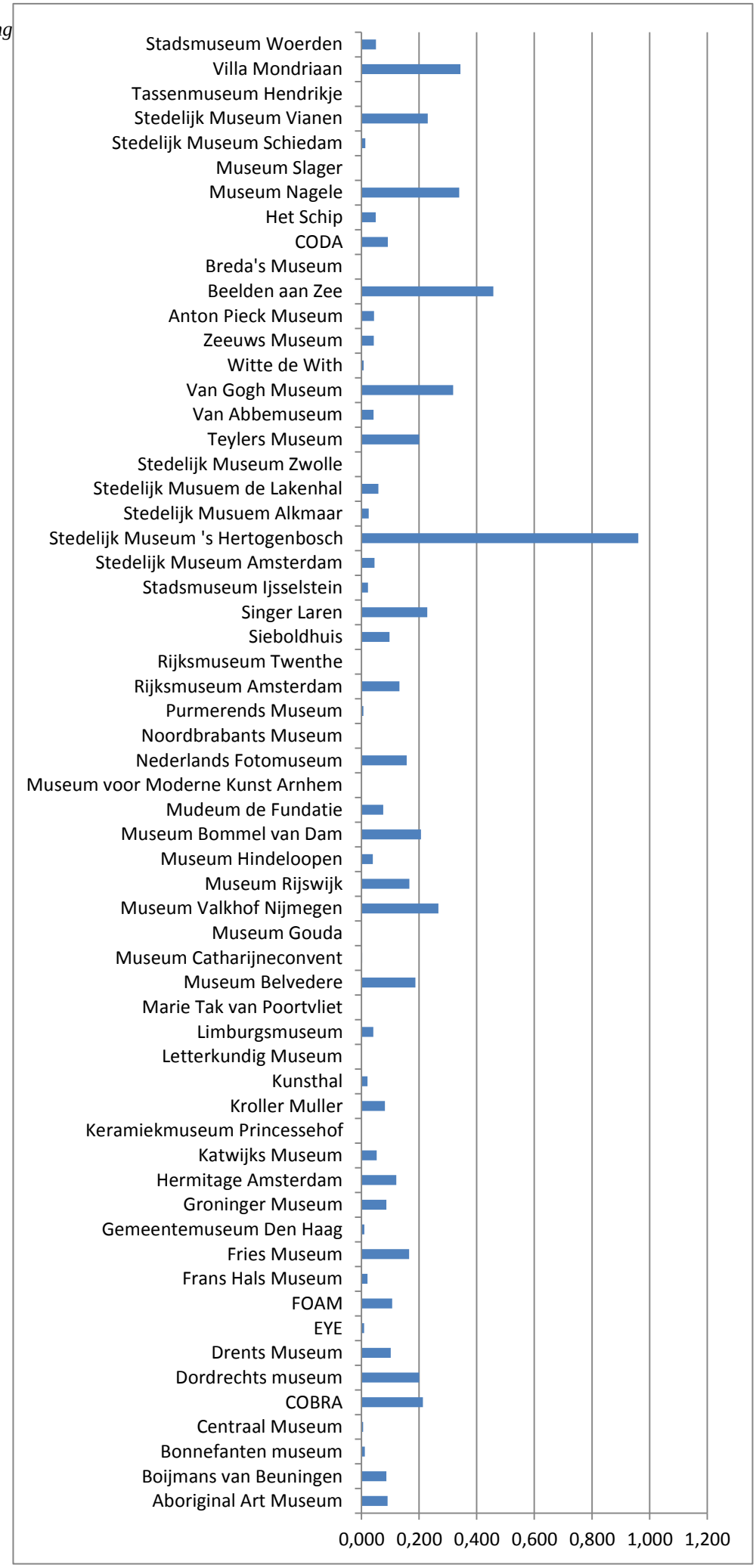
Source: Own elaboration

Graph C8: Willingness to pay full admission per museum



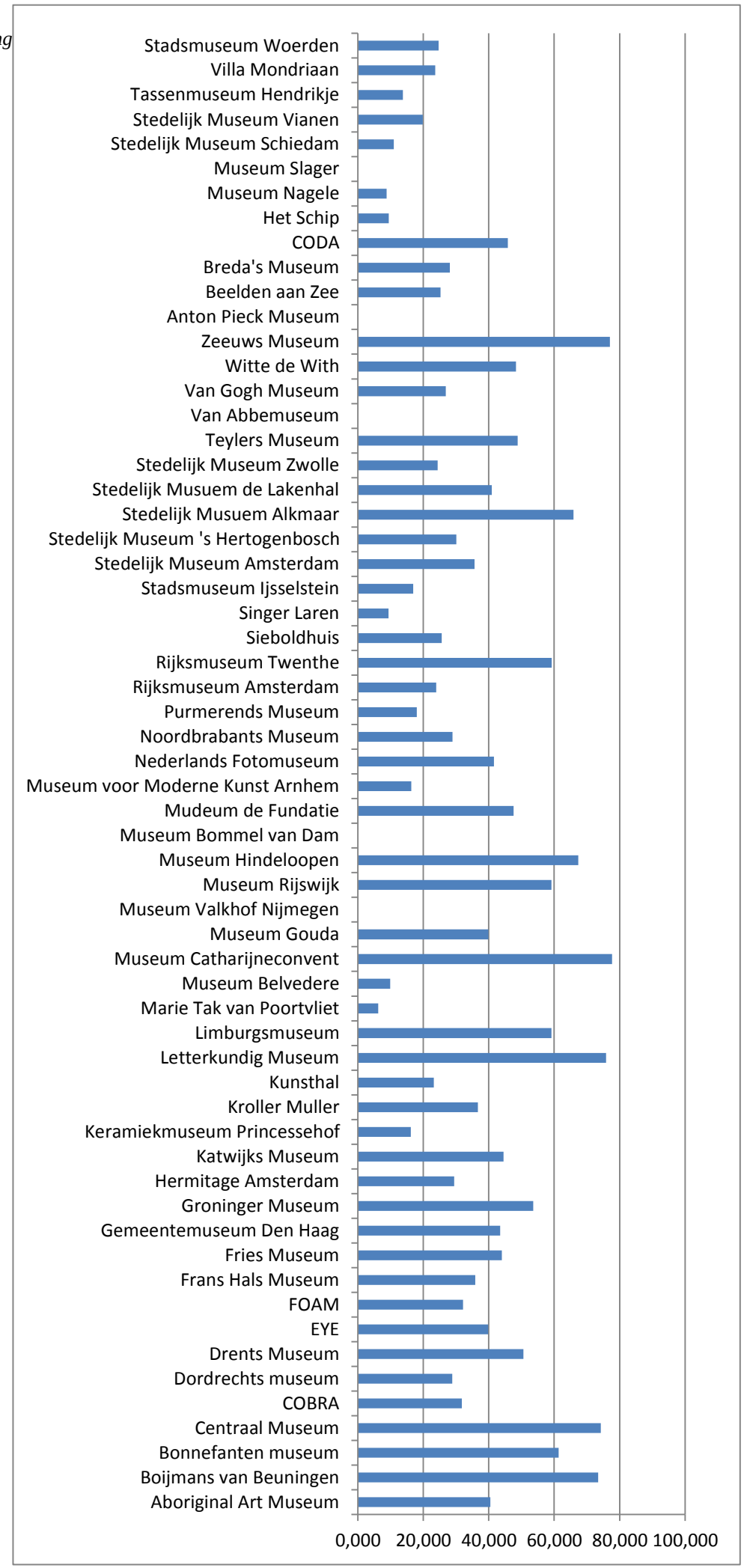
Source: Own elaboration

Graph C9: Fundraising ability per museum



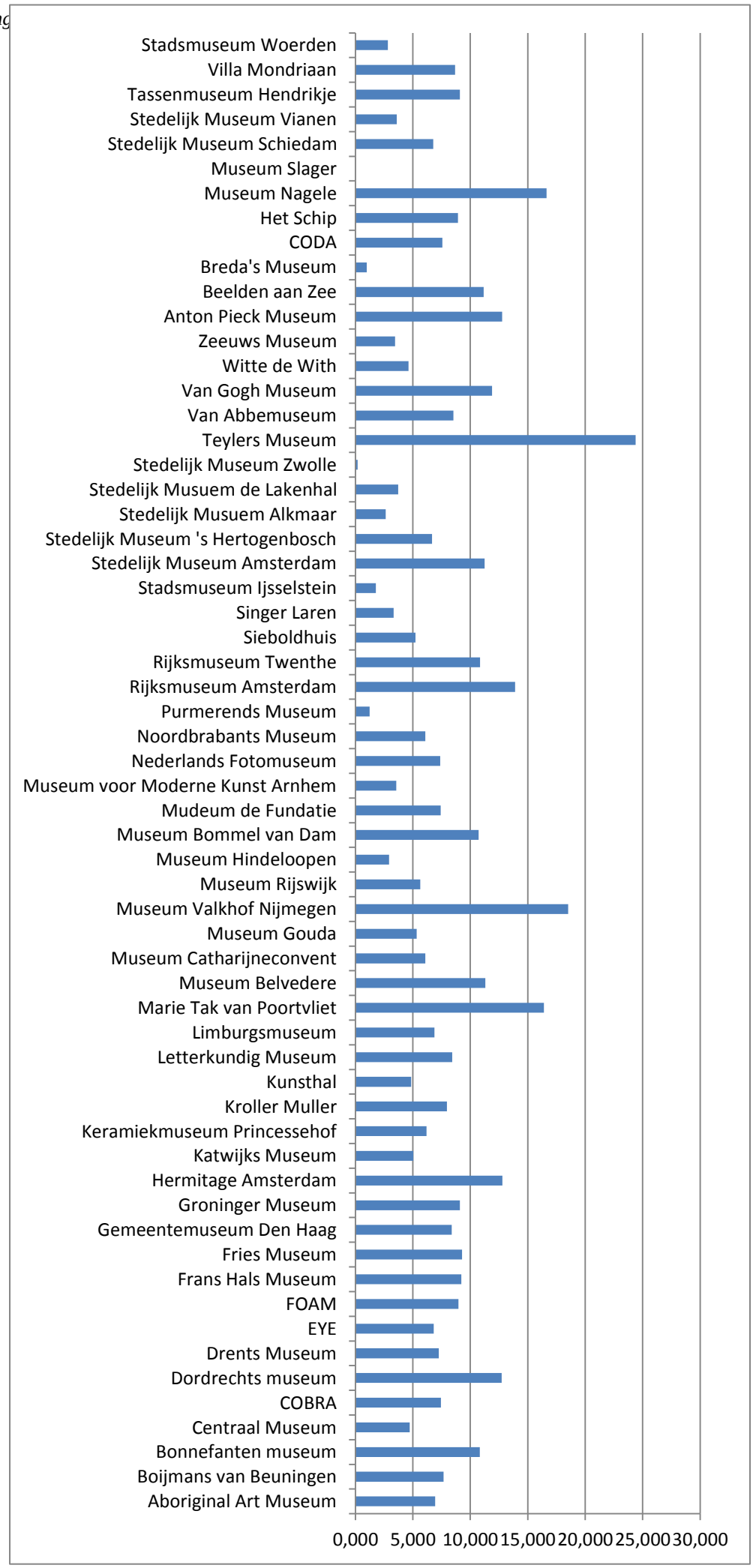
Source: Own elaboration

Graph C10: Budget per visitor per museum



Source: Own elaboration

Graph C11: Revenues per visitor per museum



Source: Own elaboration

Appendix D: Factor analysis

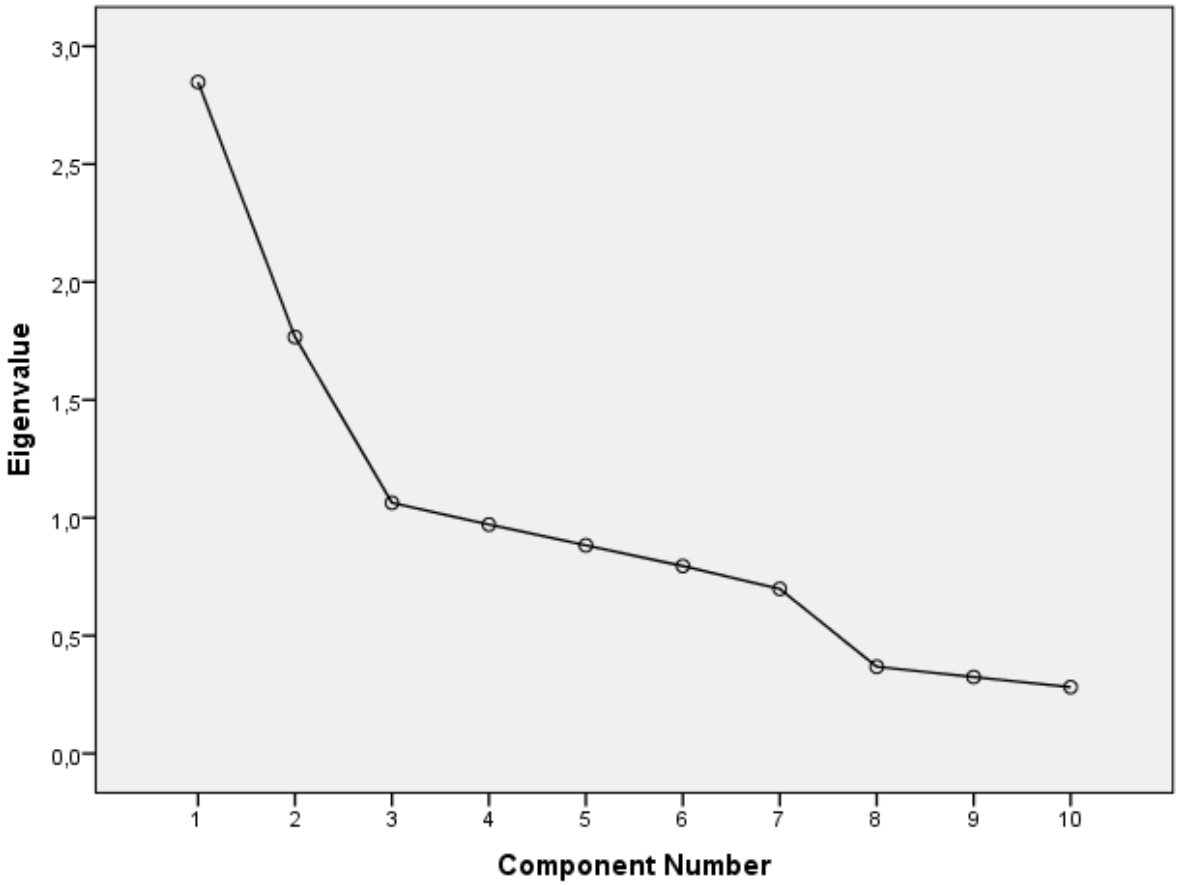
The corresponding graphs and tables of the factor analysis.

Table D1: Eigenvalues factor analysis performance indicators

	Initial Eigenvalues			After Rotation		
Component	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	2,848	28,482	28,482	2,642	26,424	26,424
2	1,767	17,668	46,149	1,929	19,287	45,711
3	1,063	10,634	56,782	1,107	11,072	56,783
4	,971	9,712	66,496			
5	,883	8,829	75,324			
6	,795	7,952	83,277			
7	,698	6,983	90,260			
8	,368	3,682	93,942			
9	,324	3,243	97,184			
10	,282	2,816	100,000			

Source: Own elaboration

Graph D1: Screeplot factor analysis performance indicators



Source: Own elaboration

Table D2: Correlational Matrix performance indicators

	Opening hours	Budget collection	Publications	Educational staff	Children visiting	Full admission paid	Fundraising ability	Budget per visitor	Revenues per visitor	Curators
Opening hours	1,000	-,149	,213	-,040	-,009	,018	-,073	,051	,080	-,150
Budget collection	-,149	1,000	-,016	-,107	-,037	-,330	-,144	,073	-,188	,432
Publications	,213	-,016	1,000	-,401	,201	-,186	-,040	,571	-,195	,176
Educational staff	-,040	-,107	-,401	1,000	-,021	,405	,257	-,318	,234	-,315
Children visiting	-,009	-,037	,201	-,021	1,000	-,162	-,033	,190	,018	-,155
Full admission paid	,018	-,330	-,186	,405	-,162	1,000	,236	,034	,499	-,513
Fundraising ability	-,073	-,144	-,040	,257	-,033	,236	1,000	-,180	,253	-,277
Budget per visitor	,051	,073	,571	-,318	,190	,034	-,180	1,000	-,076	,054
Revenues per visitor	,080	-,188	-,195	,234	,018	,499	,253	-,076	1,000	-,574
Curators	-,150	,432	,176	-,315	-,155	-,513	-,277	,054	-,574	1,000

Source: Own elaboration