

Concentration of public services in municipal real estate in response to demographic transition

A case of rural municipalities in Noord-Brabant, The Netherlands

Eva van Bunningen

Colophon

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Master thesis

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Management summary

Lots of debate is going on about the size and costs of municipal public real estate portfolios. Therefore, many municipalities are reformulating their real estate and accommodation policy, in order to decrease of the amount of square meters, increase the energy and costs efficiency of the municipal real estate portfolio and to provide a supply of public services which suit the demand of the inhabitants. The municipalities are the most important actor in the provisioning of public real estate. For the implementation of their accommodation policies municipalities depend on social institutions. The users are the most important stakeholder; they determine the demand for public services. Demographic transition (DT) includes population and households decline and a changing composition of both. DT has economic, spatial and socio-cultural effects, such as a decreasing demand for public services and decreasing municipal income. The effects of DT differ per sector. The demand for health care services increases, while the demand for education, sports and culture decreases. Peripheral municipalities have to cope with DT more often than urban municipalities. A solution experts say to prevent public services from shutting down is the concentration of these services. But the relocation of public services to regional centers often encounters reluctance from inhabitants and municipal councilors.

The main criteria which are taken into account by the municipal actors when the accommodation policy is determined are the financial feasibility, the quality assurance and accessibility. Financial feasibility is further specified in: investment costs, maintenance costs, operational costs and energy costs. Concentration of public services can be done on the level of the village, municipality and region. Next to a de-central allocation of public services, these are used as possible alternatives. To determine the importance of the criteria and the performances of the alternatives on each criterion, the Analytical Hierarchy Process is used.

The civil servants give a higher importance to the financial feasibility, while the municipal councilors give the highest importance to the quality assurance. However, the concentration on municipal level is most preferred by both municipal actors. A distinction between the sectors is preferred. Both actors give the highest importance to quality insurance in case of education and health care and welfare, while highest importance to financial feasibility in case of sports and culture, resulting in the preference to concentrate education per village, health care and welfare per municipality per municipality and culture and sports per region. The preference of the municipal councilors is in contrast with ranking of the alternatives when asked directly. Then, a lower level of concentration is chosen in all cases. Thus, municipal councilors are not aware of their preference or are not yet able to grasp the consequences of different alternatives. Civil servant experts seem aware of their preferences. Often, the experts choose for a higher level of concentration, but also within the borders of the municipality. Possibly due to the regional gap.

In order to make the right decision concerning the accommodation policy, the financial consequences of the alternatives should be clear. Municipalities should have financial data about their public real estate portfolio. However, in practice municipalities seem not to have these figures. In order to make the right decision, prior to the decision process of the accommodation policy, municipal councilors should be aware of the consequences of financial feasibility, quality assurance and accessibility of the alternatives in their municipality.

Preface

It's done! This thesis is submitted in fulfillment of the Master Construction Management and Engineering at the University of Technology Eindhoven. This fulfillment also forms the end of my study career. A study career which began with the goal to become an urban designer. During my study, my interests shifted to planning and urban development. That is why the topic 'demographic transition in relation to municipal public real estate' interests me and became the topic of this research thesis.

I would like to thank my TU/e supervisors; Paul Masselink, Han Qi and Wim Schaefer for their support and criticism during the graduation project. Paul motivated me with his enthusiasm, our discussions challenged me and gave new insights in the topic.

During the graduation project, Sandra Taal of AgentschapNL supported me. She guided me in writing the thesis and gave practical insights. She also introduced me at the program 'demographic transition' of the Ministry of Interior and Kingdom Relations (BZK). This gave me the possibility to interview experts on national governmental level.

I would like to thank Ingrid de Moel of Bouwstenen voor Sociaal for enabling me to participate in several meetings with experts and municipalities who cope with demographic transition and are reformulating their accommodation and real estate policy. The meetings were a practical complementary on a theoretical study and gave insight in the struggling of municipalities.

I would like to thank Mariete van den Bulck for the information she gave as input for the case-study, the time she spent to answer my questions and the feedback she gave on the chapter case-study of the thesis.

Last but not least, I would like to give special attention to Rik Koppelaar for his support during the graduation project, the brainstorming sessions and his feedback on thesis.

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List of abbreviations

AHP	Analytic Hierarchy Process
BZK	Ministry of Interior and Kingdom Relations
CBS	Statistics Netherlands
DAEB	Services of general economic interests ('Diensten van Algemeen Economisch Belang')
DT	Demographic transition
EPBD	Energy Performance Building Directive
EPC	Energy Performance Coefficient
MFA	Multifunctional accommodation
VNG	Association of Dutch Municipalities ('Vereniging van Nederlandse Gemeenten')
WPO	Act Primary Education ('Wet op het Primair Onderwijs')

1. Introduction

1.1 Problem definition

Last decades, the construction policy of municipalities focused on population growth. New buildings were constructed for every increase in demand. As a result, the municipal real estate portfolio grew (Leent, 2008). Public services are most often accommodated in public real estate. Roughly 85,5 million square meter is in use as public real estate of which one third is owned by municipalities, making municipalities the most important actor (Tazelaar *et.al.*, 2011). The majority of the remaining is owned by housing corporations, health care institutions, businesses, private real estate institutions, foundations or individuals (Vakblad Maatschappelijk Vastgoed, 2012).

Due to population decline and budget cuts, the municipal budget is under pressure. The transfer of tasks from the National Government to municipalities without an equal funding to execute these tasks adds even more pressure. Municipalities need to cut their expenditures where possible. This nourishes the debate about municipal public real estate. Municipalities become increasingly aware of the size and costs of their municipal real estate portfolio which includes the occupancy rates, the technical condition, sustainability of the municipal real estate and the amount of municipal capital stuck in buildings. Often, public real estate is used inefficient. On average, municipal public real estate has a bad condition and often needs maintenance or a renovation. Currently, municipalities mainly invest in sustainability of new estate and not in existing real estate yet. While the existing real estate still comprise a large problem.

In the Intergovernmental Report Population Decline, the National Government, IPO and VNG (2012) state that shrinkage regions should focus on three aspects to guarantee the livability of the area on the long term in their approach to DT: living and space, facilities and economic vitality. The presence of public services does not only decrease due to population decline, but also due to social developments such as changing consumer behavior and up-scaling, DT is therefore seen as a catalyst with which issues become visible earlier (Rijk *et.al.*, 2012 and Nationaal Netwerk Bevolkingsdaling, 2011). A consequence of shrinkage is that the lower bound of the threshold for public services is reached sooner than in other areas which do not cope with shrinkage. This is a reinforcing feedback loop with a negative result, namely emptying villages and vacancy.

Due to the described developments, the current de-central spatial allocation of public services is under pressure. New developments focus on the concentration of public services, either in one building or a group of buildings located near each other. However, the concentration of public services in rural areas often encounters reluctance of inhabitants as well as the local governments, because concentration often implies the relocation of a public service to regional centers. Inhabitants like to have certain public services near their dwelling. In addition, municipalities strive for a proper living environment in which inhabitants are facilitated. Though, unprofitable social institutions can only be supported to some extent. The concentration of (public) services in one building is seen as beneficial by experts.

Within municipalities two types of relevant actors can be distinguished; municipal councilors and civil servants of the municipal departments. The civil servants implement the goals set by the municipal council. The municipal councilors are mainly reluctant towards

concentration and are eager to maintain all public services in all villages. The civil servants try to implement this best they can. As a result, concentration of public facilities is most often not even taken into account. This thesis focuses on municipal policymakers, to make them more aware of the choices they make.

1.2 Research question and sub-questions

The main research question extracted from the problem statement is divided into several sub-questions, both are stated below.

Main question

To what extent is the concentration of public services in municipal real estate seen as solution for the consequences of demographic transition?

Sub-questions

- How are the public services and the municipal public real estate portfolio currently managed by the municipality?
- Which groups of actors are involved in the realization of public real estate and the supply of public services?
 - What is their role?
 - What is their interest?
 - What do they finance?
 - What is their responsibility?
- What does demographic transition mean, where does it take place and in which context of other developments?
- What is the effect of demographic transition on the demand for public services and related municipal public real estate?
- What are the most important criteria for municipalities in the decision whether to concentrate public services?
- Which level of concentration is most desired?

1.3 Research relevance

An increasing number of regions in The Netherlands will cope with DT in the near future. DT gives way to relatively unknown phenomena, because last decades spatial planning focused on growth. A new approach to municipal real estate policy and public facility management is necessary to cope with the upcoming transition.

The decrease of public facilities in rural shrinkage areas results in reluctance of inhabitants as well as the local government who are put in place as representatives of its citizens. However, these groups of actors are not yet able to grasp the causes, effects and consequences of the continuation of the current spatial allocation of public services. This thesis provides insight in the consequences of spatial allocation of public services in municipal real estate and attempts to show financial consequences. This research should contribute to the awareness of municipalities for the need to change the current structure of public facilities and related municipal real estate.

1.4 Research design

First, a literature study is performed and interviews with experts and civil servants are held to provide a contextual background. From this part, the most important criteria and possible alternatives are determined. To determine which criteria are most important in the decision process of municipal actors the Analytic Hierarchy Process (AHP) is used. In addition, a case-study is performed to clarify the practical consequences of the implementation of the alternatives. At the end, a conclusion is drawn and recommendations to the municipality are made. Figure 1 shows a flowchart of this thesis.

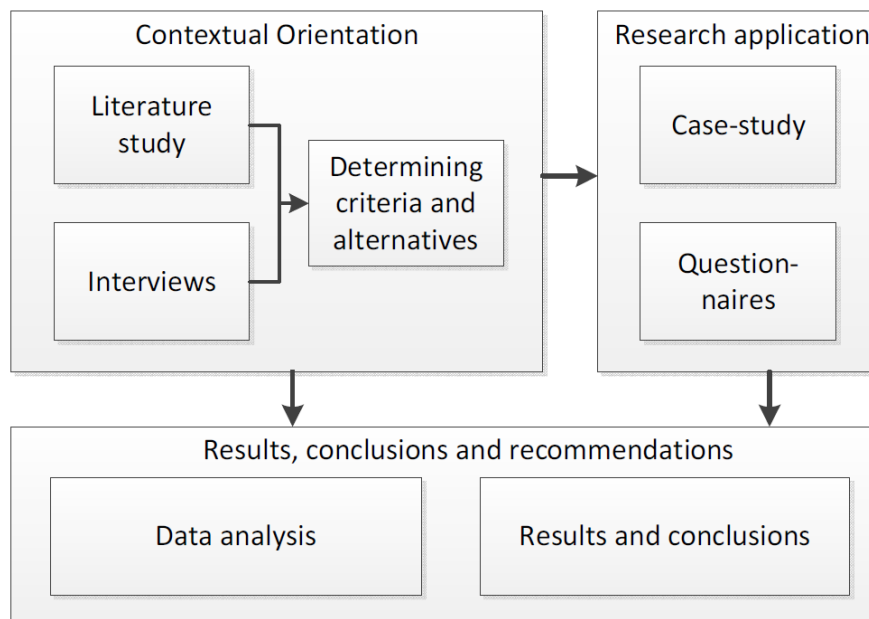


Figure 1 Flowchart of the thesis

1.5 Expected results

The aim of this thesis is to get insight in the motives of municipal councilors and their assumed reluctance towards the concentration of public services. To provide insight in the consequences of possible alternatives, in order to provide a more solid basis on which decisions can be made. This is relevant because an increasing amount of regions face DT.

1.6 Reader manual

The first part of the thesis provides a contextual orientation. Chapter 2 considers public services and municipal public real estate. Definitions are given and historic developments are discussed. Chapter 3 discusses the role, interest and ability to finance of each actor in the field. In chapter 4, attention is paid to the causes, consequences and spatial distribution of DT. And chapter 5 shows the effect of DT on the demand for public services and municipal public real estate. Chapter 6 treats the research application, elaborates on the research method and the implementation of the research method. In addition, chapter 7 elaborates on the case-study of Woensdrecht. Finally, in the last part the results of the AHP are analyzed (chapter 8), conclusions are drawn and recommendations are given (chapter 9). The thesis is discussed (chapter 10).

Part I – Contextual orientation

2. Public services and municipal public real estate

In this chapter, the definition of multiple terms concerning public facilities and municipal public real estate are given. The historic development of public facilities in The Netherlands is discussed. The thesis elaborates on the role of the municipality, their municipal real estate portfolio and its technical state. At last, the accommodation and acts concerning different sectors included in the thesis will be further elaborated. This chapter should provide an answer the sub-question: *'How are the public facilities and the municipal public real estate portfolio currently managed by the municipality?'*

2.1 Definitions

'Public facilities are defined as institutions of public governance and medical, social, cultural, religious and educative services or institutions with an equal function' (Rechtbank Zutphen, 2010).

Often, public facilities and basic facilities are interchangeably used. Public facilities are financed by public resources. Public facilities can be seen as basic facilities, but this is not always the case. Basic facilities can also be commercially operated. Due to the debate concerning municipal public real estate, the term public facility is increasingly separated into the service and the accommodation. The service is provided by a social institution and the accommodation concerns the space in which the service is provided (Bouwstenen voor Sociaal, 2013a) (Figure 2).

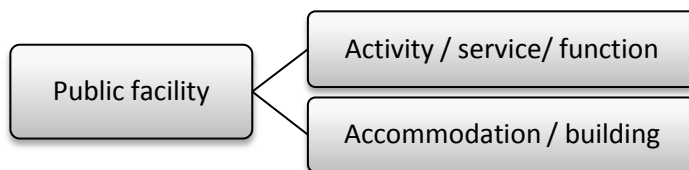


Figure 2 The term public facility

Concerning facility planning, the terms threshold and support are noteworthy. Often, these terms are interchangeably used. In this thesis, the term 'threshold' implies the lower bound of a value. For example, the lowest number of inhabitants to maintain a library. The public support is the amount of possible users within an area. The range is the maximum distance which a user is willing to travel to use the facility. The public support depends on this range as it defines the area in which the public support is measured. For each service, the threshold, public support and range differ.

2.2 Historic developments of the spatial allocation of public services

In the fifties and sixties, facilities were dispersed over cities and villages. Often, even multiple operators in the same sector could be found within the same village (Steenbekkers *et.al.*, 2006). However over time, the spatial allocation of facilities changed due to multiple reasons in supply as well as the demand for the facilities.

The supply changed due increased efficiency by functional up-scaling. As a result, costs-efficiency and scaling advantages could be obtained (Galle *et.al.*, 2004). In addition, the supply of products and services per store has increased. The up-scaling is mostly known in retail but also happens in other sectors, such as education and health care facilities (Galle *et.al.*, 2004). On the other hand, the demand changed due to a changing consumer behavior and, an increasing welfare and mobility (Dam, 2006). Consumers could therefore choose to

visit another service which might be further away, but could offer a higher quality. Currently and in the near future, the demand of an area is also going to change due to DT (chapter 4).

In 2008, the Association of Dutch Municipalities (VNG) published guidelines for municipalities to plan their public facilities (Mostert *et.al.*, 2008). For example, a public service should be provided per 'X' number of inhabitants. However, the content of the publication is outdated. Its approach focused on demographic growth and investments in the municipal real estate portfolio. Van Vugt and Boer (2010) emphasize this approach in the article 'Accommodation policy in times of shrinkage and crisis', stating that previously facility planning was focused on enlargement of the supply of public services which resulted in the enlargement of the public real estate portfolio. Currently, municipalities question their role concerning facility planning. Whether they should intervene, leave it to the inhabitants, or social institutions. The role of the municipality and other actors is currently unclear. Keita and de Moel (2013) state that facility planning should be approached in a new way; a more integral way which is focused on the demand of the specific region. From this, the conclusion can be drawn that the municipal approach of a de-centralized allocation of public services is outdated.

In this thesis, the term 'de-centralized allocation of public services' is used for situations in which each social institution has its own accommodation. Thus, public services are located in each village. Larger villages might have a more complete range of services than smaller villages. Each citizen has access to the same public services independent of the living environment (Vugt and Boer, 2010).

Concentration of facilities

Due to multiple developments such as budget cuts and DT, the continuation of each social institution having their own accommodation is not obvious anymore (Arbeek *et.al.*, 2012). The closure of smaller services naturally leads to concentration. This thesis focuses on the concentration in the least amount of building to obtain cost-efficiency with savings from energy and operational costs. The term concentration is in this thesis used as:

Concentration is an assembly of multiple public services in the same accommodation to increase the occupancy rates. This does not mean that institutions should be merged.

On regional level, the concentration of services can make the area more attractive for living and recreation. Due to concentration of services, visitors can combine their activities. Thereby, they are able to reduce their spatial movements for example by car, especially when public services are combined with other functions such as retail. Another important advantage is that the service area of a social institution enlarges, whereby the continuation chances of the service increases. In the shrinkage regions south Limburg, the concentration of (public) services is done to maintain a proper supply and diverse level of functions with a good quality (Dam *et.al.*, 2006). On building level, the concentration of (public) services in one building increases the occupancy rates of accommodations. Thereby, the chance for a sound exploitation balance will be enlarged. This is a major problem for the accommodations in a de-centralized structure (Arbeek *et.al.*, 2012). Furthermore, the concentration of services offers the opportunity for collaboration with other institutions, which is also called synergy. Due to up-scaling, institutions have less accommodations costs and more can be invested in the quality of the services. In addition, concentration of services

in fewer accommodations can increase number of social encounters and therefore, the social cohesion between inhabitants.

Multiple types of the concentration of (public) services in accommodations appear, either in physical or collaborative form (Figure 3). This thesis focuses on the concentration of public services in one building and is therefore limited to the right side of the figure. In a MFA multiple activities are combined, resulting in for example culture houses, community schools or health care and living centers. The size of MFAs varies. Many MFAs are newly built, though also older buildings can be transformed to MFAs (Arbeek *et.al.*, 2012). For example, the MFA De Biezen in Woensdrecht was built in 1987. Also, the degree to which involved institutions cooperate varies. A MFA creates a certain synergy between involved parties. This is the main difference between the MFA and a business complex. In a business complex several parties are housed, but cooperation between these parties is not necessary. Also business complexes appear in multiple forms, sizes and degree to which space is shared.

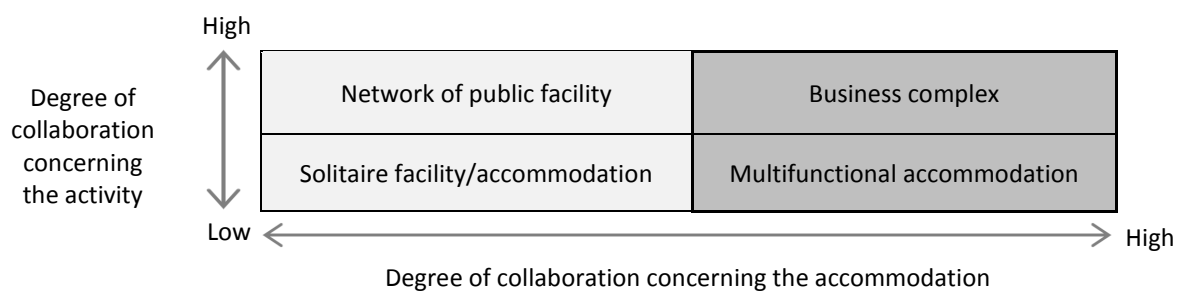


Figure 3 Forms of concentration (based on VROM, 2007: 31)

Public real estate

Tazelaar *et.al.* (2011) defines public real estate as:

'Public real estate is the collection of real estate which fulfills a public function, serves society and is for the major part financed by public resources. Thus public real estate has a financial and social return on investment.' (Tazelaar *et.al.*, 2011: 26) Municipal public real estate is the public real estate owned by the municipality.

Public services are accommodated in public real estate, which is either owned by the municipality or other institutions. One third of roughly 85,5 million square meter public real estate is owned by municipalities (Vakblad Maatschappelijk Vastgoed, 2012). Municipal public real estate is used to physically implement policies, to control the facility planning (Schönau and Marrewijk, 2010 and Tazelaar *et.al.*, 2011). Van Leent (2008), and Van Vugt and Boer (2010) emphasize the enlargement of the public real estate portfolio of the municipality over the last decades. In this context it should be noted that some municipalities do not have a large municipal real estate portfolio because accommodations are transferred to the specific institution for which it is built. In those cases the municipality stays economic owner. The institution uses the accommodation free of charge for the desired period, after which the municipality repossesses the accommodation. However, building is not shown on the municipal budgetary.

A large amount of municipal capital is trapped in real estate. Meanwhile municipalities are confronted with budget cuts and additional tasks are transferred from the National Government to the municipalities without an equal funding to operate these new tasks. All leading to the need for municipalities to cut on their expenses.

Bouwstenen voor Sociaal (2011) concluded that each person in The Netherlands has 5 square meter public real estate with an accommodation cost of almost 900 euro per year. Clear numbers about vacancy of public real estate do not exist. However, Bouwstenen voor Sociaal (2011) illustrated the occupancy rates of classrooms in primary schools as an example. The statutory school hours have been compared with the hours when a building could be used (sixteen hours per day), which resulted in an occupancy rate of only 15%. A decreasing occupancy rate of accommodations in shrinkage areas can be expected due to a decreasing demand for the public service. As a result, the building is used by less people which makes the exploitation less profitable.

2.3 Building performance of municipal public real estate

Bouwstenen voor Sociaal (2011) states that the quality of public real estate is deficient. This is mainly the case for educational and health care buildings (DB, 2012). Investments are required to increase the quality and functionality of the buildings. However in the context of the financial crisis and budget cuts, investments are difficult to generate. In Post (2012), Thijssen of AgentschapNL agrees on this and adds the urge to clarify which measures are most effective in decreasing energy use. The investments need to be generated, while the occupancy rate of buildings decreases and the accommodation might not be operated feasible in the near future.

In the Energy Performance Building Directive and its Recast (EPBD), the European Parliament sets requirements for the energy consumption of buildings in all European countries. One of the requirements concerns the energy label of buildings. By December 31, 2018 new constructed buildings occupied by or owned by governmental agencies must be 'nearly zero-energy buildings', excluding specific buildings for which is proved that nearly zero-energy is not cost-optimal. For all other new buildings this is the case in December 31, 2020. For existing buildings, no specific requirements are set. However, the EU emphasizes that the public sector should function as an example for others and thus, develop policy in order to make their real estate portfolio 'nearly zero-energy'. The EPBD does not prescribe the term 'nearly zero-energy building' due to the variation in climate across Europe. In The Netherlands, the energy performance of a building is determined based on NEN 7120 'Energy performance of buildings – determination/calculation method' (EPG). The indicator for the energy performance of a building is the Energy Performance Coefficient (EPC), which should be nearly zero to be a 'nearly zero-energy' building. To determine the exact EPC, two studies will be done to the feasibility and cost-efficiency (Rijksoverheid, 2012).

AgentschapNL provides insight in the energy label of buildings, also for municipal real estate (Figure 4). The EPCs are often based on the Energy Index (EI) of a building. EPC and EI are not similar, though nearly in accordance with each other. EPC is meant to quantify new buildings and EI for existing buildings. To quantify the buildings different calculation methods are needed. For example, for existing buildings not all data is available at all time and therefore, standards are used. Since the EPC-value should be nearly zero in 2018 for governmental buildings, the energy label should be A at least. In both Figure 4 and Figure 5 it can be seen that large improvements should be made to reach the goal of 'nearly zero-energy' buildings. Note that these figures include all governmental buildings and not only municipal public real estate and that especially public real estate has a deficient building quality and high energy expenditures.

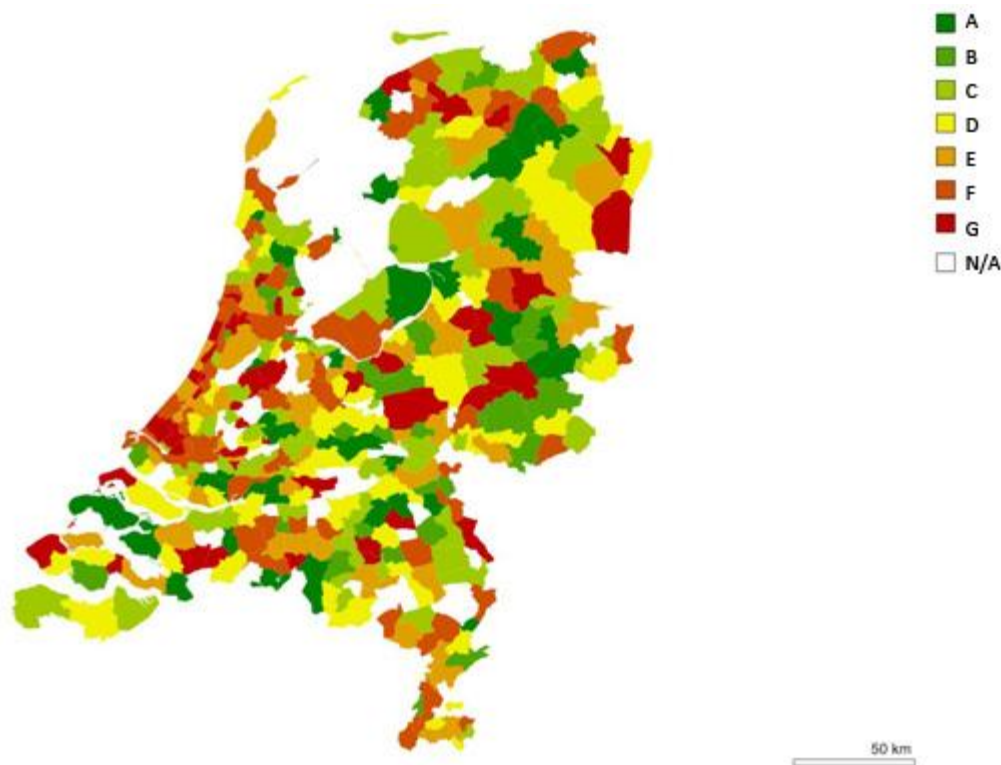


Figure 4 Average energy label per municipality in 2011 (ABF Research, 2012)

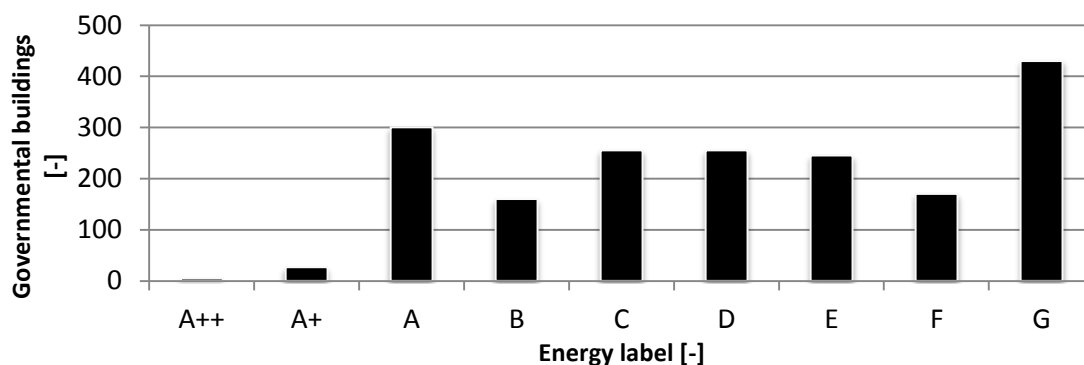


Figure 5 Amount of governmental buildings per energy label in 2011 (ABF Research, 2012)

Liest (2012) argues that, though many municipalities have sustainability and energy efficiency goals, no link is made between energy reduction and the real estate portfolio. Energy policy has yet to be recognized. Over the last 10 years, the average energy cost increase was 7% per year. This makes energy a fast growing expenditure on the municipal budgetary. Still, municipalities only account for an energy cost increase equal to the inflation rate of 2,5% per year. Energy costs are therefore an unrecognized threat to the continuity of the operational management of the real estate portfolio.

2.4 Division into sectors

The municipalities should invest in the living and working environment of its citizens. To ensure that interventions have the expected result, the municipalities set policy goals per sector. An increasing amount of municipalities establish an accommodation policy in which the goals concerning public services are translated into an integral accommodation strategy (Schönauf, 2013). Municipalities have a social public responsibility which is not specifically

addressed in law (Schönau and Marrewijk, 2010). In this paragraph, the sectors involved in this thesis will be further elaborated.

Figure 6 shows the division of square meter gross floor area of municipal public real estate into sectors. Space classified as 'commercial' can for example be in use as parking garages or nurseries. Space classified as 'other' are for example vacant properties to implement municipal policies in the future.

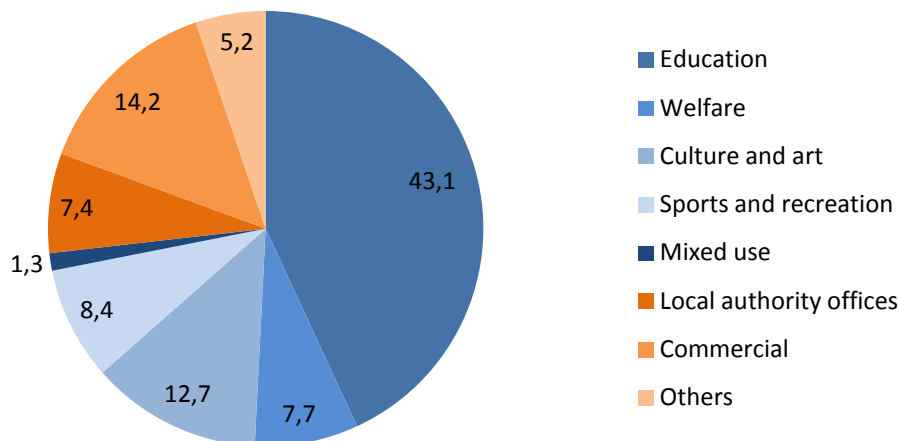


Figure 6 Division of municipal real estate area (in percentage) in sectors in 2010 (Jager, 2010)

Education

According to the Act Primary Education (WPO) and Act Secondary Education (WVO), the municipality is responsible for accommodation of schools. VNG provides guidelines for the amount of square meters per pupil and corresponding finance for the accommodation. After construction, the school building is transferred to the school board. Then, the school board is legal owner of the assets. The municipality remains economic owner, which means that the assets are returned to the municipality after use (VNG, 2013). The exploitation of primary and secondary schools is done by the school boards themselves. School boards receive financial state funding depending on the number of school enrolls and level of education, to execute their educational task. The school boards itself are responsible for their budget. Part of budget is allocated for the accommodation of the school. The municipality also receives resources for the educational accommodations through the municipal fund. However, the specific amount is not marked. This is seen as an error in the system of funding. And school boards prefer to have the control over the maintenance budget themselves. Since January 2006, this is the case for secondary schools and in the future this might also be the case for primary education (Sluiter, 2009). In this thesis, the following functions are incorporated: child care outside school hours and primary education. Because these are managed on village level.

Health care

Health care can be distinguished into multiple forms of care, which all have different requirements concerning the location and availability of the service and a different funding system. In Figure 6, health care is not shown because municipalities do not own health care accommodations; they are in possession of the health care institution itself. The Ministry of Interior and Kingdom Relations (BZK) distinguishes first line care, ambulance care, emergency first aid, long-term care (AWBZ) and social assistance (WMO) (BZK, 2009: 18). A distinction in health care can be made into extramural care and intramural care. Examples of

intramural accommodations are hospitals and (residential) nursing homes. Intramural care is not included in this research. However, in practice the combinations of intramural care with other functions in the same accommodation should be examined because it could be beneficial. Extramural care is given outside an institution, by for example general practitioners, physiotherapists, dentists, maternity care and paramedics.

Welfare

Welfare services are for example social work, meal services and care offices. Activities are mainly focused on social assistance and the stimulation of participation of citizens in society. Between 2012 and 2015, the National Government has transferred tasks to municipalities, also known as the three decentralizations. One of these decentralizations concerns the function 'personal guidance' from the AWBZ to the WMO, and will be transferred in 2013 and 2014. For example, municipalities should provide day care and day activities and care offices. This transition has a large impact on the municipal real estate (Bijlert, 2013). Another decentralization affects youth welfare and work. Municipalities are struggling to accommodate and execute the (new) activities; which functions can be combined, which accommodations suit the demand, which target group and what kind of aesthetic value is required for the accommodation (Haas, 2012). The municipal consequences of the decentralization are not clear yet. As a result, Minister Plasterk of BZK agrees upon an examination of the risks for municipalities as a consequence of the transfers and how it could be obviated in the implementation (VNG, 2013b).

Sports

In this thesis, sports which are practiced in associational form are elaborated further. These associations are often subsidized by the municipality, because they contribute to the public health, employment and social integration. However, the municipal efforts are not funded through National policy.

The accommodation of sport associations can be either indoor in sport halls or outdoor in sports specific accommodations. Sport halls are predominantly used for education and are therefore, similar to the school accommodation, legally owned by the school boards but economically owned by the municipality. Outdoor accommodations are mainly built by the municipality for a specific association. The municipality and the involved association agree upon a users fee (Mostert *et.al.*, 2008).

Culture

In the cultural sector, many parties are active, which have different requirements on their accommodations. Mainly, the concerned party itself finances and exploits the accommodation. Though, it is possible that the municipality finances the construction of a new accommodation in advance, after which the concerning party repays the funding upon completion (Mostert *et.al.*, 2008).

In this context, the position of public libraries and community centers should be addressed. The public library is covered by the Act on Special Cultural Policies in which is stated that there should be a structure of public libraries in The Netherlands. Municipalities are responsible for the continuation of public libraries (Mostert *et.al.*, 2008). The policy concerning community centers differs per municipality. Some municipalities value the centers highly and subsidize them, while others do not.

2.5 Conclusion

This chapter provided a basis to answer the sub-question: *‘How are the public facilities and the municipal public real estate portfolio currently managed by the municipality?’*

Municipalities manage their real estate either in de-central or central. De-central means that each department manages its own real estate, in contrast to central department per municipality. De-central real estate management is currently most common. Though, an increasing number of municipalities shift to a central real estate management to increase their insight in the size and costs of their real estate portfolio. This insight is required to calculate the financial consequences of alternatives for the accommodation policy.

The municipal real estate portfolio grew historically. At the moment, most municipalities have large municipal public real estate portfolios, often with a deficient quality. According to the EPBD of the EU, in 2018, new governmental buildings should be nearly-zero energy buildings, which is in accordance with an energy A-label. Although nothing is said about existing buildings, policy should be made to increase the energy efficiency.

Currently, many municipalities are reformulating their accommodation and real estate policy. Their focus is on:

- the decrease of the amount of square meters,
- the increase of occupancy rates,
- the increase of the energy efficiency of the municipal real estate portfolio,
- and a supply of public services which suit the demand of the inhabitants.

Municipalities are not in all sectors mandatory by law to provide a certain service. In primary education, the municipality is responsible for accommodation and afterwards large maintenance of the school building. The municipality is fully responsible for the implementation of the WMO. However, specific tasks are not addressed and can differ per municipality. Concerning sports and culture, municipalities do not have any specific responsibilities but these sectors might help to achieve other societal goals.

Although each actor is responsible for their own finance management, social institutions often get subsidy from the municipality. Indirect subsidy is given if the municipality ask a lower rent than market conform prices, direct subsidy is given if the subsidy is provided based on the output of a social institution. Increasingly, municipalities take actions to convert the indirect to direct subsidy.

Sector	Health care and welfare	Education	Sports	Culture
Facility	- General practitioner - Pharmacy - Physiotherapist - Psychological council - Municipal welfare services	- Child care after school - Primary school	- Sports associations - Sports accommodations - Sports fields	- Library - Community center

Figure 7 Public services included in this thesis

3. Actors

Roughly, the actors which are involved in public services can be distinguished into six categories namely the government, social institutions, social housing corporations, developers and investors, operators and users. In this chapter, the role, interest and ability to finance real estate of each actor will be discussed. This chapter should provide an answer on the sub-question: *'Which parties are involved in the realization of public facilities?'*

3.1 The municipality

The Netherlands has governmental agencies on national, provincial and municipal level. SER (2001) states that because of spatial dynamics the functions such as living, working, recreating and moving do not concentrate itself within the boundaries of a municipality, but extends over the network-city; a structure of urbanized areas and nodes. However, on this regional level there is no governmental agency. This is also known as the regional gap. Although, agreements are made on regional level, the execution depends on the commitment of the participants. Participants are only accountable for their own municipality and not on the regional level (Verwest *et.al.*, 2008). However, the unequal spatial distribution of shrinkage hampers the regional commitment (chapter 4.4) (Verwest *et.al.*, 2008: 100).

The municipal body

The highest body of the municipality is the Municipal Council. The Municipal Council determines the main goals and monitors the implementation of these goals. The executive body of the municipality is the College of Mayor and Alderman, which is chosen every four years in municipal elections. Inhabitants choose new municipal councilors which in their turn choose the Alderman. Municipal policies can change drastically with a new college in place. The next municipal elections are scheduled for March 2014. The upcoming race for reelection makes it harder to implement policies which might encounter resistance of the general public (Rijksoverheid, 2013b).

Role and responsibilities

'It is the responsibility of the municipality to implement the Provincial and National Governmental policies, to determine and implement municipal policies and to facilitate their own organization and the society.' (Sluijter, 2009: 19). So apart from executing the tasks imposed by higher bodies, the municipality itself can establish and execute policies to facilitate the society. The actions and policies concerning public services can be placed within this context. Specific acts concerning the sector of public facilities are already discussed in chapter 2.4.

Policies

The accommodation policy of the municipality describes the approach to public services and related real estate. Previously, this policy focused on the equality of supply of services in every village, which, according to Vugt and Boer (2010) does not contribute to the quality, functionality, occupancy rate and exploitation balance of the accommodations. In the accommodation policy the social-public goals of a municipality should be translated into spatial-physical goals (Sluijter, 2009). The social-public goals of a municipality are area specific, since the inhabitants of an area differ. The establishment of an accommodation policy is not mandatory for municipalities and can either be approached sectorial or integral. To house public functions, accommodations are required. Public real estate should support

the accommodation policy and municipal real estate should not be a goal on itself (Mostert *et.al.*, 2008). In addition, some municipalities also have a real estate policy.

Municipal real estate portfolio management

Often, municipalities do not have insight in the size and related costs of their real estate portfolios (Ratingen, 2008). Public real estate in municipalities is either managed central or de-central. A decentralized management means that each department manages its own real estate. The specific department has the knowledge about the housing preferences of their client. However, the decentralized approach is not beneficial for the transparency of the total public real estate portfolio of the municipality. The centralized management means that the municipality establishes a real estate company. Then, the knowledge and knowhow concerning public real estate is centralized in one department and should contribute to the efficiency and transparency of the portfolio (Teuben, 2008).

Tools

The government has several tools to implement their policies in practice. A tool governed by public law to strive for the implementation of the social-public goals and the accommodation policy is the zoning plan. In this plan, the spatial-physical structure of the area is determined which could limit the possibility to operate services in a specific area. Otherwise, the zoning plan should be adapted. Municipalities also use purchased assets as a spatial planning tool. The acquired assets can later be used for restructuring of an area (Leent, 2007). Another tool is subsidy, which can be given to social institutions to support them financially to execute their activities. The different kinds of subsidy are related to the policy of the municipality. Mainly, social institutions have fewer resources to finance an accommodation than commercial parties and therefore, are unable to pay market prices or cost-effective rent. Thus, social institutions got indirect subsidy, because they were paying less than market prices or cost-effective rent. As a result, municipalities do not have insight in the actual expenses of their real estate, nor the subsidy flows from the municipality to the social institutions (Sluiter, 2009 and Deloitte, 2011). Thus, the separation of subsidy on output and input is preferred.

Finance

The amount of funding municipalities receive from the municipal fund is related to a staggering no less than sixty variables, of which the amount of inhabitants, households, youth, elderly and adults are most important (Mulder *et.al.*, 2012). The financial savings of the National Government influence the height of the municipal fund; there are simply less financial resources to divide. Apart from the municipal fund the municipality generates incomes from local taxes and fees. The height of the taxes is determined by the municipality itself. In this case, the most important one is the property tax. The property tax is levied on inhabited dwellings. So, the amount of households is the measure of the property tax. However, if the municipal incomes declines due to a lower incomes of property tax this is for 80% compensated by the municipal fund (Mulder *et.al.*, 2012). Till 2015, municipalities which shrink more than 1% in comparison with 7 years earlier get an addition fee of 397.63 euro per inhabitant above that 1%. This is called the 'shrinkage criterion' (Mulder *et.al.*, 2012: 18). The expenditures differ per municipality, because they can establish the budgetary themselves. Mulder *et.al.* (2012) state that the findings about the deterioration of the municipal budget in shrinkage areas can be seen broader. Similar developments will

occur in other regions with a limited growth perspective concerning inhabitants and households.

3.2 Social institutions

Social institutions are active in all sectors concerning public services. Examples of social institutions are health care institutions, school boards, sports associations, community center institutions and libraries.

Welfare institutions

The precursor of primary education is the kindergarten. Before January 1, 2007 the kindergarten was covered by the Welfare Act, since then it is part of the WMO. Therefore, a kindergarten is partly financed by the parents and partly by the municipality.

Educational institutions

Since Augustus 2007, school boards of primary education are mandatory to provide outside school hours care services (Mostert *et.al.*, 2008). School boards are mainly non-profit organizations in the form of foundations. However, exceptions exist such as private school Luzac. As mentioned in chapter 2.4, school boards receive funding from the National Government to execute their educational task. The obligation of municipalities to accommodate primary schools free of charge can also be seen as indirect funding.

Sports associations

The provision of sports facilities is not legally determined, which means that municipalities can establish their own policies. However, municipalities do have responsibilities concerning the health of their inhabitants. Sports contributes to a better health, employment and social integration of citizens (Mostert *et.al.*, 2008).

Sports associations are non-profit organizations which are financed by the dues of its members. Often, the outdoor accommodations are financed by the municipality. The municipality and the sports associations make agreements about rent. Some indoor accommodations are owned by sports associations. Sports facilities can also be commercially. In this case, accommodations are to a lower extent financed with municipal support (Mostert *et.al.*, 2008). Often, indoor accommodations are constructed for educational activities and are legally owned by the school boards. The WPO states that school boards cannot offer the gym for rent, unless school and municipality agree otherwise.

Cultural institutions

The aim of the provision of culture is represented in three municipal policy goals; culture and art as asset itself, to strengthen the social cohesion and to make the area more economically attractive and touristic. Similar to sports, the support of cultural facilities is not legally determined by the National Government, which means that municipalities should establish their own policies.

3.3 Users

The users or inhabitants are the most important actors in the field. Users generate the demand and are the ones for which the services are made available. Without a demand, the supply of an activity is not necessary. Users depend on other parties in the field which are able to provide public services. Mainly, the responsibility of users in the providence of the activity is low with some exceptions. For example, citizen participate in sports associations and the board of these associations is formed by members. Efforts are made to increase the

voluntary citizen participation in all sectors. However, this will not be further elaborated in this thesis. The users are taken into account to define the public support.

Normally, users pay per service purchased. The costs per service can increase if the municipality cuts on subsidies for social institutions and the institution passes it on to the user in order to pay their expenditures.

3.4 Public real estate investors

Apart from the municipality, three other actors invest in public real estate.

Social housing corporations

The task description of social housing corporations is described in the act management of social rental dwellings ('Besluit Beheer Sociale Huursector', BBSH). Their main task is to house people with low income. In the BBSH, six responsibilities are defined including, among which livability of the area (Mostert *et.al.*, 2008: 181). Some experts argue that the presence of public services influence the livability of a region. In the context of the livability, some housing corporations invest in public real estate. In the context of the BBSH, investments in public objectives should contribute to an increase in value of dwellings in the corporations portfolio. Often, public real estate cannot be exploited profitable. But the increase of value of the dwellings of the corporation can compensate for some of the loss (Leijssen and Pellegrom, 2013). The corporations stay owner of the accommodation, their role is limited to the financing and exploitation of the accommodation, programming is not included.

The government does not set requirements concerning the establishment of public facilities by housing corporations. The municipalities encouraged the housing corporations to enlarge their public real estate portfolio (Goorden, 2011). Therefore, housing corporations became more active in the realization of public real estate in the last decades. However, new national financial regulations currently discourage participation in public real estate. Given these varying incentives, the role of housing corporations has become uncertain.

Blok, Minister for Housing and the Central Government Sector, states that the task of social housing corporations should be brought back to their initial task and that investments in livability are subordinated (Leijssen and Pellegrom, 2013). Since January 1th, 2012, the financial state funding for housing corporations changed (Goorden, 2011). The main activities of a corporation are not-DAEB activities; the housing of people with incomes lower than 33.614 euro, establishment of public facilities and other activities such as infrastructure related to the dwelling and investments in the livability of an area. DAEB stands for 'services of general economic interests'. The public facilities which are not-DAEB are listed in the EC-list. DAEB activities are for example the sale of dwellings, rent of private rental dwellings and commercial space. For DAEB activities corporations cannot receive financial funding of the state (Goorden, 2011). In addition, financial resources generated by DAEB activities cannot be used to finance not-DAEB activities (Financial ideas, 2011). Previously, many not-DAEB activities were financed with resources generated from DAEB activities. Because of the described developments, housing corporations reconsider the development of public real estate (Schönauf, 2010 and Heijkers *et.al.*, 2012).

Developers and investors

Developers and investors are private actors. So far, the involvement of these parties in the public real estate market is limited, mainly due to market specific barriers. Often municipal

funding is needed to operate public real estate in a profitable way. Private parties and public parties have different goals towards the development of public facilities. Real estate developers have the goal to achieve its yield to comply with future obligations (e.g. pension or insurance payments). Therefore, the future value creation is an important criterion for developers and investors to invest. While for municipalities and corporations the primary goal is to accommodate the institution or organization of a public service (Teuben, 2008).

Apart from municipal real estate, services can be concentrated in private real estate of these parties. Although this is not included in this thesis, it should be taken into account in practice because it can be valuable and beneficial in order to decrease costs and become more energy efficient. In addition, it might enlarge the possibility to concentrate with other functions such as retail.

3.5 Conclusion

This chapter gave a basis to answer the sub-question: *‘Which parties are involved in the realization of public facilities?’*. The most important actor in the provisioning of accommodations is the municipality. Municipalities subsidize social institutions to execute public services. The users are the most important stakeholder, because they determine the demand. Social housing corporations became more involved in the accommodation of public services, but because of current developments their future involvement is uncertain. Below, the main actors are listed, along with their role, interest, ability to finance and responsibility.

The municipality:

- role: providing public real estate, implementing the WMO, stimulating sports, culture and social participation and determining and implementing accommodation policy,
- interest: enabling citizens to participate in society and balancing of interest of inhabitants and higher bodies,
- finance: by state funding and local taxes, which both decrease in the near future,
- responsibility: implementation of national and municipal policies and wellbeing of citizens.

Municipalities compete with each other to maintain the public services in their villages, while the situation might become unsupportable and public services disappear in every village. Regional agreements should be made to prevent this from happening, but the regional gap limits the possibilities to make such agreements.

The social institutions:

- role: offering a public service,
- interest: achieving a societal goal,
- finance: membership dues, state funding, direct or indirect municipal subsidy.
These institutions are mostly non-profit organizations,
- responsibility: providing a high quality public service.

The users:

- role: creating demand for public services,
- interest: the fulfillment of their public service needs,
- finance: payment per service or membership due,
- responsibility: low, volunteering in social institutions.

4. Demographic transition

This chapter should provide an answer to the question: '*What does demographic transition mean, where does it take place and in which context of other developments?*'.

4.1 Definition of demographic transition

DT are changes in population composition of which shrinkage is the most commonly known. DT can also be the decline of parts of the population, resulting in for example aging and dejuvenation. Both phenomena also occur for households; absolute decline and a changing composition due to a decline of specific type of households. The causes are for example dilution or selective migration. Thus, demographic transition includes the following aspects (Nimwegen and Heering, 2009 and Dam et.al., 2006):

- population decline
- changing population composition
- household decline
- changing household composition

Data of the number of inhabitants is available on national, municipal and village level. Contrarily, prognosis are only made per municipality or higher level with models such as CBS/PBL' PEARL, ABF research' Primos and E'til' Progneff '10 and '11, each program with its specific strengths and weaknesses. For example, PEARL takes into account construction plans and assumes that the dwellings are going to be inhabited, while Progneff does not take plans or policies into account but provides a zero-measurement (Provincie Limburg, 2012). Therefore, prognosis can differ from each other. Prognoses are not available for the level of villages. Within the municipality this can for example imply that although the overall prognosis is population growth, the population of some villages within that municipality will decline.

4.2 Causes of demographic transition

The causes of DT differ per region. For example, in Parkstad Limburg the population began shrinking after the closing of the mines in the seventies. Since 1997, the population has not even been able to grow between two consecutive years (BZK, 2009). In other shrinkage areas, finding the cause of shrinkage can be harder. According to Van Dam *et.al.* (2006), Verwest (2011) and De Groot *et.al.* (2012), demographic transition in an area has roughly three causes:

- social-cultural causes, such as individualization and emancipation. These causes influence the natural population growth and migration;
- (regional-) economic causes. People are attracted by economic growth of a region and therefore, move to an economic growth area or vice versa move away from an economic shrinkage area. In addition, a negative financial perspective also has negative influences on the birthrate;
- spatial planning causes, because these policies influence the location of people and activities (Verwest, 2011).

The causal relation between DT, social-cultural and (regional-) economic causes is unclear. Last decades, this causality dilemma is often researched on regional economic level, but remains indecisive. Does a flourishing economy attract new inhabitants or did the growing

amount of inhabitants generate more jobs; do people-follow-jobs or do jobs-follow-people? (Dam *et.al.*, 2006: 26)

4.3 Effects of demographic transition

DT has several effects on different fields. Many of these effects influence each other and have a causal relation.

Economic effects:

- decrease in local economic activity,
- decrease of workforce in an area (Nimwegen and Heering, 2009),
- decrease in municipal income (chapter 3.1),
- decrease of real estate value.

Spatial effects:

- vacancy of privately owned dwellings, social rental dwellings and private rental dwelling, mainly in less attractive dwelling market segments (Nimwegen and Heering, 2009 and Dam *et.al.*, 2006),
- vacancy of public real estate (Moll, 2012),
- vacancy of other buildings (e.g. industrial or business offices).

Social (-cultural) effects:

- decreasing level of support for (public) services. In Nimwegen and Heering (2009), Bijl states that private and public services must be profitable to operate, otherwise the service will be shut down. Therefore, a sufficient demand is required,
- segregation of socially vulnerable people (Dam *et.al.*, 2006),
- impoverishment of the living environment, or the decrease of livability.

Vacancy of public real estate, dwellings and other buildings is an aspect which is not documented by governments. Thus, local governments do not have insight in the magnitude and origin of vacancy (Land-id, 2011). When the numbers of WOZ-value and households within a municipality or village are compared, insight can be given. The property tax can only be levied over dwellings which are inhabited, while the WOZ-value is determined for every dwelling in the municipality.

4.4 Occurrence of demographic transition in The Netherlands

Historic developments and prognosis

After the Second World War, the population grew rapidly. This is also known as the baby-boom. After the baby-boom between 1975 and 2005, the population growth stabilized and grew with a total of 20% from 13,6 to 16,3 million. In the same period, the amount of households grew with a total of 55% from 4,6 to 7,1 million. The population and amount of households grew with the same amount, namely 2,7 million, which means a dilution of average household size from 2,98 to 2,3 persons per household (Dam *et.al.*, 2006: 30).

Population growth mainly depends on the birth surplus and migration balance. Between 2003 and 2007, the migration balance was negative, while from 2008 till 2011, the migration balance was positive.

Since 1950, the birth surplus and the population growth decrease every year. In 2000, the population grew with 123.125 thousand persons, in 2010 with 80.810 thousand. Between 2013 and 2017, the population growth is expected to reach 39 thousand per year on average. In contrast to the historic increases, this is a large decrease in population growth (CBS, 2013). According to the prognosis from 2012 of the CBS, the Dutch population increases till 2040 to an amount of 17,8 million. After that, the migration balance cannot compensate the negative birth surplus anymore and thus, the Dutch population is going to shrink (Nationaal Kompas Volkgezondheid, 2012).

Since the Second World War, the distribution of age changed a lot. First, a large growth of young people and after 1975, a decrease of young people because of a decrease of the birth rate and an increase of elderly and people between 20 and 65 years old (Dam *et.al.*, 2006). In the coming years, the baby-boom generation reaches the retirement age and as a result, the amount of elderly increases. In addition, the birthrate decreases with as a result dejuvenation.

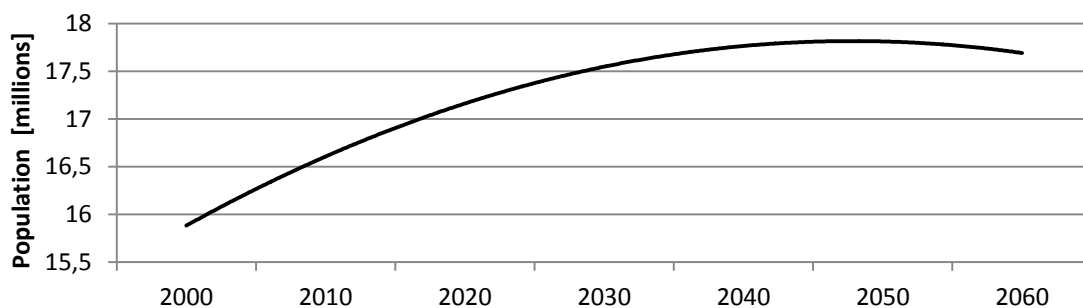


Figure 8 Dutch population in millions (till 2010: actual, after 2010: prognosis) (Nationaal Kompas Volkgezondheid, 2012)

Spatial distribution and shrinkage regions

Although the total population is expected to grow till 2040, the growth is dispersed unequally. While some regions grow, other regions have to cope with shrinkage. The population growth will mainly occur in the Randstad and central regions in The Netherlands. Immigrants settle in cities, because of the larger share of fellow immigrants and a better job perspective. Younger people move to cities for study or also a better job perspective. And young couples, possibly with young children settle in the suburbs of cities to live close to their jobs and more spatial (PBL, 2009).

Especially, peripheral municipalities (are going to) have to cope with DT, more specific aging and dejuvenation. In these regions, youth moves away, leaving relatively large amount of adults and elderly. As a result, the death rate exceeds the birth rate. In The Netherlands, three regions are already coping with DT: Parkstad in Limburg, Zeeuws-Vlaanderen in Zeeland and East-Groningen. Of which only the last mentioned also copes with an absolute household decline. In the rest of The Netherlands till 2025, the amount of households is expected to grow. In 2012, several regions were pointed out as future shrinkage region; regions where shrinkage is expected in the period between 2010 and 2020 or 2020 and 2040 and thus, have to anticipate on DT (Rijk *et.al.*, 2012). These regions are designated on the basis of a demographic prognosis of the municipalities.

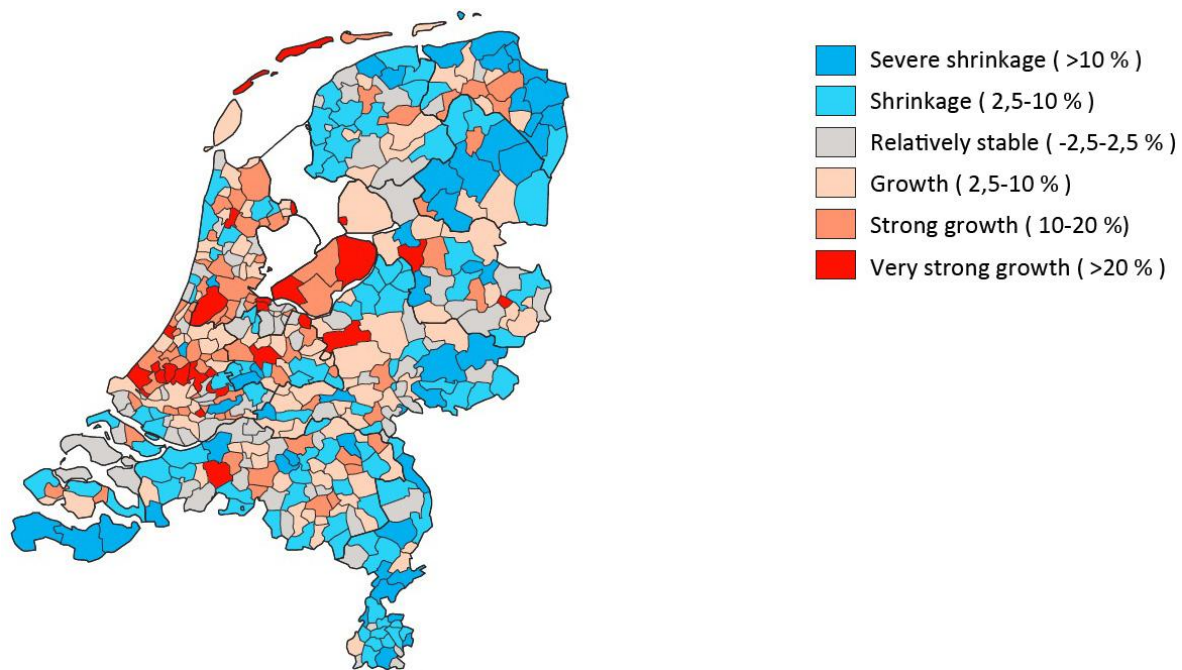


Figure 9 Population prognosis of The Netherlands between 2010-2040 per municipality from 2011 (Eck *et.al.*, 2013)

Municipalities do not have a financial incentive to support their neighboring municipalities in their struggle with DT. This strictly separated financial interest pose a barrier for inter municipal collaboration. This also holds for concentration of public services on regional level. The lack of regional commitment is magnified under influence of the regional gap discussed in chapter 3.1.

4.5 Demographic transition in Noord-Brabant

The Province of Noord-Brabant is located in the south of The Netherlands, in which one of the future shrinkage regions is located namely West-Brabant. Adjacent to east Noord-Brabant, another future shrinkage region is located: North- and Central Limburg. The most accurate population prognosis for Noord-Brabant is the actualization of 2011 made by the Province. Between 2005 and 2010, one third of the municipalities in Brabant coped with population decline. While the total population is expected to grow until 2030, an increasing amount of municipalities are going to cope with shrinkage in the near future. Figure 10 shows the population prognosis for Noord-Brabant in total and age cohorts. In this case also, the amount of elderly increases while the amount of youth and people between 20 and 65 years old decreases. Aging mainly focuses in rural areas. Around 2040, the amount of elderly reaches its peak of 28% of the total population. After which high mortality rates will cause a decreasing amount of elderly (Bargeman *et.al.*, 2012).

Similar to the trend of The Netherlands, also in Brabant the negative birth surplus will exceed the positive migration balance leading to a DT. The immigration rate is expected to decrease because most immigrants do not settle for permanent basis. Most foreign immigrants settle in urban areas and to smaller degree also in rural areas. Mainly, domestic migrants move to urban areas. The emigration rate of native Dutch people is expected to grow after the financial crisis. Due to the financial and economic crisis, municipalities in rural areas within Noord-Brabant should comply to the 'build for migration balance-zero'-rule, which means that they can only build for their natural population growth, to prevent

municipalities to build for overcapacity. Due to DT, the changing consumer demands and the financial-economic crisis, the demand for dwellings also changes (Bargeman *et.al.*, 2012).

The amount of households is expected to grow until 2040. This is almost fully due to a household dilution; an increasing amount of single person households of which mainly widowed elderly and youth who moved out of the family home. In rural areas, the tipping point of the amount of households is a bit earlier, around 2030 (Bargeman *et.al.*, 2012).

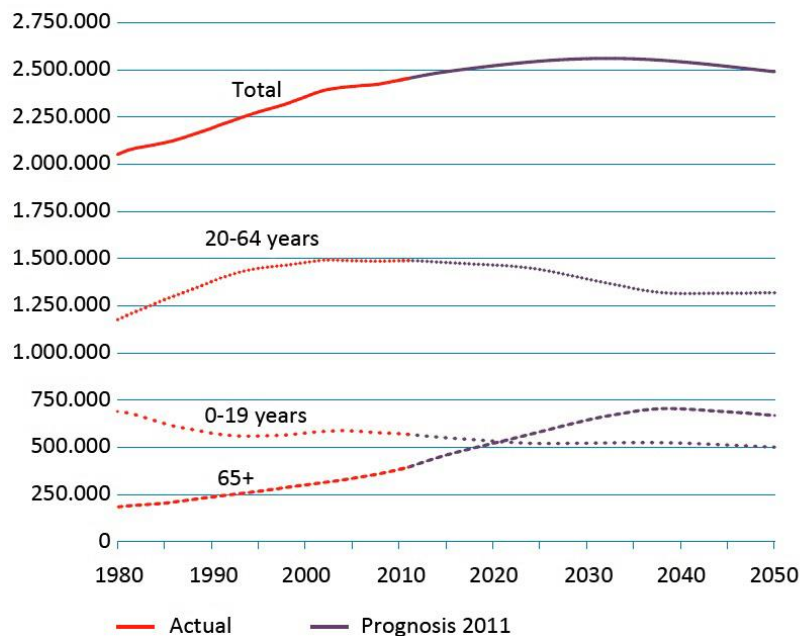


Figure 10 Population growth by age, Noord-Brabant (Bargeman *et.al.*, 2012)

The population decline takes place in the rural areas and borders of the province. This is also due to spatial planning causes. According to the National Government, plans for new construction of dwellings should focus in urban areas (Bargeman *et.al.*, 2012).

In the Intergovernmental Report Population Decline, the National Government, IPO and VNG (2012) state that the demographic shrinkage in Noord-Brabant will have a large impact on several policy fields. Concerning public facilities, the population composition and financial consequences will have the largest impact.

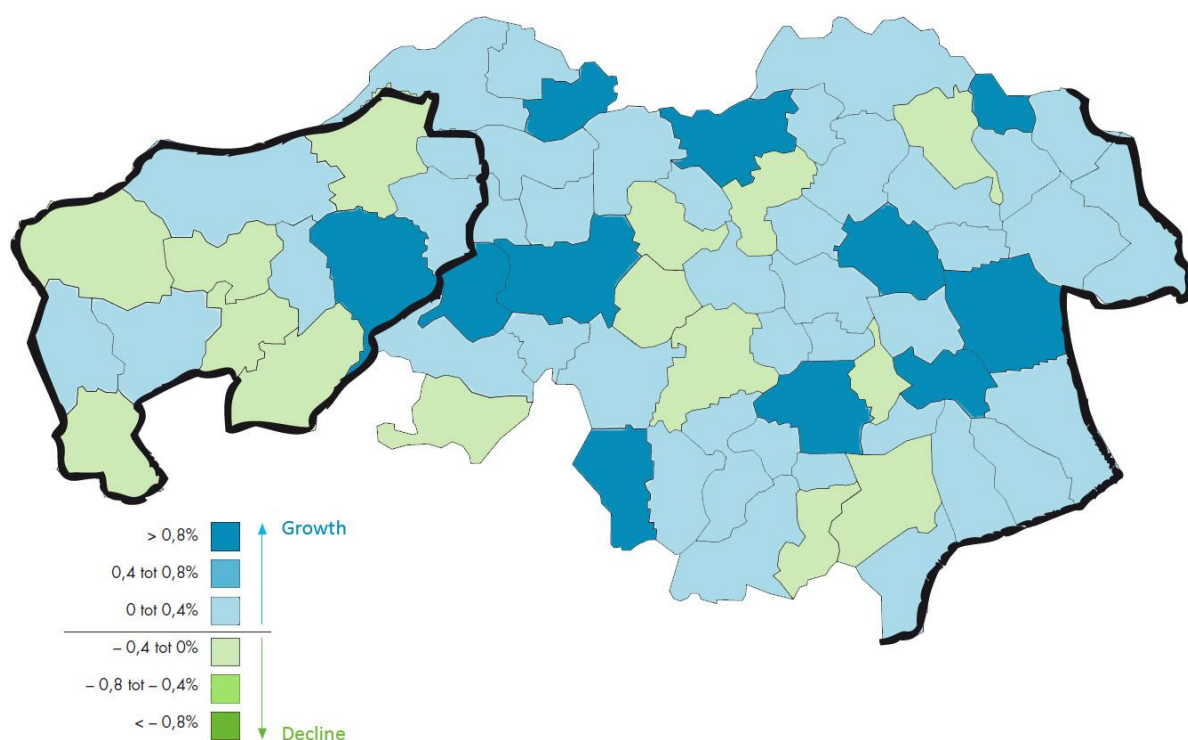


Figure 11 Prognosis 2011-2024 of the population growth arranged by municipality (black: borders of the future shrinkage regions) (Bargeman *et.al.*, 2012: 14, added)

4.6 Conclusion

This chapter provided a basis to answer the sub-question: *‘What does demographic transition mean, where it takes place and in which context of other developments?’*

DT includes the following aspects:

- population decline,
- changing population composition,
- household decline,
- changing household composition.

In some regions, one aspect of DT occurs while another does not. For example, an area could cope with dejuvenation and aging, while the total population does not decline. The total Dutch population is expected to grow until 2040. However, growth is dispersed unequally. Peripheral municipalities have to cope with DT more often than urban municipalities. The Ministry of Interior and Kingdom Relations designated three top shrinkage regions and several future shrinkage regions which should anticipate on DT. Apart from DT, also socio-cultural and economic developments influence demand and fundability of public services.

5. The effect of demographic transition on the demand for public services and municipal public real estate

This chapter should provide an answer to the sub-question: *‘What is the effect of demographic transition on the demand for public services and related public real estate?’*

5.1 The relation between demographic transition and the demand for public services

DT influences the demand for services in a region. In shrinkage areas, the threshold to maintain a service is reached earlier. The number of users of a service, occupancy rate of the accommodation and incomes of the institution decrease while the fixed costs of the institution for the accommodation do not (Mulder *et.al.*, 2012). The service cannot be operated profitable anymore and thereby the future continuation of public service in rural areas is at stake. Van Dam *et.al.* (2006) states that also a changing consumer behavior, increased mobility and up-scaling contribute to a decreasing demand for services in shrinkage areas. By provincial and municipal governments the provisioning of public services is seen as worrisome. DT is seen as a catalyst whereby existing problems become visible earlier (Geven *et.al.*, 2011; SER, 2011 and Verwest and Dam, 2010).

As a consequence of DT, the threshold of services is reached sooner. As a result, institutions are forced to shut down and thereby, presence of (public) services drops even further. Because fewer services are available, the area becomes less attractive to live. So less people will settle there and others will move away. Again the amount of inhabitants necessary to reach a certain threshold decreases. This reinforcing feedback loop has a negative result, namely a decreasing level of public services, emptying villages and vacancy and impoverishment of the living environment (Verwest and Dam, 2010; SCP, 2006 and Nimwegen, 2009). The presence of public services is of more importance to vulnerable people. For example, children depend on their parents when going to school, sports or the library, or elderly who become isolated in their village without public services, because their mobility decreases with increasing age (Nimwegen, 2009). The effect of DT on the demand for facilities can be distinguished into qualitative and quantitative effects. The quantitative effects concern the decrease in public support for public services. The qualitative effects concern desired quality by users which cannot be accomplished by the institutions anymore because fixed costs exceed their incomes.

The spatial allocation of public services should fit the demand of inhabitants of the area. Thissen (2007) distinguishes so called ‘residential villages’ and ‘autonomous villages’. The inhabitants of these villages differ in lifestyle and related demands, also concerning public services in their village. One way or the other, the closure of public services affects the accessibility of the specific services offered (Verwest and Dam, 2010). Especially, when it was the last service of its kind offered in the vicinity. In the future, inhabitants have to travel further to use this kind of service. If this situation occurs in several adjacent villages, the situation becomes worrisome.

5.2 The effects of demographic transition on different sectors

The effects of DT on the demand for public services differ per sector. Therefore, the effect on each individual sector is further elaborated. Figure 12 shows the expected average mutation of the demand in the top shrinkage areas.

Type of facility	Development of the demand	Mutation (%)	
Education	Strong decline	20 - 30	Negative
Sports accommodations	Moderate decline	5 - 15	Negative
Social (-cultural)	Slight decline	0 - 5	Negative
Health care	Strong increase	> 30	Positive

Figure 12 The development of the demand for facilities till 2030 for the top shrinkage areas on average (Mulder *et.al.*, 2012: 52)

Health care and welfare

An increase in the demand for health care is expected due to the increase of elderly (Mulder *et.al.*, 2012). Though, this will depend on the type of care. This thesis focuses on first line care, health care which can be reached directly. Although health care facilities are used by the whole population, the increasing demand for health care can largely be related to the increase of elderly (Mulder *et.al.*, 2012: 48). As elderly are expected to live at home longer, this will have a negative effect on the demand for intramural care and it will decrease the demand for first line care. Due to ageing, the demand for welfare services increases. However, the increasing demand is highly unclear because of the WMO decentralizations (chapter 2.4).

Education

Due to dejuvenation the demand for education decreases, this decreases the required area school accommodations accordingly. The government has set a norm concerning the minimum number of pupils per school, which depends on the population density of an area. For lower populated density areas this number is set at 23. If a school has less pupils for three consecutive years, the state funding stops. Every five years, the norm is revised (Vanmeernaarbeter.nl, 2013). The costs per pupil for a small school are higher than for larger schools. In addition, the Inspection of Educational Quality evaluated the quality of the smallest schools as poor or very poor (Mulder *et.al.*, 2012: 46). Follow up, the Inspection proposed to increase the minimum school size for every school to one hundred pupils by 2019 (Onderwijsraad, 2013). The VNG recognizes the quality problem, but also states that this would lead to a closure of primary schools in 462 villages in which the school was the last one open in that village. Therefore, the VNG argues for an area specific approach (VNG, 2013c).

Sports

Mulier Instituut (2013) provides insight in the percentage of the population that participate in sports associations (Figure 13). The highest participation is found in the age group of 6 to 18 years. Over the last years, the participation in sports associations is stable (Mulder *et.al.*, 2012: 49). Figure 14 shows the use of sports accommodations by age, which decreases for all kind of accommodations by age. People of 25 years and older perform their sports more often outdoors. Around 20% of the sportspeople above 75 years old, sport in accommodations such as the community centers (Mulder *et.al.*, 2012: 49). In this thesis, the community center is seen as a (socio-) cultural facility.

Age (years)	6-11	12-17	18-24	25-34	35-44	45-54	55-64	65-79
% of the population	80%	69%	38%	30%	28%	20%	20%	20%

Figure 13 Percentage of the population with a sports association membership (Mulier instituut, 2013)

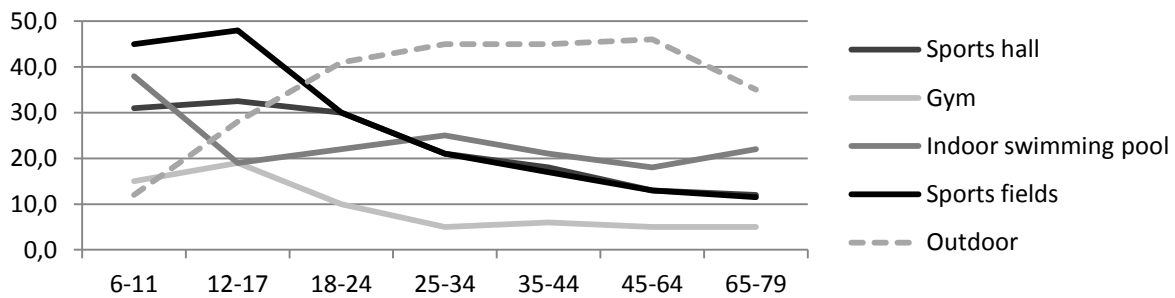


Figure 14 Accommodation use per age, percentage of sportspeople (Mulier Instituut, 2013)

Culture

Due to ageing, the cultural activities intended for elderly might increase. However, overall the demand for social-cultural activities such as theater and museums decreases due to population decline (Mulder *et.al.*, 2012). A little can be said about the future use of public libraries. The amount of visits is decreasing each year (Figure 15). Public libraries in accordance are changing their strategies by adding recreational functions such as a bar, gaming possibilities, which is expected to increase the occupancy rates of the buildings and the incomes of the supplier if membership is required for some activities.

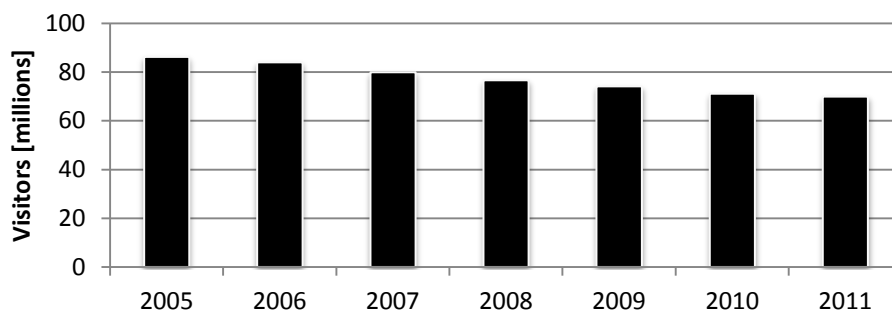


Figure 15 Visitors of the public libraries per year (SIOB, 2012)

5.3 Conclusion

This chapter provides a basis to answer the sub-question: *‘What is the effect of demographic transition on the demand for public facilities and related municipal public real estate?’*.

The effects of DT differ per sector. In case of health care, the demand increases. But health care services are not accommodated in municipal real estate and will not influence the municipal real estate portfolio. The welfare services are accommodated in municipal real estate. Although the demand is expected to increase, it cannot be expressed in numbers because the effects of the decentralization on the demand are not yet clear. In addition, the welfare services offered differ per municipality. Due to dejuvenation, the demand for primary school and child care after school hours decreases which influences the occupancy rates and accommodation costs per pupil, which has a negative effect on the quality. The demand for sports accommodations also decrease by age. The demand for public libraries and community centers is hard to determine. The amount of visitors of public library show a clearly decreasing trend, though efforts are made to turn this trend.

Part II - Research application

6. Analytic Hierarchy Process

In order to answer the research question; ‘which criteria are most important in the decision making process of municipalities to concentrate facilities’ the Analytic Hierarchy Process (AHP) is used. AHP is a multi-criteria analysis, originally developed by Prof. Thomas L. Saaty, in which quantitative as well as qualitative aspects can be taken into account. AHP derives a numeric scale and priorities for all alternatives and the criteria used to judge the alternatives (Saaty and Vargas, 2012 and Vaidya and Kumar, 2006).

First, the goal is explained and influencing criteria and alternatives should be determined, which can be represented in a model. Secondly, the criteria should be prioritized in terms of their importance in achieving the goal. Thirdly, the priorities of performance of the alternatives on each criterion should be derived. With the results of these steps, the overall priorities of the alternatives contributing to the goal can be assessed. The priorities of criteria and alternatives can be determined using pair wise comparison. Although, some (quantitative) criteria such as costs can be expressed on a numerical scale, for other (qualitative) criteria this is not possible. In addition, criteria should have the same scale to combine the answers. Pair wise comparison provides all criteria in the same scale and thus, solves the problem of multidimensional scaling (Saaty and Vargas, 2012). Among municipalities actual values of criteria might vary widely. For example, because a municipality is richer and is therefore able to do larger expenditures than another. To be independent of these actual values, the importance of each criterion in the decision process should be determined. Because AHP provides a multidimensional scale, this method is chosen.

6.1 The AHP-model

Figure 16 shows the AHP-model. The levels of the AHP model are the goal, the main and sub-criteria and the alternatives. The levels are described in the next paragraphs.

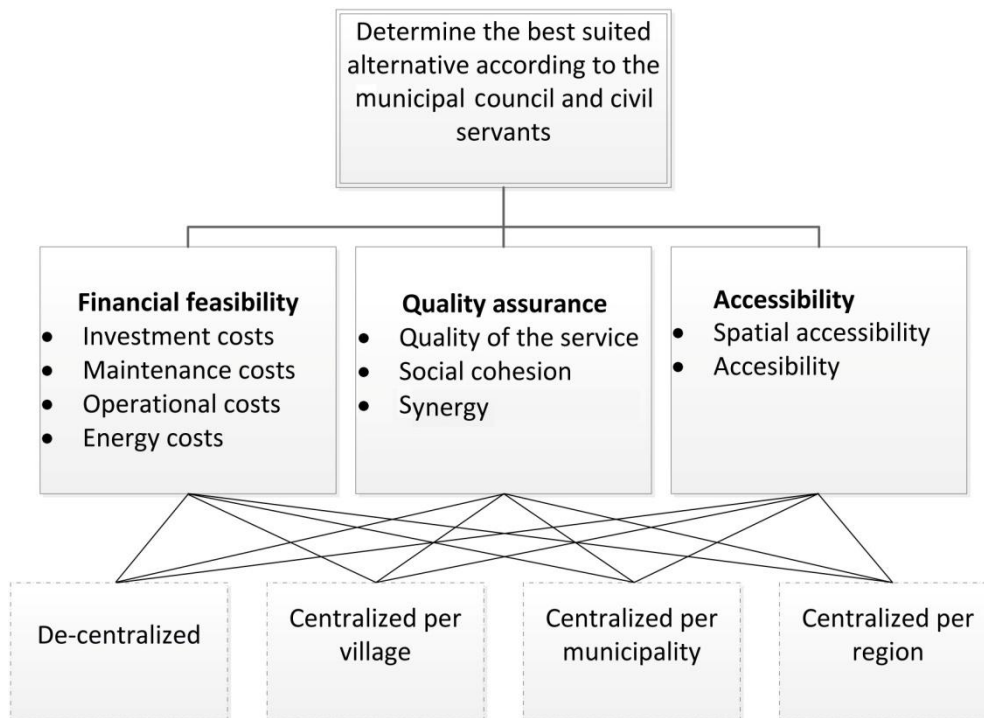


Figure 16 The Analytic Hierarchy Process model

6.2 The goal

The interviews and case-studies, showed the need to distinguish as separate actors within the municipality: councilors and the civil servants. Between these actors, a discrepancy between the attitudes towards the concentration of facilities can be observed. The goal of AHP is to get insight in where this discrepancy comes from and which alternative suits the developments best (or is most preferred) according to the two different parties within the municipality.

To achieve the goal, two questionnaires are developed. First, the importance of criteria for councilors and civil servants should be determined, in order to clarify the difference views on the subject. Secondly, the performance of each alternative on the criteria should be determined by experts. On this basis, the most preferred alternative according to the municipal actors can be determined and compared to their response when asked directly for their preference in an actual situation.

6.3 Criteria

The criteria which are important in the decision making process are a result of the literature study and interviews described in part I of this thesis. The main criteria are: financial feasibility, quality assurance and accessibility. Below, the criteria are further elaborated into sub-criteria.

Financial feasibility:

- investment costs: Onetime costs to adapt the spatial structure of accommodations (e.g. Thönissen *et.al.*, 2011 and Robbe, 2012),
- maintenance costs: The costs necessary to conduct large technical maintenance to keep the building in proper technical state (e.g. Thönissen *et.al.*, 2011 and Hordijk *et.al.*, 2008),
- operational costs: Administration and management costs, personnel costs, daily maintenance costs and cleaning costs and so on (e.g. Thönissen *et.al.*, 2011 and Hordijk *et.al.*, 2008),
- energy costs: The expenditures for energy use; electricity and gas (e.g. Thönissen *et.al.*, 2011 and Post, 2012).

Quality assurance:

- quality of the service: The quality of the provided service (e.g. Thönissen *et.al.*, 2011 and Nationaal Netwerk Bevolkingsdaling, 2011),
- social cohesion: The degree to which the structure supports the social cohesion of the community and thus provides a place for public meetings (e.g. Thönissen *et.al.*, 2011; Nationaal Netwerk Bevolkingsdaling, 2011 and Bulck, 2013),
- synergy: The degree to which social institutions are enabled to collaborate with other social institutions (e.g. Thönissen *et.al.*, 2011 and Olde Bijvank, 2010).

Accessibility:

- spatial accessibility: The distance which inhabitants have to travel to reach the accommodation in which the service is provided (e.g. Thönissen *et.al.*, 2011; Nationaal Netwerk Bevolkingsdaling, 2011 and SER, 2011),
- accessibility: The degree to which persons are able to reach the service (e.g. Nationaal Netwerk Bevolkingsdaling, 2011 and SER, 2011).

In the context of this thesis, only the sub-criteria of ‘financial feasibility’ are incorporated in the questionnaires.

6.4 Alternatives

Each alternative has a different impact on the criteria. Below, the alternatives are discussed per criteria. For all alternatives it is assumed that unnecessary buildings are repelled from the municipal real estate portfolio.

Alternative 1 Decentralized allocation of public services per village

This alternative implies the dispersion of public services, or in other words a decentralized allocation of public services over each village in the municipality in service specific accommodations. This alternative represents the current situation in most villages in Noord-Brabant.

For this alternative no investments are needed to adapt the spatial structure. However, the maintenance costs increase strongly, because each governmental building should be a ‘nearly zero-energy’ building in 2018 and therefore, investments are needed on top of the scheduled large maintenance. The current financial structure in which social institutions get indirect subsidy on their rent for the accommodation should be changed (chapter 3.1). This means that the rent for the social institutions must be increased, because this rent should cover the costs for the municipality. The operational costs stay similar in this alternative. Each accommodation is kept in the portfolio and thus someone is responsible for the building, the building should be cleaned and small maintenance should be executed. The energy costs are a growing expenditure.

The number of pupils has a positive relation with the quality of primary schools. The decreasing school enrolls of primary schools will, on average, decrease the quality of education. For example the accommodation costs become a larger percentage of the total budget of the school board and thus, less financial resources can be invested in educational quality. For other services, the decrease in quality might be limited or is unclear. For sport associations, the increasing costs might have influence on the amount of trainers they could hire or needs to be compensated by higher membership dues. Although the demand for health care and welfare facilities increases in rural areas, the quality assurance might also be at stake because the amount of potential employees within the area to execute the services decreases (Verwest and Dam, 2010). Because services are available on different locations, inhabitants have less social encounters. Thus, the social cohesion is not stimulated. Also the possibility for social institutions to collaborate is not improved.

The overall accessibility of the public services does not change and is very good. However, the increased rent for the social institutions and the decreasing demand threatens the future continuation of the service. The social institution should take measures to increase their financial position, for example by increasing their incomes from users. Otherwise, social institutions might withdraw from the area which makes the service less accessible. This could happen in every village, whereby the supply of a specific service could fully disappear.

Alternative 2 Concentration of public services per village

This alternative implies the clustering of public facilities in a limited amount of accommodations per village.

Some investments should be made to adapt the accommodation for the future users or for multifunctional use. The maintenance costs decrease because fewer buildings should be maintained. In addition, fewer buildings should be renovated to reach in order to become more energy efficient. The operational costs decrease slightly, because less buildings should be maintained, the energy costs decrease, the amount of buildings which should be operated decreases.

In case of primary education, the quality depends on the willingness of school boards, representing different school concepts, to merge. A merge increases the number of pupils per class. Then, children have contact with other children which increases their social skills. In addition, a lower number of teachers per pupil is required. Merging school concepts decreases the variety of concepts from which the parents can choose for their offspring. If multiple schools are accommodated in the same building but not merged the financial feasibility increases, which also has its influence on the financial resources available for the educational quality. But classes still remain small. In case of health care and welfare, the demand increases while the number of potential employees decreases. The social cohesion of the community enlarges, because more people gather around the same place. The synergy between institutions and functions also enlarges because they are located near each other which makes the communication and cooperation easier.

The overall accessibility is still very good. Facilities might be relocated, but the distance and accessibility of the accommodation does not have to change.

Alternative 3 Concentration of public services per municipality

This alternative implies the concentration of public services per municipality in a central village.

In this alternative, investments are needed to adapt the spatial structure. However, the maintenance, operational and energy costs decrease largely, because fewer buildings are used.

For institutions the service area enlarges, with which the support enlarges and so does the demand per service. For cultural facilities, this could mean that there is higher demand and for a wider range of activities, which increases the quality. For sports facilities, this could mean that associations could offer more trainings hours. The number of school boards merges increases along with the quality. In addition, school boards have less accommodation costs and thus have more financial resources to increase the educational quality. In case of health care, the demand still increases. However, because the services are located more central the pool of potential employees is larger; the working location is better accessible. The social cohesion in each separate village will decrease because of less places where spontaneous meetings take place. The possibility for synergy between social institutions and functions increases.

The overall accessibility decreases slightly. For the largest part of the inhabitants of the municipality, the distance to the facility increases, with exception of the inhabitants of the center village. Although a large part of the community are able to reach the facility by car, bike or public transport, for disabled persons the accessibility decreases. In addition, children depend on their parents to bring them to activities in which they would like to

participate, such as education or sports. This might mean that additional mobility measures should be taken such as a school bus.

Alternative 4 Concentration of public services per region

This alternative implies the concentration of public services in a central village in the region. In this case, the term region is not precisely spatially defined. It is not the administrative region which is meant, but the region in which people work, live, recreate and move, which became larger in the last decades (Hospers, 2012)

This alternative requires high investment costs. Fewer buildings should be maintained and thus, the maintenance costs, operational costs and energy costs in total decrease largely. In correspondence to alternative 3, the operational management in this alternative also needs to be professionalized which requires more financial resources.

The quality assurance enlarges strongly, because the service area increases and the demand becomes larger. More people use the same facility and thus more quality can be provided in the sense of professionalism and provisioning of different activities. In addition, the institutions are better able to cooperate and complement each other. However, the social cohesion of the community is not stimulated, because of the large amount of people who are attracted. People might not feel bonded to each other.

The overall accessibility worsened sharply, problems which occur in the alternative 3 become larger. The travel time increases because a larger distance should be covered. In addition, the ability to reach the facility by bike also strongly decreases. Users must invest more in the mobility to reach the facility.

6.5 Pair wise comparison

The amount of questions which should be asked to the respondents correspond to the amount of pair wise comparisons which should be made and can be determined as follows: $n(n - 1)/2$, in which n are the amount of variables. In a pair wise comparison, two variables are set against each other. The respondent can fill in its importance on a 1-9 scale. The 1-9 scale is a mathematical representation of the degree of importance. The scale can be shown to the respondents in different ways. Figure 17 shows an example. In this example, box '5' is checked, which means that the respondent find 'costs' strongly more important than 'appearance'.

	9 ++++	7 +++	5 ++	3 +	1 Equal	3 +	5 ++	7 +++	9 ++++	
Costs			✓							Accessibility

In which:

- 9: Extremely more important
- 7: Very strongly more important
- 5: Strongly more important
- 3: Slightly more important
- 1: Equally more important

Figure 17 An example of pair wise comparison

6.6 Questionnaire for municipal actors

The questionnaire for municipal actors was distributed to municipal councilors and civil servants. Because municipal actors determine the guidelines for the municipal policy and the civil servants elaborate on these guidelines. The civil servants have more detailed insight in the policy and resulting consequences.

The results of the questionnaire should clarify which are the most important criteria according to these parties and which alternatives they would choose if they would be asked directly for their preference. Because the case-study area is located within The Netherlands and all respondents speak Dutch, both questionnaires are written in the Dutch language.

Municipal respondents

The goal requires the response of several groups within the municipality, namely the Municipal Council and civil servants with working activities related to the municipal real estate portfolio, the accommodation policy or public facility planning. The study areas are the rural municipalities in the Province of Noord-Brabant, which are 49 municipalities (appendix 1). Apart from the future shrinkage region West-Brabant, also other rural municipalities in Noord-Brabant are contacted. The respondents are approached per email with a URL-link to the questionnaire.

In order to reach the civil servants an email is sent to the general email of the municipality. And, if available, another email was also sent to the alderman and managers of the real estate portfolio and facility planning, with the question to forward the email to the specific civil servants (appendix 2). Per municipality the division of the tasks over departments is different and also named differently. Hence, determining the amount of civil servants working on the subject is very difficult.

The municipal councilors are approached by email directly or via the Registry of the municipal council (appendix 3). Some exceptions excluded, their email addresses are publically available on the website of the municipalities. In total, the 39 rural municipalities have 698 municipal councilors.

The questions

The first questions concern personal and municipality information, in order to distinguish the different groups within the municipality: councilors and civil servants, when analyzing the results. One of the question concerns the expertise of the respondent, because only the civil servants who have working activities concerning the topic of research are taken into account when determining the relative weights. Next, the criteria are briefly described. A situation which should be taken into consideration is given to make sure that every respondent has the same point of view. This context description describes the fictive situation that their municipality will cope with DT and its consequences in the near future. Thereafter, the pair wise comparisons of the main criteria and the sub-criteria of 'financial feasibility' are posed. The sub-criteria of financial feasibility are further questioned, because these are highly relevant sub-criteria. The questionnaire is set up as narrow as possible to reduce respondents efforts, hence increasing response rates. Figure 18 shows an example of a pair wise comparison question. The full questionnaire is shown in appendix 4.

Welk hoofdcriterium acht u van meer belang in de afweging om maatschappelijke voorzieningen te concentreren in (gemeentelijk) vastgoed?

	++++	+++	++	+	Gelijk	+	++	+++	++++	
Financiële haalbaarheid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Waarborging van kwaliteit
Financiële haalbaarheid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Bereikbaarheid
Waarborging van kwaliteit	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Bereikbaarheid

Figure 18 An example of a pair wise comparison question in the municipal questionnaire

Apart from the pair wise comparison questions, the respondents are asked to rank the alternatives in general for public sectors and for each sector separately. This can provide data for a graph showing the most preferred alternatives. The answers to this question can be compared to the reasoning of the choice of respondents based on the priorities of the criteria and quantification of the performance of the alternatives on each criterion. Figure 19 shows an example of a ranking question.

Alle behandelde criteria afwegend;

Welk alternatief geniet uw voorkeur als het gaat om het concentreren van alle maatschappelijke voorzieningen in (gemeentelijk) vastgoed?

A1 Decentraal per kern	<input type="text"/>
A2 Centraal per kern	<input type="text"/>
A3 Centraal per gemeente	<input type="text"/>
A4 Centraal per regio	<input type="text"/>

Waarin: 1= Meest gewenst <...> 4= Minst gewenst

Figure 19 An example of a ranking question in the municipal questionnaire

6.7 Questionnaire for experts

The result of the questionnaire for experts should quantify the performance of the alternatives on each criterion. In addition, the experts are asked for their preference for a specific alternative.

Expert respondents

The experts who are approached are people whose working activities are related to DT, municipal real estate or accommodation policies and/or public facility planning. The companies in which the experts are working are the program demographic transition of the Ministry of Interior and Kingdom Relations, research and advisory companies in municipal real estate or educational institutions. In total, 54 experts are personally approached by email (appendix 5).

The questions

The first questions concern personal work related information to check whether the respondent can be seen as an expert. Next, the criteria and alternatives are briefly explained and a situation is given. Thereafter the research part of the questionnaire starts, in which is asked to pair wise compare alternatives taken into account a specific criterion (Figure 20). For the full questionnaire, see appendix 6. Similar to the respondents of the questionnaire for municipal actors, the experts are asked to rank the alternatives taken into account all public facilities and each sector separately.

Welk alternatief speelt naar uw mening beter in op de gevolgen van demografische transitie wanneer u enkel rekening houdt met het criterium 'financiële haalbaarheid'?

	++++	+++	++	+	Gelijk	+	++	+++	++++	
A1 - Decentraal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A2 - Concentratie per kern
A1 - Decentraal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A3 - Concentratie per gemeente
A1 - Decentraal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio
A2 - Concentratie per kern	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A3 - Concentratie per gemeente
A2 - Concentratie per kern	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio
A3 - Concentratie per gemeente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio

Figure 20 An example of a pair wise comparison question in the questionnaire for experts

6.8 Analysis of the relative weights

With the answers of the questionnaires, a reciprocal matrix per respondent and per group of respondents can be made. In this paragraph, the calculation of the relative weights and the consistencies of the answers are explained on the basis of a pair wise comparison of the main criteria shown in Figure 18.

Reciprocal matrix

In order to fill in the reciprocal matrix, the answers of the respondent should be converted to the importance (Figure 21). The reciprocal matrix can be explained as follows (Figure 22): the financial feasibility is 7 times less important than the quality assurance, the financial feasibility is equally important to the accessibility and, the quality assurance is 9 times more important than the accessibility. The sum of the columns is needed in order to calculate the consistency ratio (chapter 6.9).

Visualization	++++	+++	++	+	Equal	+	++	+++	++++
Importance municipal questionnaire	9	7	5	3	1	1/3	1/5	1/7	1/9

Figure 21 Convert table

	A	B	C
	Financial Feasibility	Quality assurance	Accessibility
1 Financial feasibility (C1 FF)	1	1/7	1
2 Quality assurance (C2 CA)	(1/[B1]=) 7	1	9
3 Accessibility (C3 A)	(1/[C1]=) 1	(1/[C2]=) 1/9	1
SUM	9	1 1/4	11

Figure 22 An example of a reciprocal matrix

For the reciprocal matrix of a group of respondents, the geometric mean should be calculated. In this case, the geometric mean for the criteria of the group is the n^{th} root of the product of the individual answers of the reciprocal matrices for each criteria.

$$\text{Geometric mean} = (X_1 * X_2 * \dots * X_n)^{(1/n)}$$

Normalized Eigenvectors

The normalized eigenvectors of the criteria and alternatives can be obtained performing multiple iterations, filling in squared matrices. For example, the value of the cell in the first row, second column of the squared matrix (sm) of the first iteration is the sum-product of the first row and second column of the reciprocal matrix (rm):

$$B1sm = (A1rm * B2rm) + (B1rm * B2rm) + (C1rm * B3rm)$$

For further iteration, the sum-products of the previous iteration is used. The normalized eigenvector is considered trustworthy if the difference between the normalized eigenvectors of the iteration compared to the previous iteration is less than 0.0001. In this case, the difference is less than 0.0001 after the third iteration. The normalized eigenvectors of the last iteration are the weights of the criteria. The most preferred alternative can be determined by the sum of the products of the importance of the criteria multiplied by the scores of the alternatives per criteria.

Normalization (squared matrices)

First iteration

	C1 FF	C2 CA	C3 A	SUM	Normalized eigenvector
C1 FF	3	25/63	3 2/7	6,68254	0,10470
C2 QA	23	3	25	51,00000	0,79905
C3 A	2 7/9	23/63	3	6,14286	0,09624
				63,83	1

Second iteration

	C1 FF	C2 CA	C3 A	SUM	Normalized eigenvector	Difference
C1 FF	27 16/63	3 256/441	29 40/63	60,46939	0,10492	-0,00022
C2 QA	207 4/9	27 16/63	225 4/7	460,26984	0,79860	0,00046
C3 A	25 4/63	3 166/567	27 16/63	55,61023	0,09649	-0,00024
				576,35	1	

Third iteration

	C1 FF	C2 CA	C3 A	SUM	Normalized eigenvector	Difference
C1 FF	2228 91/316	292 162/217	2422 585/587	4944,0311	0,10492	0,00000
C2 QA	16960 540/553	2228 91/316	18443 15/457	37632,2973	0,79860	0,00000
C3 A	2049 117/518	269 65/293	2228 91/316	4546,7357	0,09649	0,00000
				47123,06	1	

Figure 23 An example of the iteration process of the main criteria

6.9 Consistency analysis

Not all answered questionnaires can be used because respondents can be inconsistent in their judgement. For example, if A is more important than B and B is more important than C, than C cannot be more important than A. Therefore, a consistent analysis should be performed. This check should be performed for each respondent separately and for each group of respondents. A helpful tool is the consistency index (CI) should be calculated. To calculate CI, the Principal Eigen Value (λ_{\max}) is needed which can be obtained from the summation of each product of the Normalized Eigen Value of the last iteration multiplied by the sum of the columns of the reciprocal matrix (Teknomo, 2007).

$$\lambda_{\max} = (\sum \text{row A}) * (NEsmC1) + (\sum \text{row B}) * (NEsmC2) + (\sum \text{row C}) * (NEsmC3)$$

$$= 0,10492 * 9 + 0,79860 * 1,25 + 0,09649 * 11 = 3,007$$

$$CI = \frac{\lambda_{\max} - n}{n - 1} = \frac{3,007 - 3}{3 - 1} = 0,0035$$

In which n are the amount of criteria or alternatives.

Secondly, the Random Consistency Index (RI) should be determined which can be obtained from a table developed by Saaty (Teknomo, 2007).

n	1	2	3	4	5	6	7	8	9	10
RI	0	0	0,58	0,9	1,12	1,24	1,32	1,41	1,45	1,49

Figure 24 Random consistency indexes (Teknomo, 2007)

Third, the Consistency Ratio (CR) can be calculated.

$$CR = \frac{CI}{RI} = \frac{0,0035}{0,58} = 0,0061 < 0.10$$

According to Saaty, the respondent is consistent if the CR is below 10%. Otherwise, the respondents' answers are not trustworthy. If the CRs are not trustworthy, the related answers should not be taken into account in determining the normalized weights. Per pair wise comparison question, untrustworthy answers can be filtered from the data.

6.10 Conclusion

In this chapter the AHP model was discussed which provided a basis to answer the sub-question: *'What are the most important criteria for municipalities in the decision whether to concentrate public services?'*. The main criteria which are taken into account by the municipal parties when the accommodation policy is determined are:

- financial feasibility,
- quality assurance,
- accessibility.

Because a policy cannot be implemented if it is not financially feasible, the sub-criteria of financial feasibility are further examined. The sub-criteria are:

- investment costs,
- maintenance costs,
- operational costs,
- energy costs.

Possible levels of concentration are:

- no concentration: a de-central allocation of public services,
- concentration per village,
- concentration per municipality,
- concentration per region.

To gain insight in the importance of the criteria and the most preferred alternative, two questionnaires are developed. One is distributed under municipal actors in which they were asked to pair wise compare criteria. The other one was distributed under experts in the field of public real estate or accommodation policy in which was asked to pair wise compare alternatives. Multiplying the relative weights of the criteria by the performance of the alternatives on each criterion provides insight is the most preferred alternative according to the municipal councilors.

7. Case-study: The municipality of Woensdrecht

The case-study of the municipality of Woensdrecht is performed to gain more insight in the practical implementation. The criteria and alternatives which were introduced in Chapter 6, are elaborated for the municipality of Woensdrecht, further called Woensdrecht. Woensdrecht is located in the Southwest of Noord-Brabant, on the Belgium border and lies within the future shrinkage region West-Brabant. In 1997, the municipality of Woensdrecht was formed by a merge of Woensdrecht, Huijbergen, Ossendrecht and Putte. Before, only Woensdrecht existed of two villages; Woensdrecht and Hoogerheide.

7.1 Population prognosis

Similar to the prognosis of Noord-Brabant (chapter 4.5), the most accurate prognosis of Woensdrecht is the actualization of 2011 (Bargeman *et.al.*, 2012).

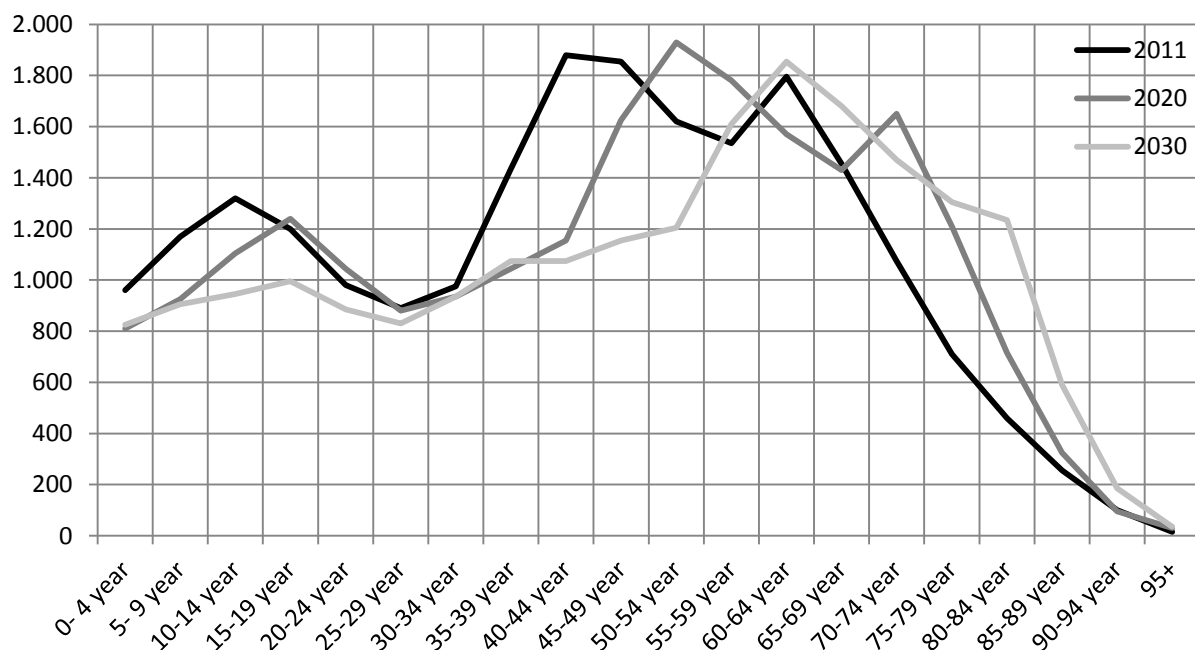


Figure 25 Population prognosis Woensdrecht [number of inhabitants] (Bargeman *et.al.*, 2012)

Year	2011	2015	2020	2025	2030
Total population	21.680	21.670	21.500	21.215	20.795

Figure 26 Total population of Woensdrecht in 2011 and prognosis 2015-2030

In 2011, Woensdrecht had 21.680 inhabitants. The prognosis shows that the population of Woensdrecht will start declining as of 2013. However, currently Woensdrecht has 21.649 inhabitants (Municipality of Woensdrecht, 2013), which is already below the prognosis of 2013. Thus, the population decline seems to start earlier or progress more rapidly than predicted. For this thesis, the actualization of 2011 is used as a basis. Besides population decline, the composition of the population also changes. The amount of newborns decreases, causing the share of juveniles to decline, and the share of 65+ to increase.

7.2 Prognosis of the future demand for public services and public real estate

This paragraph further elaborates the consequences of the DT in Woensdrecht on the demand for public facilities per sector.

Education

Woensdrecht has eight primary schools accommodated in six buildings. According to the pupil prognosis, the number of pupils will decrease with 17% in 2026 (Figure 27). However, the POraad, an advisory council for primary education, stated that those pupil prognoses are often unreliable because of the used method. This method assumes population growth and in top shrinkage regions the actual number of pupils turns out to be lower than the prognosis (POraad, 2013). According to the proposed minimum number of pupils of 100, only De Open Hof should be closed. This minimum number poses no threat for the other schools.

School	Location	2011	2018	2026
St Marie*	Huijbergen	193	154	139
Op Dreef	Putte	182	138	130
De Poorte	Woensdrecht	204	161	155
De Meulenridders	Ossendrecht	364	311	301
De Stappen	Hoogerheide	148	136	129
De Open hof	Hoogerheide	74	57	54
Klim-Op	Hoogerheide	318	273	259
De Dobbelsteen	Hoogerheide	283	316	301
Total		1.766	1.546	1.468

*St. Marie also accommodates child care after school hours 'Ons Marieke'

Figure 27 Pupil prognosis 2011 (Arbeek *et.al.*, 2012; 16)

With the normative area requirement per pupil of WPO and the pupil prognosis, the predicted area requirement can be calculated. Figure 28 shows the actual floor area available for primary education, the area requirement and the surplus of floor area between the actual and required area in the various schools in Woensdrecht. In 2011, the area surplus already reached 2,316 square meters. In 2026, this will have grown to 3,813 square meters. Thus, the occupancy rates decrease further, but are at the moment already high.

School	Actual floor area (m ²) 2011	Required area (m ²) 2011	Surplus (m ²)	Occupancy rate (%)	Required area (m ²) 2026	Surplus (m ²)	Occupancy rate (%)
St Marie	1.628	1.171	457	72%	899	729	55%
Op Dreef	1.487	1.115	372	75%	854	633	57%
De Poorte	846	1.226	-380	145%	980	-134	116%
De Meulenridders	2.861	2.031	830	71%	1.714	1.147	60%
De Stappen	1.966	944	1.022	48%	849	1.117	43%
De Boemerang:	4.010	3.995	15	100%	3.689	321	92%
• De Open hof	-	572			472		
• Klim-Op	-	1.800			1503		
• De Dobbelsteen	-	1.623			1.714		
Total	12.798	10.438	2.316	82%	8.984	3.813	70%

Figure 28 Actual and required floor area (Arbeek *et.al.*, 2012; 16-17 adapted)

Health care and welfare

The increase in demand for first line care will not affect the municipal real estate portfolio, since these functions are not accommodated by the municipality. However, these functions could be attracted to municipal real estate to increase the occupancy rate. Therefore, data on this topic is taken into account. In Hoogerheide, one welfare accommodation of 673 square meters is located in which all municipal welfare services are concentrated. The occupancy rate and future demand for this building is unknown.

Sports

In 2030, the demand for sports associations in Woensdrecht is expected to decrease with 12%. However, sports associations also include for example cycling which is not performed in municipal accommodations. Woensdrecht is the owner of eleven sports accommodations (Figure 30). The largest part of the population of Woensdrecht is currently above 35 years, these people participate in sports associations less actively than younger people. Figure 29 shows the decrease of total accommodation use by the inhabitants of Woensdrecht. The predicted decrease of municipal sports accommodations is 13%. This can be allocated to the total population decline, because the predicted average accommodation use per inhabitant decreases by only 3% (appendix 7).

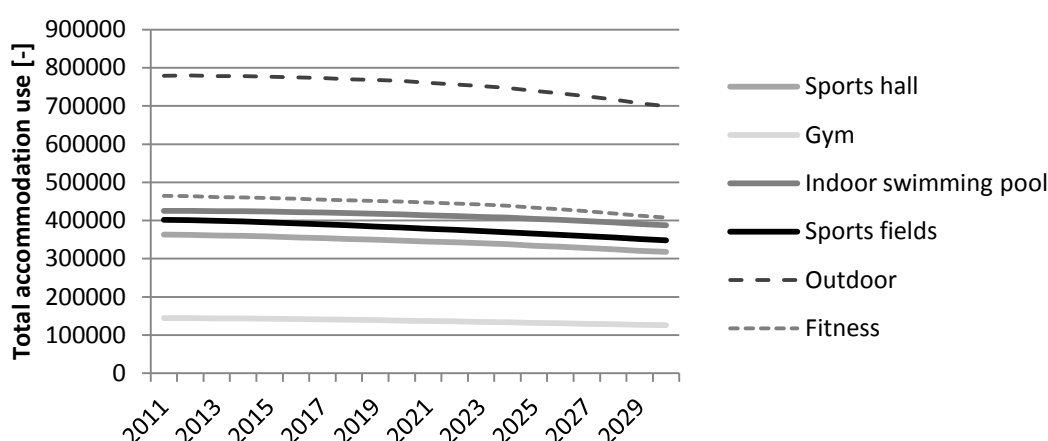


Figure 29 Predicted total accommodation use by the inhabitants of Woensdrecht

Accommodation		Number	m ² accommodation	m ² terrain
Sports complex	Sports fields	5	2.111	282.097
	Tennis fields	3	463	45.450
	Baseball	1	168	190
Gym*		1	482	841
Indoor swimming pool		1	3.163	23.495
Total		11	6.387	352.073

* Each MFA also has a gym.

Figure 30 Sports accommodations of Woensdrecht

Culture

Woensdrecht accommodated the activities included in this thesis in three public libraries and four MFAs. Woensdrecht is not in possession of community centers. In chapter 5.2 it was concluded that a little can be said about the future demand for cultural services.

Accommodation	Number	m ² accommodation
Public libraries	3	1.836
Multifunctional accommodations	4	7.611

Figure 31 Cultural buildings in the portfolio of Woensdrecht

7.3 Current real estate and accommodation policy

Currently, Woensdrecht establishes a new accommodation policy. In May 2013, Woensdrecht published their new real estate policy. The establishment of the accommodation policy is split into two phases. The first phase is finished and focused on determining the framework for the accommodation policy. The second phase is not yet finished structure of accommodations and activities. For phase one, ICSadviseurs provided an advice. The main advice was to cluster activities which can strengthen each other in order to get a sound exploitation balance for the accommodations. If not clustered, maintenance and exploitation costs of the accommodations will increase and the accommodations will show low occupancy rates (Arbeek *et.al.*, 2012: 36). The advice of ICSadviseurs has not been adopted by the Municipal Council for which several reasons were given in the municipal council meeting of May 10 (2012a). It was argued that the strategic boundaries proposed by ICSadviseurs are believed not to reflect the demand of the citizens (Konings, PvdA), the Municipal Council should be able to influence the developments (Ha, CDA) or the activities should be maintained in each village (Beek, ABZ) (Municipality of Woensdrecht, 2012). The Municipal Council strives to maintain public activities in each village unless the institutions or associations itself want to move to another village, to keep the activities affordable for institutions and the municipality itself and to control the future situation concerning public activities. The framework fixed by the Municipal Council of Woensdrecht on May 10 (2012b) includes:

- the municipality thinks in services instead of accommodations,
- public services must have social value, otherwise the municipality will not invest,
- assets should be used optimally,
- services should strengthen each other,
- services should be accessible.

The civil servants of the department of municipal real estate are now establishing a new accommodation policy for which the framework is leading. The future financial feasibility is an aspect which is under examination. The examination could lead to the conclusion that the maintenance of services per village is not feasible.

Woensdrecht is in possession of 44 accommodations for public facilities in the sectors education, sports and culture. Woensdrecht does not have real estate with a welfare function in its portfolio.

After an average of forty years, buildings need to be renovated. Since many buildings are built between 1970 and 1980 (Figure 32), Woensdrecht will soon need to invest in renovation. This needs to be fitted in a decreasing budget.

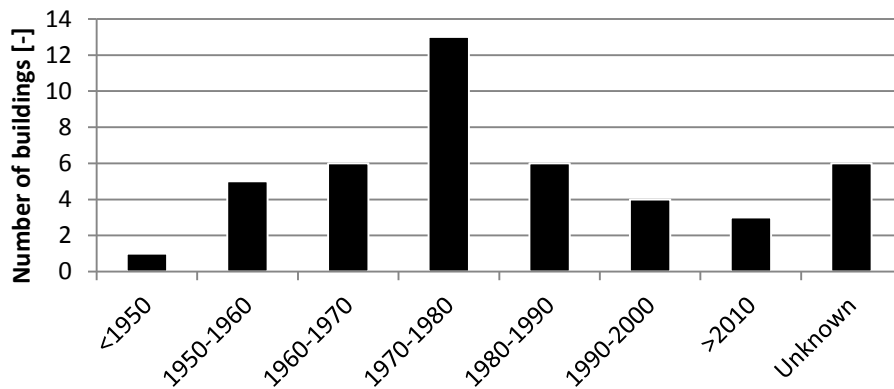


Figure 32 Building year of the municipal real estate

In Woensdrecht, the rental incomes do not cover the expenditures on the real estate. Rental prices were determined in 1997 and were indexed with the inflation rate yearly. Since there is no relation between the rental prices and energy costs of the building (Prop, 2013), the municipality has no clear overview of the energy costs of their rented real estate. The energy costs per accommodation are not transparent for the real estate department yet. As discussed in chapter 3.1, many municipalities are centralizing their real estate in one department which results in more focus of the size and cost of their real estate portfolio. Woensdrecht was not able to provide clear financial data (maintenance, operational and energy costs) on their real estate. This insight is necessary to provide a solid basis in the decision to concentrate public services.

7.4 Elaboration of the alternatives

In this paragraph, the consequences of the alternative allocations of municipal public real estate are illustrated using Woensdrecht as an example. Monumental buildings are not discussed because these do not accommodate public services. In addition, health care is not taken into account since the accommodations and the services are not subsidized by the municipality. Note that the alternatives are no strategies of the municipality itself, but just an illustration of the implementation of the alternatives developed for this thesis. Appendix 8 shows the illustrations of the alternatives.

Alternative 1 Decentralized supply of public facilities per village

In this alternative, all municipal public real estate is kept in the portfolio and no efforts are made to increase the occupancy rates. This is the current situation. However, it is assumed that existing buildings are renovated to increase the energy-efficiency.

Alternative 2 Concentration of public facilities per village

In this alternative, municipal real estate is concentrated per village and will therefore be further elaborated per village. Currently, Woensdrecht is examining this alternative for possible implementation.

Woensdrecht and Hoogerheide

In 2026, the surplus of educational space is predicted to be 1.438 square meters. In Woensdrecht and Hoogerheide, four schools are located in two buildings; 1.966 and 4.010 square meters. In 2011, the occupancy rate of MFC Kloosterhof was determined to be 38,9%; the public library 33,0%. The two educational buildings could be merged in De Boemerang. In addition, the public library and the scouting association can be moved to MFC Kloosterhof, adjacent to De Boemerang. Also, the expected increase for welfare services can

be accommodated here. The gym in MFC Kloosterhof can replace the separate gym accommodation Bloemenlaan. Of the two sports complexes De Fortuin in Woensdrecht can be repelled. The sports accommodations in Hoogerheide are already concentrated. However, the possibility of combined use of the cafeteria and the dressing rooms should be examined. In total, six accommodations can be repelled without decrease in public services.

Huijbergen

In Huijbergen one educational building is located of 1.628 square meters in which also child care after school hours 'Ons Marieke' is accommodated. In 2026, the surplus is predicted to be 729 square meter. MFC De Kloek will have an occupancy rate of 8,7%, 95 square meter (Arbeek *et.al.*, 2012). Thus, the activities in Complex Dorpsstraat and MFC De Kloek can be moved to the primary school St. Marie. The occupancy rate of the former town hall in which a public library is located is not clear. One of the accommodations of the tennis club and the sport complex can also be repelled. In total, three buildings can be repelled.

Ossendrecht

In Ossendrecht, one educational building of 2.861 square meters is located of which 1.147 surplus in 2026. MFC De Drieschaar has an occupancy rate of 14,5%, 306 square meters (Arbeek *et.al.*, 2012) and the public library 24%, 54 square meters. Both functions can be accommodated in the educational building. Sports complex De Heilooop can also accommodate the scouts. The carnival association cannot easily be accommodated in another building. This association needs large workshops which could also be used as storage. In total, three buildings can be repelled.

Putte

In 2026, the required space for education is predicted 854 m². However, primary school Op Dreef occupies 1.487 square meter. The temporary building of the school is not even taken into account yet. In 2011 the occupancy rate of MFC de Biezen was 8,7%, 177 square meters (Arbeek *et.al.*, 2012). Thus, these functions can be merged in MFC de Biezen, since this is a newer building and it also has a gym which is required for education. Not all floor area of MFC de Biezen is used. Also the cultural functions can be merged in this building. In Putte, three sports complexes are located of which the tennis accommodation can be moved to sports complex De Buizerd. As a result, five buildings can be repelled.

Alternative 3 Concentration of public facilities per municipality

In this alternative, all the public facilities are concentrated in one central village. Since Hoogerheide and Woensdrecht are located directly near each other and have the largest amount of inhabitants and households, the public facilities will be concentrated here. Neither Hoogerheide nor Woensdrecht have a building large enough to accommodate all functions. Multiple scenarios are possible: adapting existing buildings, the construction of a building or a combination of both. The separation of sectors might be beneficial to make use of existing buildings in proper technical state.

Alternative 4 Concentration of public facilities per region

In this alternative the public facilities are concentrated in a larger village within the flows of daily life (Hospers, 2013). This should be examined closely, but in this case the nearest city is Bergen op Zoom. Similar to alternative 3, in Bergen op Zoom, next to demand which can be accommodated in existing buildings, an additional accommodation should be built to accommodate the increase demand for public functions.

7.5 Related consequences of the alternatives

In the next paragraph, possible consequences of the alternatives are further elaborated.

Financial feasibility

Financial data is not available for the municipal real estate of Woensdrecht. Instead of real financial data, insight could be given using indicators or standards numbers. However for most sectors, these indicators are missing. Thus, costs for the buildings in Woensdrecht cannot be calculated. However, HEVO (2010) does provide indicators for operational costs of primary school buildings per square meter. Therefore, the financial consequences for the sector education for each alternative will be further elaborated to give an indication. Figure 33 shows the educational buildings of Woensdrecht. Figure 34 shows if the building is present in the alternative. However, in alternatives 3 and 4 a new building is constructed.

Name	Place	Community school	Operation*	m ² object	Building year	Technical state*
De Boemerang	Hoogerheide	Yes		4.010	2009	
De Stappen	Hoogerheide	No		3.606	1950	
De Poorte	Woensdrecht	No		846	1971	
St. Marie	Huijbergen	No		1.628	1956	
De Meulenridders	Ossendrecht	No		2.861	1980	
OP DREEF'	Putte	No		1.487	1977	

Figure 33 General information about the school buildings of Woensdrecht (Red: bad, orange: moderate, green: good, grey: unknown) (*Municipality of Woensdrecht, 2011)

Name	Alternative 1	Alternative 2	Alternative 3	Alternative 4
De Boemerang	x	x	(x)	
De Stappen	x			
De Poorte	x			
St. Marie	x	x		
De Meulenridders	x	x		
'OP DREEF'	x	x		

Figure 34 Presence of the building in the alternatives

Investment costs

All alternatives require some investment costs, either to adjust the buildings on the EPBD or for the construction of a new building. In alternative 1, the current accommodations are maintained. A large part of the stock is build between 1970 and 1980. Thus, independent from the use of the building, these buildings should be renovated between 2010 and 2020. The measures to reach the energy target of the EU (EPBD) can be combined with the renovation. However, for other buildings in stock, these measures should also be taken. In alternative 2, the investment costs are higher than in alternative 1 but still relatively low. Many public functions are concentrated in existing buildings, but these buildings should be adapted to accommodate the new functions. Figure 35 shows the investment costs for major energy efficiency measurements. The investments for the adaptation of buildings should be add and are probably higher than the difference between the two alternatives.

	Alternative 1	Alternative 2
De Boemerang	1.403.500	1.403.500
De Stappen	1.262.100	-
De Poorte	296.100	-
St. Marie	569.800	569.800
De Meulenridders	1.001.350	1.001.350
'OP DREEF'	520.450	520.450
Total (in euros)	5.053.300	3.495.100

Figure 35 Average investment costs for major energy efficiency improvements in educational buildings

In alternative 3, the investment costs are high because a new building should be constructed. It is unclear whether the construction costs exceed the investments needed in alternative 2. In comparison to alternative 3, in alternative 4 the investment costs per municipality slightly decrease. However, the construction costs per square meter are an average and not linked to the size of the building. Thus, the investment costs do not change (Figure 36). Financial agreements between municipalities should be made to balance the investments.

Alternative 3 and 4		
Construction costs		€850-1.300 per m ² *
Required space (in 2026)		8.984 m ²
Total costs	Lower bound	€7.636.400
	Upper bound	€11.679.200

*(BNAonderzoek, 2012)

Figure 36 Average construction costs for a new educational building

Maintenance costs

In alternative 1, the maintenance costs are the highest since all buildings are maintained. In alternative 2, the maintenance costs are still high, but they decreased in comparison to alternative 1. Only twenty of the thirty-five municipal accommodations are still in the portfolio and four of the six primary educational buildings. In alternative 3, a new building should be constructed which initially needs less maintenance. In addition, many buildings are repelled, resulting in sharp drop in maintenance costs. Alternative 4 is similar to alternative 3 from the perspective of the municipality. The accommodation no longer lies within the borders of the municipality. The direct costs will change to a contribution in the regional school and funding of the school buses.

The maintenance costs depend on construction of the building, and are higher when the building is older (Figure 37). Almost all educational buildings in Woensdrecht are above 30 years of age. The maintenance costs in alternative 1 are estimated to be €315.635 per year; alternative 2 €208.787; alternative 3 €146.439. In alternative 4, Woensdrecht does not have maintenance costs.

<10 year	10-30 year	>30 year
€16,3	€21,9	€24,0

Figure 37 Average maintenance costs per year per m2 based on the construction year of the building (HEVO, 2010)

Operational costs

In alternative 1, the operational costs are the highest in this alternative because all buildings are used and have a low occupancy rate. In alternative 2, the occupancy rates increase and the accommodation costs form a smaller part of the budget. The operational costs decrease and can be divided over more users per building. This is because the share of space required to execute operational tasks is reduced, such as a cleaning room or reception. In alternative 3 and 4, the operational costs decrease in comparison to alternative 2. In case of education, the average costs per square meter per pupil for education do not change and thus, no difference can be seen in the calculation due to lower availability of data.

Operational costs	Primary school (separated)	Community school
Depreciation building	€1,2	€7,8
Insurances	€0,1	€1,1
Cleaning	€17,4	€15,4
Fees	€1,2	€2,2
Other accommodation costs	€1,5	€1,0

Figure 38 Average operational costs per square meter (HEVO, 2010)

The operational costs for alternative 1 are €333.343; alternative 2 €238.161 and alternatives 3 and 4 €247.060. The increase of the expenses of alternatives 3 and 4 in comparison to alternative 2 is because the operational costs of a community school are higher than a separate primary school. Otherwise, it would be €192.258.

Name	Insurance [€]	Fees [€]	Cleaning [€]	Depreciation building [€]	Other accommodation costs [€]
De Boemerang	4.411,0	8.822,0	61.754,0	31.278,0	4.010,0
De Stappen	360,6	4.327,2	62.744,4	4.327,2	5.409,0
De Poorte	84,6	1.015,2	14.720,4	1.015,2	1.269,0
St. Marie	162,8	1.953,6	28.327,2	1.953,6	2.442,0
De Meulenridders	286,1	3.433,2	49.781,4	3.433,2	4.291,5
OP DREEF'	148,7	1.784,4	25.873,8	1.784,4	2.230,5
Total	€ 5.453,8	€ 21.335,6	€ 243.201,2	€ 43.791,6	€ 19.652,0

Figure 39 Average operational costs for the educational buildings

The future demand is expressed in required floor area. However, the same floor area can be used by different actors at different times. Thus, the increase of the multi functionality of buildings can reduce the required square meters floor space even further.

Energy costs

In alternative 1, despite the efforts on energy efficiency (EPBD) the expenditures on energy are the highest in this alternative due to the fact that all buildings are kept in use, while having a low occupancy rate. In alternative 2, the energy costs are lower because fewer buildings are used and the occupancy rate is higher. In addition, the energy use of shared space can be divided over more actors because the services are merged in fewer building. In alternatives 3 and 4, the buildings can be constructed with high energy efficiency. Especially, because historically energy costs have shown to be rising sharply, and thus form a growing expense of the accommodation costs.

Figure 40 shows an estimation of the current energy costs. Based on an average gas use of 10 m³/m² and €0,50/m³, and an average electricity use of 20 kWh/m² and €0,15/kWh. Both prices take joint purchasing of energy into account (Eco-Schools, 2008).

General	Energy use per year		Energy costs per year		
Name	Gas (m ³)	Electricity (kWh)	Gas (€/m ³)	Electricity (€/kWh)	Total (€)
De Boemerang	40.100	80.200	20.050	12.030	32.080
De Stappen	36.060	72.120	18.030	10.818	28.848
De Poorte	8.460	16.920	4.230	2.538	6.768
St. Marie	16.280	32.560	8.140	4.884	13.024
De Meulenridders	28.610	57.220	14.305	8.583	22.888
OP DREEF'	14.870	29.740	7.435	4.461	11.896
Total					€115.504

Figure 40 Estimation on the current energy costs without energy efficiency measurements

Eco-schools state that the average gas use can be brought back with 30-40%, mainly by using a better central heating installation and the application of insulation. The electricity use can be brought back with 15-20%, mainly due to lighting and reduced use of appliances. Figure 41 shows the predicted energy costs for the educational buildings in Woensdrecht after energy efficiency measurements. Because De Boemerang is a new building it is assumed that this building has a proper central heating system and insulation. Therefore, no savings for gas are included for this building. In alternative 1 €89.675 is spent on energy, alternative 2 €64.187 and in alternatives 3 en 4 €51.433.

General	Possible energy savings per year		Possible energy saving costs per year			
Name	Gas (m ³)	Electricity (kWh)	Gas (€)	Electricity (€)	Total savings (€)	Costs (€)
De Boemerang	14.035	14.035	0	2.105	2.105	29.975
De Stappen	12.621	12.621	6.311	1.893	8.204	20.644
De Poorte	2.961	2.961	1.481	444	1.925	4.843
St. Marie	5.698	5.698	2.849	855	3.704	9.320
De Meulenridders	10.014	10.014	5.007	1.502	6.509	16.379
'OP DREEF'	5.205	5.205	2.602	781	3.383	8.513
Total					€ 25.829	€ 89.675

Figure 41 The average energy costs after energy efficiency measurements

Figure 42 the average total investment costs for the primary buildings is shown. The structural costs decrease per alternative. The investment costs are the highest in alternative 3 and 4 because a new building should be constructed. In alternative 2, the investments for the adaptation of existing buildings for future use is not included, thus the investment costs for alternative 2 probably exceed the investment costs for alternative 1.

		Alternative 1	Alternative 2	Alternative 3 and 4
Investment costs		5.053.300	3.495.100	11.679.200
Structural costs (per year)	Maintenance costs	315.635	208.787	146.439
	Operational costs	333.343	238.161	247.060
	Energy costs	89.675	64.187	51.433
	Total	738.653	511.135	444.932

Figure 42 Average total costs for the sector education on the alternatives on the criteria

The data of HEVO (2010), BNA (2012) and Eco-schools provide costs per square meter. No distinction is made between the size of the buildings, thus the benefits of economies of scale is not taken into account while this is highly relevant if concentration is considered. More logically the operational costs are linked to the floor area, whereby the costs per square meter decrease. Thus a certain balance should be determined. For the data, it is unclear where the average costs per square meter can be placed on such scale.

Quality assurance

In alternative 1, it is uncertain whether the quality can be maintained in future perspective, because of lowered demand. The share of accommodation expenses on the budget increases for the public service. As a result, budget cuts should be made elsewhere or the costs for the user should be increased. All accommodations are located across the villages and therefore, neither the synergy between supplier, nor the social cohesion of the community is encouraged. In alternative 2, the accommodation costs are a smaller part of the budget of the social institution. As a result, more can be invested in the quality of the service. Because the functions are concentrated, suppliers are enabled to strengthen each other. In addition, inhabitants run into each other more often which strengthens the social cohesion. In alternative 3, the accommodation costs decrease sharply. Thus more can be invested in the quality of the service. The demand for the functions increases because the service area has enlarged. As a result, a more extensive program can be offered at unchanged low prices. In comparison to alternative 2, the synergy between suppliers can increase even more. But the social cohesion might not be stimulated to well, because inhabitants of different villages might not feel connected to each other. In alternative 4, the service area of the public function has increased significantly. Within the same area more functions and specialism can be offered which enlarges the quality and synergy between suppliers. However, the social cohesion is not stimulated similar to alternative 3.

Accessibility

In alternative 1, the accessibility is high for every inhabitant because the accommodations are on short distance. In alternative 2, the accessibility is still very high. If two of the same functions are merged in one building, the travel distance and time can slightly increase, but this is limited. In alternative 3, the accessibility of the public functions decreases sharply for inhabitants outside Hoogerheide and Woensdrecht. Huijbergen and Ossendrecht are located around four kilometers from Hoogerheide and Putte is located ten kilometers to the South. Putte is actually twice as big, because half of it is located in Belgium. A public function might be on shorter distance available on the other side of the border. From Putte to Hoogerheide, a separate bicycle lane is available. From Huijbergen and Ossendrecht this is partly the case, if not the bicycle lane is marked on the road. From Woensdrecht to Hoogerheide, the route is through residential streets. To increase the accessibility by bike, separate bicycle lanes can be constructed. In addition, to increase the accessibility by public transport extra buses and

bus stops could be introduced. This would also increase the accessibility for disabled, elderly and children.

		Woensdrecht	Huijbergen	Ossendrecht	Putte
Bike and car	Distance (km)	2	4	4	10
Public transport	Time (min)	21	14	18	26

Figure 43 Travel time and distance to Hoogerheide

The accessibility is the worst in alternative 4. For current Dutch standards, public functions are on large distance. More displacements by car can be expected. And the accessibility for elderly, disabled and children sharply decreases. Investments could keep the accessibility on an acceptable level for the inhabitants.

		Hoogerheide	Woensdrecht	Huijbergen	Ossendrecht	Putte
Bike	Distance (km)	10	10	12	13	19
Public transport	Time (min)	24	23	33	38	49

Figure 44 Travel time and distance to Bergen op Zoom

7.6 Conclusion

Woensdrecht does not have insight in the size and financial data of the total real estate portfolio on building level. Thus, the municipality lacks a solid basis to make a sound decision. First, this information should be obtained. Insight could otherwise be given by indicators or standards, if these were available.

Secondly, the future demand for public services is hard to determine for the sectors health care and welfare and culture, though large developments are taking place. For health care and welfare a trend can be observed, in the direction of the increase of the demand. In addition, the pupil prognoses are seen as untrustworthy because the method used to determine them is based on population growth.

Although founded decisions cannot be made on basis of the current data, it does provide insight in the trends of future demand and consequences for reasoning. The elaboration of the case-study showed the financial consequences of low occupancy rates, maintenance costs and energy costs for primary schools in each alternative. There is a clear relation between the accommodation costs per square meter and the quality of the service.

Not all services can be concentrated easily. For example, the concentration of sports accommodations is difficult because certain sports require a specific kind of accommodation. Especially, sports subsidized by municipal funds are divergent. In addition, sports complexes or fields need more space and are therefore located at the border of the village. Options like merging sports complexes with scouts are worth examining. The case-study does make clear that each area should be examined integrally. For example, for inhabitants of Putte public services might be on shorter distance on the other side of the border. In that case, the demand from inhabitants of Putte should not be taken into account when concentrating per municipality. There is not one alternative which functions best in all regions, some exceptions should be made or choices should be made regionally.

Part III – Results, conclusions and recommendations

8. Results

This chapter elaborates on the results obtained from the responses of the questionnaires.

8.1 Response questionnaire

Questionnaire for municipal actors

The questionnaire for municipal actors is answered by 91 respondents of which 69 municipal councilors and 22 civil servants; response rates of 9,8% and 40,7%. Only the civil servants with real estate or accommodation policy as their expertise are taken into account in determining the relative weights of the criteria (chapter 6.3). Thirteen of the 39 rural municipalities in Noord-Brabant are located in the future shrinkage region West-Brabant. The municipal councilors of this region are underrepresented. The civil servants are a realistic representation in this perspective. This can also explain the efforts made to adapt the policies on DT, because for municipalities within the (future) shrinkage areas this is already the case. A higher percentage of the civil servants responded that their municipality is actively involved in adapting their policies towards DT. Noteworthy is that not all civil servants in West-Brabant indicate that their municipality is actively adapting their policies with DT in mind. The differences of the relative weights of both parties are further discussed in paragraph 8.3.

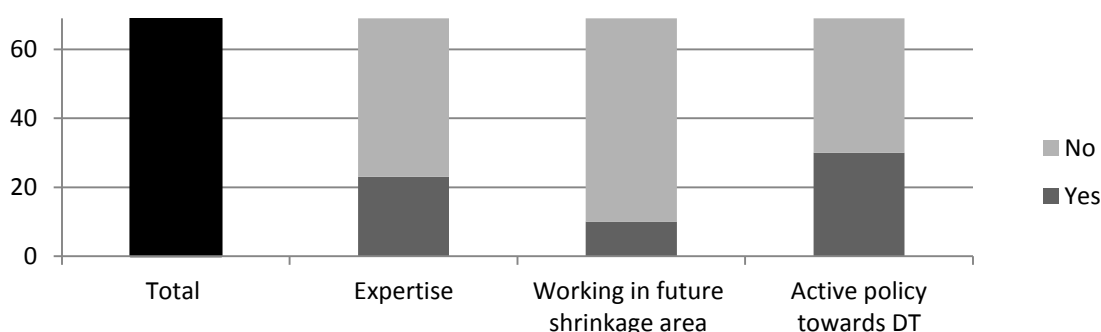


Figure 45 Composition of municipal councilors respondents



Figure 46 Composition of civil servants respondents

Questionnaire for experts

In total, 60 experts are approached of which 11 experts responded. Thus, a response rate of 18,3%. All experts agreed upon the question whether their working activities are related to municipal real estate, municipal accommodation policies or public facility planning.

Type of company	Amount of respondents
Advisory company in area developments	3
University	1
Ministry of Interior and Kingdom Relations	3
Research institute	3
Other	1

Figure 47 Amount of response per company

8.2 Consistency rates

Municipal actors

The total group of civil servants was more consistent in their answers than the municipal councilors. The consistency of the civil servants experts was higher than the total group of civil servants and in all cases higher than the municipal councilors. Both can be explained by the knowledge they have concerning the topic. Also the consistency ratio in relation to the time spent on the questionnaire is examined (appendix 9). The questionnaire could be answered in about 15 minutes. The questionnaires with a consistency ratio above 100% and more time spent than 45 minutes were left out of this examination to avoid incorporation of highly un-useful answers. On average municipal councilors took nine minutes to respond and the civil servants eight minutes. The answers are more consistent around this average time answering. If less time is spent, the answers are less thought out. Similar, if more time is spent the respondent is probably not certain of his preference. At both civil servants and municipal councilors, four of the six graphs showed this relation.

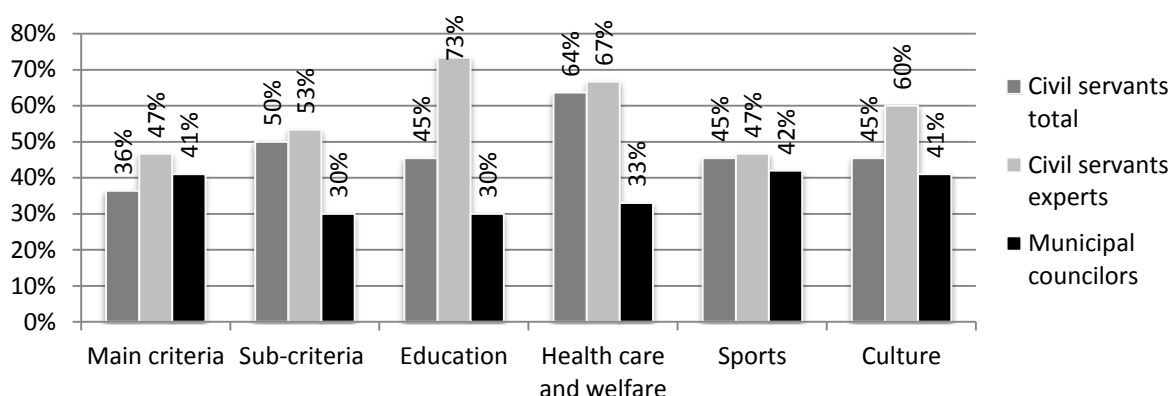


Figure 48 Consistency rates of the response on questionnaire for municipal actors

The percentage of municipal councilors and civil servants, who are consistent in their answers, is also with respect to their location of their municipalities (appendix 9). Municipal actors in the future shrinkage region are expected to be more conscious about the preferences and thus more consistent. In case of the sub-criteria of financial feasibility, this is the case for both municipal actors. Probably because municipal actors in the future shrinkage region are more aware of the financial situation and financial consequences of their municipality. Both municipal parties in or outside the future shrinkage region are similar consistent in the main criteria. Per sector, the percentages of consistent answers of the civil servants in or outside the future shrinkage region are quite similar. Probably because the topic of research belongs to the daily activities of all civil servants. In case of education and culture, municipal councilors within the future shrinkage region are more

consistent. Probably, because these two sectors are often in national news; the debate extends over the future shrinkage regions.

Experts

The inconsistency of the experts was higher than expected. This is probably because the topic of research is quite extensive and experts have expertise concerning a specific topic within a broader perspective. Therefore, a higher inconsistency of 15% is allowed. Also, a scale from 1-5 is considered to increase the trustworthy submitted questionnaires, but not applied because too much data would become useless, which in turn would affect outcomes.

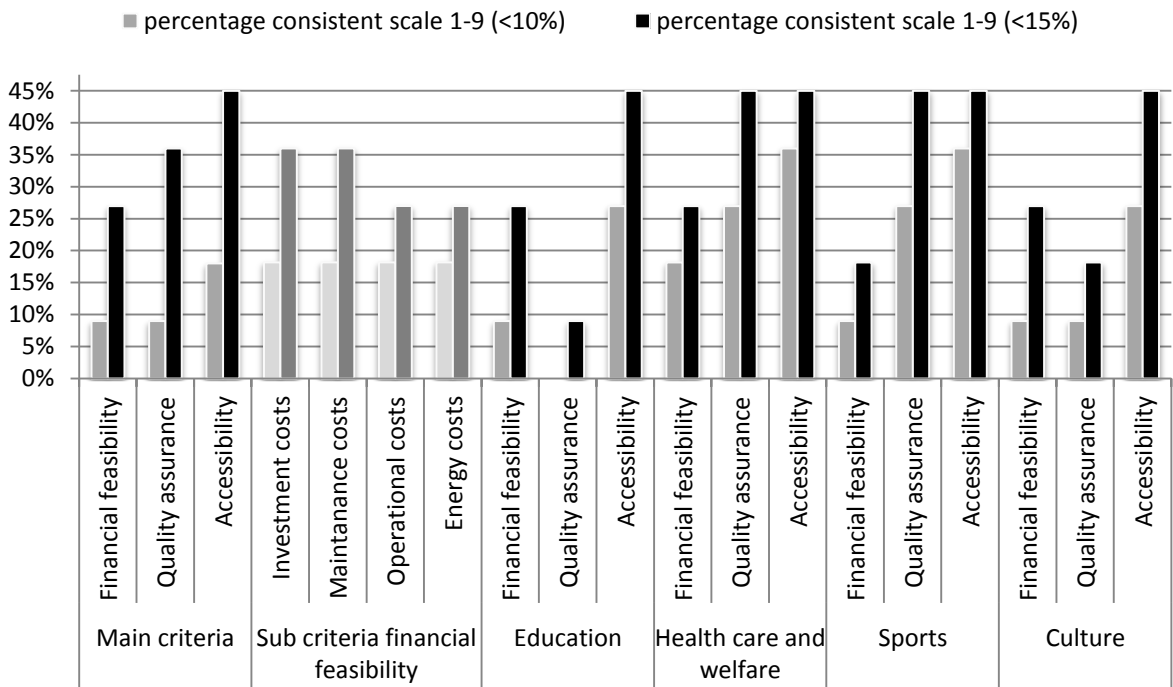


Figure 49 Consistency rates of the questionnaire for experts

8.3 Relative weights of the criteria

The relative weights of the criteria are determined for the municipal councilors and the civil servants experts. Municipal councilors value quality assurance highest, followed by the financial feasibility. While the civil servant experts value financial feasibility highest and also consider accessibility to be the least valuable.

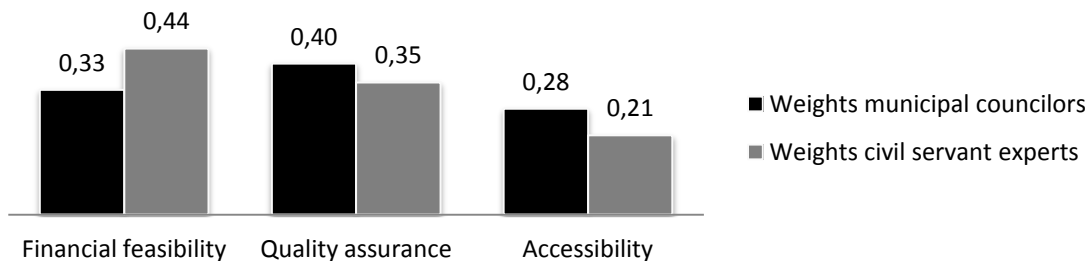


Figure 50 Relative weights of the main criteria

The ranking of the sub-criteria of financial feasibility are similar for both municipal actors, but the weights differ. For both actors the investment costs are the least important. Civil servants give the maintenance, operational and energy costs almost the same importance. For both actors, the operational costs are of highest importance.

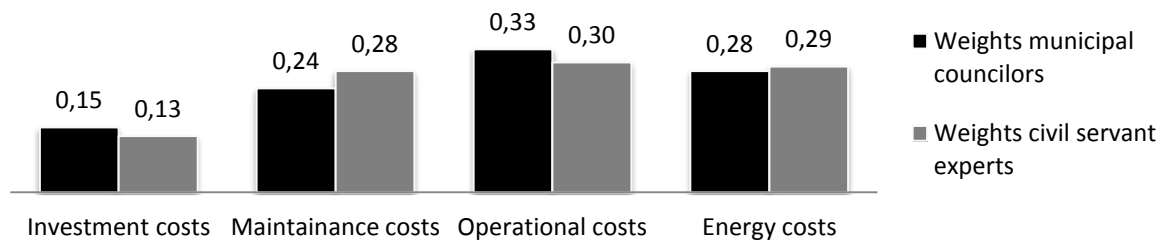


Figure 51 Relative weights of the sub-criteria financial feasibility

A distinction has been made between the different sectors (Figure 52 and Figure 53). These graphs show larger differences between the weightings. The graph of the municipal councilors shows a similar behavior for the education and health care and welfare as for the main criteria in general. The highest importance is given to the quality assurance and secondly, the accessibility instead of financial feasibility. For sports and culture, the highest importance is given to the financial feasibility, secondly quality assurance and third accessibility, similar to the main criteria in general.

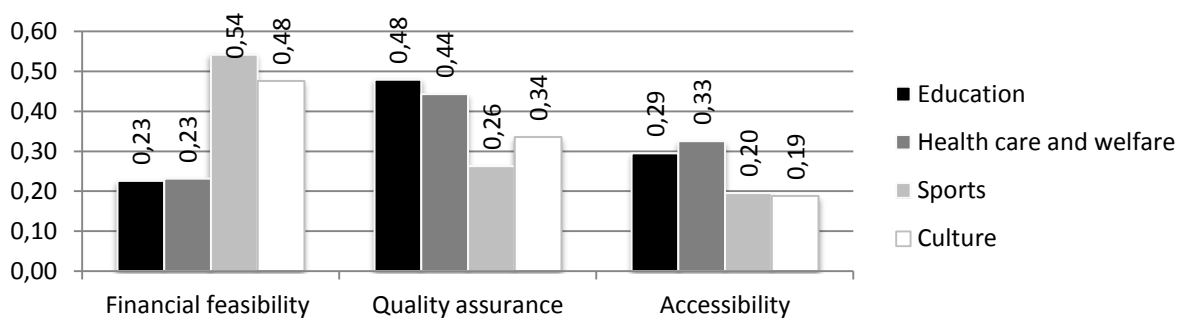


Figure 52 Relative weights of the main criteria per sector by the municipal councilors

In contrast to the importance of the main criteria in general, the civil servants do not give the highest importance to financial feasibility for education and health care and welfare, but similar to the municipal councilors, to the quality assurance. For education, financial feasibility is just as important as the accessibility and for health care and welfare the financial feasibility is still more important than the accessibility.

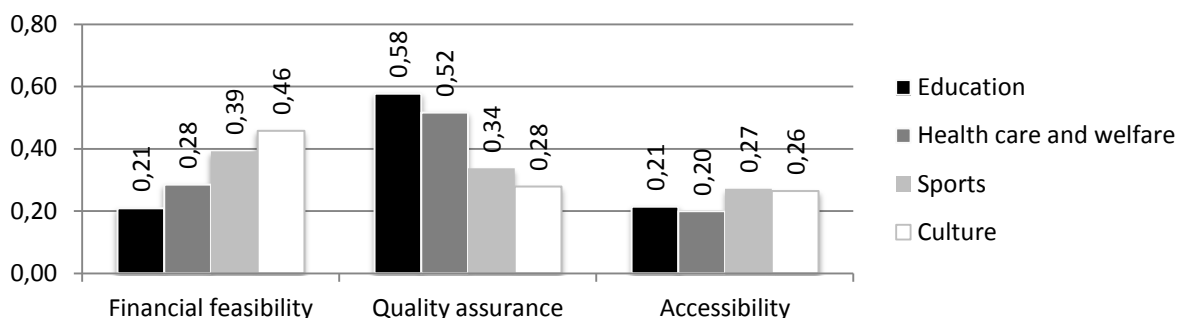


Figure 53 Relative weights of the main criteria per sector by the civil servant experts

The relative weights of municipal councilors and civil servants in and outside the future shrinkage region are compared (appendix 10). In all cases, the civil servants in the future shrinkage region give a lower importance to financial feasibility and a higher importance to the accessibility. For education, civil servants in the future shrinkage region give a higher importance to quality assurance. These differences in importance are probably because

public functions in the future shrinkage region already disappear and the accessibility is at stake. In addition, lots of debate is going on about the size of schools and related quality.

8.4 Performance of the alternatives on each criterion

On basis of the questionnaire for experts the relative weights of the alternatives are determined. Remarkable are the scores of the alternatives 1 and 2 on accessibility. Experts indicate that a de-central structure has a much better accessibility than concentration per village.

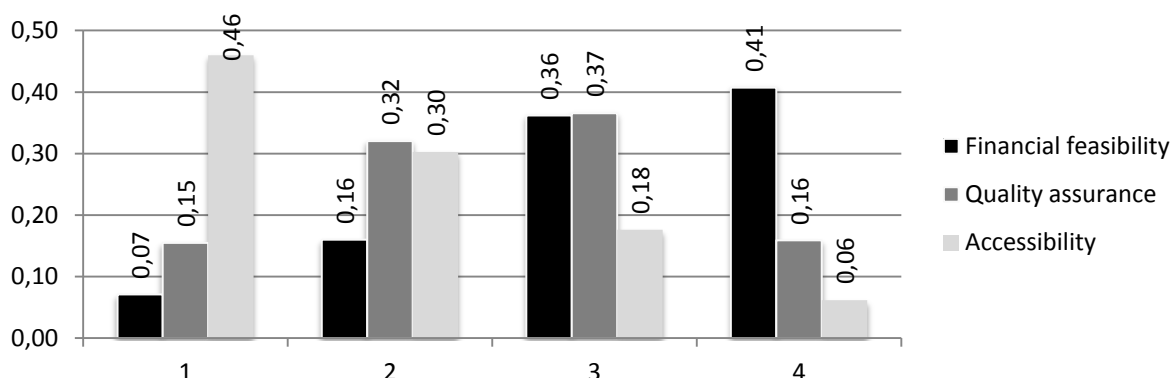


Figure 54 Performance of the alternatives for the main criteria

Although the financial feasibility shows large differences in the main criteria, this is less obvious in the sub-criteria. For the maintenance costs it is obvious, these are the highest in alternative 1 and the lowest in alternative 4. Possibly, the maintenance costs have a high weighting factor in the experts' opinion about the financial feasibility. HEVO (2010) states that 38% of the structural costs (maintenance, operational and energy costs) can be attributed to maintenance costs, 27% to water and energy and 35% to other operational costs. The operational and energy costs are similar and show only small differences per alternative similar to the maintenance costs. Experts expect the investment costs to be the highest in alternative 3.

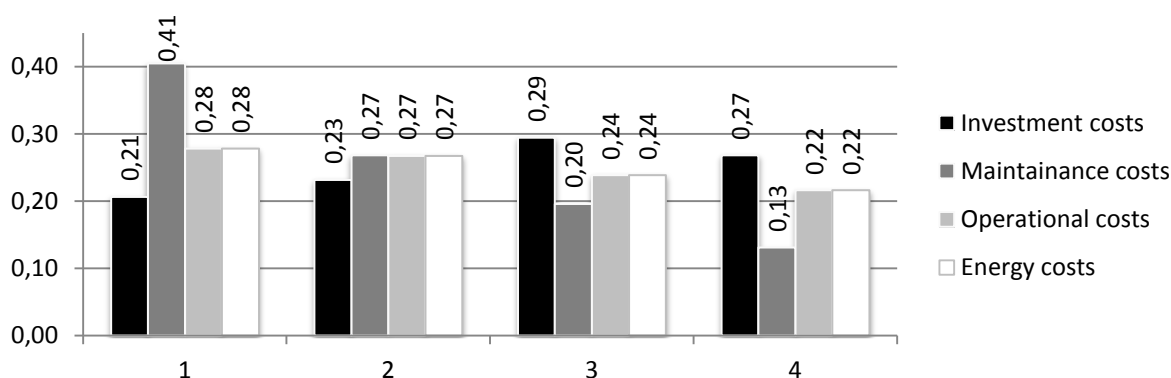


Figure 55 Performance of the alternatives on each sub-criterion of financial feasibility

The performances of the alternatives per sector show some differences in comparison with each other as well as with the main criteria in general. Only health care and welfare show a similar behavior as the main criteria is general. The financial feasibility in general is the highest in alternative 4 and the lowest in alternative 1, only education shows a different graph in which alternative 3 and 4 are interchanged. The quality assurance for education is the highest in alternative 2, while for health care and welfare and sports this is alternative 3,

similar to the main criteria in general, and for culture alternative 4. Alternative 1 scored the highest for accessibility for the main criteria. This is similar for health care and welfare. However, for education, sports and culture this is alternative 2. Figure 56 and Figure 57 shows the performances of the alternatives for education and sports. The performances of the alternatives for health care and welfare and culture are shown in appendix 12.

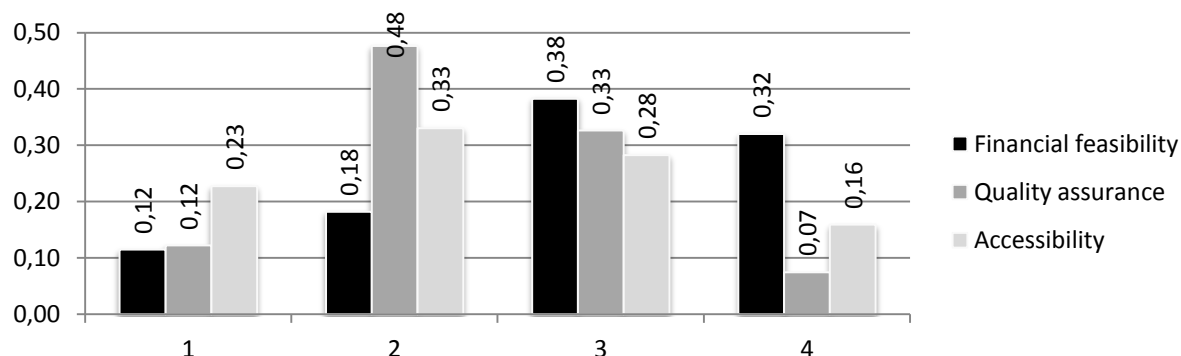


Figure 56 Performances of the alternatives for education

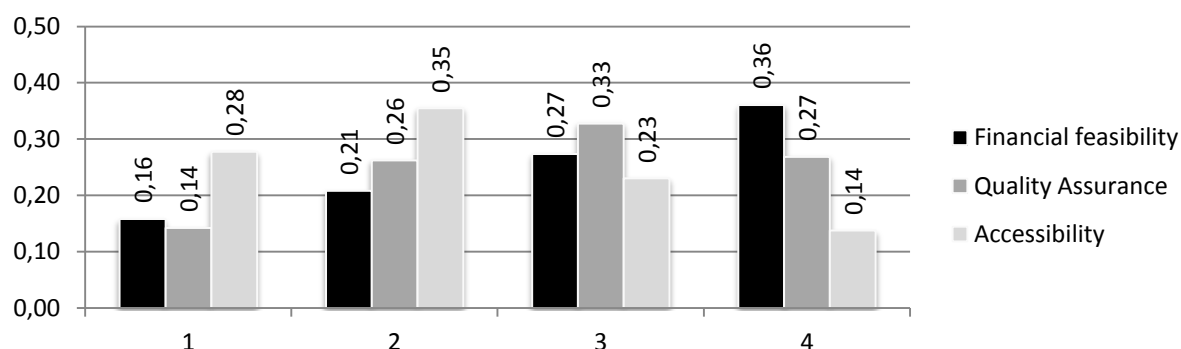


Figure 57 Performances of the alternatives for sports

In comparison to the case-study (chapter 7, Figure 42), a difference can be observed between the investment and operational costs. The case-study showed that alternatives 3 and 4 had the highest investment costs, because in order to achieve this alternative a new building should be constructed. Probably, this is not taken into account by the experts because the increase in demand for square meters in one sector can be compensated by the decrease of another sector. The case-study also showed that the operational costs in alternatives 3 and 4 were higher than in alternative 2, because community schools have higher average operational costs per square meter. Probably, the experts only took into account the scale-efficiency.

8.5 AHP ranking of the alternatives

AHP provides the best alternative concerning the municipal councilors and civil servant experts. Although specific numbers differ between the parties, the ranking is similar. In general, the most preferred alternative is the concentration per municipality.

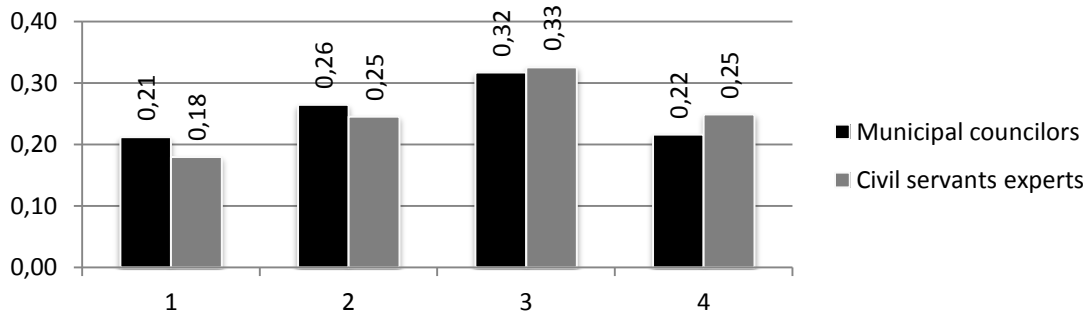


Figure 58 AHP ranking of the alternatives

The AHP ranking of the alternatives per sector show large differences in comparison with the AHP ranking in general. Municipal councilors and civil servant experts do agree on the best alternative per sector. For education concentration per village, for health care and welfare concentration per municipality and for culture concentration per region. For sports no real distinction can be made between concentration per municipality or region.

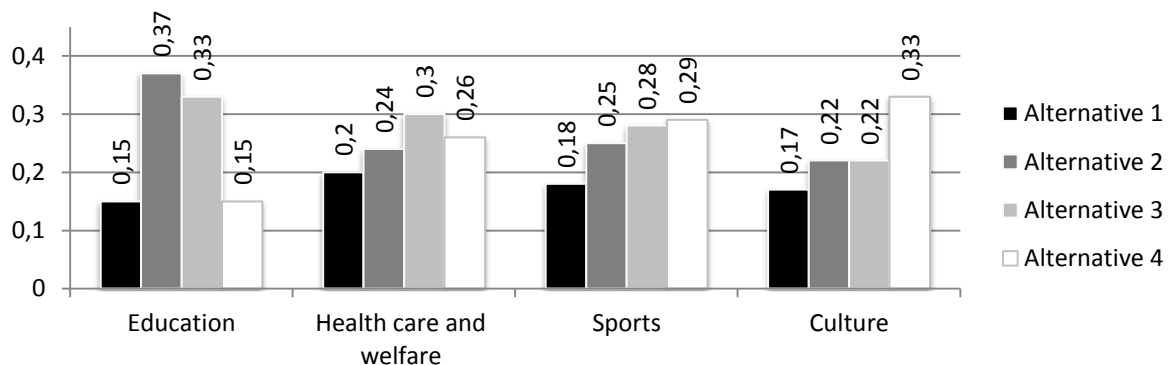


Figure 59 AHP ranking by municipal councilors

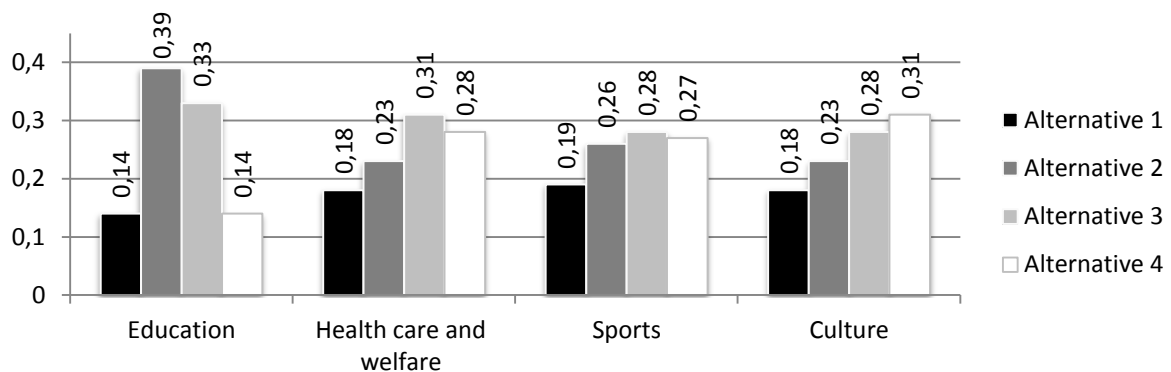


Figure 60 AHP ranking by civil servants experts

8.6 Ranking of the alternatives

All respondents are also asked to rank the alternatives directly. Figure 61 shows that both municipal actor groups indicate that they prefer concentration per village, while the AHP ranking showed that concentration per municipality is most preferred (Figure 50). Most often, the first choice of both parties was alternative 2. However the second choices differ, while civil servants clearly choose alternative 3, the second choice of the municipal councilors is divided between alternative 1 and 3. Experts prefer the concentration per municipality the most, followed by concentration per region and then, concentration per village. Experts chose a de-central structure only once as third choice (appendix 13).

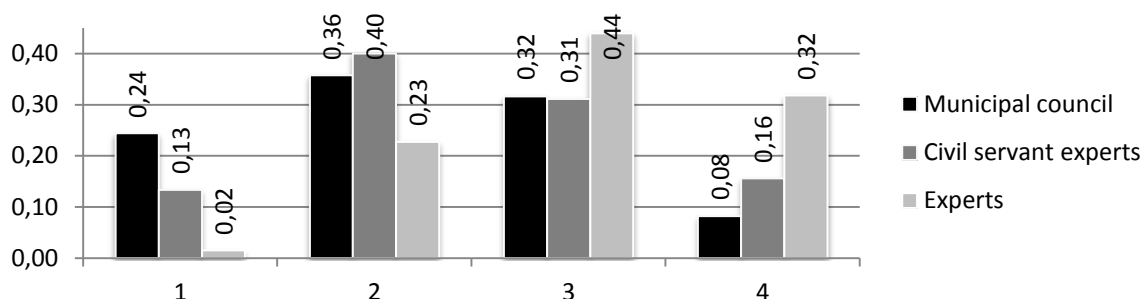


Figure 61 Ranking of the alternatives in general

The municipal councilors would choose rather for less concentration if they are asked directly, which implicates that they are not aware of their preferences and what also explains the high inconsistency among this group. The civil servant experts rank education exactly similar to the AHP ranking. For health care and welfare even more concentration is preferred. For sports and culture a bit less concentration is preferred, concentration per municipality. For the experts the distinction between the sectors seems less necessary. Except for culture, the highest preference is to concentrate the public services on municipal level, similar to the main criteria in general. The rankings of education and culture are shown below. The rankings of health care and welfare and sports are shown in appendix 14.

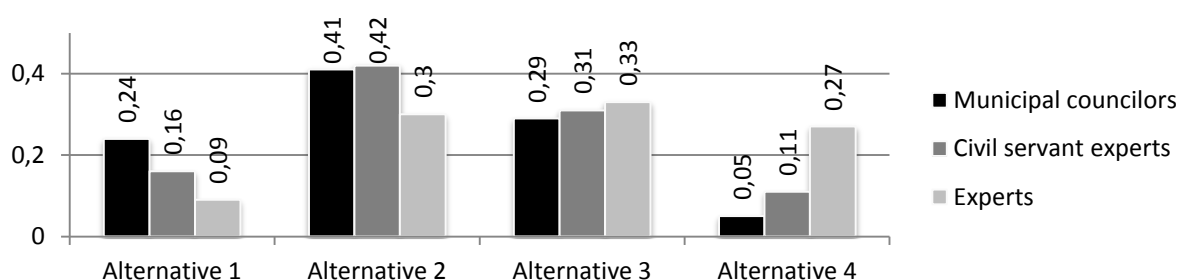


Figure 62 Ranking of the alternatives for education

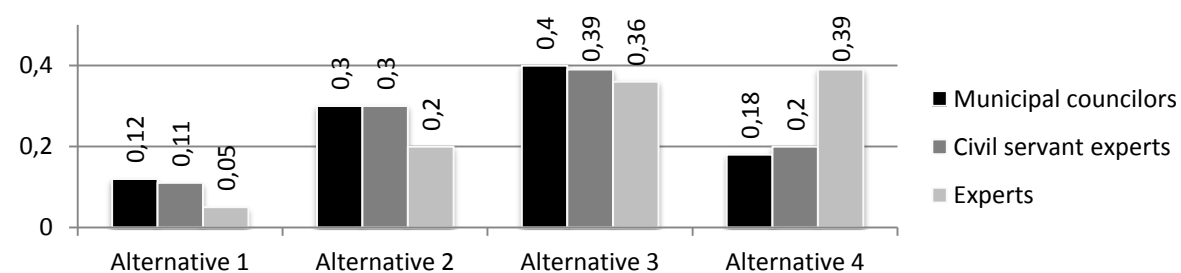


Figure 63 Ranking of the alternatives for culture

8.7 Conclusion

This chapter provided a basis to answer the research question: *‘Which level of concentration is most desired by municipality actors?’*

While municipal councilors give the highest importance to the quality assurance, the civil servant experts give the highest importance to the financial feasibility. Both give the lowest importance to accessibility. For the sub-criteria of financial feasibility, the structural costs weigh more than the onetime investment costs. A distinction between the sectors is preferred, because large differences in relative weightings can be observed. Municipal actors seem to make a distinction between education, health care and welfare, and on the other side sports and culture. For education, health care and welfare the highest importance is given to the quality assurance, while for sports and culture the highest importance is given to the financial feasibility.

The scores of the alternatives on each criterion are determined by the experts using pair wise comparison and AHP. The following trends can be observed:

- financial feasibility increases with a higher level of concentration,
- quality assurance is best on municipal level and worst in a de-central allocation,
- accessibility decreases with a higher level of concentration.

From AHP ranking, the municipal actors agree upon the preferred level of concentration. If municipal actors are asked directly for their preference of the main criteria they often choose for concentration to a lower extent. The preferences of the municipal actors differ per sector when asked directly. Per sector, municipal councilors also choose for a lower level of concentration. The difference might be due to the fact that the experts rated the alternatives, who might have a different idea about the performance of the alternatives for each criterion. Another explanation might be that the municipal councilors do not have sufficient knowledge about the consequences of the alternatives. Civil servant experts choose for a similar level as with the AHP ranking. Experts choose for a higher level of concentration.

Sector	AHP ranking	Direct ranking		
	Municipal actors	Municipal actors		Experts
		Municipal councilors	Civil servant experts	
Education	Village	Village	Village	Municipality
Health care and welfare	Municipality	Village	Municipality	Municipality
Sports	Municipality/ region	Village	Municipality	Municipality
Culture	Region	Municipality	Municipality	Region

Figure 64 Ranking of the alternatives

9. Conclusion and recommendations

9.1 Conclusions of the sub-questions

In the previous chapters, the sub-questions were answered. The conclusions will be summarized below, from which the main research question will be answered.

Municipalities manage their real estate either de-central or central. De-central means that each department manages its own real estate, in contrast to central department per municipality. De-central real estate management is currently most common. Though, an increasing number of municipalities shift to a central real estate management to increase their insight in the size and costs of their real estate portfolio. This insight is required to calculate the financial consequences of alternatives for the accommodation policy.

The main actors involved in the realization of public real estate and the supply of public services are listed below, along with their role, interest, ability to finance and responsibility.

The municipality:

- role: providing public real estate, implementing the WMO, stimulating sports, culture and social participation, determining and implementing accommodation policy,
- interest: enabling participation in society and balancing the interest of inhabitants and other actors,
- finance: by state funding and local taxes, which both decrease in the near future,
- responsibility: implementation of national and municipal policies and wellbeing of citizens.

The social institutions:

- role: offering a public service,
- interest: achieving a societal goal,
- finance: membership dues, state funding, direct or indirect municipal subsidy. These institutions are mostly non-profit organizations,
- responsibility: providing a high quality public service.

The users:

- role: creating demand for public services,
- interest: the fulfillment of their public service needs,
- finance: payment per service or membership due,
- responsibility: low, volunteering in social institutions.

Demographic transition (DT) includes population and household decline, and the changing composition of both. DT is unequally distributed over regions. Peripheral municipalities have to cope with DT more often than urban municipalities. The Ministry of Interior and Kingdom Relations designated three top shrinkage regions and several future shrinkage regions which should anticipate on DT. Apart from DT, social-cultural and economic developments influence demand and fundability of public services. Figure 65 shows the development of demand for public services and related real estate per sector.

Sector	Development of the demand
Education	Large decrease
Health care and welfare	Increase
Sports	Decrease
Culture	Decrease

Figure 65 Development of the demand

The criteria which are taken into account by the municipal actors when determining the accommodation policy are:

- financial feasibility: investment costs, maintenance costs, operational costs and energy costs,
- quality insurance,
- accessibility.

Possible levels of concentration are:

- no concentration: a de-central allocation of public services,
- concentration per village,
- concentration per municipality,
- concentration per region.

From AHP ranking, it is concluded that concentration on municipal level is most preferred by both municipal actors, while a difference was expected. Municipal councilors were expected to prefer a lower level of concentration or no concentration at all. Figure 66 shows the preferred level of concentration per sector, and is found to differ along the sectors.

Sector	Preferred level of concentration (AHP)
Education	Village
Health care and welfare	Municipality
Sports	Municipality/ region
Culture	Region

Figure 66 Preferred level of concentration based on AHP pair wise comparison

Municipal councilors provide different answers when asked directly for their preference compared to the AHP ranked pair wise comparisons. Offering direct choice between different levels of concentration results in a choice for lower level of concentration than could be expected from AHP ranking, but corresponds to the expectations determined at the beginning of the research. A possible explanation is that municipal councilors are not fully aware of their preference regarding concentration of public services. This might also explain the high inconsistency rates among the municipal councilors to the questionnaire.

The division in sectors is listed below. When offered direct choice, municipal councilors again choose for a lower level of concentration, civil servant experts answer relatively similar to the AHP ranking. Experts often choose for a higher level of concentration than both municipal actors. Thus, civil servant experts seem more aware of their preference.

Sector	Direct ranking		
	Municipal actors		Experts
	Municipal councilors	Civil servant experts	
Education	Village	Village	Municipality
Health care and welfare	Village	Municipality	Municipality
Sports	Village	Municipality	Municipality
Culture	Municipality	Municipality	Region

Figure 67 Preferred level of concentration when asked directly

9.2 Conclusion of the main research question

Finally, the main research question can be answered: *‘To what extent is the concentration of public services in municipal real estate seen as the solution for the consequences of demographic transition?’*.

Municipal actors do see concentration of public services as a solution for the consequences of DT. The concentration is preferred to be limited to the municipal borders. This is probably because municipality itself wants to control the supply of public services.

Experts prefer concentration on a higher level. The expected discrepancy between municipal actors and experts is present, but smaller than expected. Experts also prefer concentration within municipal borders. This is probably due to the regional gap and the fact that municipalities are only accountable for their own municipality. Current governmental structure does not provide the commitment for a group of municipalities to engage in a regional (concentration) project.

In order to make a substantiated decision on the accommodation policy, the financial consequences of the alternatives should be clarified. Municipalities should obtain financial data on the public real estate in their portfolio. Another important aspect in the decision making process is awareness of the consequences regarding quality, accessibility and social aspects. On the basis of this research, the civil servants appear to be slightly more knowledgeable on the subject than municipal councilors. This could be expected prior to the research because the topic concerns the daily tasks of the approached civil servants. As a result, it can be said that municipal councilors could be made more aware of the consequences of their preferences.

9.3 Recommendations for municipalities

Municipalities are recommended to gain more insight in the consequences of the alternatives. For this purpose, more specific information on the parameters of financial feasibility, quality and accessibility are required. The level of detail determines the certainty of the consequences. The size and costs of the real estate portfolio need to be detailed on building level.

Per municipality, the number of services which can be combined might be different. An integral approach on municipal level is said to be beneficial, according to experts. The knowledge of civil servants could be used more extensively. The experts recommend a higher level of concentration than current policy and municipal preference.

9.4 Recommendations for further research

The financial elaboration of the alternatives in the case-study showed that financial data and indicators are missing. In order to calculate on economies of scale concerning public real estate more benchmark research should be done on the structural cost structure for multiple building sizes.

To use the tool in practice, more influential criteria should be determined and specified in sub-criteria. A (computer) program should be developed to standardize the process and generate the result automatically. Filling in the questionnaire might be time consuming, but probably decreases the time spent on discussions during the council meeting.

The effect of indirect subsidies is not yet examined. The effect of the abolishment of indirect subsidies remains unknown, while it could influence the found results.

The number of criteria could be extended in further research. Sub-criteria are examined for the financial feasibility main criterion. Other criteria are not yet subdivided in the questionnaires. Several secondary costs are not taken into account in this thesis. For example, the cost of real estate vacancy or costs for adapting buildings for other functions.

The future demand for the amount of floor area for a service is based on national prognoses. However, these prognoses are often based on growth and in shrinkage regions these prognoses seem too positive. Thus, prognoses' models must be adapted in order to make sound prognosis for (future) shrinkage regions.

In this thesis, the performance of the alternatives on each criterion are determined by experts. However, this could also be done by both municipal actors and experts. Then, the evaluations of the alternatives can also be compared because different parties might have different ideas about the performances of the alternatives. The results of this thesis show this.

This thesis considers only concentration as a solution to problem resulting from DT. Other solutions might be present and need to be balanced. A broader study with an overview on the DT problems could show the role of concentration.

10. Discussion

The application of AHP gave insight in the decision process of the municipal actors. However, there are assumptions made which influence the final result. These are listed below:

- Four public sectors are further taken into account. Apart from public sectors also private sectors, such as retail could be taken into account to increase the occupancy rates of municipal real estate. This increased occupancy rate may result in higher financial feasibility of the service and thus lower need for concentration.
- Apart from concentration, municipalities have more alternatives such as the sale of their real estate. This could lead to a shift in preferred level of concentration.
- More criteria might be influential in the decision process. These could differ per municipality, but also per alternative. More criteria with accurate data results in a lower uncertainty.
- In this thesis it is assumed that unnecessary municipal real estate is repelled from the portfolio. However in practice, to sell public municipal real estate might be difficult because the buildings are equipped for a specific function. Municipalities are faced with structural costs in vacant real estate, such as energy bills, water, insurance and maintenance. Taken vacancy costs into account might limit the financial benefits of concentration.

Financial data was missing, and therefore the alternatives could not be elaborated in detail. No distinction could be made between alternatives 3 and 4. As a result, no sharp conclusion about financial consequences of the alternatives could be given.

Apart from AHP, the respondents were asked for their preference directly. The resulting answers are not scientifically valid and the answers often showed to be safely in the middle of the spectrum (appendix 15).

The approach used in this report can be highly valuable in the decision making process of municipalities. The used AHP method clarifies the importance of the criteria and determines the most preferred alternative. This method gives insight in the decision process which is especially valuable for municipal councilors who appear to be less aware of their preferences. Thus, it is a useful tool in this context. For civil servants, the importance municipal councilors give is highly valuable. Civil servants can determine the best suited alternative and submit this for approval at the municipal council, instead of solely implementing the goal set by the municipal council.

I agree with the outcome to concentrate public service either on village or municipal level. On this level, the positive and negative consequences of the alternatives are in balance. The most important criteria are valued the highest in these alternatives. Although the optimal level of concentration for the different sectors might be different, they should be accommodated integrally. For example, education can be concentrated on village level as long as the provided quality is sufficient. This school accommodation could also function as a gathering place for the community, replacing other relocated gathering locations. The historically increasing mobility of citizens nurtures the willingness to travel further for a higher quality service. Elderly have also shown to have increased mobility due to devices such as the scooter mobile, which makes it easier for them to travel a longer distance. For

people with very limited mobility, special visits of the service per village might be a solution. Thereby concentrating the accommodation, but making the service more mobile.

The full concentration on municipal or regional level will leave lots of municipal real estate vacant. These buildings are made for a specific function which makes it, in current times of economic crisis, even harder to sell. Vacant buildings will therefore remain a structural expenditure on the municipal budget. In addition, vacancy decreases the livability of an area, which on its turn decreases the value of the buildings in the surrounding.

The thesis showed a knowledge gap between the municipal councilors and the civil servants. The case study areas were the rural municipalities in Noord-Brabant which do not cope with DT yet. This might influence the result. When the municipalities actually cope with DT, municipal councilors might get more aware of the consequences of alternatives. If the policy can be made and implemented prior to the occurrence of DT, possibly expenditures can be lowered and negative consequences can be mitigated.

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Appendix 1 List of rural municipalities

In Noord-Brabant, 39 rural municipalities are located. The municipalities are distinguished into four groups corresponding to the regional spatial consultation (Bargeman *et.al.*, 2012). West-Brabant is designated as future shrinkage region.

West Brabant (13): Halberberge, Moerdijk, Rucphen, Steenbergen, Woensdrecht, Alphen-Chaam, Baarle-Nassau, Drimmelen, Geertruidenberg, Zundert, Aalburg, Werkendam And Woudrichem.

Central Brabant (2): Hilvarenbeek and Oisterwijk.

North-East Brabant (12): Boxtel, Haaren, Sint-Michielsgestel, Boekel, Landert, Schijndel, Sint-Oedenrode, Boxmeer, Grave, Cuijk, 'Mill en Sint Hubert' and Sint-Antonis.

South-East Brabant (12): Bergeijk, Bladel, Eersel, Oirschot, Reusel-de Mierden, Asten, Cranendonck, Deurne, Gemert-Bakel, Heeze-Leende, Laarbeek and Someren.

Appendix 2 Email to municipalities general email and civil servants (Dutch)



Agentschap NL
Ministerie van Economische Zaken



Beste heer/mevrouw,

In het kader van mijn afstuderen probeer ik mijn enquête door experts op het gebied van gemeentelijk vastgoed- en accommodatiebeleid te laten invullen. Daarom willen ik u vragen de onderstaande mail, met daarin de link naar de enquête, te verspreiden onder ambtenaren die te maken hebben met het accommodatie- en/of vastgoedbeleid van de gemeente.

Mijn afstudeeronderzoek doe ik voor AgentschapNL. AgentschapNL voert in opdracht van en in samenwerking met het Ministerie van Binnenlandse Zaken en Koninkrijksrelaties het programma 'demografische transitie' uit.

De resultaten van onderzoek kunnen de gemeentelijke organisatie helpen in de besluitvorming omtrent accommodatie- en vastgoedbeleid.

Alvast bedankt,
Eva van Bunningen

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Geachte heer/mevrouw,

Tijdens mijn afstuderen probeer ik te bepalen of het concentreren van maatschappelijke voorzieningen gezien wordt als oplossing voor demografische krimp, ook wel demografische transitie genaamd. Daarbij ligt de focus op het gemeentelijk vastgoed, omdat daar sturing vanuit de overheid mogelijk is. Mijn afstudeeronderzoek doe ik voor AgentschapNL. AgentschapNL voert in opdracht van en in samenwerking met het Ministerie van Binnenlandse Zaken en Koninkrijksrelaties het programma 'demografische transitie' uit.

Graag zou ik uw medewerking willen vragen door middel van het invullen van mijn enquête. De enquête zal ongeveer 15 minuten van uw tijd vragen, het levert mij waardevolle

informatie voor mij onderzoek op. Aan het einde van de enquête heeft u de mogelijkheid uw mailadres achter te laten om de resultaten van het onderzoek te zijner tijd te ontvangen. De resultaten van het onderzoek kunnen gemeentelijke organisaties die te maken hebben met demografische transitie helpen in de besluitvorming omtrent het accommodatie- en vastgoedbeleid.

U kunt aan de enquête deelnemen door op onderstaande link te klikken:

http://vragen1.ddss.nl/q/concentratie_gmv

Voor de voortgang van het onderzoek zou ik u graag willen vragen de enquête deze week in te vullen. [Mocht u de enquête al ingevuld hebben, dan kunt u deze mail als niet verstuurd beschouwen.]

Uw deelname wordt door mij zeer op gesteld,

Eva van Bunningen

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Appendix 3 Email to the municipal councilors (Dutch)



Beste raadslid,

Tijdens mijn afstuderen probeer ik te bepalen of het concentreren van maatschappelijke voorzieningen gezien wordt als oplossing voor demografische krimp, ook wel demografische transitie genaamd. Daarbij ligt de focus op het gemeentelijk vastgoed, omdat daar sturing vanuit de overheid mogelijk is. Mijn afstudeeronderzoek doe ik voor AgentschapNL. AgentschapNL voert in opdracht van en in samenwerking met het Ministerie van Binnenlandse Zaken en Koninkrijksrelaties het programma 'demografische transitie' uit.

Graag zou ik uw medewerking willen vragen door middel van het invullen van mijn enquête. De enquête zal ongeveer 15 minuten van uw tijd vragen, het levert mij waardevolle informatie voor mij onderzoek op. Aan het einde van de enquête heeft u de mogelijkheid uw mailadres achter te laten om de resultaten van het onderzoek te zijner tijd te ontvangen. De resultaten van het onderzoek kunnen gemeentelijke organisaties die te maken hebben met demografische transitie helpen in de besluitvorming omtrent het accommodatie- en vastgoedbeleid.

U kunt aan de enquête deelnemen door op onderstaande link te klikken:

http://vragen1.ddss.nl/q/concentratie_gmv

Voor de voortgang van het onderzoek zou ik u graag willen vragen de enquête deze week in te vullen. [Mocht u de enquête al ingevuld hebben, dan kunt u deze mail als niet verstuurd beschouwen.]

Uw deelname wordt door mij zeer op gesteld,

Eva van Bunningen

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Appendix 4 Questionnaire for municipal actors

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Pagina 1 van 13 (Readonly)

Beste heer/mevrouw,

Tijdens mijn afstuderen probeer ik te bepalen of het concentreren van maatschappelijke voorzieningen gezien wordt als oplossing voor demografische krimp, ook wel demografische transitie genaamd. Daarbij ligt de focus op het gemeentelijk vastgoed, omdat daar sturing vanuit de overheid mogelijk is. Met het invullen van deze enquête helpt u mij bij een essentieel deel van het onderzoek.

De enquête zal ongeveer 15 minuten van uw tijd vragen. Allereerst worden een aantal algemene gegevens over uw functie en de gemeente gevraagd. Vervolgens worden aspecten van het onderzoek verder toegelicht en wordt een voorbeeld gegeven van een vraag. Daarna vraag ik u om criteria tegen elkaar af te wegen die van belang worden geacht bij de besluitvorming en om uw voorkeur uit te spreken betreffende verschillende alternatieven.

Indien u geïnteresseerd bent in de resultaten van dit onderzoek, kunt u aan het einde van de enquête uw adresgegevens achterlaten zodat ik u deze ter zijner tijd kan toesturen. Verder zullen uw antwoorden anoniem verwerkt worden.

Uw deelname wordt door mij zeer op prijs gesteld,

Eva van Bunningen

Technische Universiteit Eindhoven
Master Construction Management and Engineering
Afstudeerstagair bij AgentschapNL

Volgende

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Algemene gegevens

Pagina 2 van 13 (Readonly)

Welke functie bekleed u binnen uw gemeente?

- ☐ Raadslid
☒ Ambtenaar
☐ Anders, namelijk:

Hebben uw (dagelijkse) werkzaamheden betrekking op het vastgoed- of accommodatiebeleid binnen de gemeente?

- ☒ Ja
☐ Nee

Werkt u in de anticipeerregio West-Brabant?

De anticipeerregio West-Brabant betreft de regio die door het Ministerie van Binnenlandse Zaken en Koninkrijksrelaties officieel is aangewezen in het kader van de demografische transitie.

- ☒ Ja
☐ Nee

Is uw gemeente actief bezig met het aanpassen van het beleid op de demografische transitie?

- ☒ Ja
☐ Nee

Vorige

Volgende

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Toelichting van de criteria binnen de besluitvorming

Pagina 3 van 13 (Readonly)

Eén van de manieren die aangedragen wordt om in te spelen op de gevolgen van de demografische transitie is het concentreren van maatschappelijke voorzieningen in (gemeentelijk) vastgoed. Door middel van interviews en literatuurstudie heb ik de belangrijkste criteria die door gemeenten meegenomen worden in deze beslissing vastgesteld. Hieronder worden de criteria en de daaronder vallende subcriteria kort toegelicht.

Financiële haalbaarheid

- Investeringskosten: kosten om de ruimtelijke structuur aan te passen
- Kosten voor groot onderhoud: kosten om accommodaties in de toekomst te laten voldoen aan technische eisen
- Operationele kosten: kosten voor o.a. administratie, beheer, verzekeringen, klein onderhoud en schoonmaak
- Energiekosten: de uitgaven voor energieverbruik: elektriciteit en gas

Waarborging van de kwaliteit

- Kwaliteit van de dienst: de waarborging van de kwaliteit van de aangeboden dienst
- Sociale cohesie: de mate waarin de structuur sociale cohesie stimuleert
- Synergie: de mate waarin aanbieders van een maatschappelijke dienst kunnen samenwerken met aanbieders van andere maatschappelijke diensten

Bereikbaarheid

- Bereikbaarheid: de afstand die gebruikers moeten afleggen om de voorziening te bereiken
- Toegankelijkheid: de mate waarin het mogelijk is voor mindervaliden om van de dienst gebruik te maken

Verder in de enquête wordt enkel dieper ingegaan op de subcriteria van de 'financiële haalbaarheid'.

Vorige

Volgende

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Voorbeeldvraag

Pagina 4 van 13 (Readonly)

In de komende vragen wordt u gevraagd criteria tegen elkaar af te wegen. Een voorbeeldvraag wordt hieronder getoond, ter verduidelijking.

Voorbeeldvraag:

Welk criterium acht u van meer belang?

	++++	+++	++	+	Gelijk	+	++	+++	++++	
Financiële haalbaarheid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Waarborging van kwaliteit

Bent u van mening dat het criterium links 'financiële haalbaarheid' vele malen belangrijker is dan het criterium rechts 'waarborging van kwaliteit', dan vult u het vak helemaal links in.

Bent u van mening dat beide criteria gelijk aan elkaar zijn, dan kiest u het middelste vakje.

Bent u van mening dat het criterium rechts 'waarborging van kwaliteit' vele malen belangrijker is dan het criterium links 'financiële haalbaarheid', dan vult u het vak helemaal rechts in.

Daartussen bevinden zich de overige gradaties.

Vorige

Volgende

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Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Pagina 5 van 13 (Readonly)

Graag wil ik u vragen bij het invullen van de enquête de volgende situatie in acht te nemen:

Stel u voor dat u werkzaam bent in een gemeente met een aantal kleine kernen. Nu of in de nabije toekomst krijgt uw gemeente te maken met de demografische transitie, die invloed heeft op de bevolkings- en huishoudensaantallen en de compositie van de bevolking en de huishoudens. Naast deze gevolgen heeft de demografische transitie ook andere maatschappelijke, financiële, ruimtelijke, sociaal-culturele en organisatorische gevolgen voor de gemeentelijke organisatie of het beleid dat nagestreefd wordt.

Vorige

Volgende

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Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Paarsgewijze vergelijkingen van de criteria

Pagina 6 van 13 (Readonly)

Welk hoofdcriterium acht u van meer belang in de afweging om maatschappelijke voorzieningen te concentreren in (gemeentelijk) vastgoed?

	++++	+++	++	+	Gelijk	+	++	+++	++++	
Financiële haalbaarheid	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Waarborging van kwaliteit
Financiële haalbaarheid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Bereikbaarheid
Waarborging van kwaliteit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Bereikbaarheid

Welk subcriterium van 'financiële haalbaarheid' acht u van meer belang in de afweging om maatschappelijke voorzieningen te concentreren in (gemeentelijk) vastgoed?

	++++	+++	++	+	Gelijk	+	++	+++	++++	
Investeringskosten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Kosten voor groot onderhoud
Investeringskosten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Operationele kosten
Investeringskosten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Energiekosten
Kosten voor groot onderhoud	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Operationele kosten
Kosten voor groot onderhoud	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Energiekosten
Operationele kosten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Energiekosten

Vorige

Volgende

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Paarsgewijze vergelijkingen van de criteria per sector

Pagina 7 van 13 (Readonly)

Voor het onderzoek is het wenselijk onderscheid te maken tussen sectoren als het gaat om de afweging om maatschappelijke voorzieningen te concentreren. Daarom worden nu enkele vragen gesteld met betrekking tot een specifieke sector.

Bij de sectoren 'educatie' en 'zorg en welzijn' horen de volgende voorzieningen:

Educatie: kinderopvang en basisonderwijs

Zorg en welzijn: intramurale zorg en gemeentelijke welzijnsvoorzieningen zoals dagbesteding of een Centrum voor ouder en kind

Welk hoofdcriterium acht u van meer belang in de afweging om educatieve voorzieningen te concentreren in (gemeentelijk) vastgoed?

	++++	+++	++	+	Gelijk	+	++	+++	++++	
Financiële haalbaarheid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Waarborging van kwaliteit
Financiële haalbaarheid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Bereikbaarheid
Waarborging van kwaliteit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Bereikbaarheid

Welk hoofdcriterium acht u van meer belang in de afweging om zorg- en welzijnsvoorzieningen te concentreren in (gemeentelijk) vastgoed?

	++++	+++	++	+	Gelijk	+	++	+++	++++	
Financiële haalbaarheid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Waarborging van kwaliteit
Financiële haalbaarheid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Bereikbaarheid
Waarborging van kwaliteit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Bereikbaarheid

Vorige

Volgende

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Page 8 of the questionnaire is similar to page 7, for the sectors sports and culture.

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Toelichting van de alternatieven

Pagina 9 van 13 (Readonly)

Aan de hand van literatuur en interviews heb ik een viertal alternatieven opgesteld voor het toekomstig beheer en de ontwikkeling van het vastgoed ten behoeve van voorzieningen. Deze alternatieven verschillen in het schaalniveau waarop geconcentreerd wordt, variërend van concentratie op regioniveau tot een volledig decentraal aanbod waarbij niet geconcentreerd wordt.

Per alternatief kunnen de eerder genoemde hoofd- en subcriteria variëren. De alternatieven spelen in meer of mindere mate in op de gevolgen van de demografische transitie, nu en in de toekomst. In geen van de alternatieven blijft de huidige ruimtelijke, beleidsmatige, financiële, maatschappelijke en/of sociale voorzieningestructuur volledig gehandhaafd.

De alternatieven luiden als volgt:

Alternatief 1 Decentraal per kern

Dit alternatief houdt een decentrale voorzieningestructuur per kern in. Met andere woorden, in elk dorp worden diensten van maatschappelijke instellingen aangeboden in verschillende (gemeentelijke) accommodaties.

Alternatief 2 Centraal per kern

In dit alternatief worden voorzieningen geconcentreerd per kern. Met andere woorden, in elk dorp worden diensten van maatschappelijke instellingen aangeboden geconcentreerd in (gemeentelijke) accommodatie(s).

Alternatief 3 Concentratie per gemeente

Dit alternatief gaat uit van de concentratie van maatschappelijke voorzieningen per gemeente in een centrumkern in (gemeentelijke) accommodatie(s).

Alternatief 4 Concentratie per regio

In dit alternatief wordt uitgegaan van de concentratie van maatschappelijke voorzieningen per regio in een centrumkern in (gemeentelijke) accommodatie(s).

[Vorige](#)

[Volgende](#)

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Rangschikken van de alternatieven

Pagina 10 van 13 (Readonly)

Graag wil ik u de situatie nogmaals onder de aandacht brengen:

Herhaling situatie: Stel u voor dat u werkzaam bent in een gemeente met een aantal kleine kernen. Nu of in de nabije toekomst krijgt uw gemeente te maken met de demografische transitie, die invloed heeft op de bevolkings- en huishoudensaantallen en de compositie van de bevolking en de huishoudens. Naast deze gevolgen heeft de demografische transitie ook andere maatschappelijke, financiële, ruimtelijke, sociaal-culturele en organisatorische gevolgen voor de gemeentelijke organisatie of het beleid dat nagestreefd wordt.

Alle behandelde criteria afwegend;

Welk alternatief geniet uw voorkeur als het gaat om het concentreren van alle maatschappelijke voorzieningen in (gemeentelijk) vastgoed?

A1 Decentraal per kern	3 ▼
A2 Centraal per kern	1 ▼
A3 Centraal per gemeente	2 ▼
A4 Centraal per regio	4 ▼

Waarin: 1= Meest gewenst <...> 4= Minst gewenst

Vorige

Volgende

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Rangschikken van de alternatieven per sector

Pagina 11 van 13 (Readonly)

Welk alternatief geniet uw voorkeur als het gaat om het concentreren van educatieve voorzieningen in (gemeentelijk) vastgoed?

A1 Decentraal per kern	2 ▼
A2 Centraal per kern	1 ▼
A3 Centraal per gemeente	3 ▼
A4 Centraal per regio	4 ▼

Waarin: 1= Meest gewenst <...> 4= Minst gewenst

Welk alternatief geniet uw voorkeur als het gaat om het concentreren van zorg- en welzijnsvoorzieningen in (gemeentelijk) vastgoed?

A1 Decentraal per kern	3 ▼
A2 Centraal per kern	1 ▼
A3 Centraal per gemeente	2 ▼
A4 Centraal per regio	4 ▼

Waarin: 1= Meest gewenst <...> 4= Minst gewenst

Vorige

Volgende

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Page 12 of the questionnaire is similar to page 11, for the sectors sports and culture.

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Bedankt

Pagina 13 van 13 (Readonly)

U bent aan het einde gekomen van de enquête. Bedankt voor uw deelname.

Bent u geïnteresseerd in de uitkomst van de enquête en zou u het afstudeerrapport willen ontvangen, laat dan uw mailadres achter.

Mocht u nog vragen hebben omtrent het afstudeeronderwerp of de enquête, dan kunt u mij bereiken op de onderstaande contactgegevens.

Met vriendelijke groet,

Eva van Bunningen

Masterstudent Construction Management and Engineering
Technische Universiteit Eindhoven
Afstudeerstagair bij AgentschapNL
e.v.bunningen@student.tue.nl

Vorige

Insturen

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Appendix 5 Email to the experts (Dutch)



Geachte heer/mevrouw,

Tijdens mijn afstuderen probeer ik te bepalen of het concentreren van maatschappelijke voorzieningen gezien wordt als oplossing voor demografische krimp, ook wel demografische transitie genaamd. Daarbij ligt de focus op het gemeentelijk vastgoed, omdat daar sturing vanuit de overheid mogelijk is.

Mijn afstudeeronderzoek doe ik voor AgentschapNL. AgentschapNL voert in opdracht van en in samenwerking met het Ministerie van Binnenlandse Zaken en Koninkrijksrelaties het programma 'demografische transitie' uit.

Graag zou ik uw medewerking willen vragen door middel van het invullen van mijn enquête. De enquête zal ongeveer 20 minuten van uw tijd vragen, het levert mij waardevolle informatie voor mijn onderzoek op. In de enquête vraag ik u als expert op het gebied van demografische krimp, gemeentelijk accommodatiebeleid, gemeentelijk vastgoedbeleid en/of voorzieningenplanning om alternatieven voor het toekomstig beheer en ontwikkeling van het gemeentelijke accommodatie- en vastgoedbeleid. Aan het einde van de enquête heeft u de mogelijkheid uw mailadres achter te laten om de resultaten van het onderzoek te zijner tijd te ontvangen. De resultaten van het onderzoek kunnen gemeentelijke organisaties die te maken hebben met demografische transitie helpen in de besluitvorming omtrent het accommodatie- en vastgoedbeleid.

U kunt aan de enquête deelnemen door op onderstaande link te klikken:

<http://vragen1.ddss.nl/q/expert>

Voor de voortgang van het onderzoek zou ik u graag willen vragen de enquête deze week in te vullen. [Mocht u de enquête al ingevuld hebben, dan kunt u deze mail als niet verstuurd beschouwen.]

Uw deelname wordt door mij zeer op gesteld,

Eva van Bunningen

Technische Universiteit Eindhoven
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e.v.bunningen@student.tue.nl

Appendix 6 Questionnaire for experts

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

(Readonly)

Beste heer/mevrouw,

Tijdens mijn afstuderen probeer ik te bepalen of het concentreren van maatschappelijke voorzieningen gezien wordt als oplossing voor demografische krimp, ook wel demografische transitie genaamd. Daarbij ligt de focus op het gemeentelijk vastgoed, omdat daar sturing vanuit de overheid mogelijk is. Met het invullen van deze enquête helpt u mij bij een essentieel deel van het onderzoek.

De enquête zal ongeveer 20 minuten van uw tijd vragen. Allereerst worden een aantal algemene gegevens over u en het bedrijf waar u werkzaam bent gevraagd. Vervolgens worden aspecten van het onderzoek verder toegelicht en wordt een voorbeeld gegeven van een vraag. In het onderzoeksdeel vraag ik u (als expert op het gebied van demografische krimp, gemeentelijk accommodatiebeleid, gemeentelijk vastgoedbeleid en/of voorzieningenplanning) om alternatieven voor het toekomstig beheer en ontwikkeling van het gemeentelijke accommodatie- en vastgoedbeleid tegen elkaar af te wegen. Deze afweging zal gebruikt worden om de alternatieven te evalueren en de uitkomsten van een enquête onder ambtenaren en raadsleden over voorkeuren in perspectief te plaatsen.

Indien u geïnteresseerd bent in de resultaten van dit onderzoek, dan kunt u aan het einde van de enquête uw adresgegevens achterlaten zodat ik u deze ter zijner tijd kan toesturen. Uw antwoorden zullen anoniem verwerkt worden.

Uw deelname wordt door mij zeer op prijs gesteld,

Eva van Bunningen

Technische Universiteit Eindhoven
Master Construction Management and Engineering
Afstudeerstagair bij AgentschapNL

Volgende

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Algemene gegevens



(Readonly)

Bij wat voor soort bedrijf bent u werkzaam?

- ☐ Adviesbureau betrokken bij gebiedsontwikkeling
- ☐ Universiteit
- ☐ Hogeschool
- ☐ Ministerie van Binnenlandse Zaken en Koninkrijksrelaties
- ☒ Onderzoeksinstituut
- ☐ Anders, namelijk:

Hebben uw werkzaamheden te maken gehad met één (of meerdere) van de volgende onderwerpen?

Demografische krimp, gemeentelijk accommodatiebeleid, gemeentelijk vastgoedbeleid en/of voorzieningenplanning.

- ☒ Ja
- ☐ Nee

Vorige

Volgende

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Pages 3 of the questionnaire for experts is similar to page 3 of the questionnaire for municipal actors.

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

■■■■■■■■■■
(Readonly)

Aan de hand van literatuur en interviews heb ik een viertal alternatieven opgesteld voor het toekomstig beheer en de ontwikkeling van het vastgoed ten behoeve van voorzieningen. Deze alternatieven verschillen in het schaalniveau waarop geconcentreerd wordt, variërend van concentratie op regioniveau tot een volledig decentraal aanbod waarbij niet geconcentreerd wordt, onder andere door de eerder beschreven gevolgen van de demografische transitie.

Per alternatief kunnen de eerder genoemde hoofd- en subcriteria variëren. De alternatieven spelen in meer of mindere mate in op de gevolgen van de demografische transitie, nu en in de toekomst. In geen van de alternatieven blijft de huidige ruimtelijke, beleidsmatige, financiële, maatschappelijke en/of sociale voorzieningenstructuur volledig gehandhaafd.

Onder de 'maatschappelijk voorzieningen' vallen gemeentelijke voorzieningen in de sectoren educatie, zorg en welzijn, sport en cultuur.

De alternatieven luiden als volgt:

Alternatief 1 Decentraal per kern

Dit alternatief houdt een decentrale voorzieningenstructuur per kern in. Met andere woorden, in elk dorp worden diensten van maatschappelijke instellingen aangeboden in verschillende (gemeentelijke) accommodaties.

Alternatief 2 Centraal per kern

In dit alternatief worden voorzieningen geconcentreerd per kern. Met andere woorden, in elk dorp worden diensten van maatschappelijke instellingen aangeboden geconcentreerd in (gemeentelijke) accommodatie(s).

Alternatief 3 Concentratie per gemeente

Dit alternatief gaat uit van de concentratie van maatschappelijke voorzieningen per gemeente in een centrumkern in (gemeentelijke) accommodatie(s).

Alternatief 4 Concentratie per regio

In dit alternatief wordt uitgegaan van de concentratie van maatschappelijke voorzieningen per regio in een centrumkern in (gemeentelijke) accommodatie(s).

Vorige

Volgende

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed



(Readonly)

Graag wil ik u vragen bij het invullen van de enquête te denken aan de volgende punten:

Neem een landelijke gemeente in ogenschouw, waar sprake is van demografische krimp. De demografische transitie heeft naast de gevolgen op bevolkings- en huishoudensaantallen en compositie, ook maatschappelijke, financiële, ruimtelijke, sociaal-culturele en organisatorische gevolgen voor de gemeentelijke organisatie en het beleid dat nagestreefd wordt.

Vorige

Volgende

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Page 6 of the questionnaire for experts is similar to page 4 of the questionnaire for municipal actors and gives an example of a pair wise comparison question.

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Paarsgewijze vergelijkingen van de criteria

(Readonly)

Welk alternatief speelt naar uw mening beter in op de gevolgen van demografische transitie wanneer u enkel rekening houdt met het criterium **'financiële haalbaarheid'**?

	++++	+++	++	+	Gelijk	+	++	+++	++++	
A1 - Decentraal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A2 - Concentratie per kern
A1 - Decentraal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	A3 - Concentratie per gemeente
A1 - Decentraal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio
A2 - Concentratie per kern	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	A3 - Concentratie per gemeente
A2 - Concentratie per kern	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio
A3 - Concentratie per gemeente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio

Welk alternatief speelt naar uw mening beter in op de gevolgen van demografische transitie wanneer u enkel rekening houdt met het criterium **'waarborging van de kwaliteit'**?

	++++	+++	++	+	Gelijk	+	++	+++	++++	
A1 - Decentraal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A2 - Concentratie per kern
A1 - Decentraal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	A3 - Concentratie per gemeente
A1 - Decentraal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio
A2 - Concentratie per kern	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	A3 - Concentratie per gemeente
A2 - Concentratie per kern	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio
A3 - Concentratie per gemeente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio

Welk alternatief speelt naar uw mening beter in op de gevolgen van demografische transitie wanneer u enkel rekening houdt met het criterium **'bereikbaarheid'**?

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A1 - Decentraal	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio
A2 - Concentratie per kern	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A3 - Concentratie per gemeente
A2 - Concentratie per kern	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio
A3 - Concentratie per gemeente	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio

Vorige

Volgende

Concentratie van maatschappelijke voorzieningen in (gemeentelijk) vastgoed

Paarsgewijze vergelijkingen van de subcriteria van de subcriteria van 'financiële haalbaarheid'.

(Readonly)

De komende vragen gaan over de subcriteria van 'financiële haalbaarheid'.

Welk alternatief vergt naar uw idee hogere 'investeringskosten'?

	++++	+++	++	+	Gelijk	+	++	+++	++++	
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A1 - Decentraal	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A3 - Concentratie per gemeente
A1 - Decentraal	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio
A2 - Concentratie per kern	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A3 - Concentratie per gemeente
A2 - Concentratie per kern	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio
A3 - Concentratie per gemeente	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio

Welk alternatief vergt naar uw idee hogere 'kosten voor groot onderhoud'?

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A1 - Decentraal	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A2 - Concentratie per kern
A1 - Decentraal	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A3 - Concentratie per gemeente
A1 - Decentraal	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio
A2 - Concentratie per kern	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A3 - Concentratie per gemeente
A2 - Concentratie per kern	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio
A3 - Concentratie per gemeente	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A4 - Concentratie per regio

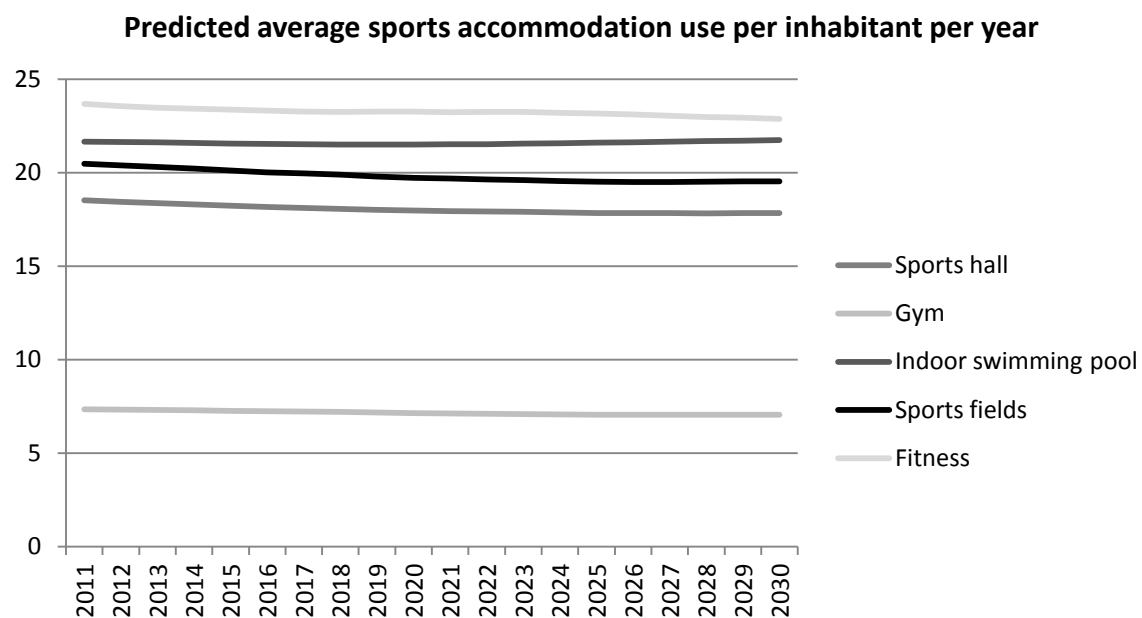
Vorige

Volgende

Berg Enquête System © 2007 Design Systems

The next page of the questionnaire for experts is similar to this page, but is about the other sub-criteria of financial feasibility. After that, the questions on the previous page are asked concerning the four sectors. Then, the experts are asked to rank the alternatives, similar to 10, 11 and 12 of the questionnaire for municipal actors. Finally, similar to page 13 of the questionnaire for municipal actors, the experts are thanked for their participation.

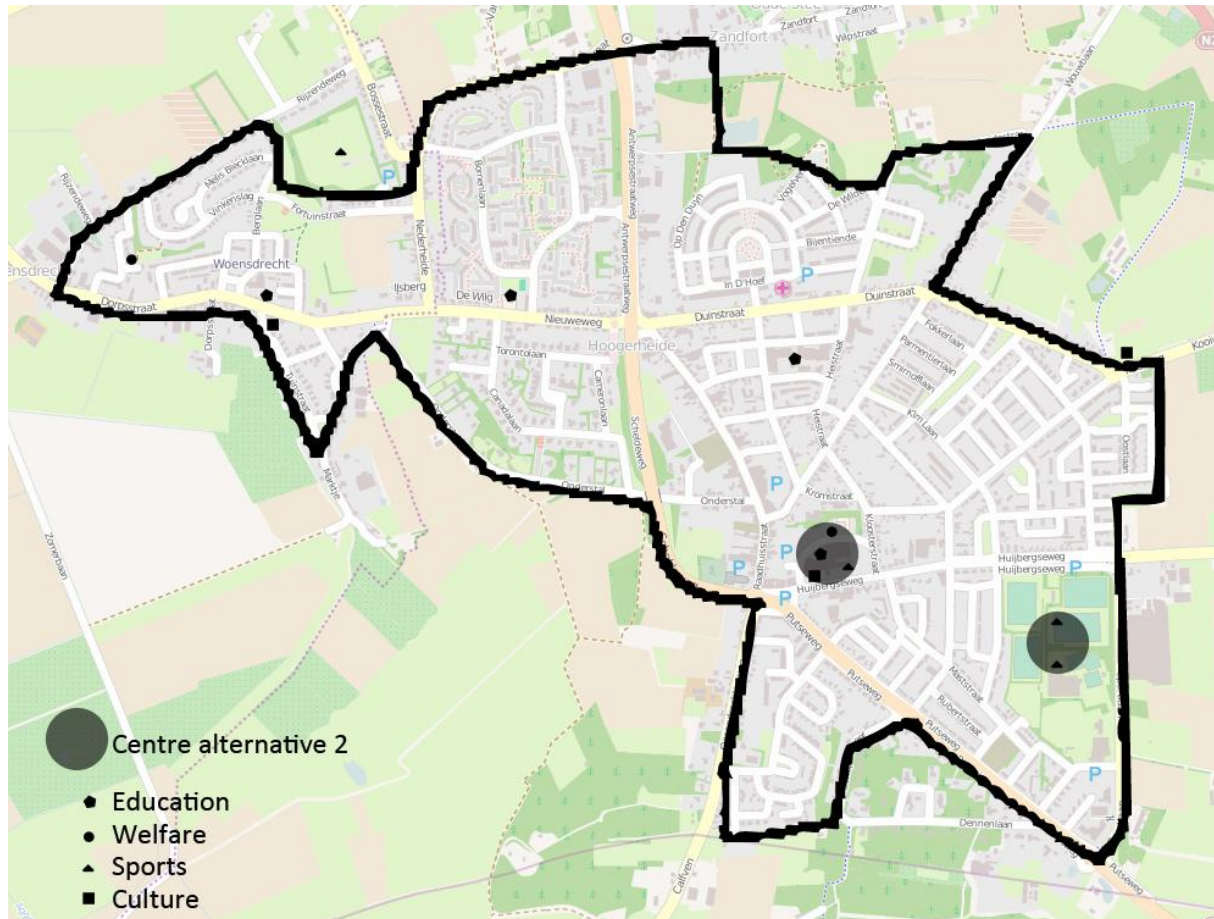
Appendix 7 Prediction of the use of sports accommodations in Woensdrecht



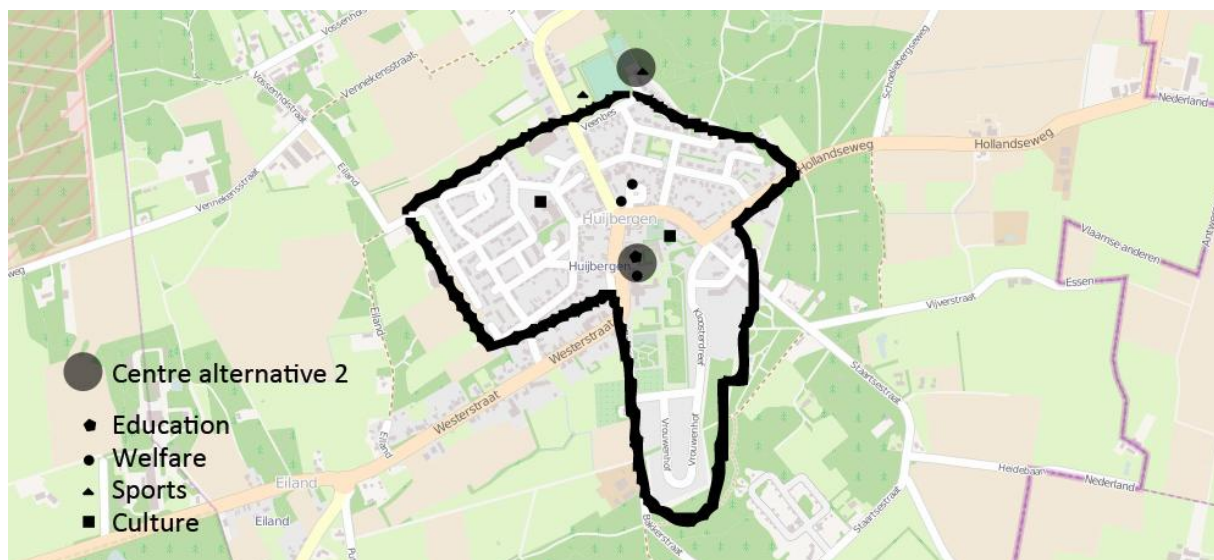
Appendix 8 Alternatives

Alternative 1 Decentralized supply of public facilities per village and alternative 2 Concentration of public facilities per village

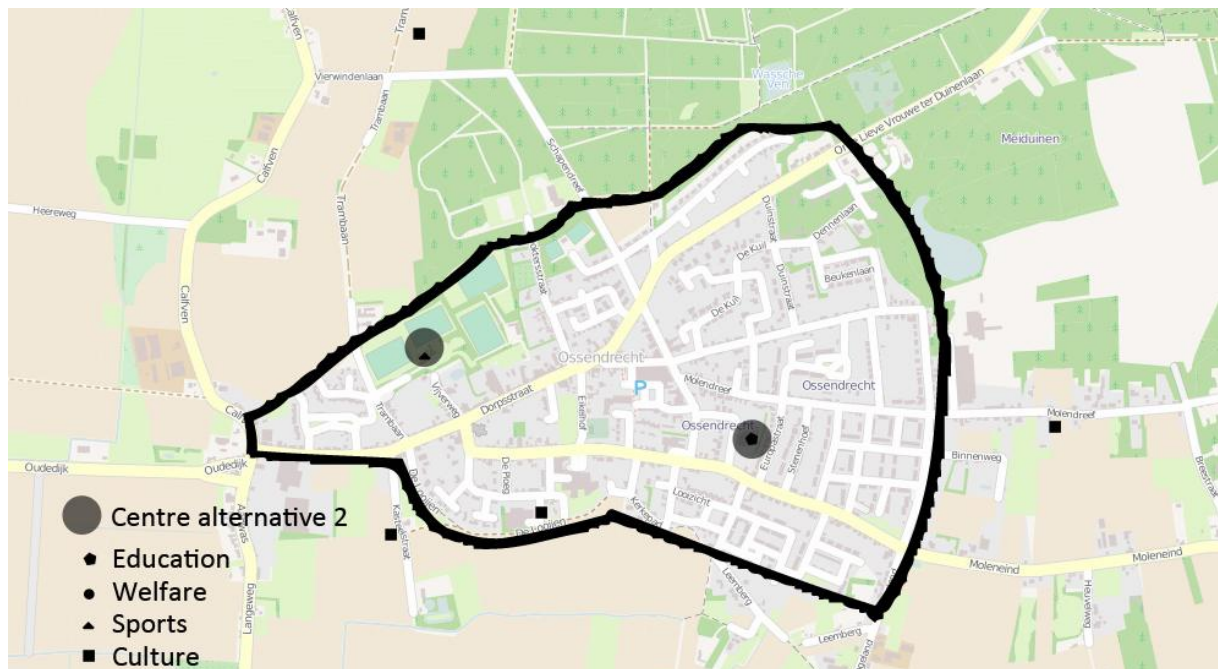
Woensdrecht en Hoogerheide



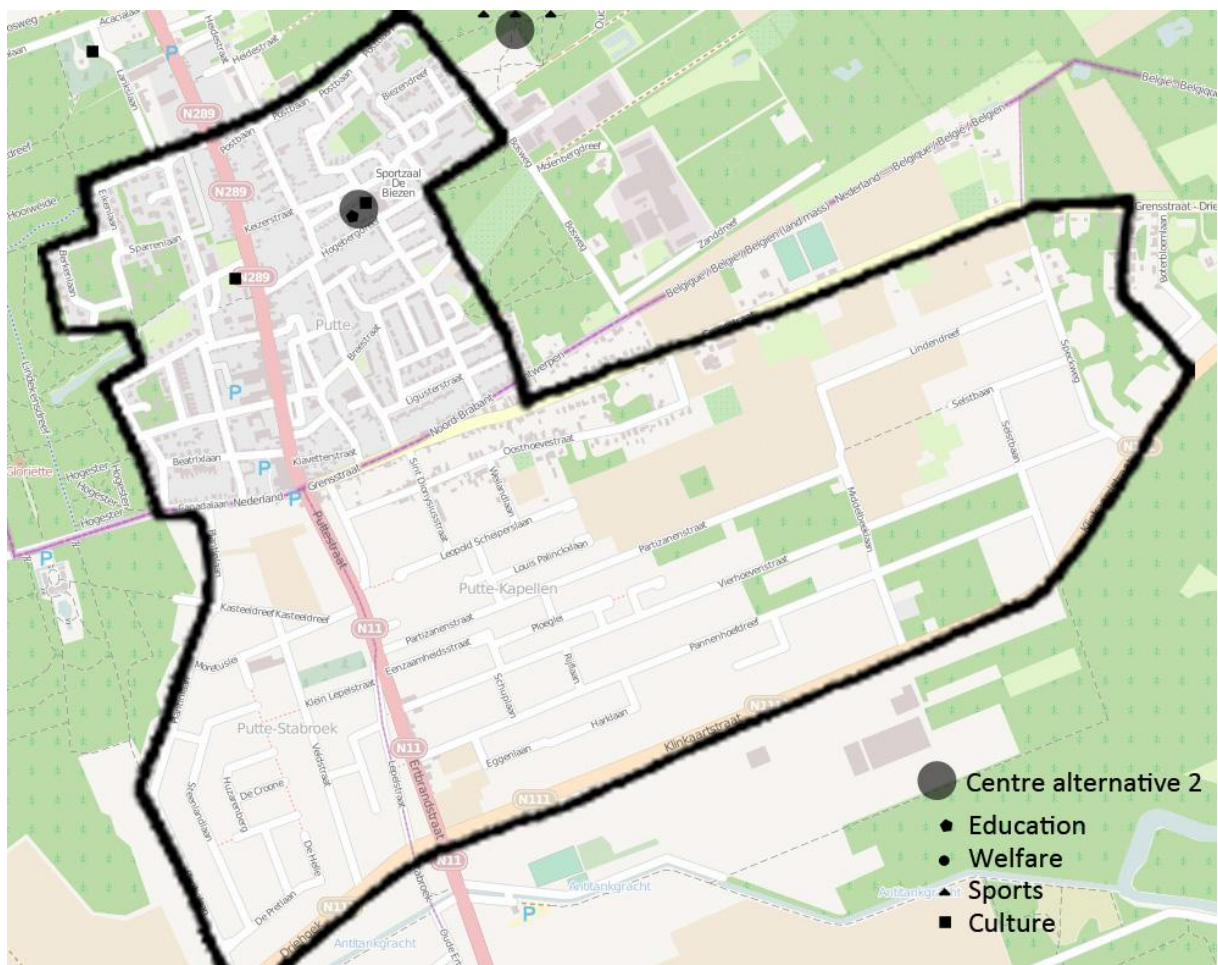
Huijbergen



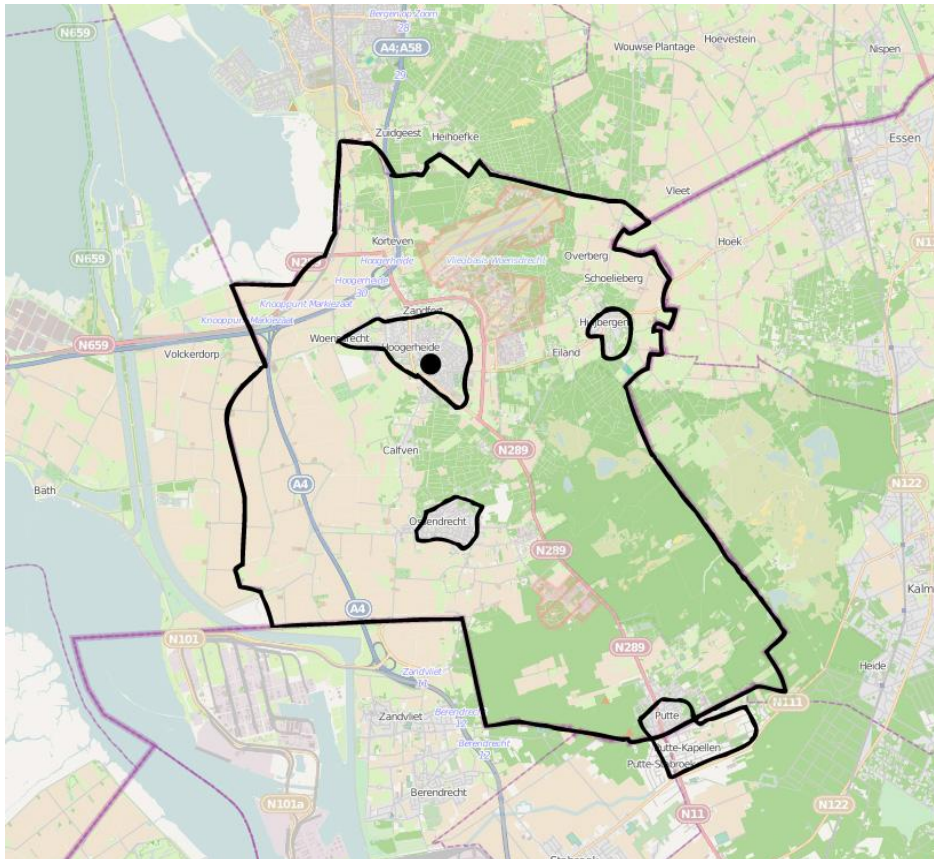
Ossendrecht



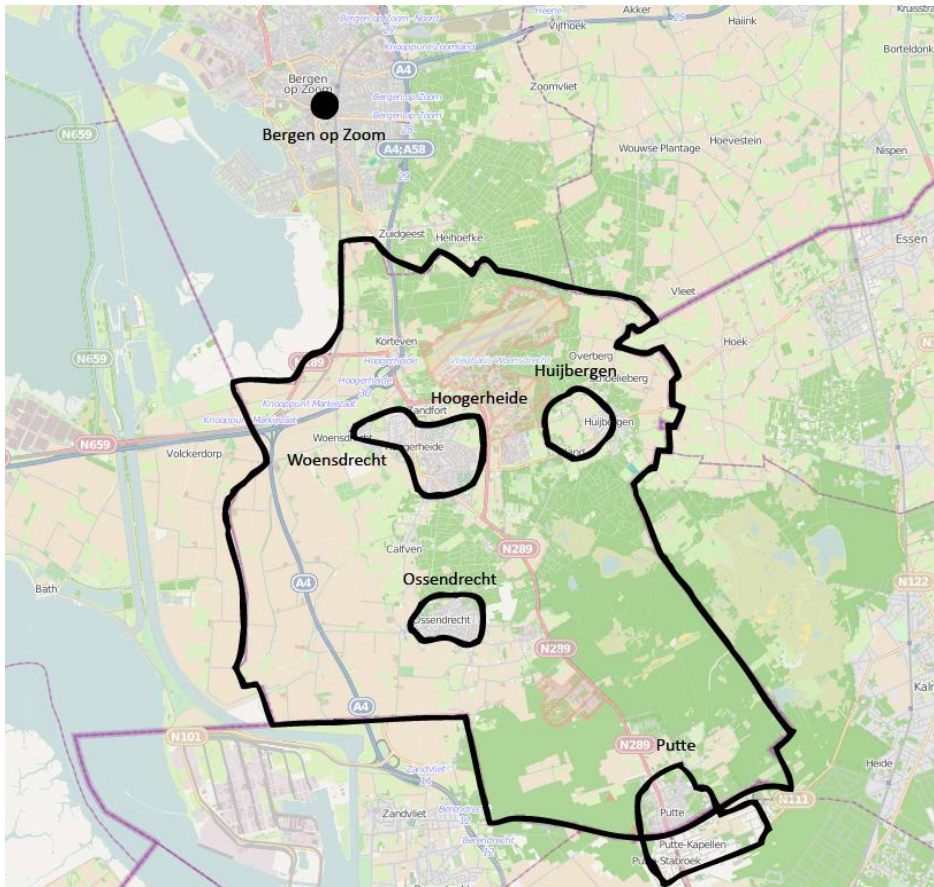
Putte



Alternative 3 Concentration per municipality

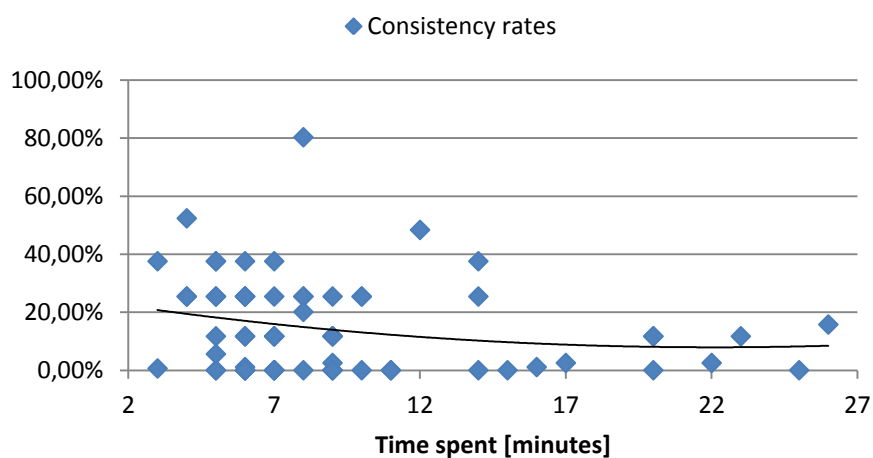


Alternative 4 Concentration per region

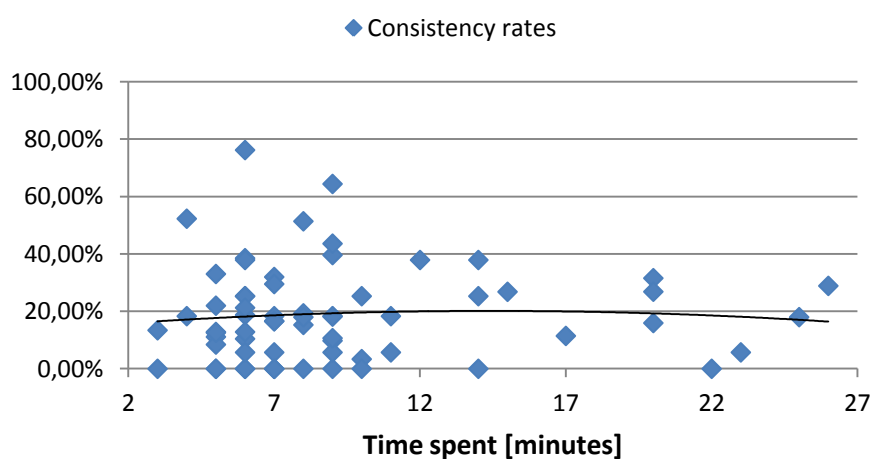


Appendix 9 Consistency in relation to time spent

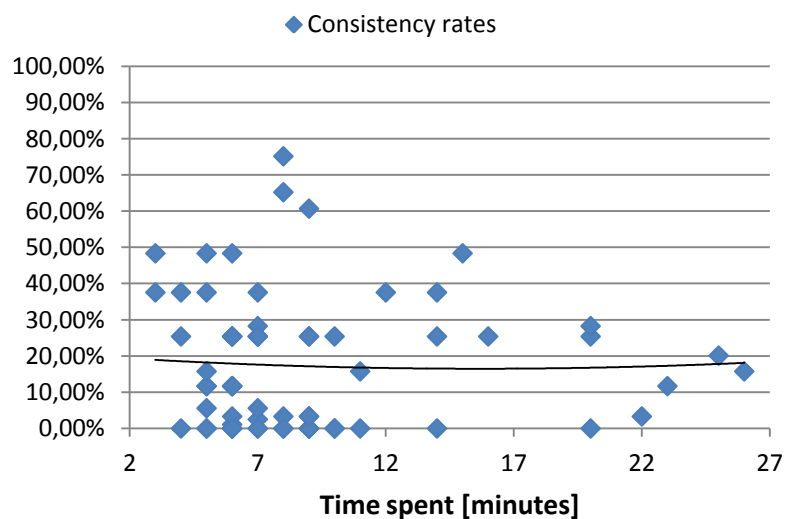
Municipal councilors - Main criteria



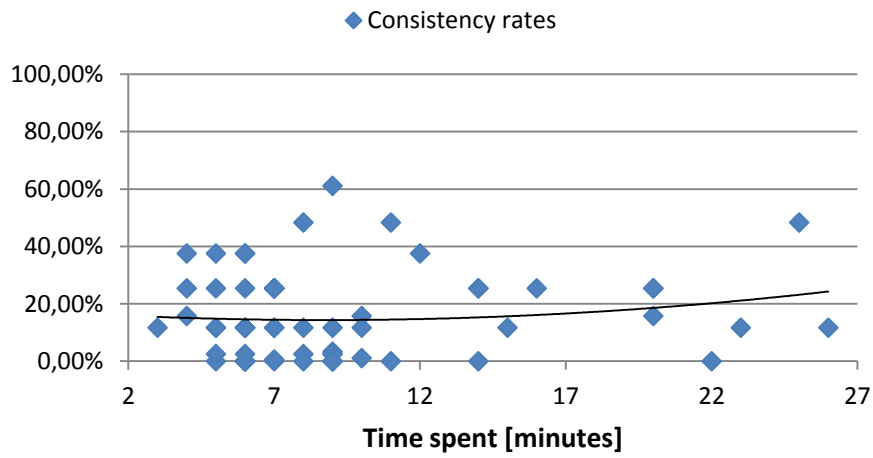
Municipal councilors - sub-criteria



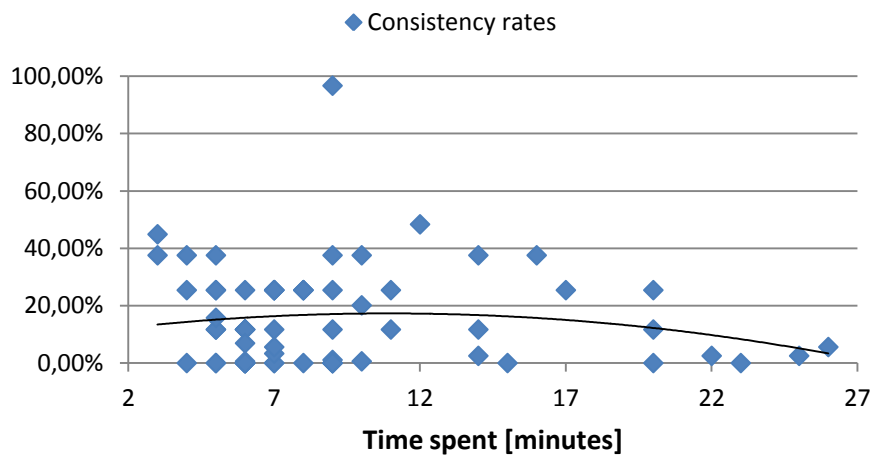
Municipal councilors - Education



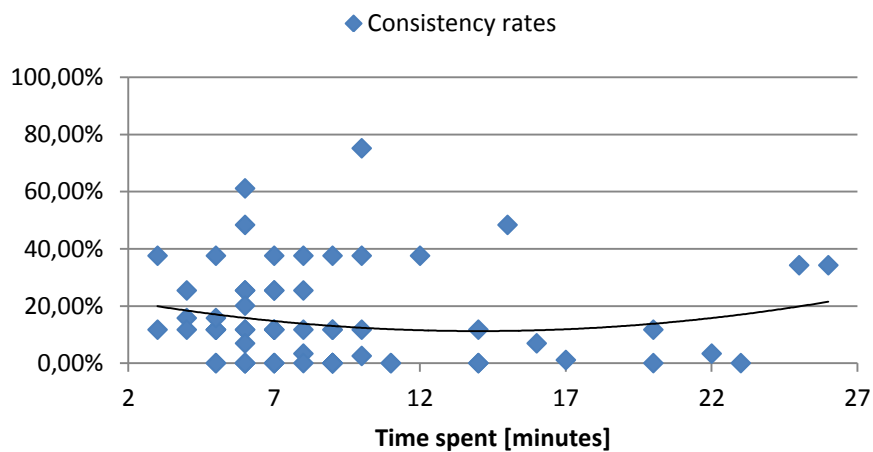
Municipal councilors - Health care and welfare



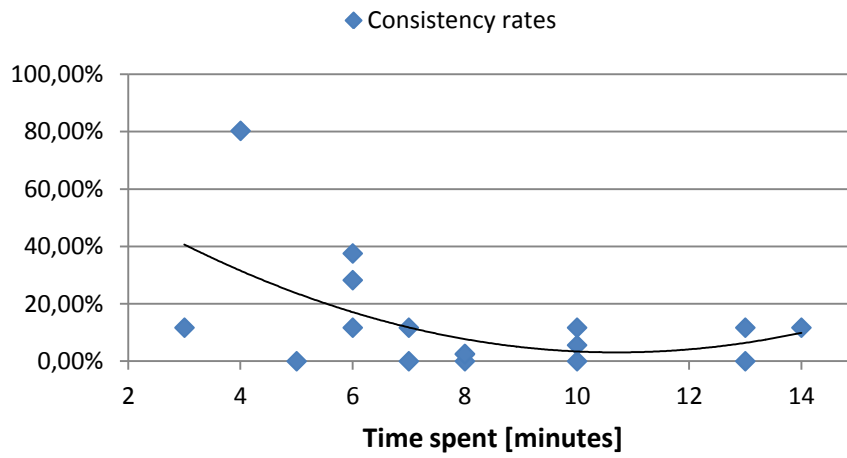
Municipal councilors - Sports



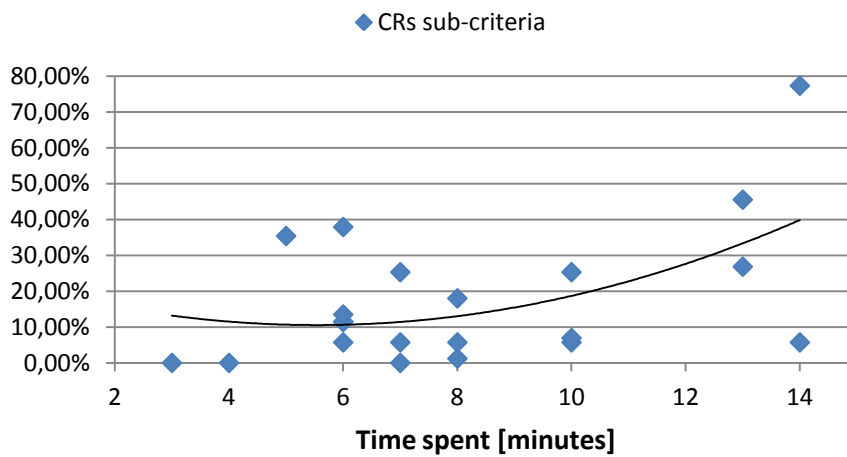
Municipal councilors - Culture



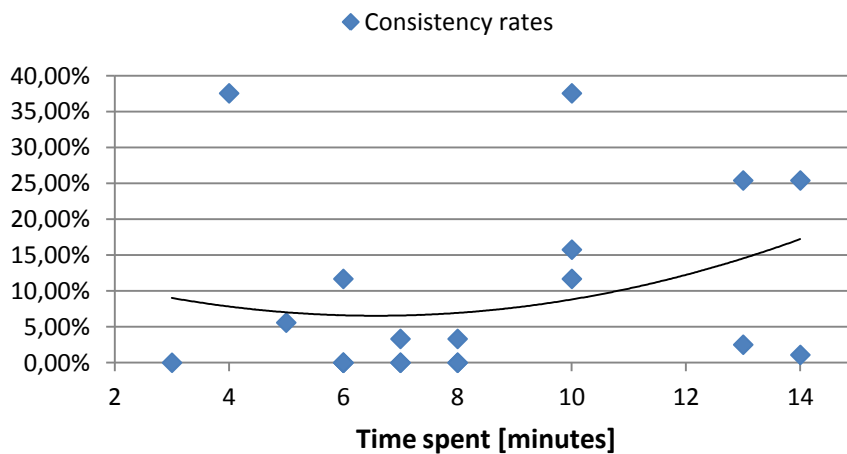
Civil servants - Main criteria



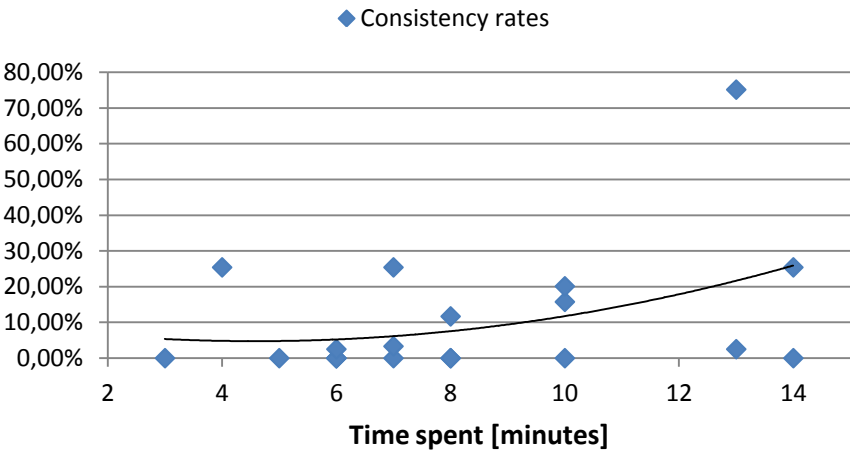
Civil servants - sub-criteria



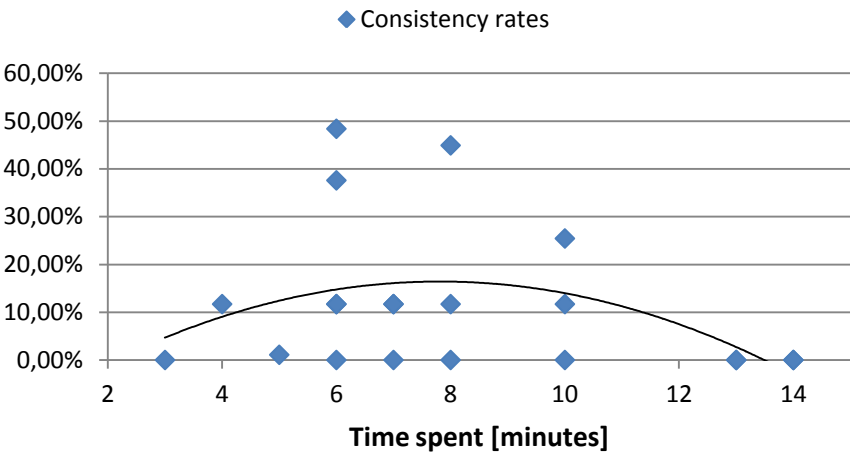
Civil servants - Education



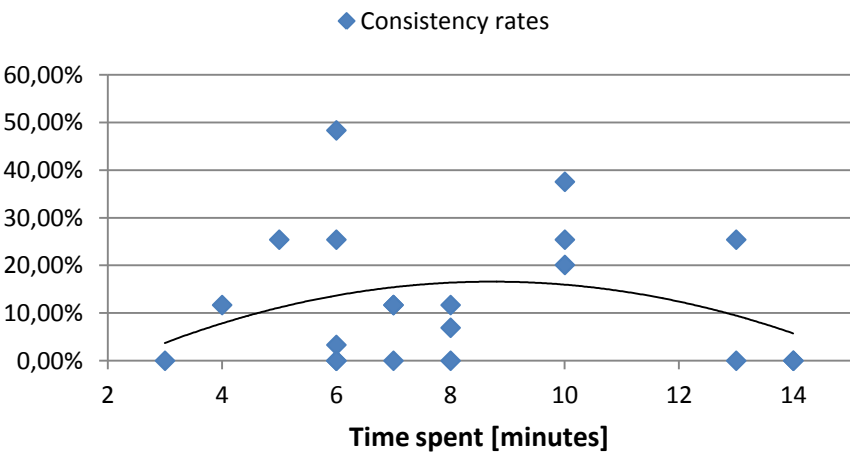
Civil servants - Health care and welfare



Civil servants - Sports

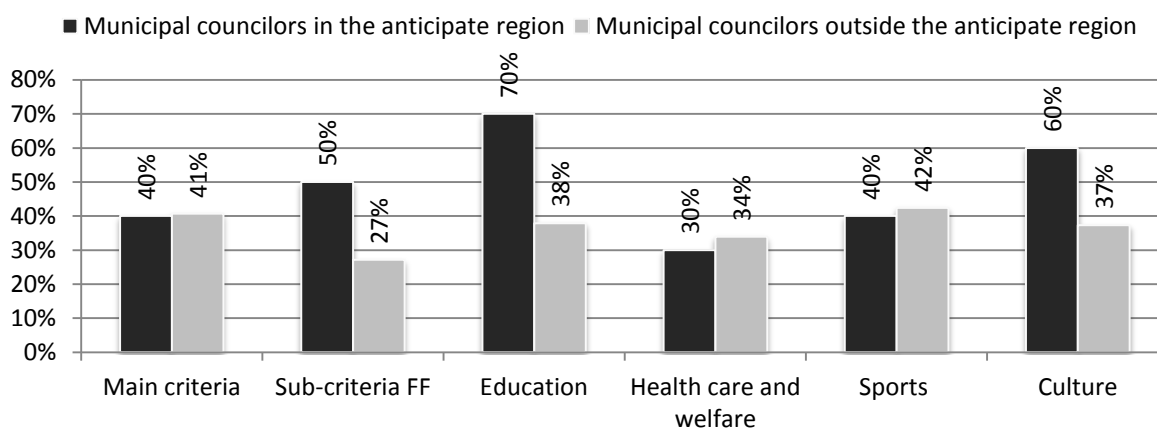


Civil servants - Culture

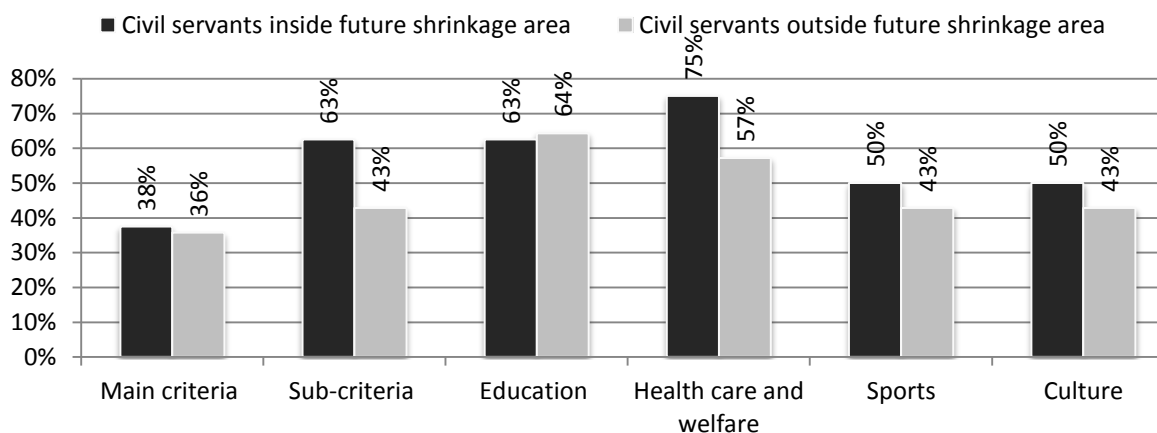


Appendix 10 Consistency rates in and outside the future shrinkage region

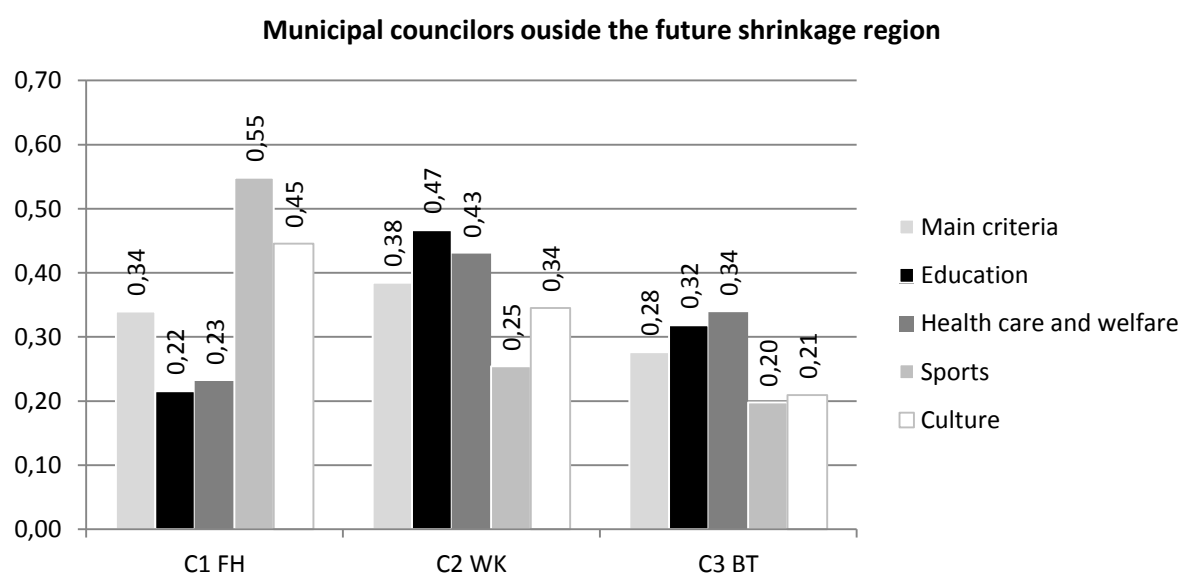
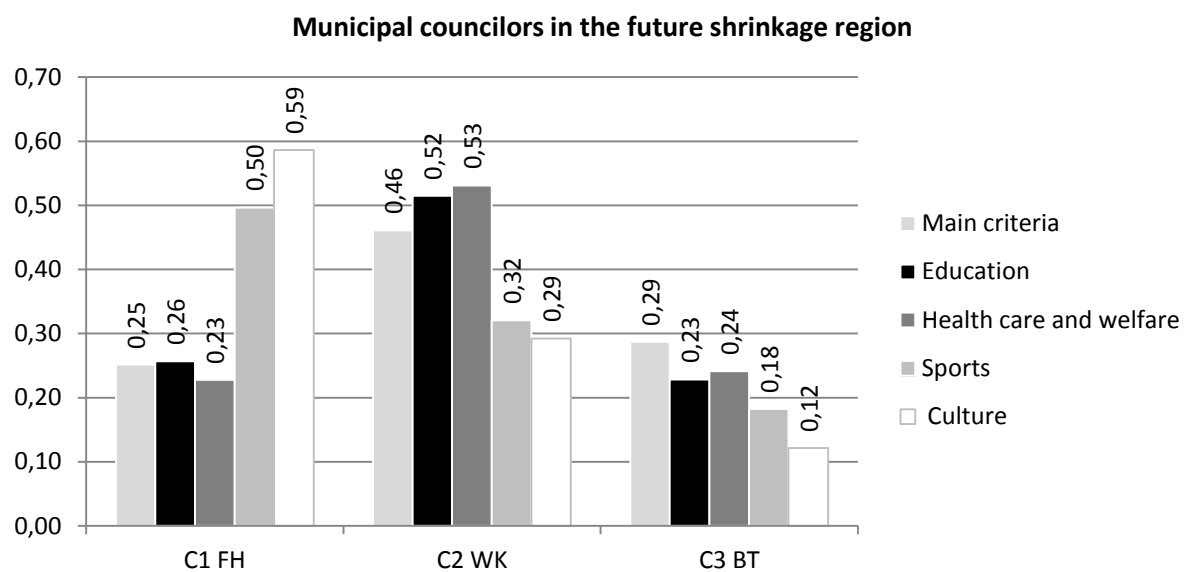
Percentage of the municipal councilors in or outside the anticipate region whi are consistent in their answers



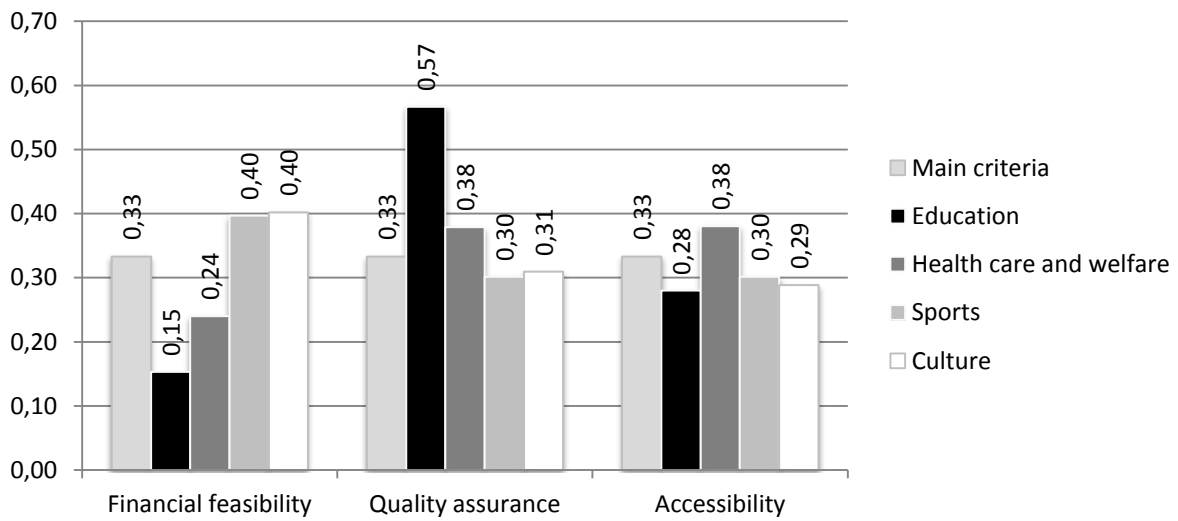
Percentage of the civil servants in and outside the future shrinkage area who are consistent in their answers



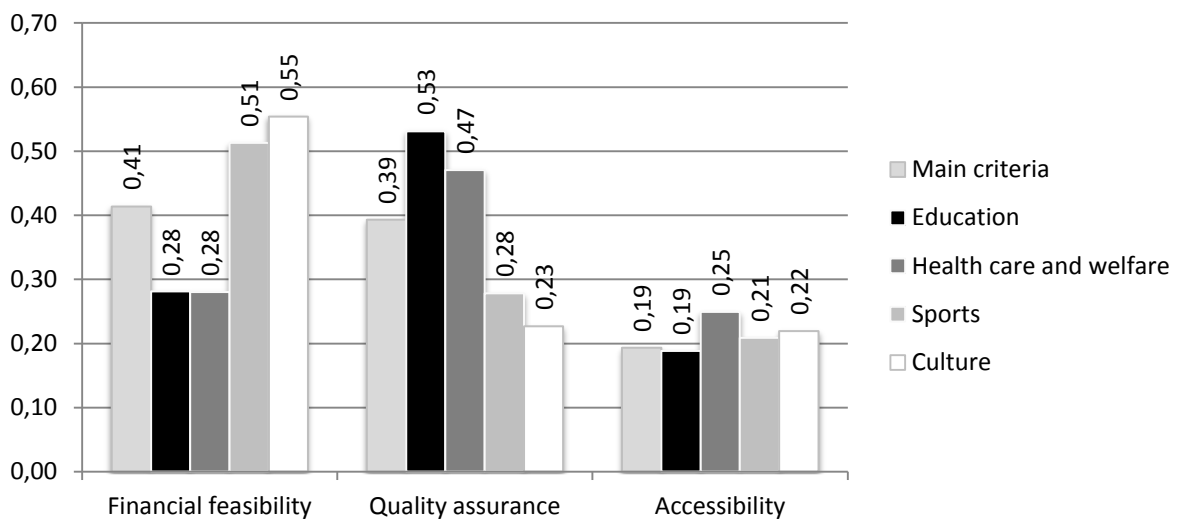
Appendix 11 Relative weights in and outside the future shrinkage region



Civil servants in the future shrinkage region

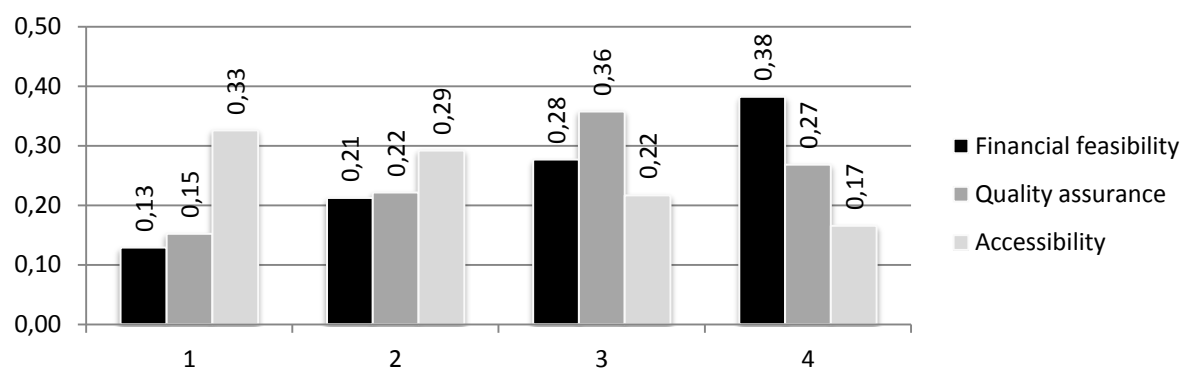


Civil servants outside the future shrinkage region

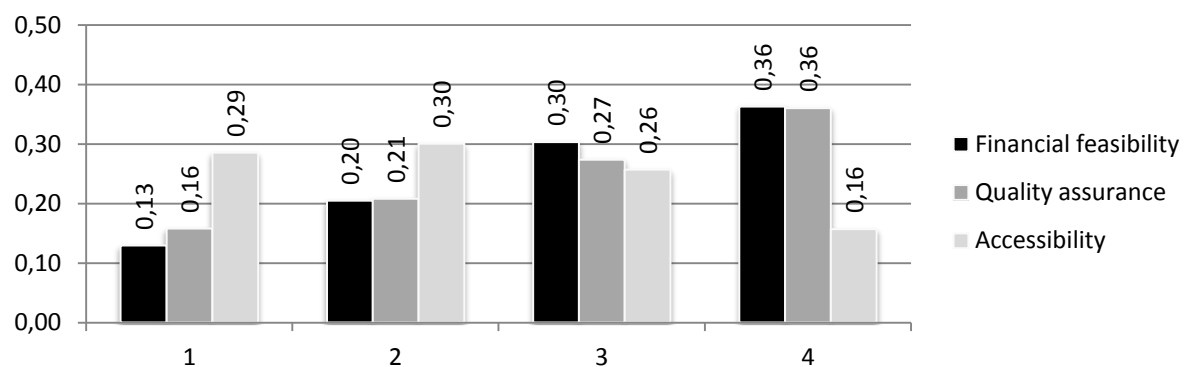


Appendix 12 Performance of the alternatives

Performances of the alternatives for health care and welfare

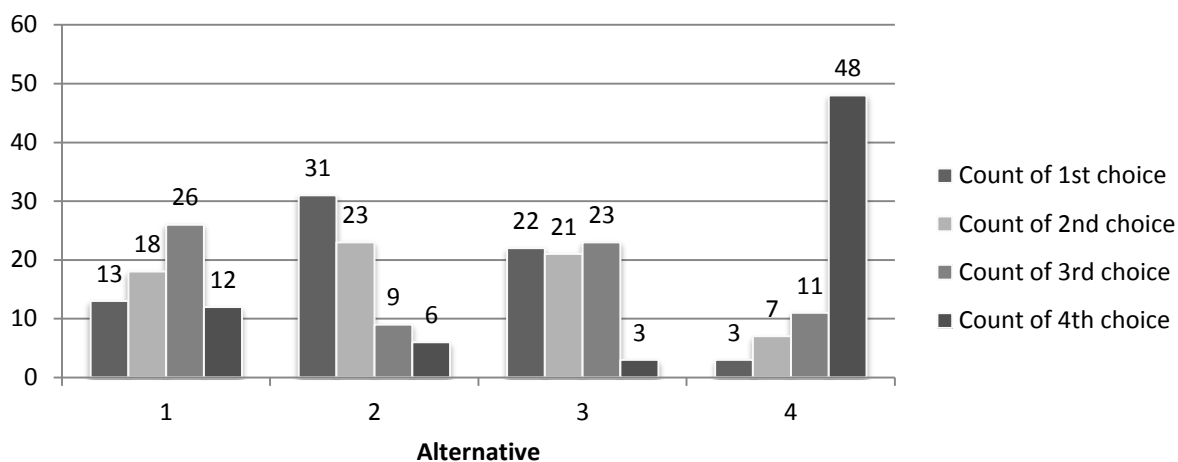


Performances of the alternatives for culture

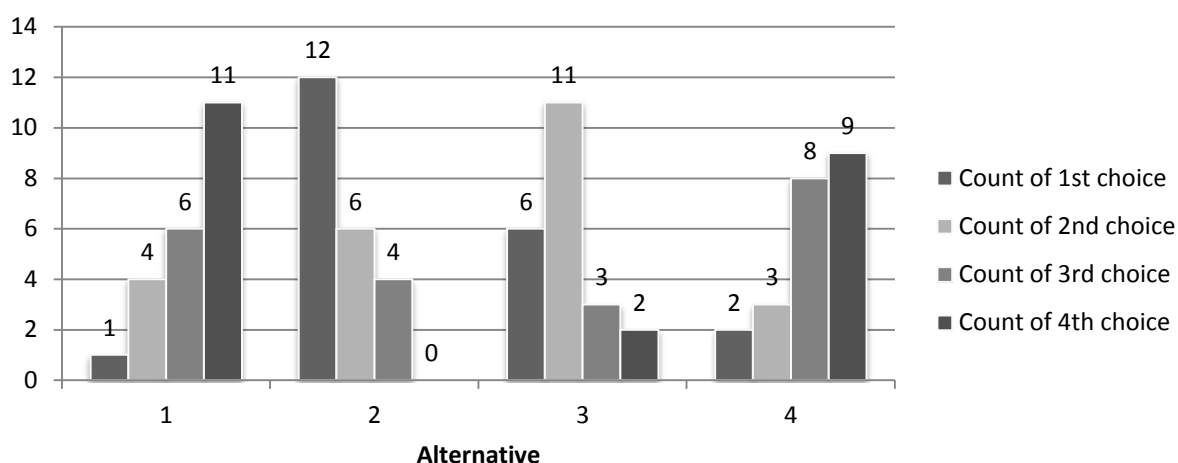


Appendix 13 First, second, third and fourth choices of the rankings

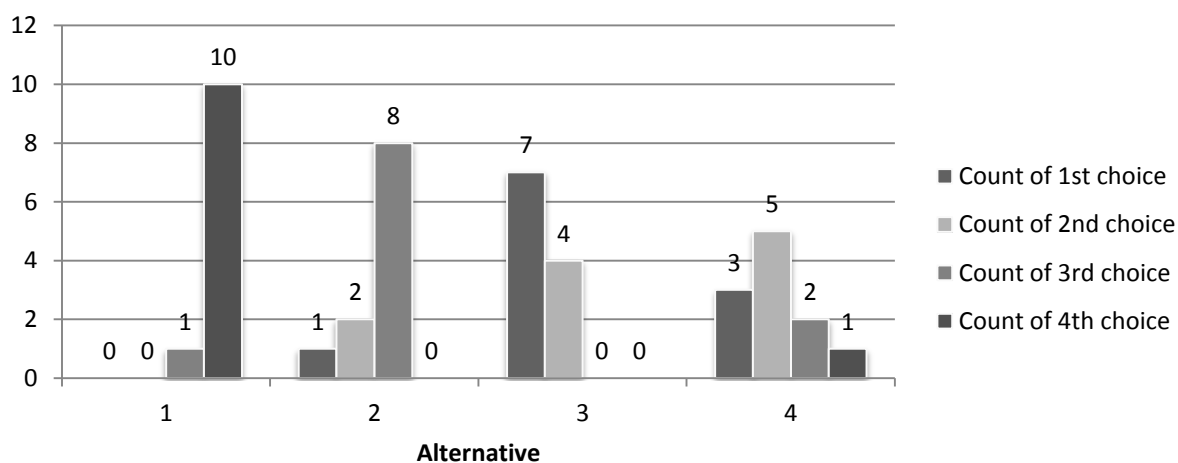
Municipal councilors - Order of ranking, main criteria



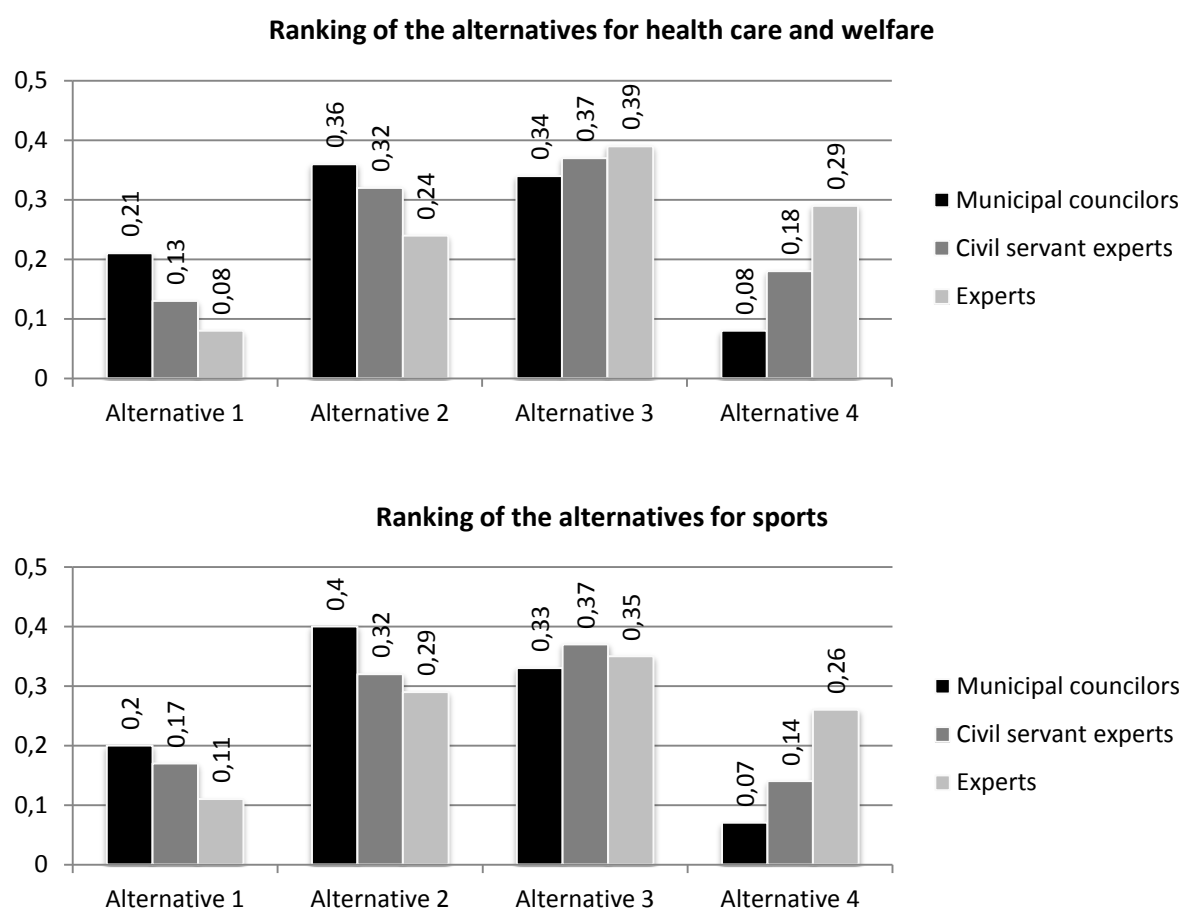
Civil servants - Order of ranking, main criteria



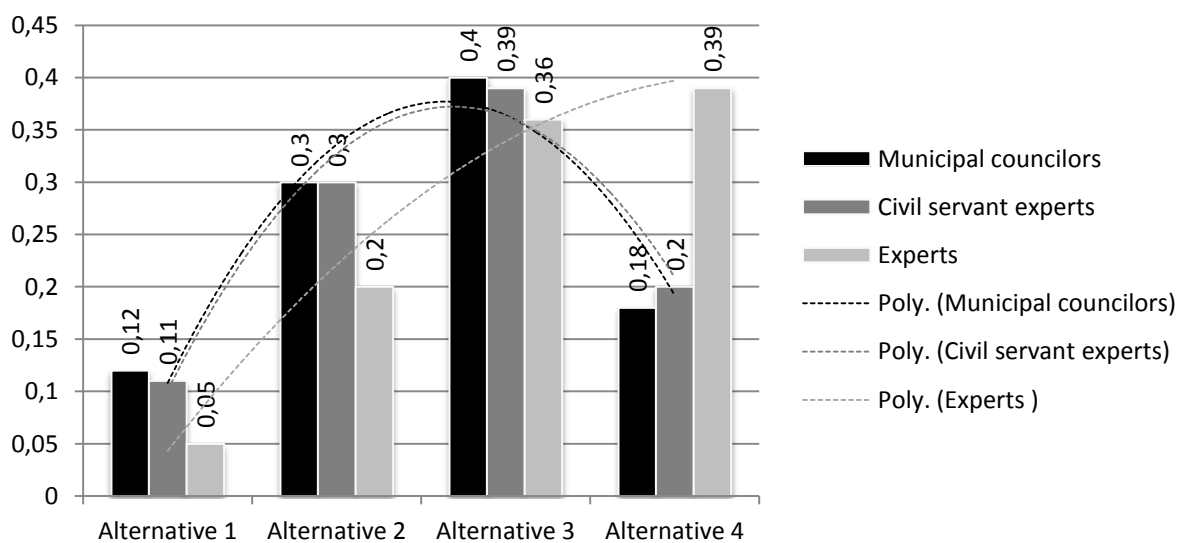
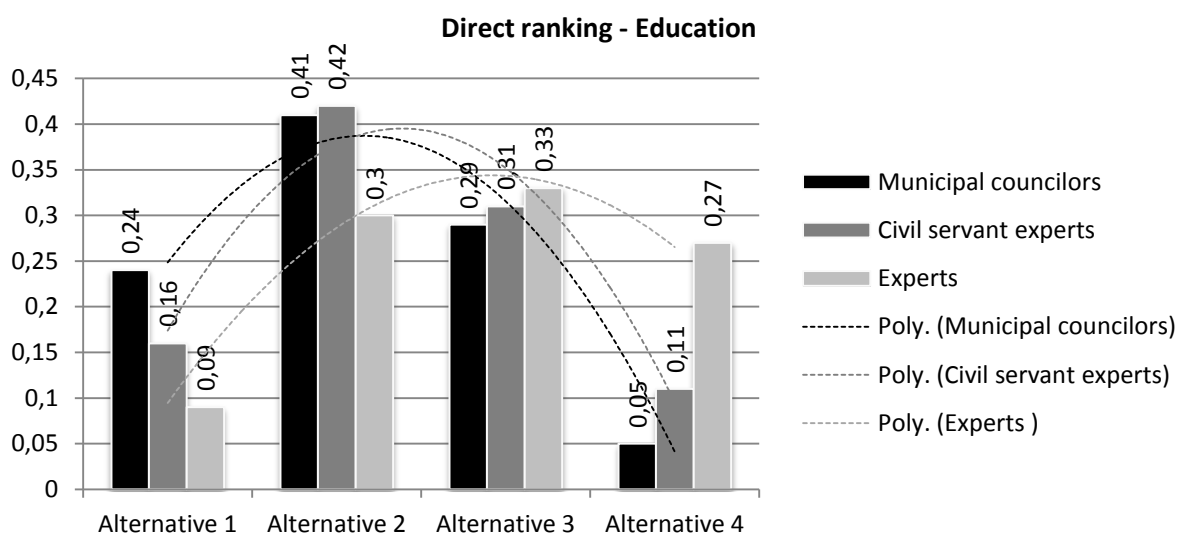
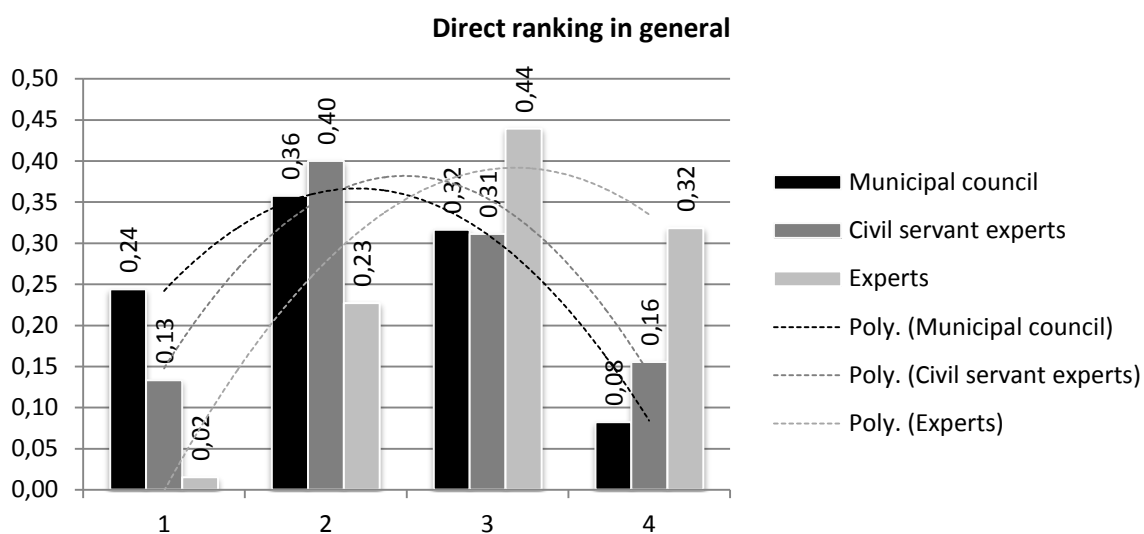
Expert - Order of ranking, main criteria



Appendix 14 Ranking of the alternatives per sector



Appendix 15 Trend lines direct ranking



Appendix 16 Summary

CONCENTRATION OF PUBLIC SERVICES IN MUNICIPAL REAL ESTATE IN RESPONSE TO DEMOGRAPHIC TRANSITION

A case of rural municipalities in Noord-Brabant, The Netherlands

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Graduation program:

Construction Management and Urban Development 2012-2013

Graduation committee:

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Date of graduation:

23-07-2013

ABSTRACT

Due to demographic transition (DT) and budget cuts, the municipal budget is under pressure, which nourishes the debate about municipal public real estate. An increasing number of regions in the Netherlands will cope with DT in the near future. Due to DT, the lower bound of the threshold for public services is reached sooner than in other areas which do not cope with DT (Rijk et.al., 2012). Due to such developments, the current de-central spatial allocation of public services cannot be maintained. The concentration of (public) services is seen as beneficial by experts. The municipal councilors are mainly reluctant towards concentration and are eager to maintain all public services in all villages. This thesis provides insight in the preferences of the municipal actors and consequences of spatial allocation of public services in municipal real estate and attempts to show financial consequences. This research should contribute to the awareness of municipalities for the need to change the current structure of public facilities and related municipal real estate.

Keywords: Municipal real estate, public services, concentration, demographic transition, Analytic Hierarchy Process.

INTRODUCTION

Last decades, the construction policy of municipalities focused on population growth. New buildings were constructed for every increase in demand. As a result, the municipal real estate portfolio grew (Leent, 2008). Public services are most often housed in public real estate. Roughly 85,5 million square meter is in use as public real estate of which one third is owned by municipalities, making municipalities the most important actor (Tazelaar *et.al.*, 2011). Due to population decline and budget cuts, the municipal budget is under pressure. The transfer of tasks from the National Government to municipalities without an equal funding to execute these tasks adds even more pressure. Municipalities need to cut their expenditures where possible. This nourishes the debate about municipal public real estate. Municipalities become increasingly aware of the size and costs of their municipal real estate portfolio which includes the low occupancy rates, bad technical conditions, low sustainability

of the municipal real estate and the amount of municipal capital stuck in buildings. Currently, municipalities mainly invest in sustainability of new estate and not in existing real estate yet. While the existing real estate still comprise a large problem.

An increasing number of regions in the Netherlands will cope with DT in the near future. DT gives way to relatively unknown phenomena, because last decades spatial planning was focused on growth. Due to DT and social developments, the demand for public services and related municipal public real estate changes. DT is seen as a catalyst with which issues become visible earlier, the lower bound of the threshold for public services is reached sooner than in other areas which do not cope with DT (Rijk *et.al.*, 2012 and Nationaal Netwerk Bevolkingsdaling, 2011). This is a reinforcing feedback loop with a negative result, namely emptying villages and vacancy. Due to the described developments, the current de-central spatial allocation of public services cannot be maintained. A new approach to municipal real estate policy and public facility management is necessary to cope with the upcoming transition. The concentration of (public) services in one building is seen as beneficial by experts. However, the relocation of public services to regional centers or concentration often encounters reluctance of inhabitants as well as the local governments. Inhabitants like to have certain public services near their dwelling. In addition, municipalities strive for a proper living environment in which inhabitants are facilitated. Though, unprofitable social institutions can only be supported to some extent.

Within municipalities two types of relevant actors can be distinguished; municipal councillors and civil servants of the municipal departments. The civil servants implement the goals set by the municipal council. The municipal councillors are mainly reluctant towards concentration and are eager to maintain all public services in all villages. These groups of actors are not yet able to grasp the causes, effects and consequences of the continuation of the current spatial allocation of public services. This thesis provides insight in the preferences of the municipal councillors and consequences of spatial allocation of public services in municipal real estate and attempts to show financial consequences. This research should contribute to the awareness of municipalities for the need to change the current structure of public facilities and related municipal real estate.

Municipal real estate and public services

Municipalities manage their real estate either de-central or central. De-central means that each department manages its own real estate, in contrast to central department per municipality. De-central real estate management is currently most common. Though, an increasing number of municipalities shift to a central real estate management to increase their insight in the size and costs of their real estate portfolio. This insight is required to calculate the financial consequences of alternatives for the accommodation policy.

The municipal real estate portfolio grew historically. At the moment, most municipalities have large municipal public real estate portfolios, often with a deficient quality. According to the EPBD of the EU, in 2018, new governmental buildings should be nearly-zero energy buildings, which is in accordance with an energy A-label. Although nothing is said about existing buildings, policy should be made to increase the energy efficiency of these buildings. Currently, many municipalities are reformulating their accommodation and real estate policy. Their focus is on:

- the decrease of the amount of square meters,
- the increase of occupancy rates,
- the increase of the energy efficiency of the municipal real estate portfolio,
- and a supply of public services which suit the demand of the inhabitants.

The term public facility is increasingly separated into the service and the accommodation. The service is provided by a social institution and the accommodation concerns the space in which the service is provided (Bouwstenen voor sociaal, 2013a). In this thesis the sectors education, health care and welfare, sports and culture are included. Municipalities are not in all sectors mandatory by law to provide a certain service. In primary education, the municipality is responsible for accommodation and afterwards large maintenance of the school building. The municipality is fully responsible for the implementation of the WMO. However, specific tasks are not addressed and differ per municipality. Concerning sports and culture, municipalities do not have any specific responsibilities, but these sectors might help to achieve other societal goals. Although each actor is responsible for their own finance management, social institutions often get subsidy from the municipality. Indirect subsidy is given if the municipality asks for a lower rent than market conform prices, direct subsidy is given if the subsidy is provided based on the output of a social institution. Increasingly, municipalities take actions to convert the indirect to direct subsidy.

Actors

The most important actor in the provisioning of accommodations is the municipality. Municipalities subsidize social institutions to execute public services. The users are the most important stakeholder, because they determine the demand. Social housing corporations became more involved in the accommodation of public services, but because of current developments their future involvement is uncertain. Below, the main actors are listed, along with their role, interest, ability to finance and responsibility.

The municipality:

- role: providing public real estate, implementing the WMO, stimulating sports, culture and social participation, determining and implementing accommodation policy,
- interest: enabling citizens to participate in society and balancing of interest of inhabitants and other actors,
- finance: by state funding and local taxes, which both decrease in the near future,
- responsibility: implementation of national and municipal policies and wellbeing of citizens.

Municipalities compete with each other to maintain the public services in their villages, while the situation might become unsupportable and public services disappear in every village. Regional agreements should be made to prevent this from happening. But the regional gap limits the possibilities to make such agreements.

The social institutions:

- role: offering a public service,
- interest: achieving a societal goal,
- finance: membership dues, state funding, direct or indirect municipal subsidy. These institutions are mostly non-profit organizations,
- responsibility: providing a high quality public service.

The users:

- Role: creating demand for public services,
- Interest: the fulfillment of their public service needs,
- Finance: payment per service or membership due,
- Responsibility: low, volunteering in social institutions.

Demographic transition

DT are changes in population composition of which shrinkage is the most commonly known. DT can also be the decline of parts of the population, resulting in for example aging and dejuvenation. Both phenomena also occur for households; absolute decline and a changing composition due to a decline of specific type of households. The causes are for example dilution or selective migration. Thus, demographic transition includes the following aspects (Nimwegen and Heering, 2009 and Dam *et.al.*, 2006):

- population decline,
- changing population composition,
- household decline,
- changing household composition.

In some regions, one aspect of DT occurs while another does not. For example, an area could cope with dejuvenation and aging, while the total population does not decline. The total Dutch population is expected to grow until 2040. However, growth is dispersed unequally. Peripheral municipalities have to cope with DT more often than urban municipalities. The Ministry of Interior and Kingdom Relations designated three top shrinkage regions and several future shrinkage regions which should anticipate on DT.

The effect of DT on the demand for public services and municipal real estate

DT influences the demand for services in a region. In shrinkage areas, the threshold to maintain a service is reached earlier. The number of users of a service, occupancy rate of the accommodations and incomes of the institution decrease while the fixed costs of the institution for the accommodation do not (Mulder *et.al.*, 2012). The service cannot be operated profitable anymore and thereby the future continuation of public service in rural areas is at stake. Van Dam *et.al.* (2006) states that also a changing consumer behavior, increased mobility and up-scaling contribute to a decreasing demand for services in shrinkage areas. By provincial and municipal governments the provisioning of public services is seen as worrisome.

The effects of DT differ per sector. In case of health care, the demand increases. But health care services are not accommodated in municipal real estate and will not influence the municipal real estate portfolio. The welfare services are accommodated in municipal real estate. Although the demand is expected to increase, it cannot be expressed in numbers because the effects of the decentralization on the demand are not yet clear. In addition, the welfare services offered differ per municipality. Due to dejuvenation, the demand for primary school and child care after school hours decreases which influences the occupancy rates and accommodation costs per pupil, which on its turn has a negative effect on the quality. The demand for sports accommodations decreases by age. Due to dejuvenation, the demand for sports will decrease. The demand for public libraries and community centers is

hard to determine. The amount of visitors of public library shows a clearly decreasing trend. Though, efforts are made to turn this trend.

ANALYTIC HIERARCHY PROCESS

In order to answer the research question; ‘which criteria are most important in the decision making process of municipalities to concentrate facilities’ the Analytic Hierarchy Process (AHP) is used. AHP is a multi-criteria analysis in which quantitative as well as qualitative aspects can be taken into account. AHP derives one numeric scale and priorities for all alternatives and the criteria used to judge the alternatives (Saaty and Vargas, 2012). Below, the AHP model is shown. The levels represent the goal, the main and sub-criteria and alternatives. Because a policy cannot be implemented if it is not financially feasible, the sub-criteria of financial feasibility are further examined in this thesis.

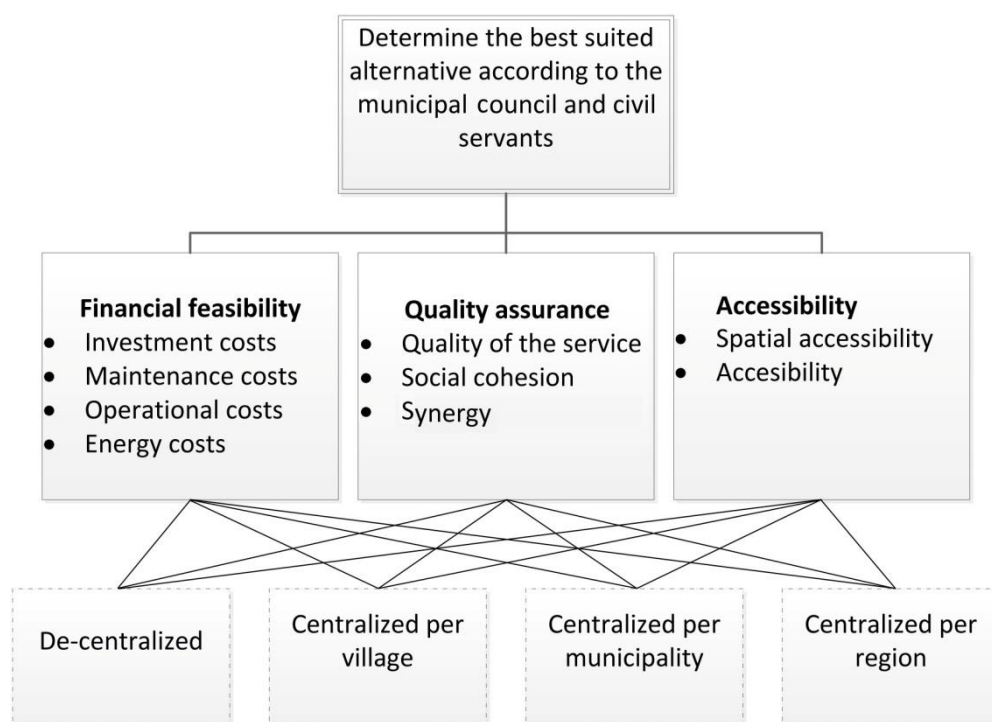


Figure 1 The Analytic Hierarchy Process model

To gain insight in the importance of the criteria and the most preferred alternative, two questionnaires are developed. One is distributed under municipal actors, namely municipal councilors and civil servants, in which they were asked to pair wise compare criteria. These two municipal actors were chosen because they determine the municipal policies. The other questionnaire was distributed under experts in the field of demographic transition, public real estate and/or accommodation policy, in which was asked to pair wise compare alternatives. Multiplying the relative weights of the criteria by the performance of the alternatives on each criterion provides insight in the most preferred alternative according to the municipal actors. The respondents of both questionnaires are also asked to rank the alternatives directly.

CASE-STUDY

The case-study of the municipality of Woensdrecht is performed to gain more insight in the practical implementation. The criteria and alternatives are elaborated for the municipality of

Woensdrecht, further called Woensdrecht. Woensdrecht is located in the southwest of Noord-Brabant, within the future shrinkage region West-Brabant.

Woensdrecht does not have insight in the size and financial data of the total real estate portfolio, nor on building level. Thus, the municipality lacks a solid basis to make a sound decision for a new accommodation policy. First, this information should be obtained. Insight could otherwise be given by indicators or standards, if these were available.

Secondly, the future demand for public services is hard to determine for the sectors health care, welfare and culture, though large developments are taking place. For health care and welfare a trend can be observed in the direction of an increasing demand. In case of education, the future demand is more clear, but the pupil prognoses are seen as untrustworthy because the method used to determine them is based on population growth. Although founded decisions cannot be made on the basis of the current data, it does provide insight in the trends of future demand and consequences for reasoning.

The elaboration of the case-study showed the financial consequences of low occupancy rates, maintenance costs and energy costs for primary schools in each alternative. There is a clear relation between the accommodation costs per and the quality of the service.

Not all services can be concentrated easily. For example, the concentration of sports accommodations is difficult because certain sports require a specific kind of accommodation. Especially, sports subsidized by municipal funds are divergent. In addition, sport complexes or fields need more space and are therefore often located at the border of the village. But, options like merging sports complexes with scouts are worth examining. The case-study does make clear that each area should be examined integrally. For example, for inhabitants of Putte public services might be on shorter distance on the other side of the border. In that case, the demand from inhabitants of Putte should not be taken into account when concentrating per municipality. There is not one alternative which functions best in all regions, some exceptions should be made or choices should be made regionally.

RESULTS

From the response on the questionnaires results can be derived. Figure 2 shows that municipal councilors give the highest importance to the quality assurance, while civil servant experts give the highest importance to the financial feasibility. Both give the lowest importance to accessibility. For the sub-criteria of financial feasibility, the structural costs weigh more than the onetime investment costs.

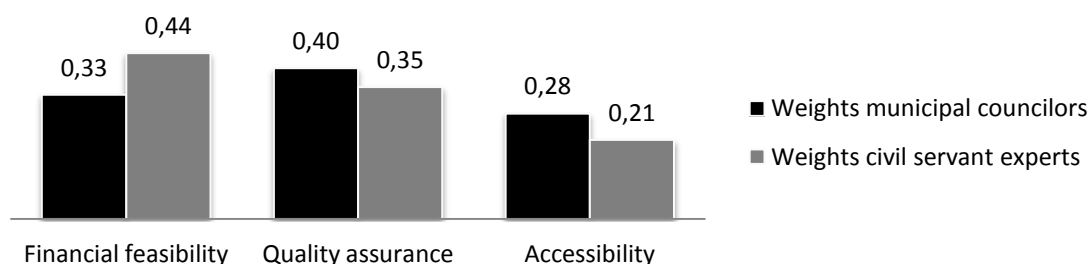


Figure 2 Relative weights of the main criteria

A distinction between the sectors is preferred, because large differences in relative weightings can be observed. Municipal actors seem to make a distinction between education, health care and welfare, and on the other side sports and culture. For education, health care and welfare the highest importance is given to the quality assurance, while for sports and culture the highest importance is given to the financial feasibility.

The performances of the alternatives on each criterion are determined by the experts using pair wise comparison and AHP. The optimum can be between village and municipal level.

Financial feasibility increases with a higher level of concentration

Quality assurance is best on municipal level and worst in a de-central allocation

Accessibility decrease with a higher level of concentration

From AHP ranking, the municipal actors agree upon the preferred level of concentration. If municipal councillors are asked directly for their preference they often choose for concentration to a lesser extent. The preferences of the municipal actors differ per sector when asked directly. Per sector, municipal councillors also choose for a lower level of concentration. The difference might be due to the fact that the experts rated the alternatives, who might have a different idea about the performance of the alternatives on each criterion. Or the municipal councillors do not have sufficient knowledge about the consequences of the alternatives. Civil servant experts choose for a similar level as with the AHP ranking. Experts choose for a higher level of concentration, though still within municipal borders.

Sector	AHP ranking	Direct ranking		
	Municipal actors	Municipal actors		Experts
		Municipal councillors	Civil servant experts	
Education	Village	Village	Village	Municipality
Health care and welfare	Municipality	Village	Municipality	Municipality
Sports	Municipality/ region	Village	Municipality	Municipality
Culture	Region	Municipality	Municipality	Region

Figure 3 Ranking of the alternatives

Municipal actors do see concentration of public services as a solution for the consequences of DT. The concentration is preferred to be limited to the municipal borders. This is probably because municipality itself wants to control the supply of public services.

Experts prefer concentration on a higher level. The expected discrepancy between municipal actors and experts is present, but smaller than expected. Experts also prefer concentration within municipal borders. This is probably due to the regional gap and the fact that municipalities are only accountable for their own municipality. Current governmental structure does not provide the commitment for a group of municipalities to engage in a regional (concentration) project.

In order to make a substantiated decision on the accommodation policy, the financial consequences of the alternatives should be clarified. Municipalities should obtain financial

data on the public real estate in their portfolio. Another important aspect in the decision making process is awareness of the consequences regarding quality, accessibility and social aspects. On the basis of this research, the civil servants appear to be slightly more knowledgeable on the subject than municipal councilors. This could be expected prior to the research because the topic concerns the daily tasks of the approached civil servants. As a result, it can be said that municipal councilors could be made more aware of the consequences of their preferences.

RECOMMENDATIONS FOR MUNICIPALITIES

Municipalities are recommended to gain more insight in the consequences of the alternatives. For this purpose, more specific information on the parameters of financial feasibility, quality and accessibility are required. The level of detail determines the certainty of the consequences. The size and costs of the real estate portfolio need to be detailed on building level.

Per municipality, the number of services which can be combined might be different. An integral approach on municipal level is said to be beneficial, according to experts. The knowledge of civil servants could be used more extensively. The experts recommend a higher level of concentration than current policy and municipal preference.

RECOMMENDATIONS FOR FURTHER RESEARCH

The financial elaboration of the alternatives in the case-study showed that financial data and indicators are missing. In order to calculate on economies of scale concerning public real estate more benchmark research should be done on the structural cost of multiple building sizes.

To use the tool in practice, more influential criteria should be determined and specified in sub-criteria. A (computer) program should be developed to standardize the process and generate the result automatically. Filling in the questionnaire might be time consuming, but probably decreases the time spent on discussions during the council meeting.

The effect of indirect subsidies is not yet examined. The effect of the abolishment of indirect subsidies remains unknown, while it could influence the found results.

The number of criteria could be extended in further research. Sub-criteria are examined for the financial feasibility main criterion. Other criteria are not yet subdivided in the questionnaires. Several secondary costs are not taken into account in this thesis. For example, the cost of real estate vacancy or costs for adapting buildings for other functions.

The future demand for the amount of floor area for a service is based on national prognoses. However, these prognoses are often based on growth and in shrinkage regions these prognoses seem too positive. Thus, prognosis models must be adapted in order to make sound prognosis for (future) shrinkage regions.

This thesis considers only concentration as a solution to problem resulting from DT. Other solutions might be present and need to be balanced. A broader study with an overview on the DT problems could show the role of concentration.

DISCUSSION

The application of AHP gave insight in the decision process of the municipal actors. However, there are assumptions made which influence the final result. These are listed below:

Four public sectors are further taken into account. Apart from public sectors also private sectors, such as retail could be taken into account to increase the occupancy rates of municipal real estate. This increased occupancy rate may result in higher financial feasibility of the service and thus lower need for concentration.

Apart from concentration, municipalities have more alternatives such as the sale of their real estate. This could lead to a shift in preferred level of concentration.

More criteria might be influential in the decision process. These could differ per municipality, but also per alternative. More criteria with accurate data results in a lower uncertainty.

In this thesis it is assumed that unnecessary municipal real estate is repelled from the portfolio. However in practice, to sell public municipal real estate might be difficult because the buildings are equipped for a specific function. Municipalities are faced with structural costs in vacant real estate, such as energy bills, water, insurance and maintenance. Taken vacancy costs into account might limit the financial benefits of concentration.

The approach used in this report can be highly valuable in the decision making process of municipalities. The used AHP method clarifies the importance of the criteria and determines the most preferred alternative. This method gives insight in the decision process which is especially valuable for municipal councilors who appear to be less aware of their preferences. Thus, it is a useful tool in this context. For civil servants, the importance municipal councilors give is highly valuable. Civil servants can determine the best suited alternative and submit this for approval at the municipal council, instead of solely implementing the goal set by the municipal council.

I agree with the outcome to concentrate public service either on village or municipal level. On this level, the positive and negative consequences of the alternatives are in balance. The most important criteria are valued the highest in these alternatives. Although the optimal level of concentration for the different sectors might be different, they should be accommodated integrally. For example, education can be concentrated on village level as long as the provided quality is sufficient. This school accommodation could also function as a gathering place for the community, replacing other relocated gathering locations. The historically increasing mobility of citizens nurtures the willingness to travel further for a higher quality service. Elderly have also shown to have increased mobility due to devices such as the scoot mobile, which makes it easier for them to travel a longer distance. For people with very limited mobility, special visits of the service per village might be a solution. Thereby concentrating the accommodation, but making the service more mobile.

The full concentration on municipal or regional level will leave lots of municipal real estate vacant. These buildings are made for a specific function which makes it, in current times of economic crisis, even harder to sell. Vacant buildings will therefore remain a structural expenditure on the municipal budget. In addition, vacancy decreases the livability of an area, which on its turn decreases the value of the buildings in the surrounding.

The thesis showed a knowledge gap between the municipal councilors and the civil servants. The case study areas were the rural municipalities in Noord-Brabant which do not cope with DT yet. This might influence the result. When the municipalities actually cope with DT, municipal councilors might get more aware of the consequences of alternatives. If the policy can be made and implemented prior to the occurrence of DT, possibly expenditures can be lowered and negative consequences can be mitigated.

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Appendix 17 Summary (Dutch)

CONCENTRATIE VAN MAATSCHAPPELIJKE DIENSTEN IN GEMEENTELIJK VASTGOED NAAR AANLEIDING VAN DEMOGRAFISCHE TRANSITIE

Een casestudie in landelijke gemeenten in Noord-Brabant, Nederland

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ABSTRACT

De gemeentelijke begroting staat onder druk ten gevolge van demografische transitie (DT) en bezuinigingen. Dit voedt de discussie over gemeentelijk maatschappelijk vastgoed. Steeds meer regio's in Nederland krijgen te maken met DT. Als gevolg van DT en andere sociale ontwikkelingen wordt de ondergrens voor het minimum aantal gebruikers eerder bereikt (Rijk et.al., 2012). Hierdoor komt de huidige decentrale voorzieningsstructuur onder druk te staan en wordt behoud ervan onmogelijk. De concentratie van maatschappelijk diensten word door experts aangedragen als mogelijke oplossing. Echter bij raadsleden en inwoners duidt dit op weerstand. Zij willen alle diensten in alle dorpen beschikbaar houden. Dit afstudeeronderzoek geeft inzicht in de beweegredenen en voorkeuren van gemeentelijke actoren en de consequenties van bepaalde alternatieven. Ook word getracht de financiële gevolgen in kaart te brengen. Het onderzoek probeert raadsleden bewust te maken hun keuzes en de gevolgen ervan.

Trefwoorden: Gemeentelijk vastgoed, maatschappelijke diensten, concentratie, demografische transitie, Analytic Hierarchy Process.

INTRODUCTIE

De afgelopen jaren is de gemeentelijke vastgoed portefeuille, waaronder het maatschappelijk vastgoed, sterk gegroeid. Door DT en bezuinigingen staat de gemeentelijke begroting onder druk, wat ook gevolgen heeft voor het gemeentelijk maatschappelijk vastgoed. Een discussie is op gang gekomen over de omvang, bezettingsgraden, technische staat, energieverbruik en kosten van het totale portfolio en de gebouwen op zich. Door DT en sociale ontwikkelingen zoals toegenomen mobiliteit verandert de vraag naar diensten in het gemeentelijk maatschappelijk vastgoed zijn gehuisvest. Het behoud van een decentraal aanbod van maatschappelijke diensten per kern wordt hierdoor onmogelijk. Het is financieel niet meer haalbaar en kwaliteit verminderd. Experts zien de concentratie van maatschappelijke diensten als mogelijke oplossing.

Binnen de gemeente zijn twee actoren meegenomen in het onderzoek, de raadsleden en de ambtenaren van de afdelingen maatschappelijke voorzieningen en gemeentelijk vastgoed, omdat zij gezamenlijk het beleid bepalen.

Demografische transitie, gemeentelijk vastgoed en maatschappelijke voorzieningen

DT omvat meer dan enkel bevolkingsdaling. Huishoudensdaling en een veranderende samenstelling van de bevolking en huishoudens, zoals ontgroening, vergrijzing en huishoudensverdunding, zijn aspecten van DT (Nimwegen en Heering, 2009 en Dam et.al., 2006).

In de meeste gemeenten wordt het vastgoed decentraal beheerd, hierdoor mist een overzicht van de totale portefeuille. In toenemende mate centrerende gemeenten hun vastgoed, dit geeft inzicht in de omvang en kosten van de totale portefeuille. Veel gemeentelijk vastgoed heeft een lage technische kwaliteit en energetische waarde. Door de EU is verplicht gesteld dat in 2018 alle nieuwe gebouwen minimaal energy-label A moeten hebben. Voor bestaande gebouwen zijn nog geen eisen gesteld, maar gemeenten zouden hierin een voorbeeldrol moeten nemen. Veel gemeenten zijn momenteel bezig met het herformuleren van hun vastgoed- en accommodatiebeleid. De focus ligt hierin op het verkleinen van het aantal vierkante meters, het verhogen van de bezettingsgraden, het vergroten van de energetische waarde van de gebouwen en het aanbieden van maatschappelijke diensten welke aansluiten bij de vraag van de bevolking. De gemeente is de belangrijkste partij in het aanbod van maatschappelijk vastgoed. Gemeenten subsidiëren maatschappelijke instellingen indirect op huisvestingskosten, maar in toenemende mate ook direct op output. De gebruikers zijn de belangrijkste stakeholder, zij bepalen immers de vraag.

ANALYTIC HIERARCHY PROCESS

Om te bepalen welke criteria het belangrijkste zijn in de besluitvorming omtrent het al dan niet concentreren van maatschappelijk diensten is het Analytic Hierarchy Process (AHP) gebruikt. AHP maakt het mogelijk zowel kwantitatieve als kwalitatieve aspecten tegen elkaar af te wegen omdat deze uitgedrukt worden in een multidimensionale schaal (Saaty en Vargas, 2012). Aan de hand van literatuurstudie en interviews zijn de criteria vastgesteld. De volgende criteria zijn meegenomen: financiële haalbaarheid, waarborging van de kwaliteit en bereikbaarheid. In het kader van het onderzoek zijn de sub-criteria van financiële haalbaarheid verder onderzocht. De mogelijke niveaus van concentratie vormen de alternatieven in dit onderzoek en zijn: geen concentratie oftewel een decentraal aanbod, concentratie per kern, concentratie per gemeente en concentratie per regio.

Om inzicht te krijgen in de waarde van elk criteria in de besluitvorming binnen gemeenten is een enquête ontwikkeld voor raadsleden en ambtenaren. Hierin werd gevraagd criteria paarsgewijs te vergelijken voor voorzieningen als geheel en per publieke sector. In een andere enquête werden experts gevraagd de alternatieven te beoordelen per criterium. Door de waarde van de criteria te vermenigvuldigen met de score van het alternatief op de criteria kon voorkeur van gemeentelijke actoren voor de alternatieven bepaald worden. Naast deze AHP rangschikking zijn zowel de gemeentelijke actoren als de experts gevraagd de alternatieven direct te rangschikken.

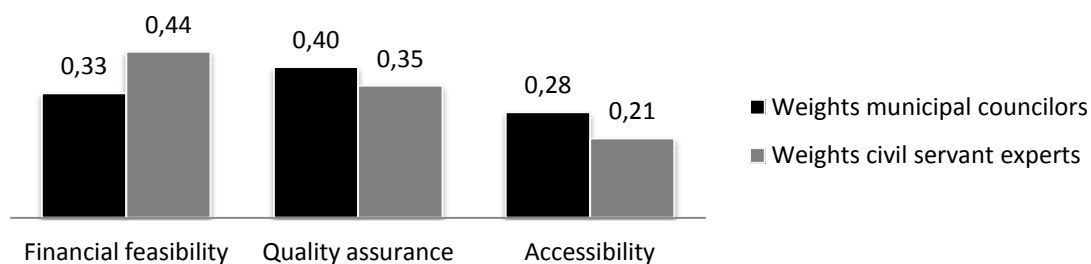
RESULTATEN

Casestudie

Om inzicht te krijgen in de moeilijkheden waar de praktijk mee te kampen heeft is een casestudie gedaan. De alternatieven zijn uitgewerkt voor de gemeente Woensdrecht in Noord-Brabant. Deze gemeente ligt in de anticipeerregio West-Brabant. Woensdrecht bleek geen inzicht te kunnen verschaffen in de financiële data van hun vastgoed. Echter blijken zij daarin geen uitzondering op andere gemeenten (Teuben, 2008). Deze financiële data is vereist om een onderbouwde keuze te maken omtrent het vastgoed- en accommodatiebeleid. Tevens blijkt de toekomstige vraag naar voorzieningen moeilijk te bepalen, omdat algemene prognosemodellen gebaseerd zijn op bevolkingsgroei en daardoor een te positief beeld geven. Daarnaast verschillen gemeenten en haar inwoners van elkaar, waardoor niet een alternatief aan te wijzen als beste alternatief.

Enquêtes

Van de respons op de enquête kunnen de waarden van de criteria bepaald worden. FFigure 2 laat zien dat raadsleden de kwaliteit het belangrijkste vinden, terwijl ambtenaren de financiële haalbaarheid het belangrijkste vinden. Beide partijen geven aan de bereikbaarheid het minst belangrijk te vinden. Van de sub-criteria van financiële haalbaarheid waren de structurele kosten van de gebouwen van hoger belang dan de eenmalige investeringen.



Figuur 4 Waarden van de hoofdcriteria

Uit de paarsgewijze vergelijking van de criteria per sector kan opgemaakt worden dat onderscheid in de sectoren gewenst is. Beide gemeentelijke actoren vinden bij de sectoren educatie, zorg en welzijn de kwaliteit het belangrijkste in de besluitvorming. Terwijl dit bij sport en cultuur de financiële haalbaarheid is.

Het optimum van de scores van de alternatieven ligt tussen concentratie per kern en gemeente. De financiële haalbaarheid verbeterd en de bereikbaarheid verslechterd naargelang een hogere mate van concentratie wordt nagestreefd. De kwaliteit kan het best gewaarborgd worden bij concentratie op het niveau van een gemeente.

Op basis van de AHP rangschikking van de alternatieven kiezen beide gemeentelijke actoren voor concentratie op hetzelfde niveau. Dit verschilt echter van de directe rangschikking door de respondenten zelf. Hierin kiezen de raadsleden voor een lager niveau van concentratie zowel voor de voorzieningen in geheel als per sector. Dit verschil is mogelijk toe te wijden aan het feit dat de experts de alternatieven hebben beoordeeld en mogelijk een ander beeld hebben van de consequenties van de alternatieven dan de raadsleden. Ook de kennis met betrekking tot de consequenties van de alternatieven is een vereiste voor het maken van een onderbouwde keuze. Ambtenaren blijken een gelijk beeld te hebben van de consequenties van de alternatieven als de experts. Zij hebben kennis over de consequenties van de alternatieven. Dit had verwacht kunnen worden gezien het onderwerp van het

onderzoek gaat over de dagelijkse taken van de benaderde ambtenaren. De experts kiezen voor een hogere mate van concentratie, maar nog steeds binnen de gemeentelijke grenzen. Mogelijk is dit te wijden aan het 'regionale gat', ofwel het missen van een bestuurlijke laag op regionaal niveau.

Sector	AHP rangschikking	Directe rangschikking		
	Gemeentelijke actoren	Gemeentelijke actoren		Experts
		Raadsleden	Ambtenaren (experts)	
Educatie	Kern	Kern	Kern	Gemeente
Zorg en welzijn	Gemeente	Kern	Gemeente	Gemeente
Sport	Gemeente / regio	Kern	Gemeente	Gemeente
Cultuur	Regio	Gemeente	Gemeente	Regio

Figuur 5 Rangschikking van de alternatieven

AANBEVELINGEN VOOR GEMEENTEN

Gemeenten zouden meer inzicht moeten krijgen in de consequenties van de alternatieven. Hiervoor is inzicht in de parameters van de financiële haalbaarheid, kwaliteit en bereikbaarheid een vereiste. De kennis van de ambtenaren zou hiervoor intensiever gebruikt kunnen worden.

Per gemeente moet gekeken worden welke diensten gecombineerd kunnen worden.

Dit onderzoek betreft de concentratie van voorzieningen, maar ook andere alternatieven zouden onderzocht kunnen worden.

AANBEVELINGEN VOOR VERDER ONDERZOEK

Om zonder inzicht in feitelijke financiële data van het vastgoed toch een beeld te kunnen schetsen over de financiële haalbaarheid van alternatieven zou meer benchmarkonderzoek gedaan kunnen worden naar de structurele kosten van gebouwen in verschillende sectoren. Hierbij rekening houdende met schaal efficiency.

Om de AHP-tool in de praktijk te gebruiken zou meer onderzoek gedaan moeten worden naar criteria in die van belang zijn in de besluitvorming. Tevens zou een (computer) programma ontwikkelend moeten worden. De toepassing van een AHP-tool zou raadsleden bewuster maken van hun keuzes, wat tijd kan besparen in raadsvergaderingen.

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