Implementing Best Value Procurement: An Extensive Research for the Possibilities and Limitations

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Abstract

The construction industry is generally underperforming and often delivers projects that are over time and over budget. A procurement method from the US, Best Value Procurement, provides the opportunity to improve the quality of projects. A single case study was applied to consider the opportunities of this method for the Dutch infrastructure. A decision model was developed that indicates when the Best Value Procurement method can best be used for the tender of a construction project or services in the infrastructure. This model should facilitate the implementation of Best Value Procurement tenders among lower governmental organizations.
This research is about the purchasing method Best Value Procurement which aligns the interest of purchasing and selling parties. In the construction industry there is a need for such a method as interests of partners are sometimes incompatible. Best Value Procurement is a way of connecting the different companies in the value chain, trying to overcome this lack of connection through a tender process based on quality and price. Best Value Procurement was started in the US and is currently gaining awareness in the infrastructure industry in the Netherlands.

This study is carried out at Breijn SI, the engineering department of Heijmans that focuses on urban infrastructure projects. Breijn is the knowledge centre of Heijmans Infra where all expertise in the area of infrastructure and integral environment development is focussed. This case study has investigated the Best Value Procurement method and the acquisition processes at Breijn SI in order to answer the following research question:

**How can Breijn SI acquire projects in which they can support clients during the tender process by using the Best Value Procurement method?**

The contribution to the academic literature is an exploratory research about Best Value Procurement and its opportunities in the Netherlands. In order to answer the overall research question the following sub-questions were formulated:

A. What is the definition of Best Value Procurement?
B. What causes the success of Best Value Procurement in the US and what is the advantage of using it in the value chain?
C. Which mainstream tender procedures exist in the Dutch construction industry for infrastructure projects?
D. What are the major differences between the US and the Netherlands?
E. Which differences exist with the current Dutch practice and the Best Value Procurement method?
F. What is currently the acquisition process of Breijn SI?
G. Which conditions need to be met at Breijn SI to acquire projects for the application of the Best Value Procurement method?

Below the answers to all the sub-questions are provided.

A. **What is the definition of Best Value Procurement?**

The combination of best value and procurement tries to find the best trade-off between costs and gains for governmental purchasing. Best Value Procurement is the name of a purchase or tender method developed by Kashiwagi in the US. The purpose of the method is to find the supplier that offers best value for money. The method provides a framework for the set up of tenders in i.e. the construction industry.

B. **What causes the success of Best Value Procurement in the US and what is the advantage of using it in the value chain?**

The results of the method Best Value Procurement provide a high level of satisfaction as 90% of the projects are on time, within budget and delivered with the expected level of quality. This is different from tendering on lowest price, where nine out of ten projects are not on time or within budget. The success of this method is contributed to several steps that are performed during the tender. The award on quality criteria and the fixed price reduce the opportunism of the contractor. The method puts emphasis on the (pro) active management of risk and has an
extensive selection process, thereby reducing uncertainty. Whereas with selection on lowest price it is in the advantage of the contractor not to incorporate all the risk in the price, as his price will become higher and therefore he can lose the bid. In addition, the weekly monitoring process has a positive influence of bounded rationality, as one cannot predict the future with 100% certainty. However, it is interesting to note that Best Value procurement is not general practice in the US.

C. Which mainstream tender procedures exist in the Dutch construction industry for infrastructure projects?
Clients can choose to award tenders on lowest price or on the most economical favourable offer (EMVI in Dutch). According to the Aanbestedingsinstituut 85% of the tenders in the infrastructure in the Netherlands uses lowest price as awarding criterion in combination with a RAW bestek. The remaining 15% of the projects is tendered with EMVI criteria, mainly by large governmental organizations. Large governmental organizations and knowledge centres for the industry stimulate innovation with alternative tender procedures (EMVI) and integrated contracts, but among local authorities awarding on lowest price is the general practice.

D. What are the major differences between the US and the Netherlands?
The major differences between tender procedures in the US and the Netherlands lay in the legal framework. In the US all states have the freedom to prescribe their own tender procedures. In the Netherlands the legal framework of tenders above the threshold is defined on European level. The threshold is an amount instituted by the EU. The legal framework of the EU is based on the principles of integrity: non-discrimination, objectivity and transparency. In addition, a distinction is made between the selection phase and the awarding phase of a tender. Criteria that are used during the selection phase should regard the tenderer (person or organization) and the criteria that are used during the awarding phase should regard the tender (project).

E. Which differences exist with the current Dutch practice and the Best Value Procurement method?
Best Value Procurement has many similarities with EMVI. However, the method is formed by integrated steps, whereas an EMVI method can be designed by the client’s preferences. It is interesting that currently in the Netherlands projects of the Spoedaanpak of Rijkswaterstaat are tendered using principles of the Best Value Procurement method. In addition, Breijn SI Vught and the community ’s Hertogenbosch have performed a tender with this method. However, these examples are incidental and as previously was explained, many projects are tendered on lowest price in the construction industry.

F. What is currently the acquisition process of Breijn SI?
According to Porter’s generic competitive strategies, Breijn SI uses a combination of a differentiation and focus strategy. They focus on lower authorities and Heijmans as customers and they differentiate by providing high quality advice in combination with a full service strategy. A good relation with the client is important, as this increases the chance on acquiring projects. From the research it appeared there is room for improvement in serving clients and in the pro active attitude of project leaders.
G. Which conditions need to be met at Breijn SI to acquire projects for the application of the Best Value Procurement method?

In-depth interviews that were held among authorities indicated that lower authorities award projects generally on lowest price. The interviewed authorities could be placed in the purchasing maturity model somewhere between phase two, cost orientation and phase three, purchasing integration. This means that they do not yet incorporate value in their decision. In order to apply the Best Value Procurement method, a culture change is needed.

In addition, the method Best Value Procurement is not yet acquainted by clients in the Netherlands. In order to acquire projects, publication and education around the method is needed to improve awareness and familiarize clients with the method.

Besides the external change in the market, employees of Breijn SI need to adapt to the new circumstances as well. Just like clients of Breijn SI mainly tender on lowest price, employees of Breijn SI prepare tenders that award generally on lowest price. This means that they have little experience with the use of quality criteria in a tender. In order to facilitate the adaptation, internal education is needed. Therefore a decision model is drafted that will support the project managers during their acquisition visits.

Below the decision model for tender forms in the construction industry is presented. The arrows in the model can be followed to come to the most suitable tender form. The model consists of decision points represented by diamond shapes and end points represented by the solid rectangles. The diagram starts in the top left corner; by following the arrows decision points are reached. Each decision point represents a question about the tendered project. The answer to a question is yes or no and in one instance large enough or too small. Finally an end point in the shape of a solid rectangle is reached; this represents the most suitable tender form. Then the choice for a contract form has to be made, for tenders on lowest price this is an RAW bestek, for EMVI and Best Value Procurement several options exist.

The answers to the sub-questions and the decision model provide the foundation for the answer to the overall research question.

How can Breijn SI acquire projects in which they can support clients during the tender process by using the Best Value Procurement method?

Based on the findings in this research the following recommendations can be made. First of all, it is clear that the Best Value Procurement method does not correspond with the general tender practice applied by local authorities and by Breijn SI. However there are many similarities with the EMVI tender practice in the Netherlands. Therefore the name EMVI++ fits with the experiences of Breijn SI and local authorities. As the method is very different from the general practice, a culture change (internally and externally) is needed to exploit the full opportunities. First some recommendations can be made specifically for Breijn SI internally; afterwards some recommendations are provide for the acquisition of projects at clients. Here the recommendations for the internal implementation of the BVP method are presented:

- During a project with the local authority ‘s Hertogenbosch experience is gained with the BVP method. This experience should be used to develop a standard leidraad and contract, where the essentials of the method are captured and clearly presented.

- Experience with the Best Value Procurement method is currently limited and centred. It is important that knowledge about the method is spread among project leaders and that on a regular base attention is paid to the developments. Therefore it is recommended that the decision model presented in this paper will be spread among the different locations of Breijn SI.
In addition it is recommended to team up with sympathizers of the method within Breijn SI. Sympathizers will understand the principles of the method more quickly and will be motivated to acquire projects for this method. In this way the method can spread at a steady pace.

In addition four recommendations are made with regard to the acquiring of Best Value Procurement projects. These recommendations should facilitate the execution of Best Value Procurement projects in the Netherlands.

• First of all, the method Best value Procurement is not generally known in the Netherlands. Publicity is recommended in order to reach potential clients of Breijn SI; therefore every opportunity for publicity should be exploited.

• Besides publicity, it is important to team up with clients that are interested and are open for a different way of tendering. Interest should be a requirement for Breijn SI to invest in the relationship, otherwise time and energy are wasted.

• After the first project is tendered with BVP, it is recommended that Breijn stimulates the inclusion of Best Value Procurement in the procurement policy of the client. By involving the client in the construction phase of the project, the advantages of the method become clear and this will facilitate policy forming. Including Best Value Procurement in the policy will facilitate further projects with Best Value Procurement. The ultimate goal should be to provide the client with the skills to perform Best Value Procurement by themselves. A client with this ability would be the best publicity for Breijn SI.

• Lastly, Sustainability criteria become an obliged part of the tender for local authorities. This provides opportunities for acquiring projects where the BVP method can be used. It is recommended to create publicity around the use of sustainability criteria with the BVP method.
Figure 13 Decision model for tender method
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Chapter 1. Introduction

In this chapter the outline of the research will be discussed. In the first section the background of Breijn will be provided for the reader. In the second section, the problem statement and the research question will be discussed. In the third section, the methodology of this research is described. In the fourth section, the deliverables of this project will be discussed and in the final section an intermediate conclusion is drawn.

1.1 Breijn

The engineering company Van Kleef is for 100% owned by Heijmans NV since 2002. Last year, the name was changed into Breijn. Breijn is the knowledge centre of Heijmans Infra where all expertise in the area of infrastructure and integral environment development is focussed. The core activities are research, design, engineering and consulting, focused on the urban planning of infrastructure projects and civil technical projects. Around 300 professionals work at Breijn. The organisation is organised according to the following areas: development of infrastructure, large scale infra projects, urban infra, road construction and geodesy with locations in Assendelft, Arnhem, Leiderdorp, Roermond, Rosmalen, Roosendaal and Vught. Urban infra is the largest division with 150 people and the research will take place here. Breijn SI (Breijn Stedelijke Infra) has the following sections: engineering, water, mobility, landscaping, leisure and maintenance of the public space. An organigram of Heijmans and Breijn, showing their relation, is added in Appendix A and Appendix B. This research took place at Breijn SI for the four southern locations.

The name of the engineering company was changed in order to create a modern and refreshing brand, with the purpose of capturing a distinguishing market position. The label Breijn presents itself as exciting and new. The goal of Breijn is to help clients engineer smart solutions which are easy to build. Their slogan is: exciting in solution but always with both legs on the ground (in Dutch: verrassend in oplossing maar altijd met beide benen op de grond). This goal motivates Breijn to deliver optimal design solutions. By combining knowledge and expertise they are able to offer an integral approach for a wide variety of engineering and design projects. The mission of Breijn is to become the most successful engineering company in the Netherlands by delivering beautiful and special projects for customers who are extremely satisfied. Core values are integral work, pro-activity and perfection.

1.2 Problem statement and research question

Historically, public projects used traditional design-bid-build procurement. The design-bid-build method requires separate contracts between the owner and designer on the one hand and the owner and constructor on the other.¹ These contracts are formalised in the RAW published by CROW (2000). In the Dutch civil industry for the majority of the projects a bestek is written with the RAW (Cobouw, September 2009). For minority of the projects an economic most advantaged tender is used, for a significant part by large organisations. In this tender the quality and the price are weighted to find the contractor, who can offer the best price for quality. If clients choose to award projects on the lowest price, contractors bid on the work. This tender procedure is currently documented in the ARW 2005 (Gribnau, Petit, Doornbos and Oehler, 2005). The contractor with the lowest price gets the work for the registered price.

only when mistakes are found in the bestek or when the bestek is incomplete, prices are adapted. So, contractors focus on the lowest price for the prescribed quality while the awarding authority expects the highest value for the arranged price, see Figure 1.

After the collusion in the Dutch construction industry (bouwfraude) in the beginning of the twenty first century, the relations between the contracting parties became hardened (NRC, 2006 and Dorée, 2004). At the moment the trust in the client-contractor relation is growing. Due to dissatisfaction with the general tender process based on price, companies and municipalities are looking for new ways to organise construction projects (Regieraad and PSIBouw, 2008 and COBRA, 2004). This need for change is strengthened by the current, tight market situation; contractors are under pressure to perform as cheaply as possible and this reflects in the quality (Limburger, 2009).

As Breijn designs projects, they notice that the organisation of the entire construction process does not always meet the need of clients. By creating the bestek clients prescribe in detail how the work has to be executed. The knowledge of contractors is not used optimally because the specifications are very detailed and there are little or none degrees of freedom. Efforts are made to reduce risks or to define risk related responsibilities. At the moment risks are not always efficiently managed, as a connection between partners seems lacking.

![Figure 1 Clients versus Contractors: Difference in Objectives](image)

One of the problem owners of the quality problem as explained above in the construction industry is the designer. The client holds them responsible for the quality of the project and the contractor holds them responsible for the design. Breijn has as an engineering party a directing role in the value chain. Best Value Procurement (BVP) is a different way of tendering and can directly influence the market and align the interests of the stakeholders. Currently, local authorities mainly award projects on lowest price (Boes and Doreé, 2008). As the majority of clients of Breijn SI are local authorities, the method provides opportunities for Breijn SI.

The above described events lead to the following problem statement:

The market situation in the building sector is very strictly organised and interests of partners are sometimes incompatible. Best Value Procurement is a way of connecting the different companies in the value chain, trying to overcome this lack of connection through a tender process based on quality and price. Breijn SI is stimulating tender projects based on the Best Value Procurement method, in order to make this the preferred tender process. At the moment Best Value Procurement is in the starting phase and is gaining awareness in the infrastructure industry. Breijn SI wants to know how the methods works, what is the best way to set up
consulting services based on BVP and how products or services related to BVP can be sold by Breijn.

The goal of this research is to provide recommendations and suggestions for Breijn SI for the acquisition of projects and consulting services based on the Best Value Procurement method in order to design a new strategy and implementation tool for a tender and contracting process by researching the traditional tender process and management processes for civil engineering projects at Breijn SI. The relation between the research questions is shown in Figure 2 Research diagram.

![Research Diagram](image)

**Figure 2 Research diagram**

This research goal implies the following research question:

**1. How can Breijn SI acquire projects in which they can support clients during the tender process by using the Best Value Procurement method?**

Leading to the following sub-questions:

A. What is the definition of Best Value Procurement?
B. What causes the success of Best Value Procurement in the US and what is the advantage of using it in the value chain?
C. Which mainstream tender procedures exist in the Dutch construction industry for infrastructure projects?
D. What are the differences and similarities between the US and the Netherlands?
E. Which differences and similarities exist between the current Dutch practice and the Best Value Procurement method?
F. What is currently the acquisition process of Breijn SI?
G. Which conditions need to be met at Breijn SI to acquire projects for the application of the Best Value Procurement method?
1.3 Research methodology

The methodology of this research will be explained in this section. The research is set up using the research model of van Aken, van der Bij and Berends (2004) based on P. van Strien (1986), which is designed to deliver sound business solving projects. According to them, the regulative cycle starts with a problem mess at a company. After each evaluation a new problem mess can be researched. The implementation and evaluation step will not form a part of this research due to time limitations. This means that the approach of this research is design oriented (Verschuren and Doorewaard, 2007). This is a case study where the dynamics within a single setting are researched in an explorative way, in order to design a strategy for Breijn. Throughout the entire project the researcher shared a workplace at the office of Breijn with other engineers; it was a deliberate choice to acquire addition information through observation.

As noted in the literature (Eisenhardt, 1989) a case study often uses several methods of data collection. The analysis phase of the study consists of action research and desk research. The desk research is used to answer research sub-question A “What is the definition of Best Value Procurement?” The results are presented in chapter 2. In this chapter the second sub-question B is also answered.

For the third sub-question “Which mainstream tender procedures exist in the Dutch construction industry?” both action research and desk research has been performed. The results of the desk research are presented in section 3.1. For the action research the activities of a calculation department of a constructor for preparing a bid on a work were followed. In addition, several interviews were held in and outside of Breijn to gather information about the practice of the construction industry. This information is combined in section 3.2. The action research consists of a study of the pilot project of Breijn and the local authority ‘s Hertogenbosch in which the Best Value Procurement method is used, see Section 3.3. On the right side of Figure 3 Diagnostic Research Model for the Contracting Processes within Heijmans and Breijn, a part of the result for the diagnosis phase is shown. This phase should lead to better insight into the problem and provide possible solutions. In section 3.4 the sub-questions D “What are the differences and similarities between the US and the Netherlands?” and E “Which differences and similarities exist with the current Dutch practice and the Best

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Figure 3 Diagnostic Research Model for the Contracting Processes within Heijmans and Breijn

- Literature about Dutch building, tender contracting processes
- Best Value Procurement Literature
- Project Management Literature
- Formally tender processes at Breijn and Heijmans
- Informal tender processes at Breijn and Heijmans
- Diagnosis
- Exploration of redesign directions
Value Procurement method?” are answered. These questions further investigate the relations between the US, the Netherlands, Best Value Procurement and the current practice.

For the design phase an empirical research is conducted, this will consist of interviews with project managers at Breijn about their commercial activities and of interviews with clients from Breijn SI, i.e. purchasers at local authorities and regional water authorities. The results will be confronted with each other to see if there is a gap between the purchasing side and the selling side, this is described in chapter 4. In this chapter the current acquisition process of Breijn SI is described, see sub-question F. After analyzing and comparing the theoretical and practical findings, a clear view of the current practices of Breijn SI was created. Based on these findings some practical advice is given regarding improvements for the current situation (van Aken, 2004). The design model is shown in Figure 4 Design Research Model for the Contracting Processes within Breijn. The design is the answer to the overall research question and is based on the previous findings in the literature and the research at Breijn SI and the local communities. The design is presented chapter 5.

1.4 Deliverables

The deliverable for Breijn SI is a report in English with insights in the opportunities of Best Value Procurement for development of commercial services. In addition, a commercial strategy in Dutch will be made for the department Urban Infra. The commercial strategy will consider the following stakeholders; the external clients, the internal client (Heijmans) and the organisation of Breijn. This strategy will be based on the literature of Best Value Procurement (Kashiwagi, 2008) and will be accompanied by some recommendations for the implementation. Deliverables for TU/e are insights in the tender processes in the construction industry and the knowledge of the Best Value Procurement method. In addition this case study can provide preliminary insights for further theory building about how business to business relations can incorporate value in the tender process. This study provides also insights in the implementation of a tender based on value in a civil engineering environment.

1.5 Intermediate Conclusion

In this chapter the company Breijn is introduced. Their problem concerns the implementation of an American method ‘Best Value Procurement’ for the execution of tenders in the Netherlands with local authorities. The need for this study is not the answer to a life or death question, it is a completion of the current knowledge and activities in the area of Best Value Procurement. Breijn SI wants to acquire new projects by presenting this method as a new product in their product range. Therefore this research will provide a strategy for the acquisition of projects based on the Best Value Procurement method for Breijn SI. The strategy will be based on the research questions described earlier.
Chapter 2. Best Value Procurement

In this chapter the first sub-question “What is the definition of Best Value Procurement?” and the second sub-question “What causes the success of Best Value Procurement in the US and what is the advantage of using it in the value chain?” are answered. These sub-questions are researched with the use of literature. Articles that form the basis of this study are searched using the following key terms: (best) value, procurement, purchasing, business to business, contracting, construction, building industry. Combinations of all the different keywords were entered in the following search engines: Proquest and the scholar engine by Google. The articles are searched in the period February 2009 till August 2009.

In the first section, some definitions and concepts are discussed that are relevant for this study. In the second section the construction industry is researched. In the third section the Best Value Procurement method is discussed. Finally some conclusions will be drawn and an answer will be formulated for the research questions.

2.1 Definitions and concepts

In this section several definitions and concepts are researched in the literature. The concept value will be discussed in the first section; secondly the concept procurement will be discussed. In the third section, both concepts will be related to each other. In the fourth section, market orientation will be discussed.

2.1.1 Value

The following definition of value was found in the MacMillan English Dictionary: “value is the amount that something is worth compared to the money that it costs”. From the definition in the dictionary it becomes immediately clear that value is a comparison of benefits and costs. This is also recognised in the academic literature (Wouters, Anderson and Wynstra, 2005). In other words value concerns a trade off between giving and receiving (Dumond, 2000). A higher priced offering may have more value when it improves revenues instead of solely cost savings. Wouters et al. (2005) indicate that Total Value of Ownership (TVO) goes a step further than total cost of ownership (TCO), because it focuses on the gains instead of the life cycle costs. Instead of optimising one dimension lifecycle costs, the returns are considered as well with a TVO approach. Telgen and Sitar (2001) underline that a value based purchasing strategy is different from a cost driven strategy: “Nowadays, value-based purchasing focuses the decisions of purchasing professionals on the creation of value, rather than on the traditional objectives of cost savings and efficiency.” (p. 804)

The difference between the cost made and the value received is the intent to buy (Jansen, Klokman, Kuijper, Pries, Witteveen and Zijlstra, 2007). Only when the perceived value is higher than the cost a transaction will be made, assuming that the buyer is informed and can make a reasonable choice. This difference is the actual value and can differ for everyone. Ulaga (2003) noted a fragmentation in the literature and stated that there is no comprehensive view of what value is.

The multiple stakeholder model in the relationship marketing describes a wide range of stakeholders. According to Payne, Holt and Frow (2000) three types of stakeholders are central to the organisation and therefore a key component of relationship value: employees, customers and shareholder value. When combining stakeholder theory with value, it becomes clear that different stakeholders perceive different types of value. Therefore Lepak, Smith and Taylor (2007) have the following definition of value: the value lies in the eye of the beholder.
So, value is discussed from very different perspectives, where customer value (Tellis and Gaeth, 1990) and (Kumar and Grisaffe, 2004) is a perspective that is significantly represented in the literature especially in the consumer business. The conclusion can be drawn that best value depends on the stakeholder and may best value be different for different stakeholders.

2.1.2 Procurement
In order to get an understanding of the concept procurement, a brief description was found in the MacMillan English Dictionary: procurement is the process of buying supplies or equipment for a government department or company. Different words exist for procurement or purchasing, these are listed in Figure 5. So, when studying the textbox it appears that procurement can be seen as the purchasing process of governmental organisations.

Purchasing the buying of something
Sourcing the buying of parts of a product to be assembled elsewhere
Supplier a company, organization, or country that supplies or sells a product or service
Supplying providing someone or something with something that they need or want
Supply chain: a series of processes involved in supplying a product to someone
Tender: a notice of intent to deliver physical goods against a commodity futures contract
Value chain: Products pass through all activities of the chain in order and at each activity the product gains some value.

Source: Mac Millan English dictionary

Figure 5 Textbox Purchasing

It is interesting to note that local communities see tendering similar as sourcing. But in the academic literature (van Weele, 2008) the process of tendering contains only the activity selection as shown in the Figure 6 and according to the writer sourcing contains the following activities: specification, selection and contracting. When comparing the definitions it becomes clear that for sourcing the geographical location plays an important role, often in combination with costs saving due to lower wages. According to Trent and Monczka (2003) sourcing can be done on a domestic, international or global scale hereby underlining the importance of the geographical scale.

Figure 6 Purchasing process

Throughout the years purchasing has evolved from an operational activity to a strategically acknowledged function. In 1983, Kraljic (1983) wrote about the need for a supply strategy. According to him the strategy depends on two factors: the importance of the product for continuance of the company and the complexity of the supply market. This model focuses on

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2 Adapted from: http://www.dronten.nl/website/websites/dronten/website/default.asp?frameid=2&path=gwsitemanager/content/show/1104
the operational level. In 1994, Ellram and Carr said that the purchasing function should be in line with the corporate strategy in order to be as effective as possible. In the article three different strategies are recognised: 1) specific strategies for the purchasing function, 2) a purchasing strategy supporting other functions or the entire company, 3) and purchasing as a strategic function of the firm. Dumond (1994) noted that purchasing is generally viewed as an important contributor to the organization, but (at that time) the purchasing contribution was recognized only in terms of its ability to directly reduce costs. According to Rozemeijer, van Weele and Weggeman (2003), top management can add value by matching the corporate advantage of purchasing with the level of corporate coherence and purchasing maturity. Purchasing maturity represents the integration of purchasing into the organisation. This corresponds with the third type of purchasing strategy as recognised by Ellram and Carr (1994).

The maturity model of purchasing and supply management as in van Weele (2008) on pp 101 describes the concept purchasing maturity. Most authors suggest that the added value of purchasing is maximized when its goal is correlated with the strategy of the company. In the purchasing maturity model, the added value of purchasing depends on the level of purchasing maturity. The ultimate goal is integration of the purchasing strategy on strategical level. So, there exists a homogeneous idea how purchasing should ideally relate to the company. During the last thirty years the focus of purchasing in the literature has shifted from operational activities to strategic level. But not for all companies deal with purchasing in the same way, as indicated in the purchase maturity model, see Figure 7 below.

![Figure 7 Maturity model of purchasing](image)

The underlying assumption of the maturity model is that a different approach is needed for each different phase in the model. The names of the different phases are listed on the x-axis. Depending on their characteristics, as listed below, the purchasing function in the organisation is more mature and more integrated with the rest of the organisation. A continuous

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3 Adopted from Weele (2008)
development is expected as the line of maturity increases. According to the model, a shift in orientation is seen during the transformation from the third to the fourth phase. Even though this theory appears logical, it is not validated with academic research. In addition, it remains unclear how organisations move from one state to the next.

Van Weele (2008) indicates that the model about the development of the purchasing department in the organisation has the following characteristics:

- **Integration**: Most authors recognise a final state to which the purchasing department should evolve. In this state the purchasing function is integrated with the other departments in the organisation.
- **Organisational position of purchasing**: when purchasing is organised more centrally and the CPO reports higher in the organisation the purchasing is more mature.
- **Supply strategy**: the strategy describes the main purpose of the purchasing department, varying from handling of transaction to total cost of ownership.
- **Relationship with supplier**: when the organisation matures, the relationships with its supplier changes and become closer.

### 2.1.3 Combining value and procurement

The government of the UK introduced a value based policy for the procurement of supplies, services and works after the advice of the Egan (1998) commission. Murray (2002) noted that the concept best value for money is generally accepted as the primary purchasing objective for the public sector in the UK. In Phillips, Martin, Dainty and Price (2004) is noted that the introduction of the best value program over there had some difficulties in the social housing sector. Due to the short preparation time, insufficient knowledge about value management techniques was present and value systems were not completely understood. Improvements are still needed as a general model for best value contractor selection is not yet available. The best value program in the UK focuses on local accountability and continuous improvement (McAdam and Walker, 2004). In their evaluation of the program the authors found that it is important to link best value initiative to existing policies. In addition, clear definitions of roles, responsibilities and accountabilities need to be in place to support Best Value initiatives in the organization.

Also in other countries selection with best value is seriously considered, in order to develop the professionalism of public procurement. According to Palaneeswaran, Kumaraswamy and Ng (2003) from Hong Kong low bid selection does not provide the best value, even in financial terms. But they also acknowledge that no commonly accepted definition of best value exists yet. In the US the Federal Acquisition Regulation (FAR) finds delivering best value the suitable selection process for federal departments (Lawther, 2007). They define best value as: “the highest overall value based on objective factors not limited to price, quality, design and workmanship” (p. 179). This type of tender is also more often applied among the states (Krüger, 2004) then some years ago. In Bartle and LaCourse Korosec (2003) is noted that Best value strategies are not appropriate for each purchase. They also note that some states have limited opportunities for the implementation of Best Value due to restrictions which prohibit these initiatives effectively.

### 2.1.4 Market orientation

Market orientation can be defined as “the set of cross-functional processes and activities directed at creating and satisfying customers through continuous need assessment.” (Deshpandé and Farley, 1998). The concept market orientation is mainly based on two sources Kohli and Jaworski (1990) and Narver and Slater (1990). Some studies relate to
market orientation as customer orientation, as all articles refer to the same writers named before, the researcher assumes that it is the same concept.

In the academic world it is generally acknowledged that market orientation has a positive influence on performance (Jaworski and Kohli, 1993). According to Kirca, Jayachandran and Bearden (2005) the influence on performance occurs through innovativeness, customer loyalty and quality. Market orientation is focussed on the generation of market intelligence, the dissemination of it and the organisation wide responsiveness to the information. As market intelligence should not only be gathered but also be spread through and used by the organisation in order to be effective.

Market orientation can be achieved by focusing on the following three internal factors, antecedents: top management factors, interdepartmental factors and market-based reward systems (Kirca et al., 2005). As market orientation is generally seen as a culture shift, it requires senior leadership in order to succeed. In addition, the cohesion between departments should be high, because market orientation involves the entire company. When embedding the focus on the customer, it is recommended to alternate the reward system that sustains a market oriented focus. Varadarajan (1985, as in Kirca et al., 2005) indicated the for service firms it seems to required to be market oriented in order to survive. For production firms it depends on the market situation if market orientation is a nice bonus or a requirement in order to survive.

An interesting article is written by Steinman, Desphandé and Farley (2000), who integrated the research about market orientation and relationship marketing. They found a market orientation gap which is formed by what suppliers think of themselves and what customers think of them. The gap should be measured and managed in order to fit products and services to customer needs. According to the authors a shift from pure measurement of market orientation to measurement and more critically, management of the market orientation gap should take place.

2.2 Characteristics of the construction industry

In this section more information is provided about the characteristics of the construction industry.

Hannon (2005) notices shortcomings in the cost estimates and in the preparation of proposals for construction projects in both US and Canada. Berrios (2006) noticed that government departments award contracts on lowest costs, this tender procedure often leads to poor results in the US. According to Flyvbjerg, Holm and Buhl (2002) costs are systematically underestimated in infrastructure projects. This can be seen as a global phenomenon as it is researched across twenty nations and across five continents. The result of overestimation is in an inefficient use of resources and in a waste of tax money.

It is interesting to note that Flyvbjerg et al. (2002) can not prove that the cost underestimation has decreased over the years. “For technical explanations to be valid, they would have to explain why forecasts are so consistent in ignoring cost risks over time, location, and project type.” (p. 287) Therefore they conclude that no learning effects take place to minimize underestimation of costs. According to them, the best explanation for the systematic underestimation of costs is the use of deception and political struggles over power (Wachs, 1990 as quoted in Flyvbjerg at al. 2002).

The report of Egan (1998) supports changes in the construction sector in UK. They state that “the construction industry is underachieving, both in terms of meeting its own needs and those of its clients.” (p. 6) Therefore they suggest an extensive change program which i.e. stimulates performance based measurement and other selection criteria besides price. The ultimate goal is to use criteria that provide best value for money.
Kashiwagi, Sullivan, Greenwood, Kovell and Egbu (2007) describe a model for the construction industry. In this model two characteristics are used to describe the construction industry: competition and performance. This leads to the following four quadrants, as shown in Figure 8 Model of the construction industry.

In the first quadrant a design-bid-build process is used to award project. From a large pool of available contractors, one is selected on price. In order to get a project the contractor will lower its costs as much as possible and will deliver a minimum level of quality but the client perceives his specified quality as the minimum. This is a significant gap without overlap of interest. Only in the second quadrant where selection is performance based, clients receive value for money. The third quadrant represents negotiated bid contracts. Clients pre-qualify contractors and the qualification is not always based on quality. Trust is a requirement in this situation and the worldwide competition makes this quadrant rare. The fourth quadrant does not represent a free market environment.

Kashiwagi places the construction industry in the first quadrant where projects are awarded only on price. Selection on price is a good thing when all other characteristics of a product are equal. In the construction industry however, all projects are different and the client does not always receive value for money as previously noted. In order to move to the second quadrant, a selection process is needed that identifies value.

2.3 Best practices from US

In this section the Best Value Procurement method by Kashiwagi will be described. First some concepts and theories will be discussed. In the next section several case studies will be discussed. In the third section the results of the method will be provided.

Best Value Procurement is a method introduced by Kashiwagi (2008) of the Performance Based Studies Research Group (PBSRG), a non-profit research group at Arizona State University. The aim of this method is to reduce uncertainty during the construction of a project and to enlarge the chance of success through a selection based on performance. He states that in the construction industry the minimum expected quality of the principal has become the maximum expected quality delivered by the constructor due to selection on price.

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*Figure 8 Model of the construction industry*[^1]

[^1]: from Kashiwagi et al. (2007)
Many non value adding activities were incorporated in the chain and alignment methods are set up but do not always deliver the desired result. Therefore he developed a method called Performance Information Procurement System (PIPS) in order to find the contractor providing best value for money. This paper refers to this method also by the name Best Value Procurement. The method is based on his own theories, the information management theory (IMT), the Kashiwagi Solution Model (KMS) and the construction industry model.

**2.3.1 Concepts and theories**

PIPS is a method “to select the best available value, force quality control and preplanning, and motivate the contractor to pre-plan and manage by risk minimization.” Pips can be divided in four phases: preparation phase, selection phase, pre-award phase and the risk management phase. The method emphasizes preplanning in every phase in order to predict the success of project more accurately. During the preparation phase the organisation is prepared for handling a PIPS project. This means a culture change in handling projects in order to stimulate performance and to minimize risks. During the selection phase the different filters as shown in Figure 9 are used to select a contractor. First past performance information (PPI) is used to filter contractors with bad performance. The contractors should choose their own references for a fair selection process. Then the project proposal and the RAVA plan are handed in and assessed. The risk assessment and value added plan (RAVA plan) explain shortly which risks are seen by the contractor and what value he can add. During the next filter interviews are held with the critical personnel for the project. Both the interview and the plans are rated and during the prioritization filter all information is collected and compared with the fixed price proposed by the contractor. The contractor providing best value for money is selected for the pre-award phase. During this phase client and contractor negotiate about the risks for which the contractor is responsible and the plans are finalised. No amendments to the price are made however. During the construction a weekly report document is set up to monitor the progress of the project and minimise the risks.

![Figure 9 Filters of PIPS](image)

**2.3.2 Case studies**

An evaluation of the PIPS method has taken place in 2004 and at that time over 380 tests and $230M of construction project has been procured using this method (Kashiwagi at all., 2007). In this paragraph several case studies are highlighted. The article by Kashiwagi and Savicky (2003) studied the procurement of roofs by the State of Hawaii with the PIPS method. During a period of 4 years 96 roofs had been procured using this method. The prices of roofs were

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5 Kashiwagi (2008)
compared and they calculated that the roofs procured based on performance were on average 5.6% below budget and the roofs procured with the traditional design-bid-build method were 2.3% below budget. Therefore they conclude that PIPS not only provides a higher quality but the costs are also lower compared with a traditional procurement process. So, roofs could better be procured with a performance based method.

Different case studies are described in the book by Kashiwagi (2008), PIPS was implemented at different universities (the universities of Hawaii, Arizona and Minnesota) in the US for i.e. the selection of food services and the procurement of construction projects. The maintenance centre in San Francisco of the United Airlines (UAL) used the method for all types of construction work, like roofing, painting, flooring, installation of elevators underground storage tanks and environmental projects. The process was run on 32 projects with outstanding results.

The first large project that was run with PIPS started in 1999. The state of Utah used the process to procure five large multi-million dollar construction projects. The contractor that was selected did overrun the time and budget for only one part of this project, the village centre, due to problems with the design that were not in his control. The other four projects were on time and within budget with good performance. The final conclusion was that PIPS can work on large and complex construction projects.

Even though the method BVP is developed in the US, recently some projects were tendered with the principals of BVP in the Netherlands. In RIA (2006) several building projects for the UMC St Radboud in Nijmegen are discussed that uses elements of the PIPS method in the tender process. These Dutch projects were finished on time, on budget and meeting clients’ expectations. An important project characteristic for using this tender method is the possibility to construct the project without much interference from the client (Duren en Dorée, 2010).

One aspect of Best Value Procurement, past performance is used in a project initiated by Pro Rail, Rijksgebouwendienst and Rijkswaterstaat. According to the publication Durf 4 (2009) they achieved good results with measurement of past performance of contractors. The performance was measured by the contractor and by the client. They learned that for the measurement of past performance multiple projects are more accurate instead of one. In addition it is not necessary to measure the past performance in too much detail. This initiative is different from the project PAPER6.

2.3.3 Results
In the article by Duren and Dorée (2009) the claims of Kashiwagi were researched by reviewing over 400 projects. They noted that the majority of these projects were rather small, i.e. reroofing and painting jobs. It appears that over 93% of the projects are delivered on time and within budget. For 91% of the project the client stated that there were no charges for extra work. 94% of the projects were evaluated with an A or a B (>8 on a 1-10 scale). So, it is proven that with this method an excellent performance will be achieved. It is especially interesting that the PIPS tendering process seems to break the custom of charging extra work by the contractor.

Regarding the minimization of management activity, Duren and Dorée (2009) found a minimisation of 80% rather optimistic. They concluded that a project of substantial size is preferred to earn back the extra time invested in the preparation phase. The two authors found that there are indications to support the claim of Kashiwagi that PIPS delivers a greater value

6 http://www.pastperformancebouw.nl/Home.aspx
for money, though this is not extensively researched. Clients seem more satisfied as they rate projects with an 8 out of 10, which is higher than in the Dutch rating of 7 (Regieraad and PSIBouw, 2008). Comparison is quite difficult due to cultural differences and perhaps that difference in research method. Kashiwagi claimed that with PIPS the contractor can increase his profit. There are indications that an increased profit for the contractor is realisable but this is not extensively researched.

2.4 Intermediate conclusion

In this chapter is tried to answer the first two research sub-questions; A “What is the definition of Best Value Procurement” and B “What causes the success of Best Value Procurement in de US?”

First the concepts value and procurement were researched. Value refers to the effectiveness of an operation and depends on the person. The concept procurement refers to purchasing of public organisations. It is interesting to see that local authorities have a different view of tendering than the academic world. What the academic world calls sourcing, is called tendering by the authorities while the academic world defines tendering as the specification phase in the purchasing process, which is the second step in the purchase process. It would be interesting to know if local authorities view only the name of the process differently or also the specific process.

When procuring best value the principal is looking for the contractor who can perform the work as effectively as possible. More effectiveness can be achieved by innovation. So, the principal is looking for a contractor who has the learning capacity to adapt to the situation. Around the world different best value initiatives exist to improve the proficiency of procurement of governmental organisation. The low bid tender is or was generally used by governmental organizations for tendering construction projects. In order to increase the ratio value for money many advising agency recommend or sometimes even oblige best value. Just as purchasing activities at corporations change and mature, best value initiatives (among others) are used to professionalize procurement.

Best value for a principal in the construction industry is the finishing of a project on time, within budget and with the expected quality in other words value for money. Quality depends on the project and on the client, for lifecycle costs are more important in the social housing sector (Phillips et al. 2004). It is important to define the level of quality in advance otherwise you can not evaluate the different bidder properly (Gransberg, 1997).

Best Value procurement is also a tender method developed by Kashiwagi (2008). According to his statements and the research by Duren and Dorée (2009) the method Best Value Procurement delivers value for money in procurement projects. The method started in the US, but is not the standard over there. Each state is allowed to set up its own policy for procurement activities and the FAR provides only some umbrella regulations. When the method is used, the results are very much satisfying.

As indicated by Kashiwagi this method is applicable in a market situation with many suppliers or contractors. With the PIPS method, the client states a budget for the project and this is also known by the contractors. In a market with multiple suppliers, this strategy forces competition on performance instead of price, this causes the success of the method. Duren and Dorée (2009) connect the method with existing theories of new institutional economics. This theory better explains the success. The following mechanisms are present in the PIPS method: a reduction in opportunism of the contractor, a reduction of uncertainty due to a thorough selection process and the positive influence of the weekly monitory process on bounded rationality.
Chapter 3. Procurement and Tendering in the Dutch Construction Industry

In this section the third question “Which mainstream tender procedures exist in the Dutch construction industry?” will be answered. This will be analysed from different perspectives, in the first section the Dutch literature on the tender process will be discussed. In the second section 16 interviews and a project at the calculation department of a constructor will be discussed. In the third section a project of Breijn SI and the local authority ‘s Hertogenbosch based on the Best Value Procurement method will be discussed. This chapter finishes with an intermediate conclusion about the tender activities in the Dutch construction industry.

3.1 Literature

The tender process for public procurement has two elements which define the process; the form of the construction organisation and the tender policy (Jansen, 2009). The tender policy is discussed in section 3.1.1 and the contract form in section 3.1.2. In section 3.1.3 attention is paid to innovative procurement in the Netherlands. Academic articles are used in this section; they are searched in the period February 2009 till September 2009. Besides academic articles, articles written by commissions of the Dutch profession industry were used; most of these articles can be find on the site www.debouwvernieuwt.nl. The language of these articles is Dutch and for this paper is attempted to find related concepts in English that are also used in the research field. When this was not possible translations were used that stayed closely to the original meaning.

3.1.1 Tender policy

The tender policies are registered in the ARW 2005 (Aanbestedingsregelement Werken, Gribnau, Petit, Doornbos and Oehler, 2005); an overview of these procedures is listed in Appendix C. In this publication, all procedures are explained in detail on the national and on the European level. Thresholds are stated when a work, supply or service is tendered on European level, as can be seen in Appendix D.

The thresholds for works and services below the European threshold depend on the government organisation as can be seen Appendix E. Each column represents the thresholds of a local authority which is presented in their policies. The authorities are selected in the south of the Netherlands and depersonalised. The same authorities are interviewed in chapter four and therefore represented with the same capital. Above the thresholds the tender policy is defined at European level for all governmental organisations to enhance competition. So, the thresholds are similar for all authorities in Appendix E. As noted by Krüger (2004) most tenders on this level are on price even though this is not stated in the guidelines. Below the thresholds the authorities are entitled to their own policy, but 92% of the projects below the threshold are tendered with ARW 2005. In the appendix can be seen that large works are publicly tendered and smaller projects are privately negotiated with one or multiple invitees. This is not organised in a national policy, but a habit among most local authorities. The height of thresholds depends on the authority and varies as can be seen in the table. One local authority has a different approach for awarding works; they prefer negotiations due to the

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7 [http://bn20.gaat-online.nl/contenttypes/Artikelen/Artikel2846.aspx?Source=http%3a%2f%2fbn20.gaat-online.nl%2fweb%2fzoekresultaat%2fPages%2fdefault.aspx%3fik%3dproportionaliteit%26start%3d11%26pagesize%3d10%26order%3dranked](http://bn20.gaat-online.nl/contenttypes/Artikelen/Artikel2846.aspx?Source=http%3a%2f%2fbn20.gaat-online.nl%2fweb%2fzoekresultaat%2fPages%2fdefault.aspx%3fik%3dproportionaliteit%26start%3d11%26pagesize%3d10%26order%3dranked)
economical circumstances. At the moment there is less work for contractors and with negotiation they believe that a low price can be achieved in combination with a high quality. So, below the European threshold no regulations exist for the procurement of public organisation and the quality of tenders depends primarily on the professionalism of the procuring organisation. In the new tender law this situation will not change as only guidelines are provided for the organisations.

From the appendix appears that the same structure for tenders exists for services and works when comparing both tables in the appendix. The difference is that for services the thresholds are lower, which is directed by the European threshold. When relating this table to selection procedure for Breijn SI and the size of the services they provide, it becomes clear that most clients of Breijn SI will privately tender their projects with one or multiple invitees. As an estimate of the average project sum of Breijn SI is below the threshold for an open tender.

A client can choose to award projects on the lowest price or on the most economical favourable offer (meest voordelige aanbieding or EMVI in Dutch) (Jansen, 2009). In most tender procedures that use quality besides price as awarding criteria, enlists of a tender are pre-selected on the quality criteria, which assess their ability to perform. Based on this assessment, parties are later invited to subscribe for the awarding phase. This means that according to the ARW 2005 a restricted tender is used.

According to Janssen et al. (2007) quality should count at least for 40% during the award phase. They also say that an EMVI tender should be used when the quality of a project is more important than the price. The lowest price is regarded a good awarding criterion when the project can be specified into detail and the assigning authority knows exactly what they want. The danger of this tactic is that the client will receive no more quality than is prescribed and the constructor can not influence the design.

EMVI criteria are used for less than 15% of the tenders in the infrastructure in 2008 and the first half of 2009. This number is consistent over the last two years and does not increase as was expected. The Aanbestedingsinstituut indicates that principals in the infrastructure are less transparent and select more often on price. According to them there is a relation between the number of legal proceedings lack of transparency in a tender (Cobouw, 2009).

Besides the laws and regulations that public organisations have to comply, they also oblige to the principles of integrity defined as non-discrimination, objectivity and transparency when tendering (richtlijn 2004/18/eg and van Weele, 2008). European guidelines are translated in Dutch in the BAO (Besluit aanbestedingsregels voor overheidsopdrachten) and BASS (Besluit aanbestedingsregels Speciale Sectoren). The principle of non-discrimination should guarantee that the market is open for every entrepreneur independent of his nationality. The principle of equality further specifies the principle of non-discrimination. All companies should be treated equally and should receive the same information. The principle of transparency obliges organisations by publishing the request for a work, supply or service.

When applying the four principles to value based tendering, it is important to note that it is not possible to define value or quality objectively for 100%. When looking at the theory, a certain tension can be noticed between the value based selection method and the integrity principle. Nevertheless it is possible to come to a transparent method for a tender procedure when using quality or performance as criteria (Jansen et al., 2007). Therefore a division is made between prequalification or ‘selection criteria’. These criteria regard the contractor, who can execute the project. Criteria for prequalification should relate to the size and the type of the project in order to comply with the principle of proportionality. Awarding criteria regard how the project is executed; they regard the quality of the proposal. With regard to pre-selection and awarding criteria can be noted that it is important that the prequalification
concerns the tenderer and that the awarding criteria concern the subscription or proposal. Prequalification and awarding are strictly separated in the legal framework.

3.1.2 Contract form

The Dutch construction industry had a turnover of 83.378 million euro in 2007 and the infrastructure projects count for a turnover of 14.256 million euro, an overview is shown in Appendix F. For this large industry contract are standardised by the UAV. A principal defines with the contract form how he wants to cooperate with the (sub) contractor, the architect and the advising agency. The contract form indicates how the different tasks of the entire construction are divided among the parties involved. In the following paragraphs the different contract forms are described as well as the recommended tender policy. It is recommended that the principal follows the standardised contracts as specified in the UAV 1989 (Uniforme administratieve voorwaarden). In these publications the legal relation between principal and contractor are formalised and are used in most contract.

The traditional contract form is Design-Bid-Build. First a design is made by a local authority or advising company, contractors bid on this design, generally the lowest bidder wins the contract, which is built afterwards (Boes and Dorée, 2008). In the traditional form design and building activities are individually tendered occur in-house, just like finance and maintenance. Slightly different from the traditional Design-Bid-Build is the construction team (in Dutch bouwteam). The different activities are individually sourced by the client but the constructor commits himself to give advice during the design process. The contract with the builder is often closed at the end of the design phase. The preferred tender policy is (private) negotiation or a restricted tender (Pries, Keizer, Kuypers, and Mooinam-Salvini, 2006). Another option is an integrated contract form. As the name suggests, the several activities are integrated and the constructor has responsibility to contribute to the design activities e.g. the design and construct (D&C) contract. Besides design and construction, other tasks Finance, Maintain and/or Operate can be incorporated in the tender. These tasks are generally abbreviated to indicate the form of cooperation e.g. D&C or DBFM. The public tender is discouraged for integrated contracts; a restricted tender or (private) negotiation is preferred (Pries et al., 2006). A different framework exists for integrated contract forms: the UAV gc 2005. The turnkey is a variant of the D&C form. Clients place the activities for design and building at one party and let them handle everything without interference for a fixed price. A strategic collaboration can be formed by a governmental party and a private party. This is called a PPS (publiek private samenwerking) construction. Projects that apply for this type of collaboration are often very complex and the exact project outputs can not be defined in an early phase. The project is based on common or precisely defined interests, in terms of money, time and quality (Pries et al., 2006).

The contract form is chosen by the principal and should depend on the project. Pries et al. (2006) have provided an overview where the type of work and the type of principal are matched. In this study only the governmental principal is discussed, considering the scope of the research. A traditional contract is recommended for large and unique projects like an aqueduct or academic hospital and maintenance projects. The integrated contract form is recommended for large, repetitive projects where requirement can be formulated clearly like asphalt projects. A DBM is also suitable for maintenance projects. The turnkey variant is not suitable for complex or unique projects, it is recommended for standard product to guarantee high speed. A strategic collaboration is recommended when difficult and unique projects have to be constructed, for example large infra projects in urban areas. The amount that a principal
wants to be in control is also important for the choice of contract form. In a traditional setting much control lays with the principal, this is less in other contract forms.

CROW, a Dutch organisation for the distribution of knowledge about transport and traffic, registered that at least a hundred projects were executed with integrated contract forms in the entire building sector in the last four years. The real number is three to four times higher, estimates CROW. A research by Blankers (2008), the centre of expertise concerning tender procedures, indicates that integrated contracts are new for lower authorities and they often use the support of advising agencies. In PSIBouw (2008) the preferred contract form of the principal is measured. Currently, 57% prefers a traditional contract but they expect this type of contract will be less preferred in the future years. Numbers about contract forms can not be provided into more detail as no information could be found.

3.1.3 Innovative procurement

In the publication by Dorée (2004) the collusion in the Dutch construction industry is analysed. After the collusion, tougher public sector procurement policies were recommended by the Dutch Parliamentary Inquiry Committee. As these policies focus on cost competition, they prevent innovation which is needed in the long term. To improve the situation in the construction industry, on the long term innovative procurement activities are needed and less selection on price. So, PSIBouw was set up in 2004; a program to sustain innovation. Prior to this initiative a study was carried out to learn from international reform practices (Straub, 2007). PSIBouw cooperated closely with the Regieraad, which was founded by the government to create support on a political level for changes in the construction industry. In order to complete the work that is done with the innovation program the experiences were listed in a publication called Durf (2009). Especially the last few years the organisation became aware that innovation starts within companies and an innovation program can support change but is not responsible for change. Therefore the program was in the last years strongly focussed on stimulating innovation projects within companies. Their conclusion was that many changes have taken place in the construction industry but innovation is still needed. PSIBouw (2008) states that selection on lowest price causes relations that focus on the short term. This results in a constantly changing relationship, where there is hardly any incentive for a supplier to collaborate or innovate. This highlights the importance of selection criteria that are not solely based on costs. So, the Regieraad Bouw and PSIBouw find that quality should be used as awarding criteria in order to stimulate innovation and creativity. Therefore Jansen et al. (2007) published in 2007 Gunnen op waarde. In this publication is noted that not all clients and projects are suitable for the use of awarding criteria. Therefore they recommend that for reasons of effectiveness the use of awarding criteria value for money should depend on the circumstances.

PSIBouw (2008) researched in the period 2006-2008 the behaviour of principals. More principals find lowest price important as awarding criteria and less principals indicated quality of the contractor as an import awarding criteria. Both large and small principals think this will change in future years and that quality will become an important awarding criterion besides lowest price. So, the current practice of tenders is different from the advice of the Regieraad. This is confirmed by a case study of Maessen and Philips (2009). They indicated that the general procurement activities of local authorities are focussed on awarding projects on the lowest price and quality criteria are relatively new for them. But 58% of the respondents (purchasers at local authorities) indicated that they wanted to use innovative procurement in

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8 http://www.crow.nl/contractvormen/_t22_p34_p35_m7_i3171.htm
the nearby future. Boes and Durée (2008) noticed a difference in the willingness to use integrated contracts between the north and the south of Nederland. Especially in the region Noord-Brabant some local authorities have experimented with integrated contracts. Overall, the use of integrated contracts is incidental among local authorities. Important national public clients, like Rijkswaterstaat however have changed their procurement policy into Design-Build for civil work and use quality criteria for the award of projects. So, local authorities incidentally engage in innovative procurement activities and have the intention to start innovative projects. Large national clients however do practice innovative procurement. It seems that slowly new practices replace old practices in favour of innovation.

3.1.4 The use of Best Value Procurement in the USA and in the Netherlands

In this section the following questions are answered: “What are the differences and similarities between the US and the Netherlands?” and “Which differences and similarities exist between the current Dutch practice and the Best Value Procurement method?” So, in the next sections the similarities and differences will be discussed.

The similarities between the US and the Netherlands lay in the organisation and performance of the construction industry. Hannon (2005) notices shortcomings in the cost estimates and in the preparation of proposals for construction projects in both US and Canada. Berrios (2006) notices that governments award contracts on costs and this leads often to poor results in the US. According to Flyvbjerg, Holm and Buhl (2002) costs are systematically underestimated in transportation infrastructure projects. This can be seen as a global phenomenon, as it is researched across 20 nations and across 5 continents. The result of overestimation is an inefficient use of resources and a waste of tax money. Dorée (2004) discussed the collusion in the Netherlands. So, the problems that are recognised by Kashiwagi et al. (2007) occur worldwide.

The report of Egan (1998) support changes in the construction sector in UK because it is underachieving. Therefore they suggested an extensive change program which among other things stimulates performance measurement and other selection criteria besides price. This is consistent with the method proposed by Kashiwagi (2008). Also in the Netherlands several initiatives for the improvement of the building sector have been developed, e.g. the EMVI program as mentioned before.

The differences between the US and the Netherlands lay in the legal framework. When comparing the US legal framework to the Dutch setting several differences can be noted. The legal framework in the Netherlands and Europe puts severe restriction on the possibilities of authorities for the awarding of works, services and supplies. Whereas the FAR (Federal Acquisition Regulation) in the US allows greater flexibility to the public authority (Apostel, 2009). One of the striking differences with the US is a distinction between prequalification and awarding criteria as explained in section 4.3. The prequalification regards the tenderer and the awarding criteria regard the assignment (Jansen, 2009).

In addition procurement in Europe has to comply with the principles of integrity: non-discrimination, objectivity and transparency. In US the FAR can not put severe restriction on the procurement activities of the public organization, as these activities fall under the policy of the state.

Several similarities between BVP and the Dutch practice can be noticed. Kashiwagi (2008) explains that the PIPS method can be used in different contract forms, design-bid-build, design-build and CM®Risk (corresponds with ‘bouwteam’ in Dutch) projects, these forms exist also in the Netherlands. So, the expectation is that in this area not much problems will
exit when transferring the method to the Dutch practise. In addition, a maximum budget is stated in the PIPS method by Kashiwagi by the client and made public to the contractors. This complies with the Dutch and European rules and regulation (Jansen et al., 2007) and is called lump sum.

In the RAVA plan, the risk assessment and the value added are summarized by the constructor (Kashiwagi, 2008). In Jansen et al. (2007) is indicated that risk management is also generally seen as an important selection and awarding criteria. Value is measured in ways options by the client. For example social housing associations value the life cycle costs of new buildings greatly because they exploit the buildings for at least 30 years. Generally speaking, the Dutch construction industry is familiar with this type of selection criteria.

Differences between BVP and the Dutch practice lay in the possibilities of the legal framework. Past performance is one of the filters of the PIPS method. This can be applied in the Dutch and European setting as a pre-selection criterion because it regards the tenderer, i.e. previous projects accomplished by the contractor (person). But according to the principal of proportionality the number of past references should be limited to three assignments and should refer to relevant projects (Jansen, 2009). In addition, it is forbidden to keep record of past performances by contractors, due to the principle of equality. In the US, the performance of a contractor is evaluated and recorded by the authority; this stimulates the contractor to perform at high quality levels (Apostel, 2009).

The method by Kashiwagi uses interviews to ask questions about the RAVA plan that the constructors have handed in at an earlier filter. They see it as an economical way to exchange technical and management information. Significant improvements in acquisition lead times and resource savings have been reported by agencies who use interviews in a tender (Apostol, 2009). The European legal framework puts restrictions on the use of interviews, as only limited use of one to one communication is allowed during a tender. According to Jansen (2009) some space is provided for one-to-one communications but this is very restricted. In Apostel (2009) is noted that national jurisprudence is clear on the aspect of direct communication in a tender. In one case, presentations were allowed as separate awarding criterion as it related directly to the contract. However, in other cases presentations were not allowed even thought the presentation regarded the proposal and not the bidder. Therefore interviews are considered the riskiest part of the PIPS method in order to incorporate it in the Dutch and European legal frame work.

In the PIPS method as described by Kashiwagi (2008), a pre-contractual or pre-award phase is used to pre-plan the project into more detail before the contract is closed. This is necessary because the RAVA drafted by the contractor is on a high level. This period is also used to prepare a document for the quality control during the construction. In this document the risks that are not controlled by the constructor are addressed. According to Krüger (2004) negotiations are a possibility under the FAR regime. In the ARW context restrictions are provided for the pre-contractual phase. A substantial change to the offer is prohibited, since it would not comply with the principles of transparency and equality. According to Apostol (2009) this is confirmed by European correspondence.

In the competitive dialogue the principal and the contractor have the possibility to further detail and change the design where necessary. The competitive dialogue can however, not be applied in all situations.

3.2 Practice

In this section the practice of the infrastructure industry is described. For the organisation of the research a chain perspective was used. Therefore the lay-out of this chapter will follow the chain perspective and will first discuss findings at the principal. In the second section findings
at the engineering agency will be presented. In the third section the findings at a constructor will be presented and the final section will provide some insights on Dutch Best Value efforts.

<table>
<thead>
<tr>
<th>Principal</th>
<th>Engineering Agency</th>
<th>Constructor</th>
<th>Best Value Efforts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question for development of project</td>
<td>Design of project</td>
<td>Construction of project</td>
<td>Initiatives of BVP and EMVI</td>
</tr>
<tr>
<td>3 interviews</td>
<td>4 interviews 1 day accompanying a work foreman 1 acquisition visits workplace at engineering department</td>
<td>5 interviews 3 project calculation meeting 1 project preparation meeting</td>
<td>3 interviews 1 meeting with CROW 1 round table meeting about BVP with interested parties</td>
</tr>
</tbody>
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During the period February till the beginning of May 2009, interviews were held and the researcher followed the activities of some workers in the construction industry. Interviews were held with clients upstream for Breijn SI, within Breijn SI and downstream with employees of a contractor as can be seen in Table 1. A short list of questions was prepared in advance, but the interviewee had the possibility to expand when necessary. So, the lay out for the interviews was semi-structured. In addition, a project at a contractor for the calculation was followed and a work foreman of Breijn SI was accompanied for a day and a discussion session with professionals on the topic of Best Value Procurement and EMVI was followed.

### 3.2.1 Principal

In the table can be seen that three interviews were held at principals in the Netherlands, one at a local authority, one at a water authority and one at Rijkswaterstaat (RWS). The first two are smaller governmental organisation and the last one is the largest principal for the infrastructure market. RWS sees the most economically advantageous tender as the best way to procure works for various reasons. The works they procure are rarely under the 20 million euro and it is very important for them to formulate an assignment correctly in order to prevent legal proceedings. Smaller governmental organisations follow slowly. An employee from a regional water authority indicates that currently they hardly use quality criteria for the awarding of projects to constructors. According to a local authority the difference in awarding criteria explains the difference in the proactive attitude or the waiting game that is sometimes played by the contractor. The contractor does not take initiative to improve the throughput time or the quality of the project during the construction. With selection only on price, constructors have the opportunity to simply deliver what is asked, including the mistakes. The attitude of the constructor is the result of a culture where governmental organisations specify their questions into too much detail.

Concerning integrated contracts the local authority says that they have only four or five D&C projects per year, this is for the entire section works. During the interview it became clear that the principals in the building sector know the principles of non-discrimination, objectivity, transparency and proportionality. They indicated that they use the principals as guidelines for tender procedures.
3.2.2 Engineering agency

When observing the practice at Breijn SI Vught, it appears that the largest part of their work is for local or regional water authorities and for Heijmans. They make designs, provide assistance during the tender and provide assistance for supervision during the construction. The designs that are made at Breijn SI cover a large area, a design for the infrastructure of a new residential area, a new highway like the A2 or advice for the water regulation in a certain area.

The calculator at Breijn SI Vught deals mostly with public or private tenders, a public tender with preselecting is an exception. This is confirmed when looking at the national site (www.aanbestedingskalender.nl) for tenders. Invitations for works are mostly public and EMVI criteria are hardly used. Often no awarding criterion is listed and the assumption is made that the project will be awarded on the lowest price. Everyone who can comply with the restrictions is allowed to prescribe and hand in a price. It is a transparent procedure and all parties know the rules and what to expect or deliver.

An engineer at Breijn noted that the largest part of his work was the creation of bestek and drawings for a tradition project, only once or twice did he work on a D&C project during his carrier of over 20 years. Also at Breijn attention is paid to the principles of integrity. Breijn SI Vught prepares tenders for principals and they make sure that timely notification of selection and awarding criteria is provided to constructors. This means that constructors should know in advance how they are selected and on which criteria the awarding of the work occurs. Changes in the procedures are announced timely through the website for procurement activities.

3.2.3 Constructor

It is interesting to note that during a project meeting of a constructor several remarks regarding the bestek were made. The bestek is considered as a part of the contract and provides an overview of the activities that need to be executed. Contracts play an important role in the relation between client and constructor. When speaking with calculators from a construction firm it becomes clear how important the bestek is. First all contractors use the bestek to calculate prices in order to determine a bid. Once the lowest bid is awarded, during the construction phase the bestek is used as a guideline. Depending on the constructor and the margin of the work the bestek is followed literally and all deviations are priced as change or extra work.

A general foreman indicated that a bid is regularly made with a cutting edge price. The price is so low that it is difficult to construct the project. Then you start looking for miscalculations, this means a lot of (re)negotiations with suppliers. There is always a grey area, were things are a little unclear. The constructor takes then advantage of these situations. A risk manager indicated that the correct estimation of risks can be a great disadvantage in a tender on the lowest price. So, sometimes the tender manager is too positive about the risks in order to formulate a competitive price.

A manager for the non-residential constructions indicated that in the construction industry the entire chain is selected on price, not only constructors but also designers and advisers. Everyone tries to optimize his own part which leads to local optima. At the end of the chain and between parts much friction can be noticed. Sometimes a principal tries to solve the friction with an extremely tight contract for the contractor. The large difference with a tender which selects on added value is that you can present the value that you add to the project better. But this is only possible when the principal provides this opportunity.

During a meeting of a D&C project, it was interesting to note that the project manager paid much attention to the interests of the principal. He explained that perhaps he is more helpful
than necessary but the principal is a good client and he would like to make a success of this project. It is interesting to note that the project was tendered in an EMVI form.

3.2.4 Best Value efforts

Rijkswaterstaat (RWS) is using a different approach to procure thirty projects for road construction projects regarding several bottlenecks in order to accelerate the opening of the projects (Resultaten Marktconsultatie spoedaanpak, 2009). During an interview with an employee of RWS, he indicated that the procedure for 16 large procurement activities is indeed based on the Best Value Procurement method as designed by Kashiwagi. The reason for doing this is that at RWS they value quality, timely delivery and consistent traffic flows for road construction projects. Issues (i.e. difference of opinion) concerning the project can cause delays and due to political pressure this is not desirable. The spokesman stated that the advantages of this method are the focus on quality, clear definition of the wishes of the principal and clear communication with the constructor. Therefore they expect better results. Another principal, the community’s Hertogenbosch appreciates the opportunity that the method provides to manage deviations from plan and timely interference.

The respondent noted that differences with the application of the American method in the Dutch context become clear with the possibilities of the pre-contractual phase, the use of interviews as awarding criteria, measurement of value and the comparison of value plans of the different constructors. The cause of these differences is sought in the principles established in the Dutch legal system regarding the procurement activities of governmental organisations uses as guidelines.

According to an agency which is specialised in the BPV procurement method most issues can be solved within the current legal restrictions. They indicate that the legal system only puts restrictions on the use of past performance. Historical performance information is kept with the BVP method by the principal and is used for future projects. In the Dutch and European context, this information can only be used limited due to the principal of non-discrimination. Only three references projects or past performances are allowed, but this is only a minor deviation from the method.

A researcher on the Best Value Procurement method mentioned that currently the market is not ready for an implementation of Best Value projects on a large scale. First a change in culture is needed, currently technicians are used to specify projects into detail and principals find it difficult to leave the control of a project at a constructor. Constructors generally appreciate the possibility to show their excellence instead of appraisal only on price. He notices a search for new ways to collaborate in the relation between constructor and principal.

3.3 Project BBB Coornhertstraat

In this section the pilot project for Best Value Procurement initialized by Breijn SI Vught and the local authority’s Hertogenbosch will be discussed. For the construction of a retention settling tank, the local authority’s Hertogenbosch wanted to select a constructor not on lowest price but also on the value added, the project location is shown on the next page. In addition, they wanted to align their own interests with the interests of the contractor and saw Best Value Procurement as a method to support their needs. The minimization of additional work was also interesting for them. Breijn SI Vught has the role of facilitator during the tender and guides the local authority through the procurement process. The researcher took minutes during meetings and these were considered for the writing of this thesis. Currently the tendering of the project is finished, and preparations are made for construction.
3.3.1 Set up of the project

On an early point in the project professor Kashiwagi was present at a meeting to explain the goal and reasoning behind the method Best Value Procurement. It was decided that advice was sought to check the opportunities in a Dutch context as special attention should be paid to the Dutch and European law and regulations. The national restricted procedure differs little from the European restricted tender, so freedom regarding the procedure is limited. Some comments were made by the solicitors on the topics past performance, the interviews and the negotiation in the pre-contractual phase. These comments were incorporated to improve the procedure.

![Figure 10 Indication of project location, adapted from the Selectieleidraad v10](image)

Past performance can be used during the selection phase when it fits to article 3.9 of the RAW 2005. Besides the appraisal of the previous principal, a past performance project was also rated by a commission of five. This means that the use of past performance is different from the Best Value Procurement method.

One-to-one communication is allowed in a tender to explain the content of a bid as well as necessary completion; in that case the interview is not considered a separate awarding criterion. When using interviews or presentation as separate awarding criteria as is here the case, the jurisprudence on European and national level is not consistent. Therefore the solicitors indicated that the use of interviews as a separate awarding criterion enlarges the risk of legal claims.

Another point for serious debate was the discussion with the best contractor during the pre-contractual phase. Jurisprudence states that essential change is not permitted after the awarding of a contract because it would not comply with the principles of integrity. For this project it was decided that the principles of integrity will be respected during this tender and this will be included in the leidraad.

Clear technical boundaries were defined for this tender but some design possibilities existed for the constructor to show his added value. The budget was notified to the constructor during the selection phase as well as the selection and awarding procedure. In advance was decided how contractors would be selected and how the work would be awarded in order to live up to the principals of non-discrimination and transparency. An adapted version of the UAV was
applied to the project. In this way the contract followed the intent of the method to hold the constructor responsible for the design and to provide him opportunities to take responsibility. Other adjustments to the UAV were made in the area of the bestek and extra work, because the price of the project was fixed, no extra work is expected other then initiated by the authority. In addition, the payment of the contractor was linked to his performance in the contract.

It was decided that the tender would follow a restricted procedure based on the ARW 2005 and a bestek with several degrees of freedom for the contractor. Therefore the project was divided in a selection phase and an awarding phase. This is shown in Figure 11 below.

![Figure 11 Selection and awarding process](image)

### 3.3.2 Selection phase

Besides the essential appendices like a personal statement and financial and economic statements, past performance was used to select the five best performers. Three reference projects were asked per tenderer for the selection phase. For each reference project the tenderer was asked to answer ten question as stated in the selectieleidraad (version 10, 25 mei 2009 on [www.aanbestedingskalender.nl](http://www.aanbestedingskalender.nl)) and to hand in an appraisal by his former principles. The references were rated on ten items, listed in the leidraad, independently by a commission of five and averaged with the appraisal by the former principle. Even though the rating was done anonymously, several persons recognized constructors as they were familiar with the works that were handed in as reference. The best five tenders were selected for the awarding phase; one constructor did not entrance the awarding phase as six had enlisted. The main reason this particular constructor was not admitted in the awarding phase was the lower appraisals of his former principals (on average 6 out of 10 versus 7 or 8 of other enlisted contractors).

The selection committee existed from five people from three different organizations. One of them did not have a background in this industry. It is interesting to note that a difference exists in the way people rate, even though in advance was agreed how to evaluate. For this project was decided that differences in rating does not influence the appraisal. The minutes of the meeting in which the results of the selections phase were discussed are included in Appendix G.

### 3.3.3 Awarding phase

As can be seen in the figure the awarding phase consists of a qualitative part and a quantitative part. The price is weighted for 30% and quality was measured with the RTWP (risico en toegevoegde waarde plan, RAVA in English), the interviews and a project planning.
The planning and the RTWP were assessed by five assessors, and all scores per constructor were averaged. The interviews were assessed by three, as five assessors would be intimidating for the interviewee.

It was decided that two interviews should take place during the awarding phase one with the project leader and one with general foreman. The scores for each interview were made definitive after the final interview, to prevent first mover advantage. In addition was scored on 10 questions, defined previously to the interview. In this way was tried to make the awarding process as objectively as possible. After the quality was measured, the price was only opened if the average was higher than 6. This meant that for this project two constructors stopped here and that the price was not weighted with the quality part. A weighting formula was set up previous to the awarding phase. This is presented in Appendix I.

During the assessment of the plans it became clear again that there was variance in the appraisal of the plans. An example of the appraisal is listed in K. The standard deviation is generally a little above one. Two assessors rated the RAVA plan on average two points lower than the other assessors. In addition, they did not differentiate between contractors and rated all the proposals very similar. When their assessment of the plans is left out of the entire assessment, the overall result is different as can be seen in Appendix J. Three instead of two contractors would have scored sufficient during the quality phase to weight the price. However, the contractor providing best value for money stays the same. Even though the best constructor on quality would have been different, the current best performer could have compensated his slightly lower quality with a lower price. Many attributes were scored and averaged in the quality part nevertheless the two good scoring contractors lay extremely close.

Also during the interviews a spread in the score is noted, the standard variation is generally just above one. This is also acknowledged in the literature and beside structure or an inverter who evaluates the score not much can be done when is chosen for this award mechanism. The spread in assessment can be caused by different backgrounds of the assessors. A variety of assessors was a deliberate choice of the project team, to assess the contractors from different sides.

It is striking to see that a contractor who scored high with the plans, scored lower during the interviews and vice versa. One of the assessors indicated that he thought that the communication department had prepared the plans and that the project manager had little knowledge about the project or the plans and scored therefore very low during the interviews.

A validation of the results for the project has been performed, with different ratio for quality/price, the result remains the same for this project because the highest performing constructor also has the lowest price. When changing the weight for the different elements in the quality part, (less weight on the interviews, currently they count for 50%) it is interesting to note that none of the plans of the constructors are valid. All scored below 6 and therefore no weighting can be applied. This means that the constructors scored points with the interviews. The relative low appraisal of the plans means that the assessors expected a higher quality. As this different expectation concerns all constructors involved it can also indicate not enough or the wrong information has been asked of the constructors.

### 3.3.4 Pre-contractual phase

After the constructor providing best value for money had been chosen, his offer needed finalisation. A contract has to be drafted based on the information that was provided in his plans and interview. An interesting observation is that during this period no negotiation occurred on the price.
3.3.5 Evaluation
As the project is not finished yet it is difficult to say if the chosen contractor will provide good value for money. However, it can be noted that much effort has been put in the organization of the tender in order to select the contractor providing best value for money. In the beginning the project team had to adjust to a different way of tendering. Over time they understood the essence of the method and became more enthusiastic. One morning during the awarding phase, the contractors had the possibility to ask questions. It is interesting to note that hardly any questions about the awarding process were asked. However, some confusion existed among the contractor about the bestek that was provided with the leidraad. The tender allowed the constructors certain degrees of freedom, which contradicts with the prescribing nature of a bestek.
In addition, the assessors found the quality of the plans disappointing. During the interviews the quality of the proposal became much clearer. However, for a following project the project manager of the community would prefer a construction plan added to the assessment. Overall the awarding of the project took more time due to learning effects but all involved felt that a constructor was chosen that can deliver quality for a reasonable price.
The variance among the assessors was high despite of the agreement about the assessment that was made. In order to minimize the spread in the assessments, an inverter can be added to the process. This is a person that checks if the scores of the assessors are in line with each other and when deviation are noted these are corrected. Minutes of the evaluation of the project are included in Appendix H.

3.4 Intermediate conclusion
All around the world problems exist in the construction industry with the quality, costs and timeliness of construction projects, just like in the Netherlands and the US. In both countries the general accepted tender process is low bid. There may be some cause effect relation between selection on price and problems with the quality of construction projects. All around the world, initiatives are started to provide other opportunities for tendering on price. Generally, it is acknowledged that the construction industry is underperforming and quality criteria and performance measurement can help to divert the direction and to improve performance.

Generally speaking there are many similarities between the Dutch practice and the BVP method. The EMVI method as explained in Jansen et al. (2007) incorporates many of the filters of the BVP method by Kashiwagi. Best value for a principal is the finishing of a project on time, within budget and with the expected quality in other words value for money. Here an important difference between the Dutch EMVI and BVP is noted. The method proposed by Kashiwagi (2008) comes with a rigid framework to handle the shift in thinking. A culture change is necessary in order to apply the method throughout the entire organisation or an industry. The major differences between both methods exist on the legal field which is more rigid in Europe than in the US (Apostel, 2004). The European legal framework focuses on objectivity and transparency while the US efficiency is considered more important. In addition, each state has the ability to set its own limitations and requirements (Bartle and Lacourse Korosec, 2003). Therefore it is not possible for the FAR to come up with uniform regulations or laws. However, limitations exist around the interview filter and the pre-contractual filter, which apply to all countries listed in the EU.

Much has been written about using quality criteria in tenders and integral contracts. In practice, large governmental organisations tender their work differently, they use selection criteria based on quality and integral contracting forms like D&C. They try to set an example
and lead the construction industry in the change process that was started after the collusion. It appears that the current tender practice among lower authorities in the Dutch construction industry awarded on low price in the form of a design-bid-build process. Local governments in the South of the Netherlands are willing to change as noted in Maessen and Philips (2009). So, the intentions are present but little experience is yet gained among lower authorities. At the moment constructors are mainly motivated by price due to the tender procedure, except for large projects. This situation results in a different reaction of the constructor then when he is selected on quality. Constructors are interested in a different awarding process, because they would like to be awarded on the value that they add. The EMVI tenders and integrated contracting forms are extensively described in the literature but do not receive equal attention in practise. The change in the construction industry seems initiated from above by branch organisations and large governmental organisations and the smaller organisation follow slowly.

Theoretically Best Value Procurement can be used in the traditional setting with an RAW bestek but is also with a D&C contract or other contract form (adapted from Kashiwagi, 2008). The practice shows that this is true and that projects that are executed with elements of BVP in the Netherlands have good results. Experience with EMVI criteria suggest that the best result can be achieved when contractors have certain degrees of freedom. As BVP resembles EMVI on important points, this recommendation is extended to BVP. When the contractors have certain degrees of freedom in their offer, a selection on quality can be made as each contractor has his own input and added value.

The project of Breijn SI and the authority ‘s Hertogenbosch proves it is possible to tender a project in the Netherlands using the principles of Best Value Procurement. All involved experience this method so far as positive and have indicated that a good contractor is chosen. Learning points are the differences an assessor, this can be prevented by adding an invert to the procedure as explained previously. Then the selection and awarding process becomes stronger.

As six constructors enlisted for this project, it is apparent that they are open for alternative ways of tendering. Observing the constructors during the tender, underlined the selection on quality for them, as quality criteria provide them with opportunities to distinguish.

Besides Breijn SI and ‘s Hertogenbosch, RWS is currently using Best Value Procurement as selection mechanism for tenders. This means the method can be applied in the Dutch legal context, with some adjustments regarding the legal system. So, the legal system provides enough freedom to use the method and the principals find the risk of legal proceedings not exorbitant.

It is important to note that a culture change is needed for the effective application of BVP. The method uses quality criteria for the award of projects and tries to measure the performance of a constructor. Among local authorities in the infrastructure this is not common use. Branch organisations and large governmental organisations try to stimulate innovation in the construction industry. A tender process that selects on lowest price only stimulates innovation in the area of cost reduction and even discourages innovation that requires much effort. As Best Value Procurement uses quality as awarding criteria it provides more room for innovation and fit neatly in these initiatives.
Chapter 4. Acquisition strategy of Breijn SI

This chapter will answer the sub-question: “What is the acquisition process at Breijn SI?” In order to answer the overall question: “How can Breijn SI acquire projects in which they can support clients during the tender process by using the Best Value Procurement method?” As Breijn SI is developing a new service, it is interesting to know how Breijn SI is currently approaching the market. Selling involves at least two parties. Therefore the transaction will be researched from two sides: internal, the selling perspective (Breijn SI) and external, the procurement perspective. In the following sections both perspectives will be discussed. In the third section both perspectives will be compared and a conclusion will be drawn.

4.1 Internal

In this section the selling perspective will be discussed, this is internal for Breijn SI. The theory of market orientation is here used because it is a dominant theory in the marketing literature and provides good insights. Data is gathered through a survey and interviews. According to Martin, Martin and Minnillo (2009) the data collection in the field of market orientation is diverse. In-depth interviews are often combined with a short survey based on the article of e.g. Jaworski and Kohli (1993) like in Martin et al. (2009). Therefore the same approach is used in this research and two ways of data gathering are combined, namely a survey and interviews.

The survey questions were adapted from Steinman et al. (2000), the survey is added in Appendix L. They set up a questionnaire to measure the gap between actual market orientation and future market orientation. According to the authors measurement and management of the market orientation gap should take place within companies. When researching the gap at Breijn SI, it will provide insights in their market orientation and how they think it should be. So, this questionnaire provides information how Breijn SI sees itself and this information can be compared with the information gathered during the interviews.

The interview questions were adapted from an article by Kennedy et al., (2003) see Appendix M. The ethnographic methodology fits with the explorative nature of this research. From this research only the questions about market intelligence are used because the gathering and dissemination of market intelligence is defined as market oriented activities by Jaworsky and Kohli (1993). When the answers of respondents do not provide enough details, questions were asked to further discover their meaning or the respondent is asked to name an example. One question was added to the listed extracted from the literature: what are the possibilities of BVP?

The respondents of this research are all involved in the acquisition process, four project managers, the sales director and two departmental heads participated in the survey and interview sessions. Before the interview was held the respond was asked to fill out the questionnaire. Acquisition is explicitly mentioned in the job description of the respondents and therefore they fit the profile of this research. The respondents were chosen in such a way to represent four locations (Roermond, Roosendaal, Rosmalen and Vught) and three departments (general engineering, water and public space). Due to time limitation the sample size is rather small.

In the next subsection the choice for a market orientation perspective is validated. The results of the survey will be discussed in the second subsection and the results of the interviews in the third subsection. Finally some conclusions for the selling perspective will be presented.
4.1.1 Market orientation

According to Srivastava, Shervani and Fahey (1998) suppliers can support the innovativeness of a client by being innovative themselves and as said before innovation leads to higher performance. This means that if Breijn SI wants to distinguish itself by being innovative by providing services around another procurement method, they should look for clients that value innovation. Just being innovative is not enough because the innovation should be acknowledged and valued by the end customer in order to differentiate the firm from competition. As noted in 2.1.4 market orientation is a requirement for service firms. So, when developing a new product or service, market orientation is a requirement for success for firms in service industries like Breijn SI.

The majority of the articles about market orientation mentioned in this research relates to business organisations whose performance is measured in profit. The customers of Breijn SI are mainly local authorities and profit is not a measurement of their performance. Nevertheless, the budget of the authorities is not infinite and their performance is monitored by a democratic organisation that will be punished for bad performance. So, it is a reasonable assumption that market orientation will be valued by the governmental authorities.

4.1.2 Results of survey

The results of the survey are represented in the next three tables. All questions were scored on a 5 point Likart scale, as shown in Figure 13. The tables of the current and the desired situation represent the real scores by the respondents. As the answers are scored on an ordinal scale (Hair et al., 2005) strictly speaking no calculation can take place. In an attempt to measure the gap between the current and the desired situation, the values were subtracted. In order to do this the assumption is made that the intervals between the values are similar and a calculation could be used (interval scale), as in Steinman et al. (2000).

The sample is small, only seven observations, therefore the presentation of the results is descriptive and no statistical test is used. The respondents are handpicked in order to form a representative sample of Breijn SI.

Table 2: Results for the current situation

In Table 2 the results are presented for the current situation. The answers of the respondents for the current situation are averaged just above 3. This means that respondents generally not agree or disagree that a reasonable level of customer orientation is present. The highest scores are for the question 1 and 9. The first question the measurement of client satisfaction is highly scored by the respondents, with a low standard deviation. This means there is a high level of agreement among the respondents about the measurement of customer satisfaction. In the interviews was explained that during a project and afterwards an evaluations with the client is held. The evaluation is received very positive by clients, see paragraph. Nearly all respondent agree that the main reason for the existence of Breijn SI is the provision of services for customers. It is remarkable that respondents A and B score lower on this question. They indicated that companies have to make profit as well.

The lowest scores are for the questions 2, 5 and 8; generally the respondents do not agree or disagree on this question. Question 2 considers the development of new services or product based on market information. This can be explained by the informal way of gathering client information. Question 5 questions whether Breijn SI is more customer focused than competitors. Question 7 questions if the products and services of Breijn SI are the best in business. The respondents indicate that Breijn SI currently scores low on these questions.
The standard deviation for all questions is quite high. So, there is little agreement among the respondents, how Breijn SI currently operates on market orientation. The last respondent (H) scores relatively low, he is also located apart from the others. Because he is the only respondent from that location it is difficult to draw a conclusion about the entire location.

Table 2 Results of the survey about the current situation

<table>
<thead>
<tr>
<th>Question</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Mean</th>
<th>St Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Measurement of customer satisfaction</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3,86</td>
<td>0,38</td>
</tr>
<tr>
<td>2. Development of new services based on market information</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2,86</td>
<td>0,69</td>
</tr>
<tr>
<td>3. Knowledge of competition</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
<td>3,00</td>
<td>1,00</td>
</tr>
<tr>
<td>4. Customer value services</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td></td>
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<td>0,69</td>
</tr>
<tr>
<td>5. Customer focussed</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2,86</td>
<td>1,35</td>
</tr>
<tr>
<td>6. Differentiation of services</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
<td>3,00</td>
<td>1,00</td>
</tr>
<tr>
<td>7. Customer interest ahead of owners</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td></td>
<td>3,14</td>
<td>1,21</td>
</tr>
<tr>
<td>8. Services are best in business</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>2,86</td>
<td>0,90</td>
</tr>
<tr>
<td>9. Serving customers</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3,71</td>
<td>0,95</td>
</tr>
<tr>
<td>Mean</td>
<td>3,22</td>
<td>3,44</td>
<td>2,89</td>
<td>3,33</td>
<td>3,22</td>
<td>3,44</td>
<td>2,56</td>
<td>3,16</td>
<td></td>
</tr>
</tbody>
</table>

When examining the scores for the optimal situation in Table 3 on the next page, on average the score is just above 4, this means that the respondents generally agree with the statements for the desired situation. The question ‘services are valued by customers’ and ‘customer focused’ are scored high by the respondents. This means that the project managers of Breijn SI agree that in the ideal situation they should have a good sense how customers value their services and that in the ideal situation Breijn SI should be more customer focused than its competitors.

The value for questions 7 ‘customer interest ahead of owners’ is low and the standard deviation is relatively high. This means that not every respondent is convinced of the importance of competition based on a differentiation in products and services. During an interview it was explained that Breijn SI is a medium sized engineering agency and the number of services primarily depends on the size of an agency. Also question 9 was scored low, this means that most respondents find that in the ideal situation the primarily goal of a company should not (only) be serving customers.

The standard deviation for these answers is much lower than for the answers in the current situation. This means that there is more agreement among the respondents about the ideal situation. When analyzing the optimal situation it becomes clear that the first respondent scores quite low in comparison with the other respondents. It is interesting to note that no differences among locations can be noted here.
Table 3 Results of the survey about the desired situation

<table>
<thead>
<tr>
<th>Question</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Mean</th>
<th>St Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Measurement of customer satisfaction</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4,29</td>
<td>0,49</td>
</tr>
<tr>
<td>2. Development of new services</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4,14</td>
<td>0,38</td>
</tr>
<tr>
<td>3. Knowledge of competition</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4,14</td>
<td>0,69</td>
</tr>
<tr>
<td>4. Customer value services</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4,43</td>
<td>0,53</td>
</tr>
<tr>
<td>5. Customer focussed</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>4,43</td>
<td>0,53</td>
</tr>
<tr>
<td>6. Differentiation of services</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3,86</td>
<td>1,07</td>
</tr>
<tr>
<td>7. Customer interest ahead of owners</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3,43</td>
<td>0,98</td>
</tr>
<tr>
<td>8. Services are best in business</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4,14</td>
<td>0,69</td>
</tr>
<tr>
<td>9. Serving customers</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3,71</td>
<td>0,49</td>
</tr>
<tr>
<td>Mean</td>
<td>3,44</td>
<td>4,00</td>
<td>3,89</td>
<td>4,33</td>
<td>4,11</td>
<td>4,22</td>
<td>4,44</td>
<td>4,06</td>
<td></td>
</tr>
</tbody>
</table>

The scores in the table of the gap are calculated by subtracting the scores of the desired situation from the current situation (gap = current minus desired) as presented in Table 4 on the next page. When the value for the gap is negative, there is room for improvement, the darker the colour the larger the gap. And when the gap is positive the current situation outweighs the desired situation. In that case, this factor is more present than desired, so less effort can be made for this factor.

When analyzing the gap it becomes apparent that there are more negative values. The average gap is 0,90; just smaller than one. This means that the questions about the ideal situation are scored higher than the questions about current situation and possibilities for improvement exists. Several positive values are present in the table as well. So, Breijn SI is performing on certain areas better than is needed according to some respondents. There is one respondent (G) that who indicates a much higher gap and one (A) who indicates a much smaller gap than the other respondents.

No gap exists for question 9 if Breijn SI primarily exists to serve customers. This means that the respondents think that as far as Breijn’s reason for existence is serving customers, they fulfil it. Also question 7 that the customer’s interest should come first, ahead of the owners’ has a small gap. This means that the respondents Breijn do not believe that the interest of clients is always more important the interests of Breijn SI.

The highest gap is noted for question 5 ‘customer orientation in comparison with competitors’. This means that Breijn SI has the most improvement opportunities for their customer focus compared with the competition.
Table 4 Results of the gap between the current and the desired situation

<table>
<thead>
<tr>
<th>Question</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Mean</th>
<th>St Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Measurement of customer satisfaction</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-1</td>
<td>-2</td>
<td>-0,43</td>
<td>0,87</td>
</tr>
<tr>
<td>2. Development of new services</td>
<td>-2</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-2</td>
<td>-1,29</td>
<td>1,07</td>
</tr>
<tr>
<td>3. Knowledge of competition</td>
<td>0</td>
<td>0</td>
<td>-2</td>
<td>-1</td>
<td>-2</td>
<td>-2</td>
<td>-1</td>
<td>-1,14</td>
<td>1,69</td>
</tr>
<tr>
<td>4. Customer value services</td>
<td>0</td>
<td>-1</td>
<td>-2</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-3</td>
<td>-1,29</td>
<td>1,22</td>
</tr>
<tr>
<td>5. Customer focused</td>
<td>1</td>
<td>-1</td>
<td>-2</td>
<td>-2</td>
<td>-1</td>
<td>-4</td>
<td>-1</td>
<td>-1,57</td>
<td>1,88</td>
</tr>
<tr>
<td>6. Differentiation of services</td>
<td>2</td>
<td>-1</td>
<td>-2</td>
<td>-3</td>
<td>-1</td>
<td>-1</td>
<td>0</td>
<td>-0,86</td>
<td>2,07</td>
</tr>
<tr>
<td>7. Customer interest ahead of owners</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>-1</td>
<td>0</td>
<td>1</td>
<td>-3</td>
<td>-0,29</td>
<td>2,19</td>
</tr>
<tr>
<td>8. Services are best in business</td>
<td>-2</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-1</td>
<td>-2</td>
<td>-1,29</td>
<td>1,59</td>
</tr>
<tr>
<td>9. Serving customers</td>
<td>-1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0,00</td>
<td>1,44</td>
</tr>
<tr>
<td>Mean</td>
<td>-0,22</td>
<td>-0,56</td>
<td>-1,00</td>
<td>-1,00</td>
<td>-0,89</td>
<td>-0,78</td>
<td>-1,89</td>
<td>-0,90</td>
<td></td>
</tr>
</tbody>
</table>

4.1.3 Results of interviews

In this section the results for the interviews with the project managers and sales director will be discussed. During all interviews notes were made. First all interviews were elaborated, shortly after the interview was held. These notes were studied individually and per question topic (cross-respondents analysis). The comparison on question topic was elaborated to provide a better understanding of the data. Certain patterns were noted and counted among the respondents; an overview of these observations is presented in Table 5. An x in the table represents a respondent that mentions this topic in the interview. Answers of respondents were only included when two or more respondents mentioned this possibility.

**Customer wishes**

Concerning customer wishes, respondents mentioned that Breijn SI provides a service and that the expectations of a product depend on the person. Four respondents differentiate between the wish of a purchaser and an engineer. The purchaser focuses more on price of a service and the engineer more on the quality of a service. Throughout the project a pro-active approach of the project manager is expected in order to anticipate on the questions of a client and to deliver just that bit of extra quality.

**Change in expectation of client**

Several changes in client expectations had been noted during the past few years. Nearly all respondents indicated that a stronger focus on selection on price exists among clients. The project managers indicated that more projects are awarded in competition on price than three years ago. According to the majority of the respondents, awarding on one-to-one basis has decreased and project managers have to put more effort in a relation for the acquisition of
work without the certainty that is pays off. Even though the selection process differs, the expectations of the client regarding quality are the same. Also with selection on lowest price, they expect everything right first time. Otherwise the agency is out of the game and will not be invited for future works any more.

Respondents indicated that, some clients are unsatisfied with the selection on lowest price and want to have more influence on the selection process. Therefore they set up a different tender procedure and use quality criteria to select engineering agencies. For the enlisting agencies these selection criteria are not always transparent. Therefore some respondents suggest that authorities use these innovative tender forms to select their preferred engineering agency (or contractor).

Internally the business with Heijmans stays the same. Respondents note that Heijmans as a contractor focuses less on the quality of an advice in comparison with a governmental organisation. The road construction department has a stronger focus on price than the other departments of Heijmans (i.e. integrated projects).

<table>
<thead>
<tr>
<th>Table 5 Results of the interviews on acquisition at Breijn SI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer wishes</strong></td>
</tr>
<tr>
<td>Quality depends on people</td>
</tr>
<tr>
<td>Communication is important</td>
</tr>
<tr>
<td>Full service strategy</td>
</tr>
<tr>
<td>Purchaser versus engineer</td>
</tr>
<tr>
<td>Tailored service (advice)</td>
</tr>
<tr>
<td><strong>Change in expectation of client</strong></td>
</tr>
<tr>
<td>Less private negotiation</td>
</tr>
<tr>
<td>Stronger focus on price</td>
</tr>
<tr>
<td>Higher quality (or same quality for lower price)</td>
</tr>
<tr>
<td>Innovative contracts</td>
</tr>
<tr>
<td>Heijmans fast planning</td>
</tr>
<tr>
<td><strong>Market information</strong></td>
</tr>
<tr>
<td>Informal</td>
</tr>
<tr>
<td>Proposal</td>
</tr>
<tr>
<td><strong>Reaction of respondent</strong></td>
</tr>
<tr>
<td>Estimate chance of success</td>
</tr>
<tr>
<td>Strict interpretation of contract</td>
</tr>
<tr>
<td>Client depended reaction</td>
</tr>
<tr>
<td>Proactive/creative approach</td>
</tr>
<tr>
<td>More proactive approach needed</td>
</tr>
<tr>
<td><strong>Reaction of Breijn SI</strong></td>
</tr>
<tr>
<td>Change image</td>
</tr>
<tr>
<td>Multiple disciplines</td>
</tr>
<tr>
<td>Heijmans focus on projects with profit</td>
</tr>
<tr>
<td><strong>Best Value Procurement</strong></td>
</tr>
<tr>
<td>EMVI+</td>
</tr>
</tbody>
</table>

**Market information**

Market information, like client wishes is mostly gathered in an informal way. Meetings with clients and colleagues but also contacts with competitors are generally seen as the most important way of gathering information. In addition experience is mentioned. Only two
respondents refer to the number of proposals that result in a contract and the type of contracts as market information.

**Reaction of respondent**

The reactions of the respondents on the changes at the market are quite similar. Two reactions can be differentiated, which do not exclude each other. On the one side the respondents try to act more businesslike and use a calculated approach to deal with proposals and projects. As clients select them on the lowest price, they only provide what is stated in the contract for this price. On the other side, they say that they try to have a pro-active attitude towards the client and provide alternative designs or design options when possible. At the same time the respondents noted that they should be more pro-active.

**Reaction of Breijn SI**

Over a year ago the engineering agency of Heijmans became Breijn SI. This is considered an important reaction to the changing expectations of customers. Currently they present themselves as a new and refreshing engineering agency providing quality work for a wide range of projects in the public space. This strategy makes the respondents proud to work at Breijn. By providing a variety of disciplines, clients can be fully served. Some project managers noted that these new services are not widely spread among local authorities but at Heijmans they are generally known. In addition, some respondents noted that they do not see how Breijn SI is responding to the change in selection criteria by clients. Heijmans has been in trouble but is currently cutting cost and surviving. Profit is a leading theme here and also for Breijn SI. This means that it is not the purpose to acquire projects at the expense of profit as mentioned by several respondents.

**Best Value Procurement**

BVP is generally seen by the respondents as an EMVI++. When acquiring project for sustaining this method the following recommendations were made. It is important to highlight the advantages for the client as it is a different approach for tendering projects and not yet incorporated in the policies. Therefore a client has to be sought that is open for innovation as generally the authorities are conservative. Tendering on lowest price is quick and familiar, while BVP takes more time during the preparation phase, which is not always attractive for local authorities.

**4.1.4 Conclusion market orientation**

On average the difference between the current and the desired situation is one point. In general the respondents do agree or disagree with the statements for the current situation and for the desired situation the respondent generally agree. The values for the actual and the desired situation correspond with the values found in previous research (Steinman et al., 2000). The respondents think that it is important to be more customer oriented than the competition and currently that is not the case. This corresponds with the proactive approach that needs to be developed as indicated in the interviews. It is important to note that the standard deviation in the survey concerning the current situation is higher than the desired situation. This means that there is more agreement about the desired situation than about the current situation. So, there seems to exist a unanimous picture of the future and the findings correspond with the strategy of Breijn. This means that the strategy is living among the employees of Breijn SI. No gap was found for the question: “I believe this business exists primarily to serve customers.” Respondents have indicated that serving customers is not the only important thing; also profit has to be made.
In the interviews respondents said that the market is changing. Clients select engineering agencies more on price and fewer projects are awarded without negotiation. Personal contacts are still important in this industry, but due to the selection on price not each contact with a question leads to an order to acquire projects. For Breijn SI this means that more effort has to be put in acquisition in order to win projects. The personal response of the respondents is two sided, on one side they try to be proactive in the contact with the client and on the other side they are stricter in the follow up of agreements. The image change into Breijn is mentioned as a reaction of the company on these changes but some miss guidance. The respondents see BVP as an EMVI++ product. It is the same type of tender method with extra features, like the interviews.

The respondents indicated that the questions in the survey are sometimes very obvious and that it is important to keep the reality in mind when answering the questions. The combination of the survey questions and the interview complement each other and provide a good picture of the situation at Breijn SI.

The selling strategy of Breijn SI can be classified according Porter’s generic competitive strategies (Katsioloudes, 2006). Breijn SI focuses on two types of customers, lower authorities and Heijmans. This means that by reducing their scope, they apply a focus strategy. In addition, Breijn SI differentiates themselves from other competitors by providing higher quality and a full service strategy, in order to facilitate the client as much as possible.

4.2 External

In this section the procurement perspective will be discussed. The theory of purchasing maturity is here used because the hypothesis exists that Best Value Procurement can be implemented when the procuring organization has a certain level of maturity. For this theory no set of question or survey could be found in the literature. As the theory is not proven, this is an exploration; a set of questions was developed based on characteristics found in the literature. The four characteristics that are listed in section 2.1.2 were used as topic blocks. Open ended questions were devised that suited the industry and these were grouped around the topic blocks. In addition the description of the phases in the maturity model was searched for distinguishing characteristics. The following two were found:

- **Focus of purchasing activities**; the characterization of the activities of the purchasing department.
- **Types of products purchased by purchasing department**; explanation of the type of products that are purchased by the purchasing department.

Closed questions with six answer opportunities were formulated that correspond with a phase in the maturity model. The respondent was asked to fill in these two questions during the interview.

At the start of the interview the researcher introduced herself and asked some introducing question to start up the interview. The open and closed questions are the main body of the interview. The interview ended with two open questions: What can engineering agency do to improve their performance and what can Breijn SI do specifically? An overview of the questions is presented in Appendix N. Each interview took roughly one hour and a half.

When examining the turnover of Breijn SI as shown in Appendix P, the majority of its clients are local authorities or Heijmans. For employees of Breijn SI it is easier to advise local authorities on the tender method than to do that via Heijmans. Therefore the choice was made to look for respondents for this research among local authorities. When preparing this research, it appeared that the organisation of local authorities can differ. So, the decision was
made to ask the authority who would be the best to interview. The interview was held on location, to gathered additional information when needed. Five local authorities and one purchasing organization for a group of small local authorities in the south of the Netherlands participated in this research. In the Netherlands several of these purchasing organizations exist, they represent the purchasing interests of a group of local authorities. Because this is common practice, it would be interesting to research their point of view as well. The size of the governmental organisation dictates the size of the work they procure. Large organisations like Rijkswaterstaat procure much larger works then small local authorities, therefore it is tried to contact authorities of different sizes so a homogeneous overview is created of Breijn SI its customers. The size of an organisation might influence its place in the maturity model. As the relationship of the authority with Breijn SI can influence the results of the interview, the authorities are handpicked. The relationship of the authorities involved ranges from good, via neutral to bad. Authorities with a good relation do business with Breijn SI on a regular base. Authorities who have a neutral relation with Breijn SI hardly do any business with Breijn SI. Authorities that have a bad relation with Breijn SI have put them on the black list.

4.2.1 Maturity model

The maturity model of purchasing and supply management described in van Weele (2008) see section 2.1.2, can be used to classify the interviewed clients of Breijn SI. The place of the authority in the model indicates which strategy Breijn SI has to follow in order to offer BVP to the market.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Dutch term</th>
<th>English term</th>
<th>Governmental translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transactieoriëntatie</td>
<td>Transactional orientation</td>
<td>Transactional orientation</td>
</tr>
<tr>
<td>2</td>
<td>Commerciële oriëntatie</td>
<td>Commercial orientation</td>
<td>Cost orientation</td>
</tr>
<tr>
<td>3</td>
<td>Gecoördineerde inkoop</td>
<td>Purchasing coordination</td>
<td>Purchasing coordination</td>
</tr>
<tr>
<td>4</td>
<td>Interne integratie</td>
<td>Internal integration</td>
<td>Total cost integration</td>
</tr>
<tr>
<td>5</td>
<td>Externe integratie</td>
<td>External integration</td>
<td>External integration</td>
</tr>
<tr>
<td>6</td>
<td>Waardegerichte oriëntatie</td>
<td>Value chain integration</td>
<td>Value orientation</td>
</tr>
</tbody>
</table>

Best Value Procurement is a method that has some similarities with total cost of ownership. According to Wouters, Anderson and Wynstra (2004) is TCO an “… application that enables purchasing decision-makers to combine value and price in making sourcing decisions.” In the BVP method the performance criteria and price are weighted, hence it has similarities with the TCO. The BVP method recommends a core team for the implementation; this team has cross-functional characteristics. According to the maturity model, this type of purchasing method is often used during the internal integration phase and onwards. In addition the Best Value Procurement method expects involvement and a proactive attitude of the contractor. In phase four purchasers start to use the innovative capabilities of strategic suppliers, see Table

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9 Adapted from van Weele (2008)
6. This is also the purpose of BVP, stimulating the contractor to take responsibility and to provide alternatives. If the principal is not used to this type of relation, it will be more challenging to implement, therefore the assumption is made that Best Value strategy can be implemented more easily from phase four, because organizations see purchasing from this point as a strategic position and suppliers are involved in strategic projects. When an organisation is not in this stadium one expects that it takes more effort to implement such a method and that more effort has to be put in the education of the method.

4.2.2 Results

In this section the results for the interviews with clients of Breijn SI will be discussed. During all the interviews notes were made and the interviews were elaborated shortly after the interview was held for a clear picture of the situation at the client. When all the interviews were held, the answers of the respondents were compared for each question topic. This was elaborated to provide a comprehensive understanding of the data. Then the answers of the respondents were compared per question topic with the aspects in Appendix O that were drafted from the literature. In this table for each characteristic and each phase a description is provided. The phase that corresponds best with the description of the respondent is then listed in number format for each aspect. An overview of the results for all the respondents is listed in Table 7. As in the literature a development in maturity is suggested, an ordinal scale is assumed and used for the analysis of the data in order to calculate the phase of the purchasing organization. As both purchasers and engineers of the work department were interviewed, the function of the respondent is listed in the second row in table 7 (P or E). The results and the ranging in phases are based on the information of the respondent for his department (purchasing versus engineering).

![Table 7 Results of the interviews on purchasing maturity](image_url)

The rank of the local authority corresponds with the position of the authority in the purchasing model, determined by the different characteristics. The spread in phases is between phase 2 and 3. So, most authorities can be placed somewhere between the cost orientation and the purchasing coordination phase.

**Position of purchasing in organisation**

In this research special attention is paid to the relation of the purchasing department and civil work department. Most respondents indicated that the department for public construction operates relative independently in comparison with other departments. The department for public construction has often much experience with the tender process and the purchasing department is only involved in complex tenders, for example on European level. While other
departments have less experience with tender procedures and need more assistance of the purchasing department.

**Supply strategy**
A procurement policy is obligated for public organisations, it is often written by the purchasing department, internal for larger authorities and external for smaller authorities. The purchasing policy provides guidelines for the selections of suppliers. The civil departments mainly use the thresholds that are listed in these documents. Only in one instance it was the other way around and is the policy from the construction department extended for the entire organisation. This is the only authority in the sample that preferred private negations for larger contracts. It is also the only one that first explains the importance of value for money and then the juridical restrictions. In the other interviews the order was vice versa. This is confirmed in the documents of the purchasing department that were studied. The awarding of contracts is mostly done on the lowest price, both for works and services in the civil industry. Nearly all interviewees indicated that deviations from the policy are possible when a thorough explanation is provided. Generally the deviation has to be approved from above.

**Relation with supplier**
Many respondents explained that the principles of integrity provide guidelines for the relation with the suppliers. Some authorities have the intention to evaluate the tenders of works and contractors, but currently nothing is permanently integrated in the process. Due to legal limitations, the evaluation can not be used as input for new tenders. So, there is limited motivation to evaluate suppliers and improve the current process.

**Integration**
Little use is made from the possibilities of IT systems and the use of IT for integration purposes as noted in the literature is not occurring. Most interviewees mention a system for invoices and calculation programs for the work department. Only the purchasing organisation mentioned a central database for contracts and only one larger authority expresses the wish to develop such a system. Little integration exists among purchasing and the other departments.

**Focus of purchasing activities**
The focus of the purchasing activities varies highly among the respondents. One indicated that the focus is mainly on administrative actions while others indicated that a process orientation exist for their department.

**Types of products purchased by purchasing department**
Purchasing departments generally are involved in each purchase by the authority. One purchaser mentioned the product range: “van rolator tot rotonde”. The notion has to be made that purchasing is less involved in the selections of the ‘rotonde’ because the department civil work is generally very independent. The question that was prepared for the respondents on this topic could not be answered because the focus of the question was on the industry. As governmental organization do not have a (standard) product, it was not possible for them to answer this question. Therefore not answer is listed in table 7.

**Improvements for Breijn SI**
In the sample two respondents had close relationships with Breijn SI. It is interesting to note that these respondents did not have any improvements for Breijn SI. One respondent indicated that during the last evaluation of a project, he only mentioned positive points for Breijn. One respondent, who had a bad relation with Breijn, indicated that for the next few years they
would not be invited for a private tender due to a mistake in the past. The other respondents had a neutral relation with Breijn SI, this means that they only invited Breijn for public tenders. Those respondents only provided general recommendations like good communication and ask question during the round of information.

4.2.3 Conclusion maturity model

It is difficult to come to on overall classification of the interviewed departments because the respondents were either purchasers or engineers. Only in one case it occurred that the interviewed purchaser had an engineering background. This influences the results of the study as both the engineering and the purchasing department are classified. Therefore the classification in the maturity model is approximate and considering the scope the classification does not represent all local authorities in the Netherlands. However, this study provides a starting point for the classification of purchasing maturity for local authorities with a scoring table is provided in the appendix OError! Reference source not found.. In addition, it provides information about the relation between the engineering department and the purchasing department.

In van Weele (2008) the public sector is ranked in the first phase transaction orientation. From this research among local authorities, it becomes clear that they have moved upwards in the model. This research indicates that the average rank is somewhere between phase 2 cost orientation and phase 3 purchasing coordination. In paragraph 4.2.1 was posted that Best value Procurement could be used from phase 4 internal integration. This indicates that the local authorities of the sample are not ready for Best Value Procurement according to this hypothesis. However, one can assume that when the local authorities were in the fourth phase, they did not need any external help or advice as they already have a procedure for tendering with quality criteria. The results of this study are nevertheless relevant as it is important to have a notion about the maturity of an authority. As it is reasonable to assume that the method will be easier to implement when an authority is more mature.

It is interesting to note that the majority of the projects in the infrastructure are tendered on lowest price and that all respondents expressed an interest in alternative tender methods. Both observations correspond with the findings from the literature.

4.3 Intermediate conclusion

The sample size of both studies is rather small. On the selling perspective only one company (Breijn SI) is researched. Because respondents were chosen from different locations, the results can be generalised for the entire department SI of Breijn. On the procurement side respondents from seven organisations were interviewed. All respondents involved, were (related to) local authorities in the south of the Netherlands. The results for innovative tendering can not be generalised for the entire Netherlands as a research by Boes and Doreé (2008) indicates that local authorities in the Southern part of the Netherlands have more experience with alternative tender procedure.

Steinman et al., (2000) researched the gap between the selling perspective and procuring perspective. Due to time limitations of the researcher, this gap is not researched in this study. Both the internal and the external research part indicate that a good relationship between authority and engineering agency is important for acquisition. Both sides indicate that currently selection on price for engineering agency is becoming standard. The results also agree that selection on lowest price is also the most important selection criteria for constructors. It is interesting to mention that when an EMVI or integrated contract is used, respondents are proud to mention this. In addition, on both sides an interest for alternative ways of tendering construction projects was noted.
Chapter 5. Acquisition strategy for Best Value Procurement

In the previous chapter was noted that local authorities have an interest in innovative tender methods. Apparently there is a market for advice concerning innovative procurement procedures. In this chapter a strategy, for the innovative procurement method Best Value Procurement will be drafted. In order to create a acquisition strategy for Breijn SI two SWOT analyses (Strength, Weaknesses, Opportunities and Threats) were made to examine the advantages and disadvantages from several perspectives, internally or external and threatening or helpful. Firstly, the Best Value Procurement method will be considered, then the use of Best Value Procurement for Breijn SI will be considered. In order to support the implementation of BVP at Breijn SI, a decision tool is devised for selecting a suitable tender method. This tool will be presented in the third section. Besides the SWOT analyses, a calculation has been made for the market potential of BVP for Breijn SI, this will be presented in the fourth section. Finally, some conclusions are drawn.

5.1 SWOT analysis for Best Value Procurement

In this section the SWOT analysis of Best Value Procure will be presented. In a 2x2 table are the strength and weaknesses of the organization and its environments are listed. The first row represents points from an internal perspective and the second row from an external perspective. The left column represents positive points and the right column negative points. The points in the table are drawn for the previous chapters and the interviews with project managers. Two employees with experience with Best Value Procurement checked the analyses and provided points for improvement.

5.1.1 Strengths

The strengths of the Best Value Procurement method are the transparent division of risks, a fixed price without extra work and the method underline the importance of measurement both during the tender and the construction of the project. Because the division of risks is clear, no discussions exist during the construction of the project and this prevents much difficulty for the client. The project is tendered for a fixed amount which is communicated during the tender procedure; extra work can only be initiated by the client as the constructor offers a price for the entire project. Because of the severe tender procedure and the monitoring during the execution of the project, a high level of predictability exists for the result. This is the largest advantage of a BVP tender above a tender on lowest price. Selection and awarding with the BVP method is based on measurement. For example, during the first step past performance of constructors is used to make a prequalification. This information allows only the best contractor to proceed to the awarding phase. And during the construction, regular meetings are held to discuss the risks that are not or difficult to manage.

The constructor is selected on a combination of price and quality and provides best value for money and assures a high level of predictability of the result. The Best Value Procurement method that is applied by Breijn SI in the project with the authority ‘s Hertogenbosch, can be seen as a further development of the EMVI tender. Currently, the method is marketed as an EMVI++, as this corresponds with the terminology used by project managers and clients. The many applications possibilities are a strength of the method, as the method is not restricted to the civil technical industry of construction industry. Best Value Procurement is a box that can be used for a tender, independently of the content of the tender, therefore many applications are possible.
5.1.2 Weaknesses
A weakness of the Best Value Procurement method is that it is more time consuming and takes more effort during the preparation of the tender than a tender that selects on lowest price. Time and costs can be earned back during the construction and maintenance of the project.

5.1.3 Opportunities
First of all it is interesting to note that local authorities are interested in alternative tender methods. Especially merged or middle sized local authorities with growth possibilities provide opportunities for the acquisition of BVP projects. Middle sized authorities often have a smaller engineering department for construction projects. When these authorities want to expand, they need support and BVP provides an option for the complex tender procedures. When local authorities are merged, old patterns disappear as new ways are discovered. During such a period people are more susceptible for innovations therefore for BVP. Currently tendering on lowest price is the general tender procedure for local authorities, a merged local authority provides opportunities for Best Value Procurement. Opportunities for the acquisition of BVP are complex projects or projects over €500,000. The size of a project should be large enough to earn back the extra costs and efforts. The BVP method provides opportunities for complex projects as a thorough selection process searches the constructor providing best value for money and risks and responsibilities are clearly divided among the partners. This should diminish the number of discussions during construction and project failure.

5.1.4 Threats
At the moment the legal framework concerning the interviews is not consistent. The translation from the American method to the Dutch legal system is difficult for the interviews as jurisprudence is not consistent on this topic. This means that it is not predictable how a trial will end when a dissatisfied constructor takes legal proceedings. Authorities have little experience with integrated contracts or EMVI tenders some have a preserved attitude towards the Best Value methods. This forms a possible threat for the acquisition of BVP projects. In order to overcome the unfamiliarity with Best Value Procurement, more explanation about the advantages will be needed. Especially because tendering on lowest price with a RAW bestek is familiar for local authorities. Because of this familiarity and a lack of time, authorities will not be easily prepared to abandon their current practice. This does not mean that trial projects are impossible and these can open new doors. The Best Value Procurement is not incorporated in the policy or procedures of authorities as this method is recently introduced in the Netherlands. In order to apply the method to a tender, higher officials need to approve the project. This will make the acquisition of projects more problematic.
Local authorities have a separate budget for maintenance and construction of projects. This means that a lower quality of a project is less important for the construction department. In addition changes in procedure will occur slower because the two are not linked closely. This means as well that a budget will not be expanded when savings in the maintenance period can be made.
In the previous chapter, the level of purchasing maturity was researched among five local authorities and a purchasing organisation. This research indicated that authorities are generally between the cost orientation phase and purchasing coordination phase. This means that the purchasing department of an authority will focus on costs and this focus is not in accordance with the BVP method. When organisation incorporate value in their procurement activities they can be placed in phase four according to the maturity model. However, when
the local authorities are incorporating value in their purchasing selection criteria, Best Value
Procurement would not be needed as they would have developed their own system. Possibilities exist for the acquisition of BVP projects for Breijn as local authorities need assistance.

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smooth implementation and cost reduction</td>
<td>Method takes more time during preparation</td>
</tr>
<tr>
<td>Highly predictable result</td>
<td></td>
</tr>
<tr>
<td>Higher quality for the same costs</td>
<td></td>
</tr>
<tr>
<td>Strong party remains</td>
<td></td>
</tr>
<tr>
<td>Applicable in all areas</td>
<td></td>
</tr>
<tr>
<td>Fixed amount, no extra work</td>
<td></td>
</tr>
<tr>
<td>Transparent partitioning of risks</td>
<td></td>
</tr>
<tr>
<td>To measure is to know</td>
<td></td>
</tr>
<tr>
<td>Further development of EMVI</td>
<td></td>
</tr>
<tr>
<td>Possible for all types of tenders</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>More complex projects</td>
<td>Reserved attitude of clients concerning innovations</td>
</tr>
<tr>
<td>Projects &gt; € 500.000</td>
<td>Partitioning of the budget for maintenance and construction at organisations</td>
</tr>
<tr>
<td>Merged or middle sized authorities with growing potential</td>
<td>Authorities are in commercial and orientation phase of the purchasing maturity model</td>
</tr>
<tr>
<td>Interest for alternative tender methods</td>
<td>Method falls not within the standard policy of authorities</td>
</tr>
<tr>
<td></td>
<td>Legal framework not clear about the use of interviews</td>
</tr>
</tbody>
</table>

From the SWOT analysis above, it is apparent that the list of strengths of the method is much longer than its weaknesses. Some serious threats are present as well, but these can be countered with the strengths of the method. In addition, local authorities expressed an interest in alternative tender methods. Therefore the focus should be on the strengths of Best Value Procurement.

**5.2 SWOT analysis for the use of BVP by Breijn SI**

As indicated previously, Breijn SI has two major types of customers, the internal customer Heijmans and external customers: local and regional authorities. For the analysis the decision is made that the largest potential for BVP lies at the local and regional authorities. In this section the strengths, weaknesses, opportunities and threats are listed for Breijn SI for using BVP.

**5.2.1 Strengths**

Breijn positions itself as an engineering agency that provides a mixture of services in order to serve clients optimally. The mission of Breijn is to become the best engineering agency of the Netherlands and to design beautiful and special projects, and manage these projects in good
cooperation with the client. This is done with a proactive attitude, perfection and passion and pleasure. Best Value Procurement corresponds with this strategy because it offers an alternative for general tendering on lowest price. The sale of the services concerning the BVP method requires a proactive attitude as local authorities have little experience with alternative tendering methods. This means that project managers have to be alert for opportunities as the authority will not always recognise them because of their lack of experience. As a pro-active attitude is consistent with the strategy of Breijn, the Best Value procurement method will be strength for Breijn SI.

The personal approach of customers is stimulated by Breijn SI and this will help acquisition of BVP projects as personal contacts are very important in the industry. Moreover municipalities are relatively unfamiliar with other tender methods. This is another reason why a personal approach is important. Breijn SI has initiated round table sessions with professionals from the construction industry; this is a strength for the acquisition of BVP projects. The round table sessions provide Breijn SI with feedback from professionals but also create publicity and a basis for interested parties. It is an important advantage that BVP provides Breijn SI with the possibility of offering every customer a tailor-made advice therefore the technique is more cumbersome to copy.

5.2.2 Weaknesses
The picture of the connection between Heijmans and Breijn SI by the construction market is a weakness for the acquisition of BVP projects. Within the construction industry much suspicion exists and several people indicated that the connection ensures mistrust. The suspicion exists that Heijmans will have benefits when Breijn SI prepares the invitation to tender. Transparency can encounter this weakness.

Project managers indicated that a proactive attitude is lacking within Breijn SI. The focus is on the current situation or problems of a client and it is important to stay at least one step ahead. The acquisition of BVP projects will probably depend on existing relations who have a need for another tender process, this requires a proactive attitude. The need for another way of tendering is earlier recognised. The unfamiliarity of Breijn SI employees with tender procedures that use quality criteria is a weakness. As good results will depend on a proactive attitude during acquisition, it will be more difficult to obtain projects. Moreover, resistance against other ways of tendering exists. At the moment only one project has been implemented with the BVP method. However, at Heijmans more experience with this method exists and Breijn SI can use their knowledge. The price for assistance during an invitation to tender with the BVP method will be higher, because method is tailor-made. This reduces that chances of replication but it increases the price.

5.2.3 Opportunities
BVP is a new product within the product range of Breijn SI and this product can be used to attract new customers. Therefore the method provides chances for Breijn SI. Symposia and publicity concerning the BVP method can attract new customers and can form a basis for client contact and further cooperation. Moreover, when the method is applied by Breijn SI at a client, this contact can provide extra work around and after the invitation to tender, for example the implementation of the project or work at other projects. The municipalities in the south of the Netherlands have a starting attention for evaluation systems for their processes. As BVP is a method that measures the performance of enlisted constructors and during the construction the method fits with the development of interest for evaluation systems among local authorities. Moreover, once an evaluation is in place at local authorities, the system will measure defects in process. BVP projects finish always (> 90%) with good results. So, the evaluation of Breijn SI will be positive when this method has been applied.
Local authorities currently develop interest for other forms of tendering, as noted by several sources. The authorities find different ways to further develop these interests. It is for Breijn SI the right moment to bring this method to the market. Most of the municipalities have incidentally used quality standards for tendering a work. This forms a basis for Best Value Procurement as it is a further development of the EMVI method. Another opportunity is provided by the sustainability criteria that governmental institution will have to incorporate in their tenders. Criteria for sustainability are recently introduced by SenterNovem and Pro-rail. At the moment there is still much inexperience in the field with the use of sustainability criteria in a tender. The BVP method can provide support as it objectifies criteria that are difficult to measure.

5.2.4 Threats
The legal framework around the method is not entirely clear and this brings a higher chance on claims as explain in section 5.1.4, this is also a threat for Breijn SI. Moreover the method falls outside the standard policy of municipalities. It will cost Breijn SI more effort to put the method to the market.
Other EMVI forms are a threat for Best Value procurement as they compete for the same type of projects. Literature about EMVI forms is freely accessible and every engineering company can set up its own service for the support during a tender which uses EVMI criteria. As indicated in the publication by Blankers (2008), many authorities use an engineering agency for the preparation and support of a tender with quality criteria. So, other engineering agency will compete for projects that require an extensive tender method. These projects will highly resemble BVP project characteristics, as will be described in section 5.3. Therefore companies that provide services for other EMVI forms are a threat for the use of BVP by Breijn SI.

Table 9 SWOT analysis for the possibilities of BVP for Breijn SI

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>BVP fits in the strategy of Breijn SI</td>
<td>Preconceptions concerning the connection between Heijmans and Breijn</td>
</tr>
<tr>
<td>Fits with proactive acquisition</td>
<td>Just 1 project at Breijn SI</td>
</tr>
<tr>
<td>Personal approach of customers</td>
<td>Lacking a proactive attitude</td>
</tr>
<tr>
<td>Round table sessions</td>
<td>Unfamiliarity with the method</td>
</tr>
<tr>
<td>Custom made product</td>
<td>Higher price for customers</td>
</tr>
<tr>
<td>Opportunities</td>
<td>Threats</td>
</tr>
<tr>
<td>Addressing new customers with a new product</td>
<td>Vague legal framework</td>
</tr>
<tr>
<td>Symposium for acquiring customers</td>
<td>Other companies providing EMVI services</td>
</tr>
<tr>
<td>Extra work for Breijn SI</td>
<td></td>
</tr>
<tr>
<td>Interest for evaluation mechanism</td>
<td></td>
</tr>
<tr>
<td>Interest for alternative invitations to tender</td>
<td></td>
</tr>
<tr>
<td>Use of sustainability criteria at municipalities</td>
<td></td>
</tr>
</tbody>
</table>
In the previous section the focus is put on the strengths of the Best Value Procurement method. In the SWOT analysis for the possibilities of BVP for Breijn SI a significant number of opportunities can be noted. By combining both SWOT analyses, it is recommended to focus on the strengths and to exploit as many opportunities for BVP as possible.

5.3 Decision model for tender method

In this section a decision model for tender forms is presented. In order to design this model, special attention is paid to the publication by Pries et al. (2006). In this article a decision tool for organisation forms and tender procedures is presented, it consists of 15 criteria and is very complex to understand and apply. Therefore a model is drafted for Breijn SI that is easier to comprehend and that can help project leaders to understand the possibilities of Best Value Procurement. In addition the model can facilitate explanation to clients. This means that project managers of Breijn SI and their clients, lower authorities are the target group of this model. The initial scope is the civil technical industry but this model can also be used for projects in the construction industry with minor adaptations. A model is always a representation of the reality and can not cover all possible solutions. An attempt is made to cover 80% of the possibilities that occur in reality.

The researcher/designer developed several versions of the tool. Each version was checked by an employee of Breijn SI who has experience with the BVP project, EMVI tenders or integrated contracts. Afterwards their suggestions were incorporated and the model was presented to the next reviewer. To enhance support for the model, it was presented at a meeting of project managers from Breijn SI. Their feedback and suggestions were incorporated in the model. The model will be handed out at Breijn SI, see Appendix Q.

This model can be used when a client wants to know the way of tendering a specific project. On the next page the decision model for tendering complex construction projects is presented. The model provides the best tender method for works and services in the construction industry. The model consists of seven different decision points, represented by diamond shapes and two intermediate states and four end points, represented by the solid rectangles. As the decision points are temporary states, the line of the diamond shape is dashed. The end states on the other hand are final and therefore represented by a solid box.
5.3.1 Decision points and end states
In this section the decision point of the decision model for tender forms are explained. After that the end states are explained. The headers of the decision points are blue and the headers of the end states are black to stress the difference.

Complexity of the project
The complexity of a project can be the organisation of a project, but also the technology. For instance, organisational complexity can be the coordination of many different technical disciplines; the social or political environment can cause complexity; and technology can cause complexity when innovative or specific knowledge is used. Aspects that are difficult to measure, such as sustainability, increase the complexity of a project.

Size of the project
Each client may have a different opinion on what a large project is. A large community may have more and larger projects than a small community. For this model, the assumption is made that for projects of €500,000 or more an extensive tender for constructors and designers is paying off. An extensive tender cost more time, money and efforts therefore the project needs to be large enough to recoup the investment.

Distribution of risks
There are different forms of tender. A project can be tendered with a RAW bestek and the UAV awarding the lowest price, the risks then lay with the client. Another possibility is to place the project on the market with an EMVI tendering form, where the risk is shared by the different parties involved. Using Best Value Procurement (BVP) tendering, the most risks will be located at the contractor.

Extra warrant for quality
In some cases the client has the desire to warrant quality for a complex project. In the traditional way, it may be difficult to communicate ’soft’ quality criteria clearly to partners. For instance, when the residents need to be considered or when trees need to be maintained around a construction site.

Difficult to measure
BVP offers the opportunity to quantify aspects that are difficult to measure. This can be achieved by a process of selection and awarding, which is custom made for the commissioner. The different parts of the tender are focused on measuring the quality of the tenderer. When quantifying quality is less important, the most economical favourable offer can be chosen (EMVI).

Higher predictability and involvement of client
For the BVP tender process a selection and awarding process is followed in order to find the tender that offers the best value for money. This method can better ensure quality for a good price, since the different parts interact well together. Furthermore, this method requires a higher intensive selection and awarding process (the EMVI tender), which requires less time.

Involvement of constructor in design
The commissioner may choose to separate the execution and the design, but the commissioner may also choose to involve the constructor in the design process and thereby using his
knowledge. If the contractor is involved from the design specifications, a Design & Construct contract is a good solution. If the contractor is involved from the preliminary design, an Engineer & Construct contract is a good solution.

**Tender on lowest price**
Constructors can bid on a RAW besteke. When they meet the qualification and the project is awarded on the lowest price.

**Tender with quality criteria**
The tender can consist of a pre-selection phase and an awarding phase. The awarding process consists of a quality part and a price part, the ratio between price and quality can be chosen by the client. It is recommended that quality counts for at least 40% in the final assessment. Awarding criteria can be objective i.e. time and quality aspects, but also subjective in the form a design. Then a commission of several persons rates the designs, in order to objectify the rating.

**EMVI**
The English term for EMVI is most economical favourable offer. Through a selection and awarding procedure the most economical favourable offer is chosen. A project that uses the most economical favourable offer as awarding criteria can be tendered with different contract forms: a RAW besteke with UAV (with alternative design options), or an integrated contract with the UAVgc.

**Best Value Procurement**
Best Value Procurement is a tender procedure that also uses a selection and awarding process, which use quality and price criteria. An extensive selection and awarding process using: past performance, a risk analysis and value added (RAVA) plan, interviews and a pre-contractual phase, guarantees a qualitative end result. A project that uses Best Value Procurement for the tender process can use different contract forms: a RAW besteke with UAV (with alternative design options) or an integrated contract with the UAVgc.

**RAW besteke**
When a RAW besteke is chosen, the contractor is involved after the design phase.

**Integrated contract**
Examples of integrated contracts are Design & Construct or Design & Engineer. The contractor is these contracts involved in the design phase.

**5.3.2 Use of model**
In this section a clarification of the use of the model is provided. As explained before the purpose of the decision model is to find a suitable tender method. The diagram starts in the top left corner, at this point a client does not yet know how he wants to a project. By following the arrows, decision points are reached. Each decision point represents a question about the tendered project. The answer to a question is yes or no and in one instance large enough or too small. Before reaching the end point, an intermediate state is reached: tender on lowest price of tender with quality criteria. These intermediate states have been added to the model for clarification. The decision points lead finally to an end point in the shape of a solid rectangle; this represents the most suitable tender form. Then the choice for a contract form has to be made, for tenders on lowest price this is an RAW besteke, for EMVI and Best Value Procurement several options exist, these are explained in the previous section.
5.4 Market potential for Best Value Procurement

In this section an educated guess for the market potential for the acquisition of Best Value Procurement by Breijn SI is made. Not all information was available therefore estimations were made when necessary. By using the size of the entire construction industry, estimation is made for the number of Best Value Procurement projects (400). The size of the average projects is estimated (3 million), as well as and the part for support during a tender (1%) by Breijn. Breijn can not serve all of these possible BVP projects, as their size is limited and they can not contact all possible clients. Therefore the market share of Breijn (1%) is multiplied by the number of possible projects and the average value of these projects. This leads to a potential market of €120,000 for Breijn to address Best Value Procurement projects. As Breijn SI is currently the only provider of the Best Value Procurement method in the market for local authorities, which means they have first mover advantage. It is likely that they can reach more customers. A market share of 5% is assumed to be reasonable, which lead to a sum of €600,000. When Breijn assists during a tender, it is reasonable to assume that they have the possibility to attract extra work, this means that the total extra receiving can increase up to €6,000,000. An extensive support of the calculation is provided in Appendix R.

When the assumption is made that Breijn SI contributes 50% to the turnover of Breijn an increase of 9% turnover can be expected over time. As Breijn SI has held only one project with BVP, it is unlikely that this increased income can be expected during the next year. Over the years efforts should be made to expand the number of BVP projects.

5.5 Intermediate Conclusion

Based on the previous SWOT analyses in section 5.1 and 5.2, a trade off between the positive and the negative influence can be made. In the first SWOT analysis many strengths were listed for the BVP method, apparently the method provides many strengths. When considering the SWOT analysis for the acquisition possibilities of BVP for Breijn SI, it becomes clear that many opportunities exist for Breijn SI. It is a strength that BVP fits in the strategy of Breijn and Heijmans and that with this product, new customers can be attracted. Many weaknesses can be compensated by strengths of the method or by opportunities in the market. For example the resistance and unfamiliarity among local authorities can be overcome by a personal approach and publicity around the method, especially as local authorities have indicated that they are interested in alternative forms of tendering.

The picture that the construction market of local authorities has of the connection between Breijn SI and Heijmans is a weakness. Even though it is a prejudice, not all local authorities will do business with Breijn. In addition, Breijn has currently little experience with the method as the project with the municipality ‘s Hertogenbosch is the first pilot. Experience and references can only be built over time.

The largest opportunities for Breijn SI are the changes that are slowly initiated at local authorities in the area of tender with EMVI and integrated projects. Different initiatives exist that try to develop the construction industry and the tender procedure. So, for Breijn this is the right time to offer a product that provides an alternative for tendering on the lowest price. By offering such a service they also contribute to the change in the construction industry.

The largest threat for the acquisition of Best Value Procurement project is the inconsistency in the legal framework concerning the interviews in the awarding process. Inconsistencies concerning the interviews need to be communicated to clients, as when constructors start legal proceedings, the consequence can be a ‘bodemprocedure’. It is difficult to estimate the change that legal proceedings will be taken, but a thorough selection and awarding process minimizes the chances (Cobouw, 2009). Nevertheless, working with the Best Value Procurement method creates experience on the use of quality criteria in tenders and this experience can be used for
EMVI tenders as well. A legal decision can prevent the use of (parts of) the BVP method, but it will not take away the experience that is built around using quality selection criteria in a tender and this will remain an advantage for Breijn.

Overall the BVP method offers a solution for the problems that exist when projects are tendered on the lowest price, i.e. the client is not sure who will get the work and how it will be executed. Currently authorities are open for alternatives and this means that Best Value procurement offers possibilities for the acquisition of projects by Breijn SI. As the important weaknesses and threats can be compensated by the strengths of Breijn and Best Value Procurement, it is important to underline the strengths and to exploit the opportunities for the acquisition of BVP projects.

In section 5.4 an illustration of the market potential is provided. The largest advantage for Breijn SI will not be an increase in turnover as it is expected that local authorities will be held back for some time. But the efforts that are spent on Best Value Procurement prove the image of Breijn as young an innovation engineering company. In addition, Heijmans wants to differentiate itself as a contractor that provides high quality therefore they focus on tenders that use quality criteria in order to show their differentiated capacity. By introducing a method like BVP, the mind set of Breijn SI will focus on tenders with quality criteria just like Heijmans. The company will now gain experience in alternative tenders on both sides, as a constructor but also while supporting clients. Currently Breijn SI is also often selected on price and they would like to be selected on quality as well. The offering of this method is their contribution to stimulate market change.

In addition, Best Value Procurement has been identified as a further development of an EMVI tender. So, using the BVP method will increase the knowledge about quality criteria during a tender. This means that when Breijn manages the BVP method, it is easy to adapt the method to an EMVI tender if the client prefers this.
Chapter 6. Conclusion, Implications and Limitations

In this chapter the conclusions of this research will be presented. In the first section the overall research question will be answered by first providing answers for each sub-question. In the second section the contribution to the research world will be explained and implications for practitioners. In the final section the limitations for this research will be explained.

6.1 Findings of this study

The major question in this research is:

**How can Breijn SI acquire projects and consulting services in which Breijn SI can support the tender process using the Best Value Procurement method?**

In order to research this question first the definition of Best Value Procurement was researched. Results from the literature provide a definition for procurement and value. Procurement has been defined as the purchasing activities by governmental organizations. Value has been defined as a trade-off between efforts and gains, where the efforts are often defined in terms of costs. The combination of both is the best trade-off between costs and gains for governmental purchasing. And this is exactly the main goal of Best Value Procurement, a purchasing or tender method developed by Kashiwagi in the US. The method provides a framework for the set up of tenders in the construction industry.

The second sub-question considers the key to the success in the US and the advantage of using the method. The results of the method provide a high level of satisfaction as 90% of the projects are on time, within budget and delivered with the expected level of quality. In contrast with the general practice, where 9 out of 10 projects have cost overruns (Flyvbjerg et al., 2005). So, there are clear advantages for using Best Value procurement for the tendering of projects. The success of this method is contributed to the combination of steps during the tender and the follow up after the tender. The awarding on quality criteria and the fixed price reduce the opportunism of the contractor. The method puts emphasis on the (pro) active management of risk and has an extensive selection process, thereby reducing uncertainty. Whereas awarding on the lowest price can provide a stimulus for the contractor to ‘forget’ risk and to calculate a lower price. In addition, the weekly monitoring process has a positive influence on bounded rationality, as nobody can predict the future with 100% certainty. However, Best Value procurement is not general practice in the US. Each state is allowed to form their own tender procedures and as tendering on lowest price is still general practice only a minority of the tenders uses Best Value Procurement.

The third sub-question considers the current mainstream tender procedures in the Dutch construction industry for infrastructure projects. According to the Aanbestedingsinstituut 85% of the tenders in the infrastructure uses lowest price as awarding criterion in combination with a RAW bestek. The remaining 15% of the projects is tendered with EMVI criteria, mainly by large governmental organizations. Large governmental organizations and knowledge centres for the industry stimulate innovation with alternative tender procedures (EMVI) and integrated contracts, but among local authorities awarding on lowest price is still the general practice.

The fourth sub-question considers the major differences between the US and the Netherlands. The major difference lies in the legal framework around tenders. In the US, all states have the freedom to prescribe their own tender procedures. In the Netherlands, the legal framework of
tenders above the threshold is defined by the EU. The legal framework of the EU is based on the principles of integrity: non-discrimination, objectivity and transparency. In addition, a distinction is made between the selection phase and the awarding phase of a tender. Criteria that are used during the selection phase should regard the tenderer (person or organization) and the criteria that are used during the awarding phase should regard the tender (project). The difference between selection and awarding criteria imply that selection criteria can not be used for awarding projects and vice versa.

The fifth sub-question examines the differences between the current Dutch practice and the Best Value Procurement method. In the Netherlands one can award project on lowest price or on the most economical favourable offer (EMVI). Best Value Procurement has many similarities with EMVI. However, the method is formed by a set of integrated steps, whereas an EMVI method can be designed according to the clients’ preferences. In the Netherlands currently projects of the Spoedaanpak of Rijkswaterstaat are tendered using principles of the Best Value Procurement method. In addition, Breijn SI Vught together with the community ‘s Hertogenbosch has performed a tender with the Best Value Procurement method. However, this is incidental use of the method Best Value Procurement and as previously was explained many projects are tendered on lowest price in the construction industry.

The sixth sub-question examines the current acquisition process of Breijn SI. According to Porter’s generic competitive strategies, Breijn SI uses a combination of a differentiation and focus strategy. They focus on lower authorities and Heijmans as customers and they differentiate themselves by providing high quality advice in combination with a full service strategy. A good relation with the client is important, as this increases the chance on acquiring a project. From the research, it appeared there is room for improvement in serving clients and in the proactive attitude of project leaders.

The seventh sub-question examines the conditions that need to be met at Breijn SI to acquire BVP projects. As lower authorities award projects generally on lowest price, a culture change is needed for applying the Best Value Procurement method. This also becomes apparent as in-depth interviews with the authorities, placed the authorities somewhere between phase two, cost orientation and phase three, purchasing integration of the purchasing maturity model. In addition, the method is not yet acquainted by clients in the Netherlands. In order to acquire projects, publication and education around the method is needed to familiarize clients with the method and education is needed to improve awareness among lower authorities. Besides the external change, employees of Breijn SI need to adapt to the new circumstances as well. Just like their clients, Breijn SI prepares tenders that generally award on lowest price. In order to facilitate the adaption of the employees of Breijn SI, internal education is needed. Therefore a decision model is drafted that will support the project managers during their acquisition visits.

Now the overall research question: “How can Breijn SI acquire projects in which they can support clients during the tender process by using the Best Value Procurement method?” can be answered. First of all, it is clear that the Best Value Procurement method does not correspond with the general tender practice applied by local authorities and by Breijn SI. However there are many similarities with the EMVI tender practice in the Netherlands. Therefore the name EMVI++ fits with the experiences of Breijn SI and local authorities. As the method is very different from the general practice, a culture change (internally and externally) is needed to exploit the full opportunities. This is a culture change from selection on lowest price to selection with
quality criteria and measurement of the performance of contractors. Therefore stimulation of
the method is very important and the number of projects that are tendered with BVP need to
expand over time. In this way Breijn SI can prepare its project managers and clients in order
to conquer the market with Best Value Procurement.

6.1.1 Recommendations for Breijn SI

Below several recommendations are listed for securing the BVP method internally and at the
client.

- The experience within Breijn is currently limited to one project that has taken place at
  the location Vught. During this project experience is gained with the BVP method.
  This experience should be used to develop a standard *leidraad* and contract, where the
  essentials of the method are captured and clearly presented. It is recommended to
  write all documents and the procurement procedure as easy as possible; this prevents
  problems later on in the process.

- The method of BVP is a further development of the EMVI and currently Breijn SI has
  little experience with tenders that use quality criteria. This means that experience is
  limited and centred. Besides, resistance against the method among employees can be
  expected. Therefore, it is important that knowledge about the method is spread among
  project leaders and on a regular base attention is paid to the developments. As a start it
  is recommended that the decision model, presented in chapter 5, will be spread among
  the different location of Breijn SI.

- In addition it is recommended to team up with sympathizers of the method within
  Breijn SI. Sympathizers will understand the principles of the method more quickly and
  will be motivated to acquire projects for this method. In this way the method can
  spread at a steady pace. When more involvement of the employees is needed, a
  training session dedicated to the BVP method can be designed to mobilize support.

The following recommendations can be made for acquisition of Best Value Procurement
projects at the external client:

- ’s Hertogenbosch is the first local authority that applies the method Best Value
  Procurement and the method is not generally known in the Netherlands yet. Publicity
  is recommended in order to reach potential clients of Breijn SI, therefore every
  opportunity for publicity should be exploited.

- Besides publicity, it is important to team up with clients that are interested and are
  open for a different way of tendering. Trying to change points of view cost much time
  and energy; this energy can better be spent on clients that are open for the method.

- It is recommended that Breijn stimulates the inclusion of Best Value Procurement in
  the procurement policy of the client, after the first project is tendered with BVP. By
  involving the client in the construction phase of the project, the advantages of the
  method become clear and this will facilitate policy forming. Including Best Value
  Procurement in the policy will facilitate the acquisition of other projects with Best
  Value Procurement. The ultimate goal should be to provide the client with the skills to
  perform Best Value Procurement by themselves. A client with this ability would be
  the best publicity for Breijn SI.

- As mentioned in the previous chapter, sustainability criteria become an obliged part of
  the tender for local authorities. This provides opportunities for acquiring projects
  where the BVP method can be used. It is recommended to create publicity around the
  use of sustainability criteria with the BVP method.
6.2 Implications for practitioners and researchers
In this section the implications of this research for practitioners and researchers are listed. The implications for Breijn SI have already been mentioned in the form of recommendations in the previous section. Therefore the recommendations for the practitioners focus on local authorities and the construction industry in general. In the second paragraph the implications for the researchers are mentioned.

6.2.1 Implications for practitioners
Local authorities award projects in the infrastructure generally on price. By prescribing the quality in a RAW bestek, the authority expects to receive what is in the design. As the selection is on price, during the project discussions arise about the quality. This is even more the case when a contractor had enlisted at or below cost price and has to earn his profit by finding mistakes in the RAW bestek. In such cases the relationship between the authority and the contractor becomes very tense. These types of problems can be prevented by aligning interests and providing action space for the contractor, obviously in a bounded setting. Trust is an important condition for opening the relationship. Trust can be created by a solid contract that protects the interests of both parties (Dekker, 2004). Therefore the recommendation is made to local authorities to award projects differently with quality criteria. Then it is also important to create a trusting environment with a contract where the contractor can take the responsibility for the construction and is supported by the client to do so.

The literature suggested that a D&C contract can be used in order to achieve time reduction. Then the contractor participates in the preparation phase of the project. In interviews with the project managers at Breijn SI was indicated that this is not necessarily true. After a D&C project is tendered, more time is needed to finalize and approve the design in comparison with a project that is tendered with a bestek (complete design). The overall lead-time may be shorter but the time after the tender is longer. The project managers indicated that local authorities are not always aware of this impact for the choice of a D&C contract.

It is interesting to note that project managers of Breijn SI indicated that local authorities use a tender form with EMVI criteria to overcome the disadvantages of a public tender. As with a public tender, a client receives a (initial) low price but is not sure who is awarded the contract. Practitioners indicate the ‘who’ defines the quality of the constructor. While with an EMVI tender, the client has the possibility to demand a certain level of quality. As the award of an EMVI tender often occurs behind closed doors and often not anonymous, the procedure is not transparent for the tenderers. Still much suspicion exists between parties in the construction industry and tenderers do not always trust the integrity of a client in those tenders. Therefore it is important that the procedure of BVP or EMVI is transparent and easy to comprehend and that appraisal of quality criteria happens as anonymous as possible. A transparent procedure also prevents problems of any kind.

According to Kashiwagi any type of project can be used to select constructors or suppliers with the PIPS method in combination with a RAW bestek but also integrated contract forms. Contractors can show added value best when they have the opportunity to differentiate, therefore it is recommended that the tender procedure should provide possibilities for alternative design when tendering with BVP. However, when starting with Best Value Procurement, it is recommended to use projects that are not too complex or too large. In this way a best value environment can be created and invested in education and implementation.

In the construction industry, large governmental clients and knowledge institutions like CROW try to improve the industry by stimulating alternative tender forms. So, the efforts of Breijn SI fit in a larger movement in the construction industry. Currently Breijn SI organizes round table sessions with professionals in the construction industry. It is important to reach
out to these institutions, to learn and improve the method both for Breijn SI and the construction industry. When comparing the literature about the Dutch construction industry and the practice in the infrastructure a gap is noted. Many pieces of literature are written about integrated contracts and tenders that use quality criteria. In practice most projects are tendered on lowest price. It would be interesting to know why practitioners mainly award on lowest price, even though knowledge organizations in the construction industry recommend EMVI. This is especially striking as the number of EMVI tenders is higher in the non-residential building sector (Aanbestedingsinstituut, 2009) in comparison with the infrastructure. So, there is still work left for the knowledge organizations in the construction industry.

Gap theory

6.2.2 Implications for researchers

The contribution of this research to existing research is an overview of the tender methods that are used in the infrastructure in the Netherlands. In addition, it provides an overview of Best Value Procurement and the possibilities for this method in the Netherlands. A third contribution is the table that is drafted for the measurement of purchasing maturity.

In these paragraphs, some interesting directions for further research are provided.
Firstly, additional research may be interesting to compare different tender methods. In the Netherlands the EMVI is currently dominant when a tender includes quality criteria. But research that compares different selection methods (i.e. on lowest price or including quality) is limited. In addition, research that compares the results of different EMVI or BVP tender forms with each other is very limited and would provide interesting insights.

Secondly, performance measurement of construction works hardly exists among client. As this information can not be used in a following tender, there is little incentive among local authorities to measure the performance of their suppliers. Despite of the lack of a performance measurement technique, clients are convinced that they know who can provide quality for them, but this can not be proven. The lack of a performance measurement system is a missing link for the maturing of the construction industry. According to Snijders and Tazelaar (2009) direct feedback is the most important indicator for learning behaviour. As parties in the construction industry receive little feedback, learning behaviour is limited. When learning behaviour is limited, this may have a negative influence on the number of innovations. But this line of thought needs further investigation in the literature. The advantage of BVP is a selection and awarding procedure based on performance. Therefore the assumption is made that this tender method will stimulate innovation in the construction industry. Further research is needed to verify these claims.

Thirdly, the method by Kashiwagi states that constructor can improve their turnover in a Best Value Procurement project. However, this is not researched. It may be possible, since extra work is minimized with the method and special attention is paid to the minimization of risks. This means that the constructor has fewer changes in his own supplies because the construction is less problematic and possibilities for optimization can be employed. This is just a hypothesis and further research is needed. Table for measuring purchasing maturity is a contribution to the academic research. The questionnaire that is used is focused on the procurement of civil works and probably not applicable outside this research.
6.3 Limitations

A research is performed with a certain scope and cannot include everything. This means that this research has limitations as well. First the limitations concerning the method Best Value Procurement are listed then the limitations for the particular research are listed.

As indicated by Kashiwagi (2008) the Best Value Procurement method is applicable in a market situation with many suppliers or contractors. With the PIPS method, the client states a budget for the project and this is also known by the contractors. In a market with multiple suppliers, this strategy forces competition on performance instead of price. However, when a monopoly or oligopoly exists, a client will probably not receive best value for money with this method. Without (much) competition the supplier or contractor will ask for the highest possible price and by giving the budget away the client denies himself any negotiation. New entrants are possibly disadvantaged by the focus on past performance information. Without past performance information, a constructor can not be selected and new entrants do not have this experience. The question remains if a client wants an inexperienced contractor on his work.

This study is limited in several ways. First of all, it is an explorative case study and therefore the findings are limited to Breijn SI. As Breijn has created a specific image and also a specific market strategy, it is not possible to generalise the finding of this study for other engineering agencies. This research contributes to a change in the environment. The purpose is to stimulate a different tender method for the infrastructure then currently is the case. It is difficult to estimate when this change will occur and therefore how long the finding of this study will be valid. When the environment of the company changes, results of a study lose validity.

Secondly, Breijn SI is active in the infrastructure and the study focuses on this part of the construction industry. As mentioned before, the infrastructure tends more conservative on price than other sectors in the construction industry. Findings of this research can only extend be generalised for the entire construction industry. The decision model that is presented in chapter five can be applied to the entire construction industry with minor adjustments. For example, the decision point ‘size of the project’ has to be adapted for i.e. a building project.

The third limitation regards the data collection. A combination of data collection methods is used to overcome limitations of specific data collection methods. But the design part of this study, the decision model for tender methods, is based on interviews. Interviews are biased by sensemaking as indicated by Weick, Sutcliffe and Obstfeld (2005). During the interviews, the interviewees have to reflect on their experience and interpret the events in order to answer the questions. Therefore the reliability of the results depends on the interviewees and is a topic of discussion. As this is an explorative study, interviews are a starting point for data collection and the interviews provided useful information.

The fourth limitation also concerns the interviews. The researcher is also bounded by her experience. During the interview the answers to the questions are interpreted by the researcher, the follow-up questions therefore depend on the interpretation of the researcher. To counter this bias, notes were taken during the interviews and the notes were transformed into a minutes shortly after the interview.
References

Apostel (not published) Best Value Procurement and the ARW 2005, Tijdschrift voor aanbestedingen


COBRA (2004) The international construction research conference of the Royal Institution of Chartered Surveyors, Leeds Metropolitan University and Risk Foundation

Crow (2000) Standaard RAW Bepalingen


Durf 4 and 9 (2009) PSIbouw


MacMillan, English dictionary


Research Innovatief Aanbesteden (RIA) (2007) PSiBouw project I 401 2006 UMC Radboud,


Telgen, J. and Sitar, C.P. (2001) Possible kinds of values added by the purchasing department, *the 10th International Annual IPSERA Conference 2001* 803-811


Uniforme Administratieve Voorwaarden (UAV) (1989) *Centrum voor Aansprakelijkheidsrecht*, CROW


Newspaper and websites

Cobouw 23-10-2009 *Aanbestedingsklimaat in b&u stuk gunstiger dan in gww*

Limburger 31-1-2009 *Leers: Aanbesteden niet op prijs*

NRC 9-11-2006 *Schuldbesef bij bouwfraude nog steeds gering*

Resultaten Marktconsultatie spoedaanpak (2009) at [www.marktconsultatie.nl](http://www.marktconsultatie.nl)

Selectieleidraad project Coornhertstraat (2009) at [www.aanbestedingskalender.nl](http://www.aanbestedingskalender.nl)