BVP at 's-Hertogenbosch: Buying a Retention and Settling Tank*

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The city of s-Hertogenbosch was introduced to the best value process by Heijmans and their engineering consultant group Breijn B.V. Under the leadership of Breijn, s-Hertogenbosch visionaries, and the assistance of researchers from Hogeschool Zuyd, a best value PIPS test was accomplished to deliver a retention and settling tank. The version of PIPS used implemented the concept of dominance, value, and the transfer of risk and control to the vendor. The paper reviews the process; it also reveals that the best value selection finished as the least expensive option with the highest customer satisfaction rating.

Keywords: best value for the lowest price, risk minimization, value optimization

Introduction

Breijn B.V., the engineering consultancy company of Heijmans, has recently applied the Best Value Procurement/Performance Information Procurement System (BVP/PIPS) approach in its work for the municipality of 's-Hertogenbosch. Over the year 2009, procurement for the 1500 m3 subterranean retention and settling tank was carried out. The tank is located in the vicinity of a residential area and at the edge of a park. The maximum available budget was €1 million (excluding VAT). In this paper the process of the test pilot is described. First, the reason for choosing BVP/PIPS is outlined. Next, the preparation phase is described. Then the selection phase, including the awarding procedures, is explained. The realization phase in 2010 is described and the conclusions are discussed.

Rationale for Best Value PIPS

Awarding a contract on the basis of the lowest bid is still standard practice in municipal procurement. This does not always lead to the lowest eventual or final project cost. In practice, the costs are not only determined by the bid price: substantial extra costs occur because of risks that appear during the realization phase. The costs of these 'unforeseen circumstances' are passed on to the customer, who pays a higher final project price than was awarded. For this reason, the municipality of Den Bosch prefers awarding on the basis of Most Economically Advantageous Tender (MEAT). This procedure was also chosen for the procurement of this retention and settling tank. For the first time, it was decided to integrate Best Value Procurement into the EMVI tender procedure (Economisch Meest Voordelige Inschrijving), with the objective of

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Awarding construction to a vendor that showed the best awareness and ability to minimize the risk.

**Preparation Phase**

Prior to the project, a guideline for selection and awarding was developed, where boundary conditions and possibilities for the vendor to create value were specified. The objective was to realize a well-functioning facility within budget. Vendors were given a design and preliminary ARW-specifications (a standard format for quotations) of the work. This was done in order to create a reference frame that made it possible to evaluate the effectiveness of BVP/PIPS. Beforehand, the municipality identified their desire that BVP/PIPS should be done in accordance with ARW2005 (the Dutch standards for national and European procurements). A legal test case motivated them in this direction. Two potential risks were identified:

- The first round, Past Performance, can be used as a selection criterion, but is not sufficient to award the contract to a specific vendor (see also Van Leeuwen, 2011 in this Special Issue).
- The interview round is aimed at the vendor, but the bid itself should also be taken into account when awarding the contract (same as above).

On the basis of the legal test case (above), the choice was made to follow the non-public procurement procedure of ARW2005. This Dutch procedure (formerly known as “public with a pre-selection phase”) was taken as a starting point, and BVP was integrated into it. The preparation consisted of the following two parts:

- A meeting to decide on the starting points.
- A workshop on instructing the vendors.

The project management team consisted of employees of the municipality of ‘s-Hertogenbosch and Breijn. The project was monitored by a lecturer of Hogeschool Zuyd and a purchasing manager of Heijmans, who both were educated with BVP. Progress, points of concern and important documents were discussed in a three weekly meetings. The evaluation team was formed from the project management team.

The time line for the project is listed below:

- A project that would be suitable as a first case for BVP was identified by the municipality in September 2008.
- The project start up took place in November 2008.
- A first draft of the selection procedure was discussed in January 2009, and a legal test case was investigated.
- A meeting where potential candidates were informed about BVP took place in March 2009. More than 20 contractors attended.
- The definite selection procedure was determined by April 10, 2009. This was placed in the national procurement calendar of April 29.
- Between January and May, the awarding procedure was decided on and tested judicially. It was sent to selected vendors in June.
• Bids were received on September 4. They were evaluated before September 14. Interviews took place on September 17 and 18.
• The selected vendor was notified on September 28.
• The realization phase was scheduled, according to the selected vendor’s planning, to start in March 2010.
• The order was sent to the contractor on January 11, 2010.
• Delivery took place on July 14, 2010.

During preparations, a meeting was organized for potential vendors. The municipality of ’s-Hertogenbosch organizes such a meeting on a yearly basis. This specific meeting focused on the principles of Best Value Procurement and the way this could be implemented in municipal procurement. Attendance was high (with respect to the regular number of bidders – normal/BV numbers) and contractors were enthusiastic about BVP/PIPS. The principles of BVP (such as putting responsibilities on the expert, which is where they belong) were discussed. During this meeting, potential contractors were invited to ask questions. One of the questions asked was the potential impact of using Past Performance as a selection criterion on smaller contractors. Some were concerned that new parties on the market would have difficulty getting contract awards. Another question was whether BVP would be more efficient for vendors than other ways of procurement. These points were taken into consideration, and an effort was made to minimize the concerns. Contractors were invited to participate in the selection procedure.

Selection Phase

As discussed before, the project team has divided the project in a selection and an awarding phase. The selection procedure guideline included:
• Minimal requirements for candidates.
• A list of questions about Past Performance, targeted at similar projects.
• A customer review form for these projects.

Vendors were invited to include 3 realized projects, each with a description by the vendor and a customer review. If they met the minimum requirements and added three (3) references to Past Projects, their request to be part of the awarding procedure was taken into consideration. Past Performance has been given a wider context here as compared to the original methodology of Dean Kashiwagi (Kashiwagi 2010). Not only customer reviews were requested, but also descriptions of the project by the vendor.

Candidates were requested to hand in six (6) copies (five (5) of them anonymously) of the following documents:
• Three (3) descriptions of the reference projects.
• Three (3) customer reviews of these projects.
• A declaration of the good financial health of the company.
• Model K (a declaration that the bid meets competition standards).
• A valid ISO 9001 certificate.
Six vendors submitted a request to take place in the awarding procedure that met these requirements. Their entries were reviewed, and five of the vendors were invited to take place in the award procedure (it was made clear beforehand that only five vendors would take place in the award procedure).

The project team drew the following conclusions about the selection procedure:

- There were a relatively small number of vendors that submitted a request to take place in the award procedure, while attendance at the introductory meeting was very high. Possibly, the paradigm shift and the amount of paperwork involved deterred some candidates. Alternatively, self-selection could play a role in BVP: it may be that only parties that considered their own chances high enough entered. In this way, the selection and awarding procedure would put a lower load (lower transaction costs) on the total market (all contractors).

- There was one vendor that was not invited to the award phase. This contractor did not show well in the Past Performance area. The customer reviews were of poor quality, even though candidates could select the projects that were taken into account. This was a major contention of Prof. Kashiwagi in the early BVP/PIPS tests in the United States (Kashiwagi, 2010).

- The reviewers’ judgments on Past Performance varied on a number of points. Although this did not influence the outcome, it showed the need for a good preparation and a common frame of reference in evaluating these documents.

Awarding Procedure

The five selected candidates received information on the awarding procedure, which was planned to take place within a short timeframe. Because of the lower availability of staff during summer holidays, several vendors asked to extend the submission deadline. This request was granted. Interestingly, the vendor to whom the project would eventually be awarded to did not ask for an extension.

The award procedure contained the technical requirements as well as the method by which offers would be judged. This was based on:

- Price: 30%
- Quality: 70%

The quality portion was broken out into the following sections:

- Risk management and value added plan: 35%
- Interviews with key project managers: 50%
- Planning: 15%

The choice was made to put an emphasis on quality, rather than price. Within this category, interviews with the vendor's project managers were given high importance, as these people play a crucial role in making the project successful. First, a general round of inquiry was organized, and the results were documented in a so-called Bill of Information. All candidates made use of the possibility of inquiry on an individual basis. Each of them put forward one or several ideas to
optimize design or construction. This round resulted in some unexpected and inventive ideas, which vendors implemented in their risk management and value added plan. The most important ideas concerned:

- Modifications to the design.
- A different method of construction.
- Reduction of inconvenience to the direct environment.
- Reduction of exploitation costs.

Prior to the final assessment, reviewers had several extensive meetings to discuss the method of evaluation. This concerned both the anonymously submitted risk management and added value plans of the awarding phase and the evaluation of the reference projects from the selection phase. It also involved the way in which interviews with candidates, which did not take place on an anonymous basis, would be assessed. For this purpose, project team members were trained by their colleagues from Hogeschool Zuyd and Heijmans. In this training, there was an emphasis on looking for “value added” items when interviewing vendors. In BVP, it is thought that the best candidate should stand out clearly. In the worst case, all candidates are excellent, and assessment is a difficult task. If all the candidates are perceived as being the same, the best value will be the best value for the lowest price.

For the awarding phase, all vendors submitted four (4) copies (three (3) of which were anonymous) of:

- A value added plan, consisting of two (2) pages. (A4, font: Arial 10)
- A risk management plan, consisting of two (2) pages. (idem)
- A planning/milestone schedule: vendors where free to choose a format.

The bidding price was submitted separately (only one (1) copy). This price was not allowed to exceed the maximum available budget: higher bids would not be considered valid. The project team members did not know the price during the evaluation procedure. This was only known to their colleagues from Hogeschool Zuyd and Heijmans.

The awarding phase was assessed by five (5) reviewers: two representatives of the municipality, including the project manager who would be involved in the realization phase; two employees of Breijn, including the manager who was in charge of project preparations; and one employee of Hogeschool Zuyd as an independent reviewer.

The reviewers were handed out the anonymously submitted documents by their colleagues who monitored the process. These also investigated the validity of the bids. Two (2) candidates were asked to make minor revisions on the basis of ARW standards (art. 3.14.4), because the interpretation of the documents they submitted was unclear. Other project team members were not involved here. During the awarding phase, the five reviewers evaluated the anonymously submitted proposals on value added and risk management. In other words, they did not know which candidate submitted which proposal. This prevented prejudices from entering into the evaluation. The individual assessment took about one and a half working days, including writing down the results.

Subsequently, the interviews were assessed by three (3) members of the reviewing committee. The identity of the persons to be interviewed was made known to the reviewers on the day of the
interviews. Before the interview round, the project management team submitted a list of questions. Interviews were scheduled for 1 hour. The decision not to work with five reviewers was made because this could possibly be overwhelming for candidates. Inquiry showed that vendors were also positive about this setup.

All elements (both the risk management and value added plan and the interviews) were rated by individual reviewers. By adding the results, a final score was determined. Corrections for differences in opinion between reviewers were not applied, and consensus on the assessment of vendors was not sought for. The score of each bid was simply an arithmetic mean of scores given by the individual reviewers. As a control check and as an evaluation of the BVP approach, an analysis of differences between reviewers was made. Although this showed differences in the assessment of specific points, these did not appear to impact the results. It was concluded that reviewers recognized the most important information and that only small differences exist due to differences in interpretation.

**Realization/Construction Phase**

Selection of the vendor was followed by a pre-contracting phase. This involved consultations between the awarding authority, the engineering consultancy firm and the contractor, which lead to a contract in which the scope of the work and risk allocation were unambiguously specified. The commission for the work was sent to the contractor on January 11, 2010.

The consultation and realization phase evolved largely according to the expectations of the awarding authority and supervisor. Although they were fully satisfied, it should be remarked that carefully specified instructions and interim task management appear of key importance. In this way, it can be prevented that parties revert to their traditional roles, which would reduce the effectiveness of BVP.

The contractor has taken his full responsibilities as specified in the contract. During realization, two ‘adverse circumstances’ (in risk management terms) worth mentioning occurred. Problems of a geotechnical nature made it difficult to lower the underwater base of the excavation to the right depth. This event fell within the risk profile of the contractor, who caught up with a preliminary delay of two weeks by taking measures that accelerated construction.

On the request of residents of the surrounding neighbourhood, changes to the layout of the park were made. As a result, technical modifications to the design of the retention tank were necessary. Because this changed the scope of the work, the additional costs were charged to the awarding authority.

No other supplemental work was necessary, and the project was realized within the specified timeframe and budget.
Conclusions

The pilot project was extremely successful. From five selected vendors, four valid bids were obtained. One bid exceeded the maximum price and was therefore considered invalid. The four valid proposals were judged on quality. On the basis of the submitted documents, two candidates scored much higher than their competitors. One of these candidates stood out in the interview round. When the prices were made known, this vendor also appeared to have the lowest bid. The preparation of the implementation of BVP took longer than was expected. This was mainly due to the fact that a legal test case always takes longer than anticipated.

In this case, BVP has led to the following results:

- Best overall quality
- Shortest construction time with less inconvenience
- Lowest price
- Vendor has highly skilled personnel
- Low exploitation costs
- Optimal risk management

In the final evaluation, this was summarized as: "Quality does not have to be expensive."

References

Kashiwagi, D., (2010). Best Value PIPS/PIRMS. Distributed by Kashiwagi Solution Model Inc., Mesa, AZ, Copyrighted by Dean T. Kashiwagi.