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Behind the scenes of public construction clients – collecting data on commissioning activities and organisational approach

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Abstract

The understanding of public commissioning activity is fairly limited, with national and European research primarily focusing on large scale projects, European procurement procedures and new construction. However, most construction activities involve small scale projects and assignments performed by smaller scale semi-public organisations such as hospitals, schools or housing associations. Similarities and differences between new construction and asset management have not received ample attention in quantitative research. In order to increase the knowledge on public commissioning activity in the Netherlands, an on-line cross-sector survey has been developed. This paper describes the design and methodology of the survey and its current status.

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1. Introduction

Public and semi-public clients account for approximately 40% of the total construction output in Western European countries (Boyd & Chinyio, 2008). Public clients can therefore be identified as important actors in the construction industry. Not only do they have a sizeable influence on the overall quality of the built environment (Manley, 2006), they also impact the construction process itself (Ye et al., 2014). As a result, their contribution to potential construction sector reform is significant (Vennström, 2009; Winch, 2010).

While the key role of public and semi-public clients and their construction activity is recognized both on international and on national level, the understanding of the actual nature and configuration of public commissioning is fairly limited and data collection is fragmented.

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Existing national and international surveys and other quantitative data collection primarily investigate commissioning activity related to European tendering procedures, which are mostly connected to large assignments and projects, as those tendering procedures relate to assignments above a certain threshold value (OECD, 2011; Hardeman, 2012; FIEC, 2013). Although the relevance of below-threshold assignments data is acknowledged, data collection is limited and fragmented (European Commission, 2012).

Furthermore, in European countries, many semi-public organisations are not avowed ‘contracting authorities’, with respect to European procurement rules. Therefore, their commissioning activities are not reflected in the surveys mentioned. The share of small public and semi-public organisations such as municipalities, hospitals, schools and housing associations in total construction activity, specifically in housing and utility building, is substantial and mostly involves small scale projects and assignments (Vrolijk & Holtackers, 2013).

Most existing surveys focus on commissioning and procurement related to the construction of new buildings, rather than maintenance and asset management (Stichting Aanbestedingsinstituut Bouw & Infra, 2012). However, the total yearly expenditures on maintenance and refurbishment activities is substantial, in The Netherlands even comparable to new construction (EIB, 2014). Internationally, FIEC, the European Construction Industry Federation, calculates maintenance and rehabilitation activities to account for 26% of total production in the construction industry (FIEC, 2013). The ageing Western European stock will further augment the importance of maintenance activity and thus of professional commissioning activity related to maintenance (Dekker, 1996).

And finally, existing surveys primarily concentrate on the role of the client as the initiator of construction activity and look into issues related to project management, tendering and project delivery methods, often related to single projects (Eisma & Volker, 2014). According to Hermans et al. (2014), the role of public construction clients goes significantly beyond the sole interaction between the client and the market in procuring and purchasing. Research into commissioning activity should reflect this broadness of scope.

Hence, it is difficult to obtain an encompassing understanding of the nature and quality of public commissioning activity on an organisational, let alone sector or cross-sector level. To address this lack of knowledge, the Chair of Public Commissioning in Construction at Delft University of Technology, developed a survey on public commissioning with a focus on collecting data on the aforementioned elements of public commissioning for the Dutch public construction sector. This paper will present how this survey was constructed and implemented and discusses its current status. The paper provides insight into the lessons learned when developing a survey to collect data on public construction clients.

2. Themes addressed in the survey

Since a quantitative method is a suitable approach for an exploratory study (Creswell, 2013), we have chosen to set up a survey to gain insight into public and semi-public clients’ commissioning activities and organisational approaches. The survey combines questions on three different aspects of public commissioning:

- **Data on outsourced construction activity and its characteristics:** the portfolio of construction activity (volume per segment, such as infrastructure, housing, utilities, buildings; new construction vs. maintenance and refurbishment etc.), the share and characteristics of outsourced activities within this portfolio (e.g. operational work; engineering; policy making), the type and size of assignments put to the market, including information on contract size and duration, project delivery methods (integrated contracts, performance contracts, alliances, framework agreements etc.) and procurement methods (e.g. European, negotiated, restricted) used by public organisations.

- **Data on the organisation and embedding of commissioning functions** within a public organisation. This section contains questions relating to the sourcing policy of an organisation, the positioning of commissioning tasks in the organisation (e.g. in a centralized procurement department as a part of a staff function, or decentralized as a part of the primary process), the number of specific functionaries related to commissioning tasks and their responsibilities.
Data on the *professionalism of the commissioning role* of the organisation. This part refers to the aspects relating to the professionalism of the commissioning role of public organisations as described in the maturity model described in Hermans et al. (2014) and investigates the professionalism of the organisations, as perceived by the participants.

A theoretical model was constructed containing hypotheses on relationships between the different aspects mentioned. For instance: we expected large scale organisations with a structural substantial volume of outsourced construction activity to apply more innovative project delivery types than smaller, less-experienced small-volume organisations, because large projects are more suitable for an integrated approach. We also predicted that organisations with centralized procurement departments to be perceived as more professional than organisations where the commissioning task was decentralized, because the former have functionaries that are solely dedicated to procurement. Furthermore we anticipated that large organisations are involved in larger projects than small organisations, and that mature organisations are more capable in fulfilling their role as client and in selecting the right suppliers than less mature organisations. The survey contains questions to verify these hypotheses. Furthermore, a number of questions were added that identified the respondent and his position within the organisation.

3. Relevant public and semi-public sectors incorporated into the survey

The focus of the survey is to collect data on the commissioning characteristics of public and semi-public clients. Therefore, the domain of public construction clients as a focal area needed to be established. Public tasks are carried out by government agencies. These include administrative bodies set up by the government, such as ministries, provinces, municipalities and water boards, executive agencies and departments. Semi-public institutions are private companies serving either statutory duties or a pronounced public interest, and are funded (primarily) by the government, with the government participating as a guarantor (Wiseman, 2004). In many countries ‘parastatal entities’ can be found in sectors such as, amongst others, energy, public transportation, education, housing associations, and health (Priemus, 2004; Wiseman, 2004). The survey focuses on the following subsectors within the public and semi-public domain in the Netherlands:

- Central government, including the government real estate agency and the State infrastructure agency,
- Local government, including municipalities and provinces;
- Water boards;
- Housing associations;
- Universities and colleges;
- Primary and secondary schools;
- Hospitals.

4. Design principles for survey

The public sector in the Netherlands consists of thousands of organisations. The number of organisations per subsector ranges from 14 (universities) to around 14,000 (primary education). Such a large population calls for the use of an online survey to reach a representative sample with relative little means. As the main aim of the survey is to increase insight in the commissioning role and activities of the public construction sector, the following design principles were used to develop the survey:

- The survey should facilitate data analysis at three levels:
  1. Public and semi-public sector as a whole;
  2. Sector specific analyses, for in-depth insight in sectors such as water boards, municipalities, housing associations, government entities, schools, universities, etc. To facilitate sector specific analyses,
requirements need to be set for the response per sector;
3. Cross-sector analyses, e.g. contracting authorities (e.g. state authorities, municipalities, provinces, water boards) as opposed to non-contracting authorities (e.g. schools, housing associations, hospitals) and commissioning of maintenance activities compared to commissioning of new construction. To enable cross-sector comparison, similar data should be collected for each sector investigated. As each sector uses its own terminology and type of data, this criterion put forward specific requirements to the variables used.
   • At the same time, in order to stimulate response rates, questions included in the survey should reflect sector specific terminology and procurement practice. This design principle resulted in the use of multiple terms for one aspect. For example, the term ‘turnover’ is used in the government domain to indicate financial efforts related to construction activity. However, in education, this term is not used, and therefore the questionnaire used a description of the elements to be included in the estimation of the turnover. By defining turnover for every sector, we are able to retrieve this data from as much participants as possible. This supports comparison between all sectors.
   • Furthermore, as the different sectors are completely different in composition and number of entities included, the comparison of sectors demanded specific requirements to the research methodology used. For instance: there are 14 universities in the Netherlands. This is a very small population compared to that of municipalities, of which there are just over 400. This means that analyses on the sectors should be aimed at the population size to gain scientific sound results.
   • The survey should combine the collection of factual data on the nature of commissioning activities as well as data related to the perception of the participants regarding the professionalism and task maturity of commissioning entities.
   • The survey aims at commissioning professionals at a management level within public organisations.

5. Survey structure

As the goal of the survey is to obtain a general view on public commissioning in the Netherlands, we used a wide variety of questions, such as multiple choice and open-ended questions, constant sum questions and rating questions. The goal of the question determines the type of question: while some questions solely seek to gain insight, others are used to generate statistical data.

The survey was set up in the online survey tool Collector by Survalyzer (www.survalyzer.com) and consists of three parts:
1. A general part on the participant’s function and the organisation’s nature. In this part the participants are asked to state the type of organisation, their position within the organisation, and the organisation’s turnover. The questions in this section are predominantly factual, to which only one answer is possible. Examples of question are: “how many people are employed at your organisation” and “what was your organisation’s turnover in 2013?”. The final question of this part asks whether the participant has knowledge of commissioning in new construction activity, maintenance and asset management activities or both. The answer determines the following part of the questionnaire;
2. An in-depth section on the sourcing strategy of an organisation. Dependent on the answer of the last question of section 1, the question focused on only new construction activity, only asset management or both topics. The majority of questions in this section are constant sum questions. The participants are asked to divide, amongst other, the total number of applied contracts, the total turnover, and used tender types among the possible options. One question for example is: “which percentage of different contract did your organisation use in 2013”. The total of 100% can be divided among, for instance, traditional contracts, design & build, framework agreements.
3. General inquiry of the maturity and policy of the organisation investigated. In this section the participants are asked to give their mark on questions on sourcing, innovation, contracts and collaboration on a scale of 0 to 10, with 0 being “this does not apply to my organisation”, and 10 being “this fully applies to my organisation”. One example of the questions in this section is: “to what extend is your organisation actively engaged in improving commissioning activities?”
After data collection, the online survey software (Collector) will be used for basic analyses, while SPSS can provide statistical processing. As stated earlier, multiple comparisons will be made. The answers of participants on different positions in an organization will be compared with each other. This provides insight into knowledge, experience, and opinions within one organization. Second, the organizations within one sector will be compared with each other. In this way, the characteristics of the different sectors can be described. Last, a cross-sector comparison will be executed to determine differences between the sectors present in the Dutch construction industry.

The results of the survey will be published in a report. All participants will receive a copy of this report. Furthermore, if the participant provided their contact details, they will be invited to a workshop in which the results will be presented. The goal of this workshop is to discuss the results of the survey and to identify subjects for future research.

6. Testing the user friendliness, validity and reliability of the survey

To ensure user friendliness and enhance validity and reliability, several tests and pilots were used to improve the quality of the survey. First, the contents of a first version of the survey was discussed with three sector representatives of housing associations, public real estate, and local procuring authorities. The interviews indicated that the time required for completing the survey should not exceed 20 minutes and that quantitative data on the volume of outsourced construction activity could be expected to be both limited and scattered through organizations and therefore not easily retrievable for a single respondent. On the basis of these interviews, the length of the survey was substantially reduced, questions and answering categories were rephrased in order to improve comprehensibility and reflect sector specific terminology. Furthermore, an introduction was added to the survey explaining the type of data required to complete the survey. Also, the survey was designed in a modular way, allowing respondents to temporarily skip parts of the survey pending additional information from colleagues and, where necessary, the category ‘I do not know / my organisation does not have this kind of information available’. Although from a research point of view, this last choice was made reluctantly, in practice it proves to be an important element in stimulating respondents to finish the survey rather than abolishing the survey due to lack of information.

In the next step, the survey was tested by a research method expert, who assessed the questions and answers on their quality and validity. The survey was subsequently amended, based on her recommendations. These included the prevention overlapping answer categories, consistent use of terms, non-ambiguous questions, the lay-out of the survey, whether the type of questions were suitable for the required data, and the prevention of bias in ordinal scale questions.

Then, a small group of respondents was selected as a pilot group for real life testing of the survey before the nationwide survey was launched. For each target group (separate sector investigated), two to three people were selected to test the survey, both on the subject and type of questions as well as on the feasibility of the survey as a whole. In total, 8 people were asked to participate in this pilot phase. Based on their feedback, the survey was refined in the final version.

7. Selection of respondents

In order to collect information on commissioning activities, access is needed to the proper functionaries and unfortunately, information on how institutions have organized their commissioning role, is predominantly lacking. To ensure proper response to the survey, the questionnaire requires respondents that combine generic knowledge of their organisation’s sourcing strategy, with insight into the actual commissioning activity within their field of work. As ‘commissioning’ is not an accepted, independent, explicitly assigned function within organizations, it proved difficult to gain access to the proper functionaries. Within the sectors selected, the way commissioning tasks are organized differs substantially. This situation hampers the accessibility of the individual institutions for commissioning related questionnaires, which revealed to be one of the major challenges to the distribution and response to the survey.
As the survey focused on both new construction as well as maintenance and refurbishment activities, the population of this survey was decided to comprise people who are head of departments (for example project management team leader, heads of purchasing, heads of asset management, heads of maintenance, heads of real estate). To stimulate response, we needed to address possible participants on an individual basis. The selection of possible participants was done through trade organisations, such as the Dutch construction clients Forum, the national primary education council, the board of universities, and the trade organisation of housing associations.

If possible, the people were directly contacted by e-mail with a personal link to the survey, to ensure only the targeted persons could access the survey.

The questionnaire was preferably dispatched directly by mail to the aforementioned functionaries of the targeted organisations with a covering letter containing a brief description of the survey and its research objectives. The invitations were distributed on a sector by sector basis. Furthermore, an open invitation was send out through a number of branch and trade organisations as the researchers weren’t always allowed to obtain direct contact information. In that case an invitation was send with a general link to the owner of a mailing list, who subsequently forwarded individual invitations to the intended participants. To ensure a high response rate, social media were used to generate as much publicity as possible. As this group included people who do not have the targeted knowledge, the questionnaire clearly stated that only the aforementioned officials or people with sufficient relevant knowledge should fill up the questionnaire.

This invitation was sent to almost 1,900 people in November 2014. Table 1 shows the numbers of invitations to municipalities, provinces, housing associations, schools, and universities. In January 2015, water boards were invited as well. At a later time in 2015 government agencies and hospitals will be invited too, to totally cover the public sector. -public organisations.

<table>
<thead>
<tr>
<th>Type</th>
<th>Number of invitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipalities and provinces</td>
<td>1500</td>
</tr>
<tr>
<td>Housing associations</td>
<td>176</td>
</tr>
<tr>
<td>Schools</td>
<td>200</td>
</tr>
<tr>
<td>Universities</td>
<td>14</td>
</tr>
<tr>
<td>Water boards</td>
<td>12</td>
</tr>
</tbody>
</table>

8. Status and response

Response rates of the questionnaire are to date low. The lowest response rates are obtained in cases in which a generic invitation was send by the trade organisations. A direct email to functionaries yielded a slightly higher response rates, and in those cases in which respondents were first addressed in person by the trade or branch organisation and afterwards received an invitation from the researchers for participation in the survey, the highest rates were reached. However, the sample from which data was obtained is far from sufficient to be representative. For instance, a representative sample for municipalities (total population around 400) with a variance estimate of .5 and alpha level of .05, would need to be 196 for categorical data (Kotrlik & Higgins, 2001). So far, two responses by municipalities were received. Even with the requirement for sample sizes for continuous data, which is also collected in this survey, the response would need to be 92. Therefore, no findings can be derived from the data so far. From the response and emails received from respondents, with comments to or questions relating to the survey the following preliminary conclusions can be drawn on the reasons for low response:

- Most organisations do not seem to have the required quantitative data available on the volume of their outsourced construction activity or this data cannot be accessed by the respondent.
often the required information is scattered among different parts of the organisation (for instance in separate business units for infrastructure and real estate or for investment projects vs. maintenance). With functionaries overviewing only a limited share of the required information. One example that shows this very clearly, is a water boards in which five departments are responsible for construction and maintenance of their assets.

- Respondents frequently comment on the lengthiness (20 min.) and level of detail of the questionnaire, even despite the earlier positive pilot studies.
- Respondents are not familiar with commissioning related concepts and terminology and are therefore not able to complete the survey.
- Some respondents indicate that their sector was subject to many research projects and surveys in the last couple of years and that therefore the inclination to participate in yet another survey was very low. This is specifically the case for housing associations, which sector was subject to a parliamentary inquiry in 2013 and 2014.

To overcome some of the difficulties related to the survey, we started to individually contact the respondents of the universities and water boards and give assistance to the respondents. As the number of respondents in these groups are small, this personal approach is feasible and substantially increases response rates. In other sectors, such as housing associations and municipalities this approach is not feasible due to the large amount of organisations in these sectors. In these cases, we now try to find new entrances to possible respondents through authorities in each sector or networks related to commissioning activity. Furthermore, we are looking for new methods to collect quantitative data on commissioning activity using both Dutch and international databases.

Some adaptations to the survey have been made, allowing participants to skip questions when information within their organisations is lacking. Although this will weaken the comparability of the results between organisations, at the same time it is expected to positively influence overall response. Depending on the results in the next weeks, and possible differences between sectors, an option might be to divide the questionnaire into smaller parts and have sequential questionnaires instead. Further research into this matter is necessary to understand why response rates are low thus far.

9. Discussion and conclusion

The original purpose of this paper was to describe the findings of a large-scale nationwide survey amongst a variety of public and semipublic clients in the Netherlands. Although a large number of organisations was invited to join the survey, response rates are very low, despite initial enthusiasm of potential participants and the participation of trade organisations.

Although the survey is still ongoing, some preliminary conclusions can be drawn. These conclusions are, however, rather based on reactions of respondents than on data collected from the survey. The first one being that many public organisations, though involved in network activities relating to public commissioning, do not seem to have data on their own procuring activity easily available. Furthermore, commissioning functions for construction activity seems to be dispersed within organisations. Although this was already suspected, the reality shows this is in almost every public organisation the case. These characteristics thoroughly hamper the collection of data on overall construction activity and its sourcing in the public domain.

A combination of research techniques is therefore required to obtain an overview of the sector. The preliminary results of this survey show that a survey may not be an appropriate tool. Because overall interest is low, and information is not directly at hand, few people complete all questions. A more direct approach, such as interviews or scanning annual reports, could yield more results, but is far more time-consuming. However, despite the low response rates, this survey already confirmed the need for more knowledge on commissioning activities.
References