

A PUBLIC COMMISSIONING MATURITY MODEL FOR CONSTRUCTION CLIENTS

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Being a public organization with construction needs, whether they are housing, building or infrastructure related, implies close co-operation and interaction with the supply chain. Substantial research exists that focuses on project related aspects of commissioning and on the role of the construction client in general. Only limited research has been done, however, into the impact of organizational characteristics on the level of professionalism and competences of commissioning entities. This research is particularly relevant, when public organizations are re-evaluating their sourcing strategy. As part of the establishment of a new chair of public commissioning, the development of a 'Public Commissioning Maturity Model' (PCCM) is presented in this paper. The model aims to identify the key characteristics of being a competent construction client. The overall aim of this research is to establish an overview of and insight into the nature and impact of characteristics of public organisations as determinants of their professionalism as public commissioning entities. In the PCMM, for each aspect of the commissioning role, maturation stages are defined. Research methods used include a literature survey and expert sessions. The model and methodology build on maturity models developed in asset and project management, supply chain management and purchasing. The research resulted in a framework containing a set of coherent aspects jointly framing the concept of 'professional public commissioning'. This framework can be applied by public commissioning entities to explore their current status and define their desired further development.

Keywords: client, maturity model, performance indicators, procurement, supply chain management.

INTRODUCTION

The construction sector is of vital economic importance. According to Eurostat (<http://epp.eurostat.ec.europa.eu>), construction activity accounted for 6% of the Gross Domestic Product (GDP) in Europe in 2010, generating over € 650 billion of added value. The public sector is responsible for approximately half of the production in the construction sector. Despite the importance of the sector, the sector is deemed to be underperforming, resulting in high failure costs (averaging 11,4% of turnover, EIB en CBS, 2008), poor quality, low efficiency and high risks (Boyd and Chinyio, 2006, Manseau and Seaden, 2001). For many years, a strong necessity is felt worldwide, to reform the sector. Egan's 'Rethinking Construction' (Egan, 1998) provides a clear and broad-based view on this need for change. His report forms the background to many

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nation-wide, sector-specific or organization-based change programmes in the industry afterwards.

Commissioning organizations ('construction clients') fulfil a dominant role in reform initiatives. For public organizations, expectations seem to be even higher. Their evident social responsibility induces a role of 'launching customer'. Both as an owner and due to their social-political responsibilities, public clients are expected to actively contribute to the innovation and improvement of the building sector (Boyd and Chinyio, 2006). OECD (<http://stats.oecd.org/glossary/detail.asp?ID=5862>) defines a construction client as "*the natural or legal person for whom a structure is constructed, or alternatively the person or organization that took the initiative of the construction.*" Most scientific publications use a similar concept, with Boyd and Chinyio (2008) and Haugbølle and Boyd (2013) specifically focussing on the role and characteristics of construction clients. The OECD-definition does, however, not explicitly recognize the role of clients in the existing stock of assets, although the volume of construction activity related to existing assets (maintenance, renovation, transformation) is substantial compared to new building. The connection between construction clients and the existing building stock is not too prominent in scientific literature either.

A multitude of studies has been executed in the area of public sector purchasing and procurement, new contract forms, public private partnerships, the briefing process, risk management, etcetera. In the majority of cases though, this research focusses on the commissioning role in specific projects or activities, and the ability of a construction client, whether public or private, to successfully manage those projects. Where the role of the construction client as a commissioning agent in single projects receives ample attention, the role of the construction client as a commissioning organization has only rarely been recognized (Eisma and Volker, 2014).

Since only limited research has been done into this specific area, there is an evident need to address organizational issues of public construction clients in research and contribute to knowledge development in this area. Given the impact of the construction sector and the dominant role of public clients, the research theme can be considered of substantial value to the sector as well as to the academic world. As many public organizations repeatedly (for instance municipalities, provinces, universities or hospitals) or even continuously (for instance housing associations, state building or infrastructure authorities) perform the role of public client in the development, renovation or maintenance of their assets, they can be considered to be 'commissioning organizations'. It is therefore interesting to examine the relationship between organizational characteristics and commissioning professionalism. Repeated commissioning tasks might require a higher level of professionalism than 'one-off' commissioning activities in public organizations with a limited asset stock.

In this paper the development of a Public Commissioning Maturity Model (PCMM) is described. First the research context and methodological development process is explained. In the following sections the concept and aspects of the maturity model are presented, followed by the draft version of the model that was validated in a series of expert sessions. Finally, further research is discussed.

RESEARCH CONTEXT AND APPROACH

Aim of the research

Unfortunately a recognized, coherent definition and representation of the characteristics of the commissioning role of public organizations is not yet available.

In the Netherlands, the Dutch Construction Client Forum recently established a new Chair at Delft University of Technology to specifically investigate and elaborate on this field. The aim of this chair is to establish an overview of and insight into the nature and impact of characteristics of public organisations as determinants of their professionalism as public commissioning entities.

As a starting point, research within the chair focuses on developing a 'maturity model' to investigate the level of competence of public construction clients. In this paper the development of this model will be described. The Public Commissioning Maturity Model (PCMM) aims to raise awareness among construction clients' organizations to the range and width of their commissioning task and is designed to be applied by board members and managers. The model provides a means to elicit discussion on the current and desired state of the organization's competences. The model is not configured for numerical ranking, sector-wide monitoring or benchmarking purposes.

Research approach

First, the results of an international literature survey by Volker and Eisma (2014) were used to construct a preliminary set of elements correlated to the concept of 'public commissioning' in the built environment. For some specific areas, additional scientific literature was required, for instance on commissioning aspects related to public values and governance issues, as scientific literature from within the domain of the built environment appeared to be limited and these issues were indicated to be relevant by the construction clients forum. These scientific results were supplemented with an analysis of the viewpoints of the Dutch Construction Clients Forum regarding the tasks and responsibilities of public construction clients. In this Forum (www.opdrachtgeversforum.nl) twelve large public construction clients are represented to jointly discuss and further develop their commissioning role.

Next, literature on 'maturity models' as a tool to identify organisational development stages was studied, in order to obtain design criteria for a new maturity model. Steenberg *et al.* (2010) provides guidelines for the development of maturity models, and recommends comparison with existing models, followed by an iterative procedure to define focus areas and capabilities, starting from literature, including expert input and possibly surveys in order to obtain a generally agreed model. This procedure is followed in the design of the PCMM.

As public commissioning was found to be an overarching concept, designing a 'maturity model' for public commissioning would need to interlink organisational development in a variety of domains. It is in this connection that the maturity model for public commissioning adds to existing knowledge and existing maturity models. This phase of the research project therefore covered studying literature on existing maturity models developed for adjacent areas, such as the Infrastructure Maturity Model of Volker *et al.* (2013) and Project Management Maturity Model of Ibbs and Kwak (2000). This study covered both the aspects to be included in the model as well as possible options for the maturity scale to be applied.

Then, all elements were summarized in an Excel sheet and clustered into a limited number of categories based on their similarities and differences, in order to obtain an comprehensible set of aspects to be covered in the maturity model. Furthermore, the development stages of maturity were elaborated. The combined results of the literature survey and insights from practice thus led to a draft version of the maturity model.

This draft version was discussed in a structured discussion in four expert sessions, held in April 2014. Two sessions were composed exclusively of representatives of public commissioning organizations, one consisting of 6 board members representing 6 different public organizations and one session with 9 senior managers responsible for internal commissioning of projects in 7 public organizations. The other two sessions were held with a mixture of practitioners and scientists, all directly involved in commissioning related activities and research. In all sessions both the aspects and development stages used in the model were discussed thoroughly, as well as the practicality of the 'maturity model' as an instrument. All discussions were documented and analysed by the research team. The meetings followed a fixed agenda, that had been send to the experts for preparation beforehand. The combined results of the meetings were reflected in an adjusted pilot version of the maturity model.

THE CONCEPT OF MATURITY MODELS

A maturity model describes key elements of effective processes connected to a specific organizational quality. The model draws the development path from an ad hoc, immature process to a mature, well-managed, disciplined and controlled process (Paulk *et al.*, 1993). The assumption underlying maturity models is that a mature level of development, will lead to improved business performance and therefore better results. Maturity models are often used as a self-assessment instrument and to define opportunities for further organizational development (Mayer and Lemes Fagundes, 2009).

One of the first maturity models, the Capability Maturity Model (CMM), was designed for software processes in de late 90's, by Paulk *et al.* (1993). Subsequently, maturity models were designed for a variety of processes in organizations. A maturity model usually consists of a matrix with key process areas on the one axis and development stages on the other. For ease of use in self-assessment situations, maturity models generally comprise no more than 5 - 10 aspects, and 3 to 10 development stages. Most models use a 4 or 5 level Likert scale.

INVENTORY OF ASPECTS OF PUBLIC COMMISSIONING

Results of literature survey on aspects of public commissioning

Eisma and Volker (2014) performed a systematic literature survey on the knowledge currently available on public commissioning organizations. They found that academic scholars mainly focus on issues related to organising the project (procurement, contracting and management) and many fewer dealt with portfolio management, the internal organization of the client and their need to operate in a transparent, objective and accountable way. Eisma and Volker (2014) found ten main domains of aspects related to public commissioning in literature: (1) Collaboration, (2) Contractor selection, (3) Project performance, (4) Service delivery, (5) Public private collaboration, (6) Modernising construction, (7) Delay and cost overruns, (8) Innovation, (9) Integrity and (10) Public project management.

This survey revealed that the phenomenon of 'public commissioning' lacks an accepted definition, although literature covers many elements contributed to its professional execution. Public commissioning appears to be an overarching concept, referring both to project related aspects as well as to organisational issues. This notion should be taking into account when developing a maturity model for this field.

Additional aspects covered by the Dutch Construction Clients Forum

The analysis of the work programme, products and meetings of the Dutch Construction Clients Forum revealed similar themes as found in scientific literature. Issues such as public values (e.g. sustainability, cultural values), answering to public expectations and administrative frameworks (integrity, transparency and procurement law), the development of integral, LCC-related, decision models for outsourcing, and coherence between organizational policy, asset portfolio and projects are dominant in discussions within the Forum and are less dominant (though not completely absent) in literature.

Aspects mentioned in existing maturity models

Generic maturity models

A multitude of maturity models on organizational processes has been developed before. The PCMM will build on the more generic maturity models focussing on business performance or quality management, as improving the quality of public commissioning tasks can be seen as a part of the primary business process of public organisations. Examples are the Business Process Management Maturity Model (Rosemann and De Bruin, 2004) and the EFQM Excellence Model (www.efqm.org).

The EFQM Excellence Model can be seen as an important, often applied, framework for assessing organizational quality. The model distinguishes 'Enablers' - criteria that cover what an organization does, from 'Results' - criteria that cover what an organization achieves. As 'professional commissioning' could be considered to be one of the required qualities of a public organization, a maturity model for professional commissioning would, following this line of thought, capture the 'enablers' for commissioning. The enablers in EFQM-related assessment models cover aspects such as 'leadership, people, policy and strategy, partnerships and resources and processes, products and users'.

Maturity models in related focal areas

Several maturity models have been developed covering themes closely related to public commissioning. Each of these maturity models contains important elements, although none of them covers the full scope of commissioning. The following models can be explicitly mentioned for their obvious relevance to the subject and have been studied to elaborate and add to the aspects to be covered in het PCMM:

- Infrastructure Management Maturity Model (IM3) (Volker, L. *et al.*, 2013), investigating the organisational maturity in asset management, covering dimensions such as: information management, internal co-ordination, external co-ordination, market approach, risk management, processes and roles, and culture and leadership.
- Supply Chain Excellence Maturity Model (SCEMM) (Noordhuis, M., Veen, van der, J., en Venugopal, V., 2013); investigating organisational maturity related to supply chain co-operation, based on EFQM and covering aspects such as: strategy and policy, organization and processes, monitoring and control, information technology, people and culture.
- Purchasing Excellence Publiek Model (MSU+) (www.nevi.nl); derived from the earlier Purchasing Excellence model developed by Robert Monczka. Investigating organisational qualities related to purchasing. The MSU+ model contains 8 strategic (insourcing / outsourcing, develop commodity strategies, world class supply base, supplier relationships, integration of suppliers,

supplier development and managing costs) and 6 supporting processes (strategies and plans, organization and team, deploy globalization, performance indicators, IS / IT systems, HRM and training).

- Infra Maturity Tool (IMT) (Hertogh, M. *et al.*, 2008); investigating the maturity of project management in complex projects, defining aspects such as: objectives and scope, stakeholders, financial management, organization and management processes, risks (threats and opportunities), contracting, legal consents, knowledge and technology.
- Project Management Maturity Model (Ibbs, C. and Kwak, Y, 2000), covering 8 knowledge areas related to the maturity of project management processes: scope, time, cost, quality, human resources, communications, risk, procurement.

This wide range of related models provided the context for the development of the Public Commissioning Maturity Model.

Identifying development stages

Each maturity model contains a scale, mostly based on Likert, to identify the maturity level of the aspects considered. Often, maturity levels are related to the extent of implementation of specific solutions or methods. The Public Commissioning Maturity Model refrains from prescribing specific solutions. It is believed that no specific solution or application suits all types of public organizations, as mutual differences are substantial, for instance in primary goals, size of organization, number and type of outsourced activities.

The public commissioning maturity model is intended to judge the extent to which an organization succeeds in carrying out an integrated assessment of its actions related to the aspects incorporated, makes informed decisions related to the approach of each aspect and acts according to these decisions. The model should therefore, for instance, not value the application of integrated contracts as a 'higher level' of commissioning than the use of traditional contracts. It is the integral assessment and the related subsequent action that is deemed to indicate professional commissioning rather than the specific choice itself.

For each aspect, the maturity model requires the judgement of four interrelated and subsequent indicators: (a.) the integral approach to the aspect; (b.) the level to which an organization has defined SMART-goals for this aspect and is accountable for the results and systematically evaluates goals and results; (c.) the level to which this specific aspect is embedded in the organization and therefore is known and acted upon by the employees involved in the related processes; and, finally, (d.) the level to which this specific aspect is supported and secured by dedicated processes, methods, instruments.

For each indicator a five level scale is used, from 'low' to 'high'. Each aspect is scored in the same way. As the model supports self-assessment and aims to support internal discussions on the status, importance and required level per aspect, the individual scores per aspect remain visible. No final, overall, score is generated.

DRAFT MATURITY MODEL

On the basis of the above sources and input, the first draft version of the Public Commissioning Maturity Model contained the following 8 aspects:

1. Organizational strategy and policy; 2. Cultural aspects and HRM; 3. Stakeholder management; 4. Portfolio management; 5. Public values and responsibilities; 6. Administrative rules and frameworks; 7. Managing the supply side; 8. Managing projects and assignments.

The first three aspects reflect basic organizational competences and are derived from the 'enablers' described in the general business process and EFQM-maturity models. They reflect generic preconditions to successfully improve the quality of business processes (such as public commissioning). 'Organizational strategy and policy' covers the extent to which an organization has developed a specific commissioning related strategy and policy, is actively improving and - if necessary - innovating its commissioning role, and applies a dedicated change strategy when changing its role. 'Cultural aspects and HRM' looks into leadership aspects, the extent to which a governance structure enhances commissioning tasks, and whether the organization has commissioning as a focal area in knowledge management and HRM. 'Stakeholder management' covers the ability of an organization to answer to the needs and expectations of users, political and third party stakeholders and the internal organization throughout the life cycle of the built environment. It also looks into the adequate interaction with and positioning of stakeholders in commissioning processes.

The next set of aspects cover specific public commissioning related issues. These issues are mainly derived from the literature on public commissioning and practitioners input from the Dutch Construction Clients Forum, and elements derived from the above mentioned related maturity models: 'Portfoliomanagement' includes the presence of a view on the total stock of work to be outsourced. The coherence between the performance of the portfolio and the requirements to individual projects and tasks (van der Velde, Klatter, and Bakker, 2013) should be taken into account. The aspect also regards the use of integral, TCO-oriented, decision models for choosing appropriate collaboration and contract forms (e.g. framework agreements, public private partnerships, integrated contracts, traditional contracts), covering both investment as well as exploitation related decisions on maintenance and management (Miller and Evje, 1999).

Aspects 5 en 6 specifically relate to the 'public' nature of construction clients. Aspect 5, 'Public Values and responsibilities', looks into the ability to incorporate a social mission and public values, including launching customership and exemplary behaviour, in the commissioning role. Many public construction clients serve as an example for less experienced construction clients (Winch, 2010). Public construction clients can motivate parties involved as well as other construction clients to strive for, for example, higher sustainability levels (Warren, 2010). Also the protection and upkeep of cultural and historic values and spatial quality are elements covered in this aspect. 'Administrative rules and frameworks' covers the ability to work according to administrative legislation and frameworks. Public organizations should abide to explicit and implicit rules regarding integrity, transparency, legitimacy and efficiency and procurement regulations (Schlössels and Zijlstra, 2012). The ability of an organization to deal with these expectations and still be effective in its commissioning role is covered in this aspect.

Aspect 7, 'Managing the supply side' covers the organizational competences related to supply management and purchasing excellence and is therefore strongly related to the above mentioned MSU+ and SCEMM- models. This aspect involves the ability of the public organization to 'read', collaborate with and obtain maximum added value from

its suppliers (Doloi, Iyer, and Sawhney, 2011). 'Managing Projects and Assignments' focusses on the competence of the organization to professionally manage its commissioning role in specific assignments, such as projects or maintenance tasks. The aspect covers similar subjects as included in the IM3 and Project Management Maturity Models discussed above. It looks at the organization's ability to specify, tender, contract and manage its outsourced activities. This aspect is strongly related to aspect 7, but covers the 'internal' abilities of the organization, including the competent application of different types of contract forms and the ability to skilfully manage projects (Hall and Holt, 2002).

FEEDBACK FROM EXPERT SESSIONS

Based on the draft version of the maturity model, a series of expert sessions was conducted to validate the design and functionality of the model. The expert sessions confirm that a maturity model for public commissioning is a valuable contribution to the knowledge field, specifically due to the overarching view combining organizational issues and project related competences. Also the experts felt that the aspects included in the model cover the relevant aspects of public commissioning. The experts suggest to add creativity and flexibility as important characteristics of any professional public commissioning organization and to separate culture and HRM into two individual aspects.

Figure 1. Final set of aspects



The development of the model from the focal point of enhancing awareness rather than providing a 'ranking and scoring' instrument, was applauded. At the same time, a 'sticks and carrots' effect was anticipated when results were shared between organizations. Experts valued the method chosen to define maturity levels on the basis of 'well-founded approach', but thought that scoring four indicators per aspect might easily lead to administrative behaviour, rather than thorough discussions. A generic four or five level method was deemed more practical. The current indicators should than serve as a basis for describing each level, but should not be used for scoring purposes.

The experts recommended to include an explanation of the mutual connections and interdependencies between the different aspects. Also, the experts asked to provide a clear guidance and explanation to the maturity model to enhance self-assessment possibilities. The suggestion was made to further develop the maturity model as a basis for a guided workshop within public organizations.

After discussions in expert panels, the following draft version of the Public Commissioning Maturity Model can be presented (see Figure 2).

Figure 2. The resulting draft version of the Public Commissioning Maturity Model

Aspects of professional public commissioning												
										Optimized	5	Maturity level
										Managed	4	
										Standard	3	
										Repeatable	2	
										Ad hoc	1	
Organisational strategy & policy	Culture and leadership	People and learning organisation	Decision models and portfolio	Stakeholder mngt	Public role	Public rules of play	Interaction with supply market	Managing projects and assignments	Creativity and flexibility			
												
1	2	3	4	5	6	7	8	9	10			

DISCUSSION AND FURTHER RESEARCH

Developing a maturity model in the area of public commissioning appears to be essential for the further development of the field. Based on a literature survey and thorough analysis of existing maturity models, a concept version of the Public Commissioning Maturity Model was developed. The results of the expert sessions will be used to improve the maturity model. We are currently preparing the application of the model in 3 to 5 cases, leading to a tested first version of the maturity model. A detailed explanation of the contents and application of the maturity model will be prepared and supporting material for workshop-based discussion sessions within public organizations will be provided.

Based on the experiences of the development of this model, we are convinced that a maturity model for public commissioning adds to the development of the existing body of knowledge on the role of public construction clients. Further research could be aimed to establishing successful approaches towards securing public values, improving business and public administration, purchasing and procurement, and decision models. Research could also incorporate the relationship between aspects and maturity levels and the actual performance of commissioning organizations. As a first step towards establishing this relationship, preparations are made to perform a large survey among public clients. The development of such a large a dataset could provide a representative picture of the commissioning activities of individual commissioning organizations and purvey insight into their commissioning results.

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