

Performance-based Specifications in Public Procurement: Exploring the Case of Germany

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ABSTRACT

The large public procurement sector, making up about 16% of the European GDP, is burdened with meeting increasingly economic solutions without disregarding the high-quality aspect and demand for state-of-the-art technology. Further rising requirements on the sector such as sustainability and innovation aspects impose challenges. Proposed by the literature as a tool in helping to foster economic, ecological, innovative and technically valuable solutions is the employment of performance-based specifications (PBS) in the procurement process. This paper seeks to explore the current level of usage as well as underlying reasons for the frequency of this meaningful tool in Germany. A three-stage research approach was chosen, consisting of (1) analysing the legal framework surrounding Germany, (2) analysing tender documents and (3) conducting interviews with public officials. The analysis found that while from a legal perspective there is a clear framework on the use of PBS, in practice these types of specifications are rarely used. Possible reasons for these findings are a lack of adequate education and training on its use and its benefits, and the practitioners' impression of predominant drawbacks. The findings reveal an imbalance between the theoretical value and practical use of PBS. This possibly calls for more educational initiatives and best-practice examples regarding PBS and its application on part of the German Government.

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Keywords

Performance-based specifications, functional specifications, public procurement

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1. INTRODUCTION

Private and more importantly public entities find themselves under the constant pressure of procuring valuable state-of-the-art solutions, while being increasingly economical and driving down costs in the light of limited financial resources. Next to that, in recent years the concern for environmental and social issues has grown and as a consequence has influenced the procurement realm. The need for economic efficiency, sustainability and consequently the need for innovation are thereby putting forward new procedures and approaches in the purchasing process. It can be particularly challenging for public procurers, due to the wide range of products and services they are responsible for, as well as the strict policies and regulations in the public sector, to meet the demands for triple bottom line (social, environmental, economic) concerns. Considering the volume of publicly bought goods and services, making up ~16% of the GDP in the EU (European Commission), one can get a feel for the significance that innovative and sustainable efforts can represent and the potential impact of cost reductions. In order to promote this shift in public procurement, the EU and national governments are adjusting their legal frameworks and are implementing policies aimed at providing opportunities for environmental, social and economic considerations (sustainable-procurement.org; see later section). In this regard, identified as one major tool to improve public buying has been the employment of performance-based specifications (PBS) in the early stages of the procurement process. As a recent publication frames it, the shift towards performance-based specifications can be identified as the next step in the evolution of more sustainable public procurement (Turley, 2013). Despite the growing calls for innovation and sustainability in public procurement, many of the EU member countries only find themselves in the early stages of adopting strategic and innovative practices. Having taken a progressive role in this regard seem to be the UK along with the Netherlands and Germany (Edler, et al., 2005). Also to be observed is, that major organisations such as the United States Department of Defense implemented procurement guidelines emphasising the use of PBS over detail specifications, in order to provide contractors with the “flexibility to provide innovative, technologically advanced, best-value solutions” (Department of Defense, 2009; p. 3). Academics however not only regard PBS as a valuable tool in the public sector because of its capability to foster innovation and realise potential savings, there are a range of other potential benefits, including the improvement of environmental efforts and transferring risks from the buyer to the supplier side, while of course not being free of drawbacks and limitations (Turley, Hug Silva, Benson & Dominguez, 2014).

While the body of literature and government sources indicate the value PBS can have in public procurement today (Ministry of Infrastructure and the Environment NL, 2013; Ministry for Economy and Energy Germany, 2014) little is known as to what extent PBS are actually being employed by practitioners. This research paper will explore the current spread and the application of performance-based specifications in the work environment of public procurers and is structured as follows. After outlining the role of this paper along with the specific research question, the methodological approach will be laid out (Section 2). Section 3 will then review relevant literature and determine the terminology concerning PBS. Section 4 analyses the three stages exploring the research question. After that, the findings will be discussed (5) and the paper concludes with a comparison (6), its limitations (7) and a final conclusion (8).

The scope of this paper will lay on the investigation of PBS in Germany, as a representative nation of an industrialised country

and member of the EU. It thereby forms a mirroring element to a similar study conducted in Ethiopia, which investigates the use of PBS in the public procurement apparatus of a developing country. In order to provide for comparability between the two studies, the empirical approach of this paper is similar, however smaller in scale and scope. By investigating the status quo of PBS in Germany, it is strived for a deeper understanding about the awareness and spread of this type of specifications and underlying reasons determining the current level of appreciation among practitioners. The central research question reads as follows:

- To what extent are public entities in Germany employing PBS in their procurement process?
 - What makes the use of PBS more beneficial than other kinds of specifications?
 - What are reasons for not employing PBS?

As mentioned, the central question is aimed at the extent to which PBS is currently being employed and whether Germany can live up to the status of its public sector, which is labelled as progressive. The two subquestions are digging deeper as to what reasons can be identified that facilitate or inhibit its use in public organisations. Due to its exploratory nature, this paper cannot provide a representative answer, but serves as a valuable starting point for further research in the domain of performance-based specifications in public procurement. The empirical component of this paper then consist of a three-step approach, which tries to provide a meaningful answer to the research question. In the first stage, the surrounding legal framework for PBS in Germany will be examined, to check whether PBS is actually being permitted. This then sets the scene and decides over the subsequent stages. The second stage analyses tender documents of public entities regarding their use of PBS, with the aim of getting a picture about the actual use of these types of specifications in the daily business. The third stage is then comprised of depth interviews, which will shed light on factors influencing the use of PBS. Prior to these three steps however, the literature of PBS related publications will be consulted in order to get a clearer understanding about the concept, its definition and benefits as well as limitations tied to its utilisation.

2. METHODOLOGY

2.1 Research Nature

This paper represents an exploratory study into the public procurement sector regarding the use of performance-based specifications. An exploratory approach is usually used when a subject is relatively new and little information about a problem, a situation and its underlying coherences exist. According to Babbie (2013; p. 90), it typically serves three purposes: (1) to satisfy a researcher’s curiosity and desire for better understanding, (2) to test the feasibility of undertaking a more extensive study, and (3) to develop the methods to be employed in any subsequent study. Exploratory studies seldom deliver clear answers to research questions; they usually only derive at hints and hypotheses. This drawback springs from the lack of representativeness in the empirical component and makes for the very nature of ‘exploration’ (p.91). Further, the paper will make use of the convenience sampling method for its empirical component, concerning the gathering of tender documents and interview partners. Convenience sampling is a sampling technique, where subjects are selected because of their convenient accessibility and proximity to the researcher. It is the least costly sampling approach in a qualitative study, in terms of time, effort and money (Marshall, 1996). Naturally, it

comes with several drawbacks including limited generalisability and representativeness of the entire population (Babbie, 2013).

2.2 Literature Review

The literature review section will provide a clear definition regarding PBS, as the terminology used in both the academic literature and the practical work environment can be rather vague and indistinct. Further relevant key concepts will be outlined to depict a general picture of PBS and its uses and benefits/drawbacks. For the search of literature the web engine Scopus will be consulted, as it covers a profound amount of scientific journals. Cues sought for in the title, abstract and keywords include 'performance-based procurement', 'performance-based specifications / contracting', 'outcomes-based specifications / contracting' and 'functional specifications'. To filter for relevant sources, the results are first assessed based on their full titles and subsequently based on their abstracts. The focus in the process lays on the most recent publications, to capture the newest insights connected to PBS. Additionally it will be built upon the extensive literature review conducted by Baynesagn Asfaw Ambaw (2015), author of the Ethiopian study. The literature review section will not be exhaustive by any means, but rather focus on two key elements (defining the concept and outlining its benefits and drawbacks) in order to provide this paper with the necessary understanding and coherence about PBS in a general nature and offer a contextual foundation.

2.3 Legal framework

In the first of three stages, the underlying framework conditions for PBS in Germany will be investigated, by examining the applicable procurement law regarding the use of PBS and factors encouraging or dismissing its application. These conditions set the scene and determine whether or not there is an appropriate legal environment underpinning the employment of PBS. Germany being a federal parliamentary republic with 16 states, each of which is possessing some degree of sovereignty, the public procurement law in each 'Bundesland' is somewhat different. The exploratory nature of this paper will consequently focus on one Bundesland in particular: Nordrhein-Westfalen (NRW). NRW is the unit of observation due to the geographical proximity facilitating the gathering of required documents and data. Helpful in this regard are specialised websites such as 'vergabe24.de', or the official public tendering portal of NRW 'vergabe.nrw.de', which offer access to the currently applicable regulations regarding public procurement. However not all of the procurement law is state specific. There are several overarching regulations on national, as well as European level. Concerning the latter, documents will be acquired from the official European Commission website 'ec.europa.eu' with special concern for recent and upcoming changes affecting the public procurement sector on the supranational level. For an efficient and timely examination of the documents, the search function proves important by utilising pertinent key words to identify relevant paragraphs.

2.4 Tender Documents

In the second stage, a step towards the answer of the research question as to what extent public entities in Germany are using PBS in their procurement process, will be made. More precisely, a sample of about 30 tender documents of various public organisations in NRW will be studied with relation to the type of specifications that are used. Once again only documents from public organisations in NRW are gathered. Naturally this limits the representativeness and generalisability with regards to Germany as a whole, but should give a first indication of how common PBS is in the country. The documents themselves are retrieved via the download function of the official tender

website of the state NRW (vergabe.nrw.de). The documents are selected in a convenience sampling manner from findings based on a search by cities in the vicinity, including regions around Bielefeld, Gütersloh, Paderborn and Münster. This is done with regards to possible interview follow-ups in the third stage. Further, in the process it is strived to come up with a broad profile about the specification practices of public organisations, meaning that tenders for both services and goods from a range of entities are collected, in order to guard against a biased sample comprised of many contracts from the same institution. To determine whether a tender uses PBS (and to what degree), it first has to be established what exactly PBS is defined as (see literature review section). Additionally, Baynesagn Asfaw Ambaw (2015) has developed 6 main criteria that constitute PBS, based on academic publications. These will among other things help as an indicator in the analysis of the tender documents.

2.5 Depth interviews

The third and final stage of the empirical component of this paper consists of depth interviews. Depth interviews are a qualitative research method often used in exploratory studies and involve "conducting intensive individual interviews with a small number of respondents to explore their perspectives on a particular idea, program, or situation" (Boyce & Neale, 2006; p.3). Depth interviews are used to enquire insights into a context and are said to provide more in-depth information as opposed to other methods like surveys. On the other side however they come with the obvious drawbacks of the results not being generalizable and the data collection and analysis being time intensive (p.3). To explore the situation of PBS in Germany, interviews are conducted with officials working in the public sector. They seek to explore underlying reasons for using or not using PBS, the associated benefits/drawbacks and factors influencing the level of its use (see subquestions). Possible interview partners are contacted via their email addresses and phone numbers, which were acquired from the 'contact' section in tenders published on the official platform, which was also used to gather the tender documents. The convenience sampling approach led to the selection of possible interview candidates of public institutions in geographical proximity, in order to make personal interviews viable within the limited given timeframe.

Prior to conducting the interviews, an interview protocol and interview guide are drafted, helping to pin down the approach and structure across the interviews and facilitating the process for both interviewer and interviewee. The protocol sets the general structure for the interviews, consisting of formalities like introduction and conclusion formulas and the approach to capturing the data (audiotape, notes). The interview guide then is designed "to help the interviewer focus on topics that are important to explore, maintain consistency across interviews with different respondents, and stay on track during the interview process" (Guion, Diehl & McDonald, 2011; p.2). It includes the main questions to be asked, providing a common theme in each interview and enabling a sense of comparability. Depth-interviews however are best conducted in a semi-structured manner. Only key questions should be planned out, which are rather open-ended than closed, offering freedom in the respondents' answers and thereby delivering valuable background information (p.1).

In particular, the interviews start out with an introduction about the purpose and goal of the study. Further, in the beginning a kind of baseline will be tried to establish, concerning a mutual similar understanding about PBS (including a concise definition). Subsequently the interview will optimally go more

into depth, investigating the perceived significance of PBS, its benefits and drawbacks as well as a future outlook on its application and status in the public procurement area. Moreover the most striking findings of the Ethiopian study will be brought up to see if there is some overlap in possible inhibitors to the use of PBS for instance. Along with the key questions, there are some contingencies in place for the instance that the respondent is unable to answer (e.g. most significant upsides/downsides of PBS as identified by academics). For the above listed reasons, it will be put emphasis on the use of open-ended questions in the course of the interview. The audiotaped transcripts are each afterwards analysed (see Analysis section).

3. LITERATURE REVIEW

3.1 Defining the Concept of Performance-based Specifications

The literature on performance-based specifications and related concepts is rich and so is its terminology. As Loulakis (2013) puts it, performance-based specifications are incorporated under the umbrella concept of “performance specifications” (p.7). PBS is however not only associated with the concept of performance, but is connected with the very similar and tightly linked concepts of ‘results’ and ‘outcomes’ (Roehrich, Glas, Selviaridis & Essig, 2014). PBS forms one of several kinds of possible specifications procurers can use in the description of their desired product or service. A definition by Turley et al. (2014; p.3) outlines the concept of PBS and its distinction to another very common type of specifications, namely the technical specification:

“Performance-based specifications (PBSs) in particular describe a desired performance level or performance target to be achieved, but do not make specific demands on how that level/target is reached. Instead of prescribing the need in terms of inputs, it is described in terms of *outputs*. PBSs are often described in contrast to technical specifications, which are formulated based on the detailed characteristics of goods, services or infrastructure being purchased, or describe exactly how a contractor must perform a service or develop a product”.

The keyword in this definition of PBS is the focus on ‘output’. In this regard the literature reveals many overlaps and synonymous uses. To illustrate this, the Department for Business, Innovation and Skills UK’s definition of ‘outcome (or output) based specifications’ is as follows:

“An Output (or Outcome) Based Specification (OBS) focuses on the desired outputs of a service in business terms, rather than a detailed technical specification of how the service is to be provided; this allows providers scope to propose innovative solutions that might not have occurred to the procurement team”.

Essentially the latter definition is congruent with the former one and points out the utilisation of essentially the same concepts under a different terminology. Moving one step further and not only specifying desired results in terms of performance requirements, but also tying at least some part of the suppliers’ payment to the achievement of these specific and measurable performance standards, brings us to the related concept of performance-based contracting (Principles and Practices of Public Procurement, 2012). Performance-based contracting (PBC) is a contracting method that basically incorporates PBS and connects it with a measurement and payment system, with its aim being to obtain better value, better performance and/or lower costs (p.3). Only paying for delivered results as the basis of PBC is not a new concept, but rather “an old customer wish” (Glas, Hofmann & Essig, 2013, p.5). An early example of PBC

is Rolls Royce’s ‘Power by the Hour’ business model, which was introduced in the 1980’s and required engine operators to compensate RR only for the time the engines were actually available for service (hours flown; Wharton University of Pennsylvania, 2007). Especially the defence sector, with the US Department of Defense being a pioneer as indicated in the introduction, is making use of performance-oriented contracting for quite some time (since 2001/2002), under the name of performance-based logistics (PBL). The essence of PBL is marked by a change in the definition of performance, “from detailed specified demand descriptions to result oriented performance objectives” and a movement towards long-term buyer-supplier relationships (Glas et al., 2013, p.5f), that can also be tracked in the private sector. Another equivalent to PBC is outcome-based contracting (OBC), which is “a contracting mechanism that allows the customer to pay only when the firm has delivered outcomes, rather than for merely activities and tasks” (Ng & Yip, 2009, p.1). While this is not quite applicable to the acquisition of consumer goods, the service domain is increasingly adopting OBC practices due to a range of benefits for both users and providers (Ng, Maull & Yip, 2009). Overall this realm of the literature is recently receiving increasing attention by academics and their publications (Asfaw Ambaw, 2015), pointing out its relevance in today’s (public) procurement context. Another variation in the terminology under which the principles of PBS can be found, is the term ‘functional specifications’. While functional specifications describe the requirements on a product/service in terms of needed functionalities (“what should the product do?”), they do not state “how” the need should be met. The desired performance characteristics are specified by the procurer, the design of the solution however is the purpose of potential suppliers (Edquist & Zabala-Iturriagoitia, 2012; Ministry of Infrastructure and the Environment NL, 2013). A third and final definition, which is provided for the sake of illustrating the conformity of several concepts under different names, incorporates the three aforementioned key words of ‘PBS’, ‘outcome’ and ‘functional’ into one concise definition:

“A performance-based, or functional (or “outcome”) specification is one which describes the function or performance to be achieved rather than specifying the exact product or service which will achieve this. In other words it focuses on your actual needs, and lets the market suggest the best way in which these needs may be met, without being technically prescriptive” (Clement, et al., 2009; p. 20).

For the context of this paper it is noteworthy, that specifications can oftentimes not be distinguished in a clear-cut manner. The most common types, technical and functional specifications, can rather be regarded as two (extreme) ends on a spectrum, where a practical application of specifications is usually composed of both types to a certain degree. In this regard, Turley (2013) outlines the notion of buying products (fleet of vehicles) towards buying functions (mobility functions), with intermediary steps like buying a fleet with warranty, leasing a fleet, or renting a fleet of vehicles by time. This forms a part of the prevalent trend of product-service systems, where products and services increasingly intertwine and are hard to distinguish. In anticipation of a later section analysing tender documents, for illustration purposes it will be made use of a graphical spectrum showing the degree to which technical (on the one end) or performance-based specifications (on the other end) are used (see Figure 1).

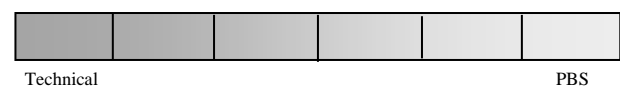


Figure 1: Specifications spectrum

3.2 Benefits and Limitations of PBS

The use of performance-based specifications in general and the utilisation of performance-based contracting in particular, is said to offer a range of benefits for the public procurement sector. One of the most cited upsides of using PBS is its capability of fostering innovation. In a lengthy brochure on “Impulses for Innovation in Public Procurement”, the German Ministry of Economy and Technology (BMWi, 2010) for instance points out, that functional specifications are useful in promoting innovative solutions and should thus be increasingly applied by public bodies, because too detailed specifications leave the supplier with too little freedom to offer novel products/services. Accordingly, not to over-specify is regarded as one guiding principle in a handbook published by the “Procurement of Innovation Platform” (n.d.). Verbatim it says, that over-specification can “kill” innovation and PBS and functional specification are one way of allowing for flexibility in the scope of proposed solutions (p.16). As a matter of fact, innovation in the public procurement realm is a hot topic. There are a range of government and EU supported platforms and initiatives in many of the EU member states (e.g. the German KOINNO, EU Procurement of Innovation Platform) seeking to encourage and push forward innovative and sustainable procurement, while acknowledging the capabilities of PBS in this regard (Steurer, Berger, Konrad & Martinuzzi, 2007). The employment of PBS in tenders is also labelled beneficial concerning the related topic of Sustainable Public Procurement (SPP), taking into account factors of sustainability and energy consumption levels (Ministry for Economy and Energy Germany, 2014). PBS can for instance be used to describe performance requirements on energy efficiency levels, CO₂ emissions, amount of packaging waste, or desired reduction/saving levels in this matter over the lifetime of a contract (e.g. reduce packaging waste by 20% over the course of three years). As Turley et al. (2014) summarise it: “PBSs are a practical tool for implementing and achieving SPP” (p.8). In their recent report on the use of PBS in the EU and USA, they list another major benefit of PBS, namely the forcing of a good needs analysis. In the course of developing PBS, the buyer is required to conduct an analysis of their concrete needs and underlying problems. “[...] a PBS-based tender may force the buyers to ask themselves what they really need—for example, do they actually need 100 computers or do they need an information management system for 70 to 100 users?” (p.8). Further, at the core of the employment of performance-based specifications and performance-based contracting is the nature of risk and its allocation (Gruneberg, Hughes & Ancell, 2007). By stating the specifications in terms of outcome or performance targets and being less detailed on technical specifications and inputs, the contractor is obligated to plan and conceptualise a possible solution. The risk and also the responsibility are thereby shifted from the buyer to the supplier, naturally benefitting the former party. “[...] the government doesn’t assume all of the risk—in fact, the contractor can be held *fully* accountable for its ability to achieve required outcomes” (Romeo, 2014). This transfer of risk and responsibility is further amplified under performance-based contracting, when the contractor only receives compensation upon meeting the specified performance levels.

On the flipside however, in order for PBS and PBC to work, there are several challenges to consider, which include the definition of outcomes/performance targets, its measurement and the pricing structure. It is not only legally prescribed (see next section), but more importantly practically required to clearly define the desired outcomes and performance levels by the procuring entity. There needs to be a balance between the

specificity and detail about the actual outcomes for the supplier to comprehend the imposed requirements, and the degree of autonomy given in the space of the solution, to avoid unnecessary constraints. Next to that, an appropriate measurement system with relevant key metrics needs to be in place. With the absence of clearly set metrics, there can be no measurement of outcomes, no management of performance and ultimately no proper remuneration on the performance basis. (North & Keane, 2014) Overall, the process of transforming needs, problems and challenges into functional requirements “requires highly developed competences on the part of the procuring organization” (Edquist & Zabala-Iturriagoitia, 2012; p.23). Consequently trained public procurers are essential in making use of PBS. Being listed as major barriers to PBL implementation are among others the lack of relevant metrics, or unenforceable metrics and the inadequate data collection and interpretation for performance monitoring (Beggs, Kime & Jones, 2007). In this regard Ekström (2012; as read in Roehrich et al., 2014) speaks about a “definition problem” (what to measure) and a “measurement problem” (when, where and how to measure). Accordingly it can be quite burdensome for public procurers to establish a monitoring system for PBC, but it is essentially relied upon, along with clearly defined goals and rewards aligned with the achievement of these goals (Romeo, 2014). Turley et al. (2014) suggest a monitoring system containing periodic reviews to assess performance against benchmarks and set targets. Additionally helpful can prove the employment of a third party organisation in this regard, by either regularly or spontaneously conducting performance assessments. Finally it has to be admitted that while PBS is regarded as very beneficial concerning the fostering of innovation, it is only one of many tools currently being promoted by governments in the public procurement sector. Other tools and possibilities to encourage innovation and sustainability include the employment of life-cycle cost calculations, the permission of variant bids, flexible procedures (such as competitive dialogue) and innovation partnerships (BMWi, 2014).

4. ANALYSIS

4.1 Legal Framework

4.1.1 EU Procurement Regulations and Directives

Providing a binding legal framework for public procurement in the participating countries, is the Government Procurement Agreement (GPA) from 1994, which was established by the World Trade Organisation. The EU as one of 15 parties is subject to the GPA and its standards are directly influencing the European procurement law. The GPA sets principles such as non-discrimination, transparency and fairness during the tendering procedure; a revised version was adopted in 2012 and entered into force in 2014. The text has been modernised to include standards related to the use of electronic procurement tools, the prevention of corrupt practices and the increased scope of environmental protection and the conservation of natural resources by means of appropriate technical specifications (WTO, 2014). Concerning the use of PBS the GPA states under Article X / 2: “In prescribing the technical specifications for the goods or services being procured, a procuring entity shall, where appropriate: (a) set out the technical specification in terms of performance and functional requirements, rather than design or descriptive characteristics”. The GPA thus proposes the utilisation of PBS over prescriptive technical specifications, although only where the responsible procurers see due.

The currently applicable regulations for the public procurement apparatus imposed by the European Parliament and the Council

(2004) then consist of two main directives: Directive 2004/17/EC, coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors, and Directive 2004/18/EC, coordinating the procedures for the award of public works contracts, public supply contracts and public service contracts. Regarding the use of performance-based and functional specifications, both Directives allow the use of specifications in terms of technical specifications with reference to European standards under Article 34 / 3 (a) and Article 23 / 3 (a) respectively, “(b) or in terms of performance or functional requirements; the latter may include environmental characteristics. However, such parameters must be sufficiently precise to allow tenderers to determine the subject-matter of the contract and to allow contracting entities to award the contract”. It is further permitted to use a combination of both types of specifications ((c), (d)). Importantly, it has to be paid attention that contracts must be awarded on the basis of objective criteria in compliance with the principles of transparency, non-discrimination and equal treatment. This means that specifications need to be as clear as possible in a way to allow tenderers to understand the requirements in a similar way and thus provide comparable and assessable bids in the name of open competition. In 2014 the European Parliament and the Council adopted three new Directives: the Directive 2014/24/EU (replacing 2004/18/EC), Directive 2014/25/EU (replacing 2004/17/EC) as well as the new Directive 2014/23/EU on the award of concession contracts. The EU member states have 2 years to implement the regulations into their national law. The changes aim at an adjustment of the procurement regulation to the requirements of the growing internal market in the EU. The tendering procedure shall be increasingly unified across the EU member states and be more efficient, easier and more flexible in general. Next to that a focal point is the increased consideration of social, ecological and innovative aspects as strategic targets of the public procurement sector (German Federal Cabinet, 2015). Notably, Article 42 (Technical Specifications) of Directive 2014/24/EU has been subject to some changes. These include the explicit possibility to use specifications referring to any stage of a work’s, service’s or supply’s life cycle. Also, the use of specifications in terms of functional and performance requirements is now listed under 3 (a) of Article 42, before the use of technical specifications. This represents at least a formal upgrade in the assigned value of PBS and environmental requirements. The definition of ‘technical specifications’ in Annex VII was subject to additions, too, reflecting the current notion of innovative and ecological thinking. Specifications can require not only environmental-, but also climate performance characteristics. The possibility to impose requirements to any stage of the life cycle is also incorporated in the updated definitions.

4.1.2 Procurement Law of Germany

The legal framework governing the public procurement sector in Germany can be split into two large areas, depending on the estimated contract value. Above and below by the EU determined threshold levels, the applicable procurement regulations vary.

Above the threshold, the general regulations include the EU policies and on national level Part IV of the Act against Restraints of Competition (Gesetz gegen Wettbewerbsbeschränkung, GWB) and the Regulation on the Award of Public Contracts (Vergabeverordnung, VgV). The GWB is based on the EU regulations and establishes principles such as non-discrimination, equal treatment and transparency and general tenets about public contracts and its procedures. The VgV incorporates details about threshold values and

references to the specific legal documents pinning down the detailed regulations. Additionally it states that in the procurement process of public vehicles and technical equipment/products (with relevant energy consumption levels), it has to be inquired about the concrete consumption levels and scoring weights should be ‘adequately’ assigned to energy efficiency. The details of the separate procurement procedures can be found in 2nd Sections of the VOB/A, for public construction works (Vergabe- und Vertragsordnung für Bauleistungen); the VOL/A, for public supplies and services (Vergabe- und Vertragsordnung für Leistungen); and the VOF, for professional services (Vergabeordnung für freiberufliche Dienstleistungen). As expected, the Article 8EG of Section 2 (VOL/A) describes the use of specifications in the same way as the EU Directive, namely either in technical terms, “or in terms of performance or functional requirements, which must be specified with adequate precision to convey a clear picture of the contract subject-matter and enable the contracting authorities to award the contract” ((2)/2.), or as a combination of both. If contracting authorities put down environmental features in terms of functional and performance requirements, they can refer to European and multinational eco-labels. Concerning public construction works under Section 2 of VOB/A, it is possible to leave the execution of works to the supplier and thus promote a concept competition largely based on functional and performance requirements, if it is regarded as appropriate by the procuring entity (Section 2, §7, (13)). For contracts in the water, energy and transport sector, there is a separate Sector Regulation (Sektorenverordnung, SektVO), as well as the Procurement Regulation on Defence and Security (Vergabeverordnung Verteidigung und Sicherheit, VSVgV). These two regulations do not show any deviations from the allowances for functional and performance specification deriving from the EU Directives.

Below the threshold, only the first sections of VOL/A and VOB/A along with the relevant budget law of the federal, state and local governments are to be considered. Additionally however, the state specific public procurement laws need to be taken into account. Almost all of the 16 federal states currently have their own procurement laws (Practical Law, 2014). The recent changes in the EU Directives will be implemented one-to-one into the German law until 2016. The German Federal Cabinet (2015) wants to use the changes to bring forward a modern and user-friendly law, and generally reform the, to date, complex structure of the German legal procurement system. Central guidelines in the reform include for instance easier, faster and more flexible processes, the strengthening of social, ecological and innovative aspects, a minimum of bureaucratic effort and the unity of tendering and award procedures across Germany and Europe. The changes initially largely only affect procedures above the threshold (p.4).

4.1.3 State-specific Law of Nordrhein-Westfalen

Next to the aforementioned regulations concerning public services, products and construction works (VOL/A & VOB/A), the Federal State of Nordrhein-Westfalen employs the state-specific “Tariftreue- und Vergabegesetz Nordrhein-Westfalen” (TVgG), which all public entities in the state are subject to (with some exceptions). It was introduced in 2012 and anchored several sustainability aspects. An additional act introduced in 2013 built up on these aspects and concretized them (RVO TVgG). These consist of regulations for energy efficiency and environmental protection, the advancement of women, the compatibility of job and family and minimum wages. In a pre-qualification phase of the tendering process, suppliers have to agree to and meet certain standards regarding these topics, in order to be qualified as a potential supplier (e.g. declaration

about conformity with ILO labour standards). Regarding the use of performance-based or functional specifications, the TVgG does not make any additional statements. It however repeats the explicit use of performance- and functional requirements regarding environmental protection and energy efficiency in the specifications (§17, (4)).

The relevant regulation concerning specifications in NRW then springs from the first sections of VOL/A and VOL/B. First and foremost, “the contractual performance must be described clearly and exhaustively, so that all candidates must understand the description in the same way and comparable tenders can be expected (contractual specifications)” (§7, (1)). Next to that, the contractual performance or parts of it must be described “employing customary designations as to type, quality and scope” ((2)), or “by purpose, function and other requirements it must meet” (a), “by means of its essential features and constructional details” (b)), or by a combination of the above types. While the 1st Section of the VOL/A uses a different wording and less detail regarding performance-based and functional specifications (as opposed to the 2nd Section applicable for contracts above the threshold), an employment of

these types of specifications can still be regarded as viable. Remarkably, the regularities defining the use of specifications for construction works under VOB/A 1st Section (§7) and the 2nd Section (§7EG) are identical.

What can be generally observed, is that on all three levels, the European, the German and the Federal State, PBS and functional specifications are technically allowed from a legal perspective. The next section now will explore in how far these types of specifications are actually employed by practitioners with the help of acquired tender documents.

4.2 Tender Documents

For the assessment to which degree public organisations use PBS in their tendering process, 28 tender documents of public bodies in NRW were acquired. In order to examine a general profile, various types of organisations and tenders (works, services, products) constitute the sample (see Table 1).

No.	Procuring entity	Procurement type		
		Works	Services	Goods
1	City of Borken	•		
2	City of Bielefeld			•
3	City of Detmold			•
4	City of Dortmund		• • •	
5	City of Düsseldorf			•
6	City of Hagen		•	
7	City of Heiligenhaus		•	
8	City of Kamen		•	•
9	City of Münster	•		
10	City of Sundern	•		
11	District of Coesfeld			•
12	District of Hochsauerlandkreis	•		
13	District of Soest			•
14	Fachhochschule Bielefeld		•	•
15	Handelskammer Bielefeld			•
16	Landesbetrieb Holz und Wald	•		
17	Ministry for Family NRW		•	
18	NRW Bank			• •
19	Police NRW			•
20	Technical University Dortmund		•	•
21	University of Bielefeld		•	
22	University of Cologne			•
Total		5 (17,9%)	10 (35,7%)	13 (46,4%)

Table 1: Composition of tender document sample

Due to the documents being diverse in nature, they were individually analysed regarding the use of PBS. Thereby it was focused on elements concerning desired outputs (rather than inputs), requirements on the functionality and performance of products / construction works / services and the degree to which technical and prescriptive types of specifications were employed. The blurring of clear borders between products and services also holds true for parts of the sample at hand, with products being procured in connection with services such as maintenance. The overwhelming part (good or service) was regarded as the deciding criteria in splitting the documents and assigning them to one category. Similarly, technical specifications on the one hand and PBS on the other hand form two opposing ends of a spectrum in the theory, while practically most specifications consist of both types to a certain degree and smoothly blend into each other. The main findings and distinctive features of the tender documents are outlined in the following.

Regarding the sample as a whole it becomes evident, that largely the specifications are based on detailed technical descriptions. However, almost all documents also consist to a certain extent of functional and performance requirements the service, product or work should fulfil. For the works category (n=5) in particular, technical prescriptions seem to be especially prevalent. The principal entity is very clear in the activities to be done, and the required quantities and dimensions. As an example, for road works the City S. describes in detail the requirements on a fence used to highlight and separate the road construction site, including the colour, material and size. Occasionally, specifications are less prescriptive and leave some room to the contractor regarding the planning phase and as to how to specifically go through with an activity (e.g. build and install rails according to given local conditions). The nature of the tender document sample according to VOL/B is conceptually illustrated in Figure 1 and should only be understood as an indicator.



Figure 2: Specifications of construction works (n=5)

Examining the tenders falling into the category of services under VOL/A (n=10), one can see that functional and performance-based specifications form a marginally bigger part as compared to construction works, however can only be considered to be in ‘full-effect’ in one instance (Figure 2). In this instance, the University of B. seeks a concept for services concerned with the analysis, illustration and intellectual transfer of results deriving from a running project about ‘connected-living’. The principle thereby sets only several overarching requirements on the service and its desired functional and performance characteristics. This leaves the tenderer with a lot of freedom and the potential to offer the most creative and innovative ideas. The majority of the documents however is comprised of very detailed specifications. Exemplary, in a tender of City H. a waste disposal service is sought. While this could present an opportunity to employ PBS, City H. prescribes the service exhaustively, as to when, where and especially how exactly the waste is to be collected. Nonetheless, some performance and functional specifications can be found in the other documents, which mostly describe requirements on the services’ quality-levels, or leave space in the activities’ execution.



Figure 3: Specifications of services (n=10)

The category of goods (n=13) then depicts a rather mixed picture along the spectrum (Figure 3). While three of the tenders can be regarded as using PBS, many others combine technical details with requirements on functionalities such as in the procurement of emergency vehicles and its emission levels, or an audio converter being able to convert digital to analogue signals. Yet again some very prescriptive specifications can be found, leaving little room for interpretation on the contractor’s part. One of the tenders employing PBS is the Federal Bank N; subject to procure is 100% green electricity. The principle in this case only offers a definition of what green electricity and renewable energy is understood as and then gives estimates about the necessary amounts. Over the length of the contract, the contractor is then required to reduce CO₂ emission levels based on the total of delivered power. Another example is the acquisition of a motor pool management system for the Police, where the system is specified in terms of the performance it has to deliver and the activities it has to be capable of. For instance, the system should be ‘easily accessible’ and ‘self-explanatory’ in order to keep the level of required instructions as low as possible.

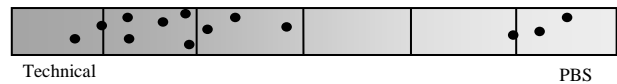


Figure 4: Specifications of goods (n=13)

4.3 Depth Interviews

4.3.1 City of B.

The first interview was conducted with an official of City B., who is responsible for tenders falling under VOL/A corresponding to the acquisition of goods and services; City B. has over 300.000 inhabitants. First of all, the respondent was aware of the possibility to use performance-based type of specifications. After having established a baseline about the subject at hand, it was initially stated that specifications in terms of performance or functional requirements are *not* used in the official’s line of work. The tenders she is responsible for are usually made up of very technical and detailed descriptions, which are oftentimes “very extensive and elaborate” in their nature, containing exact dimensions, allowable deviations and norms for instance. It was said that there is no usefulness of utilising PBS in the tendering for certain products (e.g. copying paper). Further it was indicated that colleagues in the realm of construction works do not make use of PBS either, although this area is regarded as more fruitful for the possible use of PBS in her perception. In an exemplary tender of washing machines, it was revealed that regarding sustainability issues there are requirements on energy efficiency and emission levels (as prescribed by the TVgG law). Also requirements on the lifespan of products are incorporated in the specification and while it was stated that no PBS is practiced by the official, these can be regarded as elements of functional requirements, which also became clear during the analysis of a tender document of City B. This tender was said to be rather uncommon, because it partially involved performance specifications. So as a matter of fact a usage of PBS by City B. cannot be completely ruled out despite a differing perception by the official. Upon being asked about possible reasons for not using PBS (lack of knowledge, lack of capacities etc.), it was once again mentioned that there is no benefit in using these types of specifications for most of the

procurement projects at hand (e.g. office supplies). Additionally, employing PBS is believed to leave too many variables open in the solution space, leading to many very different bids and can thus be identified as a reason for the low PBS application. This might indicate the need for more information on benefits and consulting on the proper use by government initiatives in this regard.

4.3.2 City of H.

The following interview was conducted at the City H. (over 60.000 inhabitants). The interviewee is working with projects of goods, services, construction works and professional services and knows about PBS and its implications. Generally speaking City H. is using PBS “seldom” and then it is mostly used with bigger projects of large contractual values (e.g. a clinic for children). Additionally the interviewee perceived functional specifications to be used more often in projects in the construction sector (VOB/A), as for services there are usually very concrete ideas and requirements, which would leave PBS with little value. Overall the utilisation of PBS is considered “useful, but not in all sectors”. This may again present a need for more educational work and the illustration of positive examples across all areas to employees in the public procurement sector. On the other hand the interviewee made first-hand experience of the benefits of function specifications, when his department saved about 100.000€ on a roof construction as part of a new sports hall and that was specified in these terms. Next to that it was acknowledged, that by using functional specifications the procuring entity can benefit from the expertise of specialised architects (as opposed to in-house architects for example) and profit from not only superior quality solutions but also more economical solutions, along with the fostering of innovative and sustainable aspects. As influential factors regarding the use of PBS were named legislation, internal regulations and especially the type of project. Procurement projects concerning already existing buildings for instance are said to offer less ground for an application of PBS. Asked about possible barriers or obstacles to a more frequent use of these specifications, it was stated that capacity problems might play a role, because the proper use of PBS is believed to be more “complex and time-consuming”.

4.3.3 District S.

In this interview an employee in the central contracting authority of the District S. responsible for all areas (VOL, VOB and VOF) was asked about functional and performance-based specifications. District S. has over 400.000 inhabitants. Important to note is that the interviewee’s department itself is not responsible for the creation of the specifications, but the respective demanding department is. In her experience, while being aware of the concept of PBS there are generally *no* tenders using functional specifications to its fullest. Rather, the specifications are very “detailed and prescriptive” in its nature. The use of PBS then is said to be dependent on the type of object the particular department wants to procure. As a likely barrier to an increased employment of PBS was named the perception of “high risk” tied to it. Departments want to be sure to receive exactly what they have in mind, so they describe their wishes exhaustively. Further the requesting entity wants to stay “in control” of its own project. Upon mentioning the most striking benefits of PBS based on the body of literature (such as higher quality, lower costs and innovative solutions), the interviewee stated that “fundamentally this might be true” but predominantly voiced scepticism regarding the use, as she then believes the supplier to be pursuing his own best interest by promoting his specific product.

4.3.4 Municipal Habitation M.

The Municipal Habitation enterprise consists of two main branches and is tasked with the construction of several types of properties (flats, daycare centres, refugee homes etc.) and the property management (such as letting and modernisation and renovation activities) for the City of M. with about 300.000 inhabitants. In the area of property management PBS and functional specifications are used rather rarely, because “besides offering benefits, they come with several drawbacks”. For the branch of constructions these types of specifications are generally used more frequently, but still only form a smaller part. One of the reasons being because in the construction sector by making use of PBS, the supplier is left with a lot of room for interpretation and thus there is quite often the need for supplements, as stated by the interviewee. Mentioned as influencers for the frequency of PBS application have been “internal regulations and experience values”. Asked about perceived benefits/drawbacks, lower required effort on part of the principle in the specification stage and the space for interpretation and resulting risks and unknowns about used materials were named. Further functional specifications are regarded as saving capacities, on the other hand however actual costs oftentimes exceed planned costs due to necessary supplements deriving from broad specifications. As a possible obstacle to more frequent use of PBS, a lack of training/education in this regard could be neglected; it is more a “matter of internal regulations”. It was further emphasised that PBS has more of a pragmatic foundation in the area of new constructions rather than in the course of modernisation activities and existing buildings, because of “too many eventualities” that could be encountered (such as the discovery of asbestos pipes during the redevelopment of a 1970s house), which are hard to grasp by employing functional specifications. About possible future changes, the interviewee stated that regarding the use of PBS there are no changes to be expected in the near term as currently “drawbacks outweigh benefits”.

5. DISCUSSION

The goal of this paper was to explore the current level of usage of performance-based specifications in the public procurement sector of Germany, based on findings from the Federal State of NRW. In order to do so a three-stage research approach was chosen, moving a level deeper on each step and analysing: (1) the legal framework conditions permitting/prohibiting the use of PBS, (2) tender documents of public authorities indicating the extent of usage and (3) depth interviews exploring underlying reasons.

The analysis of the applicable public procurement law in Europe, Germany and NRW in particular revealed that performance-based and functional types of specifications are permitted by the governments. It is safe to say that Germany is surrounded by a clear legal framework in this regard. As outlined above there are several initiatives, not only in Europe but also in Germany in particular (KOINNO), which acknowledge PBS and its usefulness in promoting hot-topic aspects such as innovation and sustainability. From this (legal) perspective there are ultimately no barriers to be recognised for the public entities in using PBS in the tendering process.

In the second stage of analysing tender documents and examining the nature of specifications used, whether having more characteristics of a technically detailed and prescriptive description, or being less prescriptive, more open and describing desired functional requirements and performance targets, a suggestion about the actual spread of such practices in Germany was sought. What became evident is, that in the present sample PBS is of less significance than one might

expect, given the benefits at hand and the general direction the EU and Germany are taking. Next to more innovative solutions, PBS can primarily lead to more economical solutions. However, most of the analysed tender documents are still rather prescriptive in its specifications. Especially the findings for the services are surprising, due to the many successful examples proposed by the literature of services being tendered by means of PBS, which conveyed a perception of services being very susceptible to this type of specifications. Whereas most tenders use functional specifications at least to some degree, or offer some freedom in the specific activities to be conducted, only about a handful can be considered to be using PBS extensively. Between the categories of services, goods and construction works not too striking differences were found. As expected, the construction works tenders are the most prescriptive and services and products offer more of a mixed approach. For the latter group, the most characteristics of functional and performance-based specifications were found.

The third stage seeking to shed light on underlying reasons for the frequency of PBS in the public sector delivered several insights. First of all, the relatively small degree of PBS in tenders was also confirmed during the interviews. Interestingly, while some respondents stated they make absolutely no use of PBS they ultimately used some elements of it in their tenders. This is comprehensible against the background of specifications being mixed on a spectrum, but largely being technical and prescriptive in the sample. Secondly, the practice of PBS seems to be dependent on the type of project at hand. While employing PBS in the construction of new buildings appears more reasonable, its application in projects concerned with the supply of office materials is said to be less relevant. Thirdly, the interviewees perceived drawbacks to be exceeding benefits regarding PBS, which can be named as one of the reasons for its cautious employment. Additionally, by making use of functional specifications, the procurers fear high-risks and giving up control driving from the freedom the supplier is provided with in delivering a solution. By properly setting performance targets, defining milestones or moving a step further and tie remuneration to these goals (PBC), this can be guarded against. In fact there were contradictory statements concerning the required effort in using PBS. While one respondent stated capacity problems could be encountered because of the higher complexity in the specification setting stage, another one perceived the use of requiring lower effort as opposed to highly technical descriptions. In this regard Turley et al. (2014) mention PBS to be much easier to draft, however they warn about a possible misconception: under PBS, much of the public sectors work might be shifted from the specification writing stage to the evaluation and monitoring stage, when being tied to performance-based contracting. Also possibly being of influence and in more general terms, is the status quo of the public procurement sector in Germany. A publication by the BME (2015) labels the public sector as largely operational in nature, with little concern for strategic objectives. Further there are only loose structures prevalent and a lack of steering can be made out, what finally funnels down to the call for an increased development of subject-specific competences for public procurers. This somehow reveals that 10 years later, Germany is lagging behind its label as a nation with a public procurement body progressively taking into account strategic and innovative practices (Edler et al., 2005).

6. COMPARISON

In the Ethiopian study of performance-based contracting, Asfaw Ambaw found that the country has a very low practice level of PBC. In his interviews with public officials, it surfaced this might be due to the lack of a clear legal framework. While the

use of performance specifications is having priority over descriptive type of specifications, there are no elements of PBC to be found in the Ministry of Finance and Economic Development Directive and no guidelines on how to practically implement it into the procurement process are found. Consequently many officials did not know of, or were fully aware of the PBC concept and its related benefits. In this context Asfaw Ambaw hints towards the lack of adequate training on part of the government regarding PBC, which partly seems to hold true for Germany as well. Further, deriving from a lack of incentives and a low salary rate, skilled procurers leave the public realm and join private organisations which leaves the sector with capacity problems. Capacity problems were also stated by one German interview partner to be a possible inhibitor to the more frequent use of PBS. On the other hand, one of the biggest differences in the findings is, that while for Germany the procurement projects in the works category were found to be the most prescriptive, the few instances of PBS usage in the Ethiopian sample were exclusively encountered in the works sector (Ethiopian Roads Authority). This possibly hints to a significantly different approach of the countries towards the specification setting in this category. While overall there seems to be some overlap in inhibiting factors and grievances in the public procurement sectors of the two countries, one has to be careful to make overall conclusion as there are very different environmental factors surrounding Ethiopia and Germany.

7. CONCLUSION

The impression that prevails after the analysis is, that while some of the potential of PBS is known about by practitioners, the larger part of possible benefits seems to be neglected or not known of. Its rare use is largely determined by the imbalance between perceived benefits and drawbacks. Further, officials are on a different level of knowledge regarding PBS, or have a different standpoint towards it, which is reflected by the varied answers in the interviews. Deriving from this might be a call for more initiatives by the government to educate on this topic in forms of workshops and best-practice examples. On the flipside, for PBS these findings could outline its limited value in the practical environment. While the literature is largely proposing its use due to various benefits, the limited extent of its application suggests a gap between theory and practice. Finally it has to be said that PBS can situationally be a superior tool, it is however one of several at the public procurers' disposal.

8. LIMITATIONS & FURTHER RESEARCH

As already indicated this paper is subject to several limitations, including limited representativeness, generalisability and consequently less meaningful inferences from the sample to the whole population. These largely derive from the exploratory research approach at hand which was chosen due to limited resources in terms of available time and the convenience sampling approach. One has to be very careful as to generalise the findings at hand in the light of the small sample size and restriction to only one of the 16 Federal States of Germany. Possibly the inclusion of other Federal States can lead to different results. For future studies, a larger sample size across Germany would be ideal, along with public entities of different dimension (e.g. Department of Defense). Also regarding the use of PBS, examining the perspective of suppliers on this issue could prove worthwhile. Next to that, other European countries like the UK or the Netherlands would be interesting to examine on this topic.

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