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RESEARCH ARTICLE

Shaping a buyer's software selection process through tendering legislation

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Abstract

Tendering legislation aims to enhance competitiveness by promoting equality, proportionality, transparency, and non-discrimination. Such legislation applies to the procurement of software packages by public institutions in many countries. This study explores how tendering legislation shapes a buyer's software selection process through the lens of competing decision-making rationalities. From the literature, 3 rationalities enacted in software selection are deduced that we relate to the software selection literature regarding tendering legislation. Through this lens, we subsequently examine how a large health care provider selected a supplier for an electronic health record system after an extensive tendering process. Many health care professionals within this organization were in favour of a particular software package. Yet, the organization purchased a different package from a relatively unknown supplier, the implementation of which failed. The actors involved experienced shaping on 5 decision-making themes, the implications of which are evaluated against the functional, economic, and political rationality norms derived from the literature. The findings suggest that compliance with tendering legislation over the public procurement of software results in increased legal complexity, greater linearity and objectivity, more extensive formalization, and less relational communication. Functional norms of rationality are stressed, seemingly to balance the enforced economic norms of rationality and to compensate for the decreased room for political rationality. Even so, the shaping by the tendering legislation threatens functional rationality. Ultimately functional and economic norms of rationality win over political rationality, yet the latter still dribbles through, albeit in a different guise than reported for software selection in general.

KEYWORDS

decision-making process, public procurement, software selection, tendering legislation

1 | INTRODUCTION

In recent years, the use of packaged software solutions has expanded at the expense of custom-made systems (Holland & Light, 1999). Organizations increasingly rely on off-the-shelf systems and so the identification of the “most appropriate” software product becomes important. Many prescriptive selection approaches have been devised to enhance this decision-making process (Şen, Baracli, & Şen, 2009), which in the literature seems to be evaluated against different norms of rationality (Thompson, 1967), ie, functional, economic, and political (Pollock & Williams, 2007). According to functional rationality, a software package should be selected when it best meets the formulated requirements. According to economic rationality, the costs of selection, acquisition, and maintenance should prevail whereas, according to political rationality, acceptability to the important stakeholders forms the key selection criterion (Howcroft & Light, 2010). How the decision making that leads to software selection evolves in practice has received less scholarly attention (Boonstra, 2003; Keil & Tiwana, 2006; Moe, 2014; Schiessl & Duda, 2007) despite developing knowledge on selection practices being relevant for both managers and researchers since these are “decisions beset with uncertainties and tensions” (Pollock & Williams, 2007, p. 131).

Within the European Union (EU), and other developed countries like Australia, Japan, and the United States, public organizations face a major complicating factor in their software selection in the form of tendering legislation (Rapczak, Sagi, Tóth, & Kétszeri, 2000; Watt, Kayis, & Willey, 2009). For large software acquisitions, public bodies have to comply with specified procurement procedures. Tendering legislation goals are to ensure equal treatment of software suppliers, transparency in the selection process, proportionality in the requirements, and non-discrimination on the basis of the national background of suppliers (Moe, 2014). This obligation may not equally afford enactment of the decision-making rationalities at play in software selection. However, research has paid little attention to the process of public software procurement other than snapshot studies of specific tasks within these strategic processes as Moe's review shows (Moe, 2014). In this vacuum, opposing views on public procurement are developing. Some authors suggest that buyers can still easily manipulate the selection process to give the order to a preferred supplier (Falagario, Sciancaleopore, Costantino, & Pietroforte, 2012; Palguta & Pertold, 2014). This view implies that tendering legislation is hardly effective in controlling public procurement. Opposing this view, others, including the European Union (2014), insist that tender legislation gives suppliers equal chances and facilitates buyers in acquiring software that meets their requirements at the lowest price. We do not take an initial stance in this debate but seek to examine the role of tendering in a specific software selection process. We focus on European tendering legislation since the focal organization was obliged to meet the requirements of this legal system.

As such, the aim of this research is to empirically explore how tendering legislation shapes a buyer's software selection process by answering the following research question: How is tendering legislation experienced to shape the room to enact competing norms of rationality in the decision making on software selection? By answering this question through the lens of decision-making rationalities, we provide a novel account of an empirical phenomenon (Agerfalk, 2014) and critically question assumptions about how tendering legislation affects software selection. We were especially interested in uncovering how this is experienced by actors involved in the decision-making process. To that end, we examine the software selection process by a large public health services organization for an electronic health record (EHR) system. Most of the powerful medical staff was in favour of a particular software package but, after an extensive tendering process, the organization, somewhat surprisingly, purchased a different package from a relatively unknown supplier. The analysis unravels this process by focusing on the experiences of the actors involved and the implications for the affordance of functional, economic, and political norms of rationality in this tendered software procurement process. This research can be categorized as the “problematization of an empirical terrain,” which is software selection under tender legislation (Sandberg & Alvesson, 2011).

This study's primary theoretical contribution lies in its specification of the possible implications of tendering legislation for how competing rationalities are enacted in software selection as a strategic decision-making process. The tendering legislation's shaping of the selection of software, as compared to other products, is especially relevant given software's potentially complex service component, an aspect that often involves some degree of co-creation

between supplier and buyer. A distinctive quality of a software package is its inherent flexibility in that it has to be more fully integrated into the work environment than other purchases such as office equipment and coffee machines. Consequently, specifying requirements before the tender announcement and then comparing competing software packages has been found to be a major challenge in software procurement under tendering legislation (Moe, 2014; Moe, Newman, & Sein, 2017). A secondary contribution of this study is the systematic specification of decision-making rationalities in the software selection literature. A review of the software literature resulted in 3 competing norms of rationality with different underlying philosophical assumptions, foci of decision making, and evaluation norms. These 3 rationalities proved to be a useful lens for evaluating software selection processes, in this study, under tendering legislation.

This study's practical value lies in promoting awareness among decision makers of how tendering legislation can shape software selection processes and what this implies for their room to direct the process towards the organization's goals, which may also be social in nature instead of only economic (Moe, 2014). Moreover, these findings could stimulate policymakers to debate the efficacy, efficiency, and effectiveness of the current tendering legislation in terms of possible restrictions of what they would regard as rational decision making. This study suggests that adapted forms of tendering legislation can address unintended side effects.

In the next section, we deduce 3 competing decision-making rationalities from the software selection literature that serve as the sensitizing lens for this study. Then, in Section 3.1, we review the literature on software selection related to tendering legislation in terms of these distinct rationalities. In Section 3.2, we explain the requirements for software selection under European tendering legislation, the legal system the health services organization studied had to comply with. The research method is presented in Section 4, after which we describe the studied EHR system selection process in Section 5. Section 6 reveals how the tendering legislation was experienced to shape 5 decision-making themes, having implications for the affordance of functional, economic, and political norms of rationality. Finally, in Section 7, we reflect on the findings and discuss theoretical and practical implications.

2 | THREE DECISION-MAKING RATIONALITIES IN SOFTWARE SELECTION

In this section, we explain how we understand the views expressed in the literature on methods for and practices of software selection to reflect 1 or more of the following 3 rationalities: functional, economic, and political. Table 1 shows our literature-based summary of each rationality's underlying philosophical assumption about the nature of software selection, the focus of the involved decision-making process, and the norms used to evaluate those processes. These rationalities are not mutually exclusive and, depending on the situation, may be contradictory or complementary to one another. These deduced decision-making rationalities are subsequently used to analyse how tendering legislation may shape software selection, first theoretically in Section 3 and then based on our empirical analysis in Section 6.

2.1 | Functional rationality of software selection

In the traditional literature adopting a functional rationality, the selection process is perceived as formal and linear. It is assumed that the selection will lead to the best technology fit for the organization (Howcroft & Light, 2010), and therefore, functional and technical requirements prevail. It is assumed that all the necessary information about the buyer's requirements and the software's properties is available (Pollock & Williams, 2007). Studies within the functional tradition (eg, Butler, 1991) propose prescriptive procedures to reach a best fit between the organization and the packaged software through a selection and implementation process that involves the following activities: (1) understanding the organizational requirements; (2) identifying and evaluating available packages against those requirements; (3) selecting, contracting, and acquiring the package; and (4) customizing the software solution. In the review of 43 software selection approaches by Şen et al (2009), functional rationality was dominant (with more than

TABLE 1 The 3 rationalities and their norms for evaluating a software selection process

	Functional Rationality	Economic Rationality	Political Rationality
Underlying philosophical assumption	One best software package can be selected by a functional logic of comparing user requirements against available software packages.	The most optimal software package can be selected by a quantitative logic of weighing costs and benefits of eligible software packages.	The most acceptable software package can be selected by a political logic of negotiation among identified stakeholders.
Focus of decision-making process	Eligible software packages are technically compared and ranked based on a set of explicated criteria of functionality for the user organization	Eligible software packages are compared and ranked to select the economically most advantageous offer in the most cost-effective way	Eligible software packages are implicitly or explicitly ranked by the stakeholders using their power in negotiation processes to select the software package that best suits their interests.
Evaluation norms	Appropriate user requirements to achieve the best technology fit	Costs of the decision making and selecting the economically most advantageous offer	Legitimacy of the decision-making process and acceptable outcomes for identified stakeholders

35 quotes referring to functional rationality norms such as “appropriate product that meets the customer requirements,” “support the business goals and strategies,” and “utility for each criterion”).

2.2 | Economic rationality of software selection

The economic approach to software selection is not that dissimilar to functional rationality. Both approaches assume that stakeholders agree on a solution which is logically determined. Economic rationality even assumes that it can be calculated. However, whereas functional rationality concentrates on the best technology fit, the economic rationality concentrates on the selection of the economically most advantageous software package, which may include the costs of the decision-making process (Keil & Tiwana, 2006). This perspective focuses on minimizing the costs in the long run and assumes that organizations are able and motivated to follow economic motives, even when other options are functionally superior or more acceptable for the most powerful stakeholders. Economic norms of rationality can be applied to evaluate whether the decision-making process facilitates the selection of the economically most advantageous offer but also to compare the costs of the decision-making process (ie, the transaction costs) against alternative modes of decision making. The review of Şen, Baracli, & Şen's (2009) found fewer than 10 explicit references to economic rationality norms (eg, “financial issues,” “the benefit and the effort axiom”). Keil and Tiwana (2006) found that information managers attribute most weight to functionality and reliability but do take effort-related criteria, in terms of cost, ease of use, and ease of customization, into account. Service and ease of customization were the critical selection criteria in nonpublic, European case studies (Schiessl & Duda, 2007). A Taiwanese survey (Tsai, Lee, Shen, & Yang, 2009) found that functionality and quality were commonly taken into account, whereas only a minority (14%) considered “the rate of return in this investment.”

2.3 | Political rationality of software selection

According to political rationality, different parties struggle to achieve goals in their own best interests and evaluation may serve to legitimize prior decisions (Boonstra, 2003; Howcroft & Light, 2006, 2010; Moe et al., 2017; Pollock & Williams, 2007; Verville & Halington, 2002). Software selection is the result of a process where parties with different power sources, goals and criteria negotiate. Thus, the outcome is never neutral (Wilson & Howcroft, 2005). The purchasing organization needs to make trade-offs between sometimes conflicting requirements (Boonstra & van Offenbeek, 2010; Keil & Tiwana, 2006). Wybo (2007) notes the power of suppliers to influence the purchasing

organization. Suppliers not only promote their software solutions but also shape the buyer's expectations considering their requirements and fit attainment. Norms of political rationality concern the acceptability or the social legitimacy of the decision-making process and of its outcome in the eyes of the important stakeholders (Wilson & Howcroft, 2005). Political rationality was the least prominent in the review of selection methods by Şen et al (2009). In the methods reviewed, plurality was indirectly recognized by Frankel's (1993) contract negotiation phase, Kunda and Brooks' (2000) recommendation of customer participation, and Lai, Trueblood, and Wong's (1999) support for group decision-making. Political rationality was only directly addressed in the optimization method developed by Wybo, Robert, and Léger (2005): "various actors affect the selection process and influence its outcomes" (p. 223). Neither Keil and Tiwana's (2006) survey nor the survey by Tsai, Lee, Shen and Yang's survey (2009) included criteria representing political rationality norms. However, the few case studies available do show that political influences shape the decision-making process on software selection (Howcroft & Light, 2010; Pollock & Williams, 2007; Schiessl & Duda, 2007). This suggests a difference between espoused theory (voiced in prescriptive methods by experts and in surveys by managers) and reality as revealed through case studies.

3 | SOFTWARE SELECTION UNDER TENDERING LEGISLATION

In the first section, we define and review tendering and tendering legislation in the IS-literature. Moreover, we explore the theoretical links between the 3 rationalities and legally prescribed tendering procedures with respect to a buyer's software selection process as it is essential to construct a preliminary theory in case study research (Yin, 2014). In the second subsection, we describe the main requirements for public procurement under the European tendering legislation that the focal organization in this study was obliged to meet.

3.1 | Review of the literature on software selection related to tendering legislation

Public procurement of software is "the acquisition process of software packages by governments or public organizations" (Hommen & Rolfstam, 2009, p. 18). In many countries, substantial parts of the public procurement are regulated by tendering legislation and thus differ from private procurement (Boyne, 2002). Tendering legislation prescribes a tendering procedure to public organizations. In this procedure, the contracting authority invites suppliers to tender for large projects that must be submitted within a finite deadline. Tendering legislation goals are to ensure equal treatment of software suppliers, transparency in the selection process, proportionality in the requirements, and non-discrimination on the basis of the national background of suppliers (Moe, 2014). Although there are substantial differences among different legislative frameworks (see Ohno & Harada, 2006 for a detailed comparison), the common denominators of public tendering legislation in developed economies are (1) the public announcement when certain threshold values are exceeded, (2) the availability of formal documents that enable suppliers to submit a bid, and (3) a transparent selection process including a narrative description of the evaluation by the contractor (Moe, 2014). Consequently, a shared characteristic is that after the application by bidders, communication continues to be regulated and legislation often prescribes a fixed sequence of steps and puts limits on the communications between contractors and suppliers (Howcroft & Light, 2006; Moe et al., 2017). Differences among systems, but also within systems, relate to the way suppliers can bid (eg, sealed or negotiated), the communication during the procedure and the criteria that are allowed to assign the contract to a bidder. Between countries the room for lower public authorities to give substance to the procedure and criteria differs.

The public procurement of information systems and the associated tendering procedures have not been widely studied as Moe's (2014) systematic review shows. Moe also observed that most of the identified studies (18 of the 24) focus on specific tasks in the procurement process, such as specifying requirements, supplier selection, or contracting. Only 6 studies were focused on the overall process of public procurement. These 6 studies highlight the importance of the requirements specification phase in software selection (Assmann & Punter, 2004), the use of

power by IS users to influence the procurement process (Howcroft & Light, 2006), substantial delegation during the procurement process (Schiesl & Duda, 2007), the information asymmetry between contractors and vendors (Dawson, Watson, & Boudreau, 2011), and the involvement of users from different functional areas (Poon & Yu, 2010; Verville & Halington, 2002). Moe (2014) stressed the need for research that adopts a process approach to software selection under tender legislation. We were unable to find studies in the IS literature on the perceived consequences of tendering legislation for decision making and what these consequences imply for the enactment of rationality norms. In view of this gap, this study aims to advance our understanding of how stakeholders perceive the effects of tendering on enacted rationalities.

Tendering legislation largely accords with the prescriptive and linear procedures of the functional tradition. Legally prescribed tendering procedures, as with the functional perspective, assume that the organization understands its requirements and is able to communicate these to potential suppliers during the announcement phase (Moe, 2014). Tendering legislation also requires the potential suppliers' software products to be evaluated against these requirements during the assignment phase. Tendering legislation is clearly based on the epistemological assumption that knowledge, such as on requirements, is objective and can be articulated and shared, which reflects the assumptions underpinning functional rationality (Howcroft & Light, 2010). These assume clarity and agreement on goals and the availability of the information necessary to make decisions.

Nevertheless, there are also differences to the typical procedures prescribed by functional rationality. Functional rationality assumes that organizations are autonomous in their decision making on strategic investments (Chau, 1994). The obligation to tender potentially constrains this autonomy. While the functional rationality view takes the buyer's self-interest as the starting point, most tendering legislation systems balance the interests of the buyer with those of possible suppliers as well as national and international economic interests (Moe & Päiväranta, 2013). This implies that, within tendered software selection, suppliers play a more active role. They can take the initiative to submit a bid, whereas they would have to be invited to do so in most non-public software selection procedures. In a tendered software selection process, suppliers can indicate whether they think their offer meets the requirements during the enrolment phase. They can normally appeal against a buyer's decision, and this constrains the assumed autonomy of the buyer in determining the most appropriate package.

Since the rationale is generally free-market competition (Holt, Olomolaiye, & Harris, 1995), tendering legislation is strongly built on economic rationality: vendor selection is based on economic criteria, such as "lowest price," "economically most advantageous offer," or "best value procurement" (Kashiwagi & Byfield, 2002). Tendering requirements fit the economic norms of rationality through a quantitative logic that is either narrowly defined, eg, the cheapest software, or broadly defined, eg, economic value over the life cycle of the software. Nevertheless, from a buyer's perspective, it deviates from economic norms of rationality in the following ways. A key difference is that economic rationality, as it is presented in the software selection literature, is exclusively directed at advancing the economic benefits for the contracting organization. Tendering, however, is developed to advance the economic interests of society as a whole by creating a level playing field. Tendering legislation also aims to advance the interests of unknown vendors rather than the economic interests of the contractor. An unintended effect of the tendering legislation, that may contradict economic rationality, is the increased transaction costs of decision making (Hensher & Stanley, 2008). Organizing software selection under tendering legislation may incur additional costs for both buyers and potential suppliers, which may harm the economic interests of the parties involved (Costantino, Dotoli, Falagrio, & Sciancaleopore, 2012). Drawing on the construction industry, Holt et al (1995) recommend that the tendering procedure should also embrace investigating contractors' potential to deliver a service of acceptable standard, on time and within budget. The present selection procedure differentiates predominantly on cost in terms of the tender sum. Tendering legislation does not allow for qualitative considerations to mitigate risks such as trust, past performance of a supplier, or the desire to work with businesses that are a part of the contractor's local community.

Within software selection under tender legislation, particular powerful internal stakeholders are able to influence the requirements that are finally stipulated in the tender document in a way that advances their own interests. In

particular, the more well informed and alert stakeholders may have greater influence on the final conditions than others. Such stakeholders understand the principles of software selection under tender legislation and have the resources to be well represented in decision-making bodies. Less powerful stakeholders can be unaware of the selection process or be poorly represented. Within software selection under tender legislation, buyers have a stronger focus on requirements rather than on particular suppliers. Therefore, internal stakeholders are not allowed to influence the selection by maintaining formal or informal communications with their preferred suppliers or to promote a particular supplier (Moe & Päivärinta, 2013).

Another potential change induced by tendering legislation-driven software selection is the high control over the process that project management has to maintain given liabilities and this potentially inhibits informal wheeling and dealing. This may limit informal political manoeuvring by internal stakeholders (Howcroft & Light, 2006).

Tendering legislation may also potentially affect the negotiations possible between the contractor and suppliers since it regulates the interactions during the process, which could lead to a more transparent process with fewer or other forms of politics compared to nontendered software selection. Tendering prescribes the announcement and the availability of formal documents that enable any supplier to submit a bid, something that is rare in nonpublic software selection processes. After the application stage, communication continues to be regulated and legislation often stipulates a fixed sequence of steps and limits on the communications between contractors and suppliers (Howcroft & Light, 2006).

Table 2 summarizes this discussion by mapping what elements of software selection under public tendering legislation seem theoretically related to the 3 rationalities.

3.2 | Requirements for software selection under European tendering legislation

This subsection describes the main requirements for public procurement under the European tendering legislation that the organization under study was obliged to meet. Within the EU, member states are required to harmonize their national laws to meet the European directives. Other developed economies such as Australia, Japan, Canada, and the United States also implemented public procurement-related legislation aimed at maximizing public value and enhancing equality and transparency.

Within the EU, tendering has to be announced in the EU electronic database when a purchase of a software package by a public organization involves costs exceeding the threshold value of €200 000 (Moe, 2014). The associated legislation has 4 main objectives (Costantino Dotoli, Falagrio, & Sciancaleopore, 2012). First, the legislation promotes *equality*: All potential suppliers must be treated equally. All suppliers need to have a fair chance of winning the bidding contest. Second, the procedure must be *transparent*. This means that the purchaser has to share all the relevant information with the various potential suppliers and the public. Third, the requirements, as set by the tenderer, must be *proportional* to the procurement order. In other words, the requirements need to be formulated in such a way that suppliers can reasonably meet them. Finally, there is the *non-discrimination* principle that all members of the EU must allow entry of products and services from other member states. The member states are expected to incorporate this European tendering legislation in their own national legislation.

A typical open or restricted software selection tendering process under EU legislation includes the following 6 phases (Pijnacker-Hordijk, van der Bender, & van Nouhuys, 2009): (1) Announcement: During this phase, the tender documents are formally issued. These documents include the purchase and contract conditions, and the selection and assignment criteria. The announcement is made public in line with legal prescriptions. (2) Application: Suppliers have the opportunity to submit a bid. The purchaser replies to questions from suppliers in so-called *notes of information*. This involves anonymizing the questions and informing all the potential suppliers of the questions and answers. This is to enhance transparency and equality. (3) Selection of appropriate suppliers: In selecting “appropriate” suppliers, the purchaser has to communicate the reasons for exclusion, the requirements, and the selection criteria to all the potential suppliers. (4) Enrolment: The buyer invites the selected suppliers to enrol and formally rejects the others. This is often referred to as shortlisting. The buyer collects the enrolment

TABLE 2 Literature-based representation of 3 rationalities' affordance in tendering legislation for software

	Functional Rationality	Economic Rationality	Political Rationality
Rationality corresponds with intentions of tendering legislation	Buyers can understand their requirements. Buyers can communicate requirements in a formal document. Buyers should evaluate bids against their requirements. Knowledge is objective.	Buyers should want the lowest price, the economically most advantageous offer or the best value procurement fit. A quantitative logic leads.	Differences in power between suppliers are recognized and should be eliminated through tendering legislation.
Rationality does not correspond with or is unrelated to intentions of tendering legislation	Buyers are less autonomous in adapting procedures to their needs. Buyers cannot take the experiences of others with suppliers and their products into account. Suppliers can take the initiative to submit a bid. Suppliers can appeal against a buyer's decision. Subjective or qualitative considerations are prohibited.	Buyers and potential suppliers are forced to incur additional process costs. Tendering legislation aims to advance the economic interests of society as a whole rather than those of buyers or suppliers.	Buyers should focus on transparent requirements rather than on preferred suppliers or other discretionary criteria. Buyer–(potential) supplier communications are regulated to limit political manoeuvring. Buyers (and suppliers) are not seen as multiparty systems.

information, formulates a legal report, and responds to questions from the suppliers. (5) Assignment: The enrolments are checked to ensure that they meet the requirements. The best bid is then chosen and a legal report written. The rejected suppliers may raise objections within the “Alcatel standstill” period of 20 days. The assignment decision should be based on the lowest price or on the most economically advantageous tender (MEAT). When using MEAT, factors other than only price are taken into account, such as technical and functional criteria. The criteria are weighted, and the outcome determines the winning tender. The choice as to whether to use MEAT or the lowest price is to be made known in the announcement phase. (6) Completion: To conclude the tendering procedure, the contract has to be signed, the outcome published, and the procedure evaluated. In addition to the tender documents, the buyer may issue a framework. This framework contains the terms a supplier needs to comply with when signing the eventual contract.

During the EU-prescribed tendering procedure, contacts between EU suppliers and the purchaser are limited, depending on the specific procedure (Moe et al., 2017). There are, however, some instances where suppliers are allowed to ask questions or raise objections, but these are always predetermined occasions and will be formalized and in a written form. Questions must concern the specific requirements and preferences, and other questions will not be considered. Further, suppliers are only allowed to approach designated individuals at the purchaser, such as the project leader for tendering. Contacting others is prohibited. The “note of information” process is such an occasion where suppliers are allowed to ask questions. The questions must seek clarification of the proposed requirements and preferences as formulated by the purchaser. The questions are anonymized shared with all potential suppliers. All formal contacts have to be in the language requested by the purchaser.

Having thus outlined our perspective on software purchasing under tender legislation theoretically, we now move on to our empirical study that explores the experienced consequences of tendering legislation for the decision making in a revelatory case in terms of the room to enact the 3 rationalities outlined in Section 2.

4 | RESEARCH METHOD

4.1 | Research design

In this study, we have adopted the interpretive single case study approach (Walsham, 2006) to engage in middle range theory development (Eisenhardt, 1991) on strategic software selection processes in public organizations. The case concerned the selection of an EHR software package, with the aim of substituting a range of organization-wide and departmental systems in a large Dutch health services provider. Electronic health records are integrated software platforms that are used by health care providers to create, store, update, maintain, and share medical information about patients. Such systems are used in primary, secondary, and tertiary care and seen as essential technologies for modern health care provision (Häyrinen, Saranto, & Nykänen, 2008; Triantafillou, 2017).

With this new system, the organization intended to make 1 single digital client record available throughout the organization. Our access to this organization was uniquely suited to our objective to study the consequences of tendering legislation for decision making on software selection. There is a paucity of in-depth field studies on software selection under tendering legislation, and in this sense, the case can be seen as revelatory. More specifically, it is an extreme case (Yin, 2014) in the way that management's huge effort to comply with the tendering legislation during the decision-making process ultimately led to clear failure in terms of decision-making outcome (Section 5).

The management was motivated to comply not only because of the legal obligation but also because worldwide, the implementation of EHR systems had proven challenging (Greenhalgh, Potts, Wong, Bark, & Swinglehurst, 2009). At the time of this software selection procedure, there were a few recent problematic implementations in The Netherlands, which received extensive press coverage. The EHR literature indicates that implementations are a failure prone endeavour due to the complex mutual adjustment of the system and the adopting organization and clinicians (Boonstra, Versluis, & Vos, 2014; Greenhalgh, Potts, Wong, Bark, & Swinglehurst, 2009). Therefore, the buyer was highly motivated to get the EHR software selection right. At that time there was a strong sentiment in the organization that a very extensive and transparent software selection process might safeguard against a wrong choice. A tendering procedure was perceived to be instrumental in achieving that goal. Thus, the case was very well suited to study the experienced shaping of the software selection process by tendering legislation. Finally, the software selection context of our case is exemplary for many acquisitions of extensive software packages by large public health care providers. A recent review shows how, at least in EHR implementation, all 3 decision-making rationalities are at play (Triantafillou, 2017). The lessons learned from this case, in terms of its process and outcome, may thus have value for others sharing the context.

4.2 | Data collection

Initial access, to collect data for a larger research programme, was negotiated with the project group in 2012. This reported study is one of the projects within that programme. Over the course of 12 months, the research team visited the health services organization 31 times and interviewed 31 actors. Six of them were key interviewees (KI), and 25 were other interviewees (OI).

In-depth data for this particular study were collected through 6 semi-structured interviews with KI, these were staff members involved in the procurement and implementation of the EHR system. Five of these interviews exclusively focused on tendering, and a sixth elicited the experiences and reflections of a project member with earlier tendering expertise who had entered the process halfway. The selection of interviewees was based on their expertise and involvement in the tendering procedure as well as their knowledge of the broader implementation process. Moreover, these KI were intentionally selected for their intensive involvement in the tendering procedure and their diversity in background. They included an internal legal expert, a representative from the medical staff

and steering group, an IT expert, and 3 project managers. Their quotes are coded KI-1 to KI-6. These 6 interviews mainly focused on tendering. The interview guide contained 19 questions, both descriptive and evaluative in nature (see Appendix A).

The 25 other interviews (OI) included project managers, ie, those responsible for (a part of) this project, managers, ie, those responsible for an organizational unit, support staff (ie, IT department), and health care professionals. Software procurement through public tendering was only 1 topic of these interviews. These interviews covered a broader scope regarding this EHR implementation and were aimed at reconstructing relevant events and interpretations of the tendering process. Interviewees were encouraged to describe critical incidents and how they perceived the software selection tendering process, eg, "How similarly or differently would you organize this process when tendering was not prescribed?"

All interviews lasted between 60 and 90 minutes. It is possible that the opinions and meanings given by the interviewees were reconstructed in the light of later events. We attempted to neutralize this potential bias by also drawing on other materials. One important element of these other materials was the access to the organization's electronic tendering tool. This software package was used by the buyer as the single formal platform to manage the tendering process, to store all official documents, and to give internal users as well as vendors' access to all relevant information, such as contracts, lists of requirements, offers, and evaluations.

4.3 | Data analysis

The first step in the data analysis was to become familiar with the data to develop a contextualized understanding. Based on this understanding, we reconstructed the sequence of events to create a chronological perspective on the software selection process. We verified our reconstruction of the sequence of events with the project leader responsible for the tendering procedure, leading to a refinement of the phases.

Next, in 3 iteration rounds, descriptions and characterizations of the process and tendering's experienced consequences were examined. The first round identified the rationalities, the second round identified the themes (decision-making process dimensions), and the third round identified how the rationalities and themes were shaped by the tendering legislation. In this iterative process, the KI transcripts and relevant documents formed the core data. The OI transcripts were used to contextualize and interpret the 6 key interviews. Moreover, we used small parts of these OI transcripts that dealt with the tendering procedure and its experienced consequences to complement our core data, using the same codes.

In the first round, we started with a deductive coding strategy based on the software selection literature as discussed in Section 2. The deductive codes reflected functional, economic, and political norms of rationality. We analysed how and when these rationality norms had been used. In the second round, inductive codes were developed by interpreting the data that reflected the experiences of the respondents that emerged during the software selection process. We marked every "utterance" that reflected a characterization of the tendered software selection process or a deviation from the prescribed process. To understand the experienced shaping, inductive open coding was used. Following this, we compared the coded transcripts leading to 5 recurrent themes that we found to characterize the experienced shaping. These 5 emergent themes could be conceptualized as decision-making process dimensions that the interviewees felt were being shaped.

We then again contacted the project leader and discussed the outcomes from these first 2 rounds of data analysis to check the descriptive data, and corresponding themes and patterns. This led to a confirmation or refinement of the themes, their interrelatedness, and the possible mechanisms behind them. Refinements concerned the process characterizations and the analysis. Other project leaders were asked to verify factual information. In the third round, we returned to the data to explore how the norms of rationality and the shaping of the 5 process themes are interrelated (axial coding). Here, the themes were compared with the existing literature on packaged software selection, as described in Section 3.1, to develop the analysis.

5 | DESCRIPTION OF THE DECISION-MAKING PROCESS AND OUTCOME

5.1 | Decision-making process

Over the recent past, this divisionalized health services organization had developed a vision on health care IT that implied a move from fragmented information systems to a single integrated organization-wide architecture. This vision included the adoption of an organization-wide off-the-shelf EHR system to replace a wide range of organizational, departmental, and individual legacy applications. Some of these were outdated and becoming difficult to maintain. The EHR was to cover frontline operations, such as client and service management and also back-end support activities such as planning. It would integrate divisions and medical departments and standardize operations. The system should provide the various professional groups involved, the management, and the support staff with relevant client-related functionality such as intake information, prescription of medicines, physicians' notes, and client history. In addition to the procurement of the system, the contract should include support and maintenance of the implemented system.

The health services organization decided to explore the market with the aim of understanding the possibilities of EHRs and become familiar with suppliers. To this end, similar health services organizations were visited to observe and discuss a range of EHR systems. A wide range of employees were involved, including physicians, nurses, managers, and technicians. During this phase, medical staff members developed a shared preference for 1 particular supplier. Two other potential suppliers had been major IT suppliers in the past, and a fourth supplier was considered "largely unknown." Another 2 suppliers proposed partnerships with the organization to jointly develop the EHR. According to the internal legal expert, the organization rejected the latter offers formally because they were considered "inferior." The organization opted for a commercial off-the-shelf system rather than an in-house customized development to reduce uncertainty over functionality and price.

After the market exploration, a steering committee was formed together with the executing project teams. The steering committee consisted of representatives from various parts of the organization (eg, medical staff, nursing staff, support, and secretarial personnel). The project teams were responsible for specific parts of the process. In addition, department-specific working groups covering the range of care services delivered were formed to articulate system needs. They were asked to develop a list of critical requirements and of preferences that should be reflected in the system's functioning and performance. Based on the inputs from the working groups, a list of more than 2000 requirements and preferences was formulated. In addition, the organization drew up an extensive draft contract for the eventual supplier. This contract was carefully put together since the health services provider wanted to minimize risks and uncertainties. After these preparations, the formal tendering process started according to the phases indicated in Section 3.2.

During the *announcement* phase, the announcement was published and the tender documents were formally issued. In the *application* phase, the health services organization had expected four suppliers to apply. However, one of these suppliers indicated that they did not agree with the proposed requirements, preferences, and contract draft. Another expressed concerns regarding the proportionality within the proposed tender. The project managers then invited the 4 suppliers to a face-to-face meeting. After that meeting, all 4 suppliers agreed to submit an offer. During the third phase, the *selection of appropriate suppliers*, the 4 tenders were evaluated by staff members from various departments. An electronic tendering tool automatically indicated the extent to which suppliers met the requirements. All "requirements" (in contrast to "preferences") had to be met. Suppliers would be rejected if any of the requirements were not met. If no supplier would meet all the requirements, the requirements would be reconsidered so that providers could rebid on the basis of the new requirements. During the fourth phase, *enrolment*, one supplier failed to meet 3 of the 642 requirements and was excluded. The other suppliers were formally invited to enrol, which resulted in a final shortlist of 3 suppliers. In the fifth phase, *assignment*, the enrolled offers were checked again and the best bid was chosen. An initially largely unknown supplier met all the requirements and was rated best on both functionality and price (a difference of over 100 million with the highest bid) and so was declared the winner

of the tendering procedure. After identifying the best bid, detailed contract negotiations with the selected supplier started and the outcome was published during the sixth phase, *completion*.

5.2 | Decision-making outcome

Interviews and meetings with internal stakeholders in the buyer organization show that the decision was thereafter seen as a *fait accompli* to which not many people would openly object, even in this multiprofessional climate. Informally, some still raised objections or voiced doubts about the chosen supplier, but most accepted that there was no turning back given the legal constraints and the huge financial risks involved. The general feeling seemed to be that with so many interests involved it would be impossible to please everyone. Moreover, a sense of urgency was felt—as a project leader commented: “It will succeed, because it must not fail” [O]. This opinion was voiced by interviewees across the organization. However, within 12 months of selecting a supplier, it became clear that the health services organization’s initial expectations would not be met and that the price offered by the supplier had been too low. Approximately 1 year after signing the contract, the health services organization published a press release to announce that the project had been abandoned.

6 | ANALYSIS

In this section, we present how European public tendering is experienced to shape the buyer’s room to enact competing norms of rationality in the decision making on software selection. Section 6.1 reports the analysis of the interviews and documents, which shows that shaping is experienced on five decision making themes. In Section 6.2, we evaluate this reported shaping per theme through the lens of the functional, economic, and political rationality norms derived from the software selection literature.

6.1 | Perceived shaping of the decision-making process: five themes

The second round in the analysis revealed 5 themes in the experienced shaping of the decision-making process by the requirements imposed by European public tendering. The interviewees’ experiences are presented below and summarized in Table 3.

6.2 | Legal complexity: a legal game

All the interviewees spontaneously mentioned how EU-tendered software selection leads to a legislation-driven process, eg, “It’s a juridification, the process has become far more juridified.” [KI-3]. This induced legal complexity. The documentation shows that, in the information note, one-third of the suppliers’ questions concerned legal issues. Above all, the legal complexity was seen as a reason to buy or develop legal expertise. The buyer and all but one of the potential suppliers hired legal advisors or used in-house lawyers. Due to its lack of legal expertise, 1 supplier violated numerous rules and proved incapable of complying with the procedure. One project leader evaluated the process as follows: “The tendering procedure was above all an enormous legal hassle” [KI-1]. Another even claimed: “I do not know any process that improves when lawyers become involved,” and a representative of the medical staff added: “I’m fed up. We’re stuck with the legislation” [KI-5]. The general feeling could be summed up as “if we had not been bound by tender legislation, we could have done this much quicker” [KI-4]. Within the imposed legal boundaries, the organization manoeuvred to satisfy internal and external stakeholders without running the risk of a lawsuit or other major problems. An interviewee admitted: “Once you are forced to comply with legislation, you seek as much freedom as possible” (KI-3).

TABLE 3 Summary of buyer's experienced shaping of decision making under tendering legislation

Decision-Making Process		Evaluation of Decision-Making Rationality	
Themes	Experienced Effects	Experienced Drawbacks	Experienced Advantages
Degree of legal complexity	High impact. Legal expertise functions as power base.	Legal issues distract from substance (coded: functional).	...
Linearity	Broken up into sequentially ordered, detailed steps with some room for ad hoc additional activities, but no iterations.	No room for progressive insights (coded: functional).	Predictable phasing and activities (coded: political?). Consistency—sticking to self-developed demands (coded: economic).
Objectivity	Only explicit criteria taken into account. Checking against criteria by several people.	Cultural misfit between tendering and organization (coded: functional).	No room for personal preferences. Clear demands and valid selection. Transparency (coded: functional).
Degree of formalization	Highly prescriptive steps, procedures and activities. Strengthens hierarchical power.	Slow progress. Resource heavy (coded: economic).	Consistency, completeness, controllability (coded: functional).
Degree of relational communication between buyer and supplier	Distant relationships, a low use of rich, two-way, direct communication modes and channels. Suppliers are perceived as opponents rather than as potential partners in the subsequent implementation.	Hard to develop the mutual trust and shared understanding needed for implementation, service and maintenance. Comakership impossible (coded: political)	Fair and equal distribution of information among suppliers and internal stakeholders (coded: political).

6.3 | Linearity: a blueprint straightjacket, but open to ad hoc extra activities

The documentation shows how the decision-making process was linear and strictly divided into the prescribed phases of the tender legislation, from requirement definition before the announcement through to evaluation and choice. While the activities and sequence in the blueprint were strictly followed, a few activities were added during the process based on unforeseen events. For example, during the application phase, Supplier A sent an e-mail to the buyer's board of directors. This message indicated that the requirements were far too complex and that they were considering not submitting a bid. This was a shock for the buyer, particularly since this was the medical staff's "preferred" supplier. A project leader was asked to resolve this problem: "We made a legal emergency plan, a so-called conformity table. This is nowhere to be found in the tender legislation. It was a creative solution by some lawyers to ensure that enough suppliers remained." The lawyers, from an independent law firm, claimed that this was an "appeal to escalation" and that this was allowed when the proportionality principle was in jeopardy. While the linearity was seen to have a positive effect: "tender legislation forces you to stick to your self-developed requirements" [KI-2], overall the strictness of the linearity was evaluated negatively: "Insane, a legally sealed process" [KI-2]. Thus, despite the linear plan, a few extra activities were added to the blueprint along the way although these did not involve any cyclic activity in the sense of returning to previous steps.

6.4 | Objectivity: clean and functional choices within a highly complex legal playing field

The involved professional's impression was that "this process was much more objective. Criteria are determined and scored, without prior knowledge of the outcome. The outcome was different from what we had hoped" [KI-5]. Despite this objectivity, some interviewees characterized the procedure as "a legal game," a qualification not immediately associated with "objectivity." The buyer and especially the suppliers needed to acquire or develop sufficient legal knowledge to be creative within the legal boundaries. Supplier A clearly lacked such an understanding, which ultimately

seems to have resulted in exclusion or to put this slightly differently: This was not their game. The project management wanted to establish organization-wide support by involving the major stakeholders in the development and assessment of the requirements. From this perspective, the tendering legislation fitted the organization well: Establishing transparent functional requirements and an accompanying contract was one of the most important considerations. The tendering legislation provided the responsible managers with a tool to achieve this regardless of opposition from the medical staff. "An advantage of the legislation is that it is a clean process that removes personal preferences" [KI-4]. "It's a prescriptive, rational and analytical process, which is very different to our field, where emotions, clients' well-being and professional autonomy are important" [KI-1]. According to another project leader, this is evident in the objectified quality of the outcome: "the selected supplier [D] was much better on price and functionality" [KI-2]. This outcome sharply contrasted with personal preferences: "I really wanted it to be supplier A" [KI-5].

6.5 | Formalization leading to perceptions of an inefficient process

All the interviewees commented that tendered software procurement required attention to be given to organizational rules and procedures to cover all the process' activities since these needed to comply with the tendering legislation. This was felt as a decrease in informal behaviours associated with strategically important decisions and large investments. A project leader expressed it as "it forces us to document everything and to make conscious choices" [KI-1], which accords with the following perception: "the process is very prescriptive, rational and analytic" [KI-2]. Nevertheless, there were some informal influences on the decision-making process. Early in the process, during the market exploration phase before the tender was announced, potential suppliers were identified. Supplier A appeared to be the best option: "If they had been chosen, it would have been much easier to get the medical staff involved. The look and feel of A's package was much better. Their way of doing things and the embedded knowledge in the firm was superior" [KI-5]. Suppliers B, C, and D were also considered as good. Two other suppliers, E and F, showed an interest in tendering, but these were considered inferior to the other 4. Although never formally articulated, and not even voiced in so many words, it was understood that the board of directors and the steering committee agreed on excluding inferior suppliers. The impressions held of the various suppliers were based on the market exploration and presentations made by the suppliers. The organization could use these impressions a little by choosing to be rigid with candidates they wanted to exclude or a little more flexible with those they wanted to keep in. Evaluations of the formalization were predominantly negative; with interviewees indicating that tendering through a formalized decision-making process becomes inflexible, expensive, and lengthy. One interviewee noted: "If we had not been bound by the legislation, it would have certainly gone much faster" [KI-3] and another commented, "It's a waste, because it is so expensive and time consuming" [KI-4]. A leading physician clearly agreed, "It's a waste of money. I wanted it to go much faster and more efficiently, it's an enormous bureaucracy" [KI-5] and "It feels like a straightjacket, that's a disadvantage" [KI-1], and another nuanced, "If we had more freedom, we wouldn't be so strict in the requirements" [KI-3].

6.6 | Relational communication: replaced by distant and even hostile relationships

A final emerging theme was that tendering forces the relationship between the contractor and suppliers to become more impersonal and distant than traditionally envisaged. There was, in other words a low degree of communication that defines or redefines relationships. This was seen by the interviewees as peculiar and a consequence of the tendering process, "Normally, we would have been in conversation" [KI-1]. The lack of a gradual development of mutual trust and shared understanding is reflected in the selection of Supplier D as the successful bidder. As an IT staff member stated, "In my opinion, Supplier D came as complete surprise" [OI]. Another IT staff member explained this as follows: "We need to have a shared feeling with the suppliers, but this is very difficult if we comply with tender legislation" [OI]. Moreover, developing a partnership with the organization, the relationship that Suppliers A and B were seeking, was difficult within the tender legislation. The tendering procedure was seen as making a lasting

relationship difficult since mutual trust could not be developed during the early stages. This is reflected in an answer to the question on how tendering affects the start of the buyer-supplier relationship, "if you could behave loosely and speak more freely, then you would have had a totally different understanding" [KI-3]. A project leader emphasized that the relationship with the suppliers is "not only distant but even hostile, while buyer and the selected supplier are supposed to cooperate during the implementation phase" [KI-6]. This project leader observed how it is very difficult to switch roles within the limited time frame between signing the contract and the project kick off. It is this project leader's experience-based conviction that the buyer's and the supplier's contract negotiators need to be replaced once the implementation really starts. The relationship difficulties have paradoxical connotations as reflected in the following statement: "that is the difficulty: to develop requirements that force the potential supplier to be a partner" [KI-3]. After accepting the bid but before signing the contract, the buyer asked for a "proof of concept" followed by demonstration sessions and, only then, could the buyer and supplier start their jointly managed implementation process.

6.7 | The perceived shaping related to tender legislation's affordance of competing decision-making rationalities

This subsection addresses for each of the identified themes the degree to which the decision makers can use the different rationalities in public software procurement under European tendering legislation. In the previous section, it was shown how insiders experienced the tendering as bringing not only legal complexity but with it a highly formalized, strictly linear selection process, characterized by distant, impersonal relationships between suppliers and buyers, and driven by objectified considerations, criteria, and choices. The insiders' evaluated this shaping of their decision making to have both positive and negative consequences. This section systematically evaluates these consequences in terms of affordance of the enactment of functional, economic, and political norms of rationality. In Section 1, we argued that the 3 rationalities are competing to the extent that all are based on arguments that may be seen as legitimate in a business environment. However, the tendering legislation may afford the enactment of these rationalities to different degrees. The analysis is summarized in Table 4.

6.8 | Evaluation in terms of functional norms of rationality

Tendering invokes a tendency to use procedures in all the activities of the process and to shape it in a linear fashion. It also forces a purchasing organization to make decisions based on explicating and then assessing objectified requirements and criteria. This shaping accords with a functional rationality within which reality is seen as known and predictable. The interviewees did not seem to doubt the "correctness" of the selected package in terms of "meeting the articulated requirements." Nevertheless, tendencies on the other dimensions were experienced that did threaten a functional rationality considerably. The legal complexity required specialist legal knowledge, which was seen to distract from functional considerations. Also, the right number of requirements could not be objectively determined. On the one hand, in a feedback meeting with 1 department, a physician claimed that "a shortlist with only 10 criteria or so" could have effectively ensured they got their preferred supplier. On the other hand, project management had a list with lessons learned from other health services providers that said "Minimizing demands means less room for negotiation with the supplier" and "Thus, not demanded = not received." The internal evaluation shows it proved hard to involve all stakeholders in structured requirements specification and at the same time limit the number of demands and strike the right balance between real needs and preferences. Next, an in-depth assessment of the suppliers' offers and of the later proof of concept was, according to some employees, hindered for the following reasons: "promised future functionality is not a proven product" and "ending up with only two bids does not provide much to compare against" [internal document]. That is, formal means of communication, like the tender offers, the draft contract, and the proof of concept, were the main means of expression between buyer and suppliers. Consequently, during the internal evaluation, it was sometimes voiced that "We bought a promise instead of a product." Afterwards, some

TABLE 4 Effect on the enactment of the 3 decision-making rationalities

Three decision-making rationalities		
Perceived Shaping of Decision Process	Functional Norms	Political Norms
Increased legal complexity	The focus on legal requirements complicates and distracts attention from functional expertise.	Requires the organization to acquire costly specialist legal knowledge.
Greater linearity	Conforms to prescriptive procedures of the functional tradition. Less room for learning or adaptation to changing circumstances.	Requires the organization to acquire costly specialist legal knowledge. More steps and fewer possibilities for short cuts or iterations, resulting in fewer benefits and higher costs.
Greater objectivity	Forces organizations to make decisions based on explicit and objectified requirements and criteria. Prevents the use of subjective criteria, such as the knowledge that another organization is satisfied with supplier X.	Clearer trade-off between quantifiable costs and benefits using a quantitative logic. Predictable phasing promotes earlier mandate building. Less room for adjusting to legitimate interests during the process.
More extensive formalization	Structured information exchange. Systematic approach to translate demands into an offer. Loss of information due to reliance on formal information channels.	Transparent to all recognized stakeholders. Outcomes may result in a cultural misfit and a lack of support from other stakeholders. Results in formal controllability and less room for politicking. Formalization comes at the expense of softer influences such as responsiveness.
Less relational communication	Contracts and other formal communication channels become the main means of expression. Two-way feedback is absent. Shared sense making of requirements and feasibility becomes harder to achieve.	Higher process costs. Satisfying needs for detailed requirements and conditions to mitigate risks are costly. The decision-making process is slower. Less time and fewer costs are involved in informal communication. Building trust that there will be a balance between giving and taking is lost. The principles of equality and non-discrimination of suppliers in the legislation are upheld.

project members were puzzled that the tendering procedure had favoured a supplier that “does not play a role of importance in the current EHR market” [internal document].

6.9 | Evaluation in terms of economic norms of rationality

Tendering was seen as increasing process costs in 3 ways: The legal expertise that had to be hired in or developed, the time involved (including waiting times), and the many steps, many participants, and detailed procedures involved. The preparatory phase (“of at least six years” [OI]) had been extensive in terms of time and the number of people involved. Further, even after accepting a bid, the buyer first asked for a “proof of concept” before signing the contract. As there was only 1 opportunity to formulate requirements, many were very specific to ensure completeness. Furthermore, the process demanded at least 4 supplier bids against which these criteria were evaluated. These legal technicalities took much energy and attention and were not always regarded as instrumental (Table 3). A project leader, for example, commented “Why all the effort to fill out this enormous document?” [KI-3]. With hindsight, some interviewees noted that a shortlist of requirements would have been beneficial, an approach other organizations in their field had allegedly used. However, it was also known that these organizations had faced major implementation problems and this led to some acceptance of the very extended and intensive approach taken. In this case, the chosen supplier's solution offered a substantially lower price than that of the initially favoured supplier, and so the economic quality of the decision seemed at first appropriate even in the light of the process costs and the reality that fundamental uncertainties and post-contract risks on both sides remained.

6.10 | Evaluation in terms of political norms of rationality

In retrospect, the tendering legislation offered a few options for exerting power to serve the best interests of certain stakeholders, such as the board of directors, some powerful departments and the overall project management that have to approve the decision outcome. Clearly, the strict legal demands caused a reaction. That is, the organization seemed to manoeuvre to satisfy stakeholders, while avoiding the risk of a lawsuit or other major problems. First, interviewees stressed the importance of getting and keeping powerful players, who have to accept the software package, on board and committed at an early stage: Arbitrary interventions by these players or changing one's mind halfway are impossible in public tendering. Moreover, an interviewee said that if project managers are aware of informal leaders in the organization, they tend to adjust implicitly to their wishes. Second, project management's strict compliance with the tendering regulations may function as a mechanism to strengthen their hierarchical authority at the expense of medical expert power. Here, interviewees said that it could not always be exactly pinpointed where and by whom the decisions involved in each step had been made. However, they feel that decisions were explicitly based on hierarchical authority in order to control the process and the outcome. Third, the accounts show how some wiggle room between the legislated process and the actual decision making persisted. Deviations from the procedure were a result of conscious choices made by the project management when seeking a compromise that satisfied powerful internal stakeholders and complied with the tendering legislation. This happened, for example, by being deliberately rigid in the timing of excluding those suppliers that did not fulfil all the criteria and flexible by adding extra activities to the procedure to keep a supplier on board.

6.11 | Relative shifts between the affordances of the competing rationalities

In the analysis of the interviewees' perceptions we have found support for the mismatch between some aspects of the software selection rationalities and the intentions of the EU tendering regulations as summarized in Table 2. Firstly, interviewees reported how functional rationality norms were stressed, seemingly to compensate for the decreased room allowed for political rationality norms. Furthermore, given the irreversibility and importance of the strategic move being made, the enforced linearity during the selection process weighed heavily. In the past, strategic IT decisions had been characterized by compromises along the way, as interviewees told us. Now, when powerful

stakeholders started to demand adaptations, they felt constrained by the linearity enforced. Project leaders had experienced added pressure for completeness in the requirements and preferences. Secondly, the link between functional and economic norms of rationality is multifaceted. The effort spent in getting the requirements and preferences right (functional rationality) increases process costs (economic rationality). Since any learning or manoeuvring is prohibited, these high process costs were accepted: Interviewees recall years of preparation preceding the actual tendering. After all, the process costs seemed to be compensated by the price difference between the bids. Finally, the case supports that economic rationality prevails over political rationality in terms of the obligation to publicly announce the tender and accept the lowest bid and not take subjective considerations or emerging preferences of and pressures by influential stakeholder into account. Ironically, in our case, the accepted bid turned out to be too low given the requirements. Ultimately, therefore, from the perspective of the outcomes for the buyer, not only political rationality but also functional and economic rationality were ill-served by the EU tendering system.

7 | DISCUSSION AND CONCLUSION

The goal of this research was to contribute to the field of IS decision making and more specifically to the literature on software selection. The explorative analysis of an EU-tendered decision-making process is one of the first theory-based studies in this field to examine “what is actually going on.” The empirical contribution of this paper has been in deepening our understanding of the influence that tendering legislation has on how public organizations select strategically important software packages. Moreover, we offer a theoretical base to study the increasingly important EU-tendered software selection procedure since the extant literature largely fails to do so (Moe & Päivärinta, 2013).

7.1 | Theoretical implications

In conceptualizing tendering legislation's influence on packaged software selection, we took a decision-making lens by drawing on the 3 competing rationalities in decision making that we identified in the software selection literature. The analysis unravelled how the tendering legislation is perceived as shaping underlying decision-making themes, having implications for the affordance of functional, economic, and political decision-making rationalities. Our explorative research contributes by offering conceptual insights into these affordances that can be tested in future research. This study adds to the work of Howcroft and Light (2006, 2010), Pollock and Williams (2007), and Tingling and Parent (2004) by shedding light on the grey area between functional, economic, and political rationalities. Below, we reflect on these insights that are explicated in Table 4 and connect them with the extant IS literature.

The tendering legislation enforces legal complexity, extensive formalization, and low relational communication between the buying organization and prospective suppliers. Findings elsewhere suggest that non-compliance remains a problem, because of the buyer's lack of familiarity with the rules (Dutch House of Representatives, 2014). In our study, however, the buyer made huge efforts to comply. Such decision making would seemingly decrease the influence of politics, emotions, and partnering. Tendering typically represents a bureaucratic model of decision making (Shrivastava & Grant, 1985) because the tendering legislation requires a centralized authority, structured involvement of parties, and preplanned, procedural decision making. Nevertheless, we found political aspects do influence the decision-making process and potentially its outcomes albeit through relatively hard influence mechanisms. That is, tendering legislation was seen to enforce legal complexity, formalization, distant buyer-supplier relationships, linearity, and objectivity, which all pushed the actors towards the use of harder influence tactics (involving the impersonal or even manipulative use of authority and position power) at the expense of the softer tactics (Kipnis, Schmidt, & Wilkinson, 1980). With the exception of rational persuasion, soft influence mechanisms (such as inspirational and personal appeals) were replaced by harder, more overt and coercive mechanisms (such as legitimating tactics and pressure). Project management's avoidance of internal discussions by their referral to the tendering rules, emphasis

on hierarchical decision making, and demanding a proof of concept are clear examples. Regrettably, harder mechanisms are usually reported as less effective in generating commitment and perceived as less fair (Molm, 1997; Yukl & Bruce, 1992). This shaping of the enactment of political rationality reflects that under tendering, all attempts at influence have to be channelled into explicit procedures and choices. Berente, Gal, and Yoo (2010; 21) find that demonstrative efforts at control lead to responses that are merely intended to satisfy the demand for control by publicly exhibiting compliance but make no direct contribution to successful software implementation. This finding may probably be extended to software selection, where tendering legislation gets translated into compliance rather than in transparency, equality, and proportionality. Of the 3 rationalities, political rationality was least afforded by the tendering legislation, yet legal opportunities to deviate from the stated procedure were observed, creating some room for political manoeuvring. We noted how legal knowledge—how to “play the game”—becomes a vital power source (French & Raven, 1959). Legal knowledge enabled manoeuvring that was political in nature but stayed within legal boundaries.

While the public tendering requirement to communicate only formally and at a distance seems partly in line with functional rationality norms, it inhibits the gradual development of a partnership and a shared understanding of both the buyer's requirements and the supplier's capabilities. In our example, both the buyer and the potential suppliers were keen not to violate these rules by speaking freely to each other. This made it difficult for the buyer to assess the offer in-depth as well as to switch to a more cooperative mode once a supplier had been selected, both of which contributed to the ultimate failure. This suggests the following contribution to the software selection literature. Earlier, it was shown that for effective software testing in complex user settings, ie, differentiated and faced with functional and technical uncertainties, both formal and informal coordination is required (Van Offenbeek & Koopman, 1996). Our findings would suggest that the same goes for software selection in highly differentiated user settings faced with uncertainties: The buyer perceived the need for both formal and informal integration mechanisms in the decision making and the lack of the latter seems to have contributed to the unfavourable decision-making outcome for all involved.

In addition, the European tendering legislation also runs counter to functional rationality in prescribing a linear decision-making process, ie, not leaving any room for progressive learning. This is because the economic rationality underlying tendering legislation assumes linear decision making based on the availability of sufficient information. This assumption threatens functional rationality in complex use environments as has been recognized in recent software selection approaches (Şen, Baracli, & Şen's, 2009) that accommodate fuzziier requirements. When functional uncertainty is present, our findings support that it is difficult for a buyer to assess whether suppliers truly grasp what the buyer's formally stated requirements involve (Johansson & Lahtinen, 2012). Secondly, buyers may have difficulties in explicating their needs and also in understanding what is technically feasible (Moe, 2014), issues that in principle require learning cycles to resolve. In such situations, the “free market competition” norm of the economic rationality behind the legislation does not accord with functional rationality. Moreover, the provision of a strategically important software package has not only product but also service characteristics. In the case studied, a service is being demanded in terms of configuration and customization, building interfaces, instructing the buyer, providing new releases and updates and other “after sales” services, including maintenance and support. In such service delivery, trust seems to be a critical success factor (Johnson & Grayson, 2005). Therefore, the tendering procedure's reliance on the epistemological assumption that knowledge can be objectively articulated and shared (Howcroft & Light, 2010) turned out to be less functional in the software selection process studied. Loebbecke, Weiss, Powell, and Krooss (2010) found that in Enterprise Resource Planning system (ERP) selection, in which service aspects are also important, buyers highly value customer references and expert network recommendations. Tendering does not afford the consideration of such more “subjective” criteria that Schiessl and Duda (2007) found to be dominant. This explains why, under tendering, buyers may still manoeuvre in formulating their requirements and preferences to contract a specific supplier that they trust. In our case study, refraining from such manoeuvring resulted in contracting an unknown supplier, which was both a surprise and ultimately a failure.

Thus, in the decision-making process norms of economic rationality were better afforded than those of functional and political rationalities. However, in line with findings in the transportation sector (Hensher & Stanley, 2008), for

software selection the (European) tendering legislation was seen as involving high formalization costs and a lengthy process. In our case, these process costs could have been traded off against the much lower price, had the norms of functional rationality been met through the procedure. This points to the grey area between functional and economic rationality. Our findings are in line with ones in the construction industry (eg, Wong, Holt, & Cooper, 2000) that, on the client side, the “lowest price” is not necessarily the principal criterion, although the lowest price as underlying philosophy raises no objections. Although this study has focused on buyers' decision making, there are good reasons to assume that both buyers and suppliers incur increased costs. A policy report (Nederland ICT*, 2014) estimates the costs for suppliers of participating in European legislation-led tendering for large projects exceeds 1 million euro. These high costs might exclude suppliers who cannot afford such sums, which threatens the legislation's fairness principle, which can be seen as a tension between economic and political rationalities.

Finally, our findings highlight the following grey area between functional and political rationalities. Fundamentally, the ontological assumption underlying juridification efforts, like tendering legislation, is of a world characterized by heterogeneity and conflict that requires an imposed order and coercive measures. Conversely, a functional IS view assumes homogeneity and harmony (Hirschheim & Klein, 1989). The introduction of this tendering legislation suggests that the latter assumptions are seen as unrealistic and that to exclude inequalities and install fairness in a sector, that is to create a situation that fosters functional and economic rather than political norms of rationality, the buyer has to accept a costly tendering procedure. The outcome of this procedure should reflect objectivity and a formal legitimacy that discourages further objections. This is supported by our case, where the preferences of dominant stakeholders were not followed. Thus, for software selection that complies with tender legislation, Howcroft and Light's (2010) political shaping by the dominant groups does not hold. However, from a political rationality, one might wonder whether decision makers' strict compliance with the tender regulations can have served them in getting the decision outcome initially accepted. Furthermore, while the software requirements and selection criteria may be transparent and objectively evaluated, the question is who sets them: Who determines what requirements and criteria are functional and for whom? To conclude, we found that under compliance with public tendering legislation, functional rationality wins over political rationality, but the latter still dribbles through, albeit in a different guise than reported without tendering legislation (eg, Howcroft & Light, 2010; Loebbecke, Weiss, Powell, & Kroos, 2010; Schiessl & Duda, 2007).

7.2 | Practical implications

This study offers a buyer's impression of the shaping of a software selection process following EU tendering legislation. While most of the legislation's goals, such as transparency, equality and non-discrimination, may have been achieved, the study also highlights unintended side effects, such as the legal complexity, discriminating against small suppliers, and increasing resource intensity. In this particular case, an unknown supplier was contracted and ultimately failed. This failure implied a loss of tens of millions of euros, the postponement of an integrated EHR that was deemed necessary for the optimal service provision of the patients and many frustrated project members as well as end users.

This study challenges buyers to rethink the required level of detail and the inclusiveness of their requirements. Including many detailed requirements might lead to a long and costly process, which may inhibit the flexibility needed in a dynamic and complex environment and harm the trust needed during the implementation phase. Another lesson is that public tendering does not rule out political rationality. Implementers should be aware of this but should also provide more room for informal communication within the legal framework. Those responsible for tendered software selection are also advised to invest in functional as well legal expertise and to use experienced negotiators who are knowledgeable in the field. These experts should not be involved in the subsequent implementation of the system to ensure that conflicts that arose during the negotiations will not impact future cooperation.

This study raises a critical question for policymakers: Does the enforced competition for the lowest-priced offer compensate for the vastly higher process costs in terms of time, resources, and delays? Policymakers and legislators can use the study's findings when addressing the question of how to mitigate the undesirable effects of tendering. Initial attempts have been made to allow adapted forms of tendering such as by applying criteria other than the lowest

price (Kashiwagi & Byfield, 2002). Specific suggestions are to include the past performance of a supplier based on customer references and expert network recommendations as a valid decision criterion (Dutch House of Representatives, 2014, pp. 175–178). Other directions for improvement are (1) to allow more dialogue, discussion, and negotiations with suppliers, (2) to give suppliers and buyers multiple opportunities to adapt requirements and proposals before the final selection of a supplier, and (3) to allow selection of a supplier not only a quantitative evaluation of bids but also on narrative descriptions. When the explanation of a final choice can be based on quantitative data as well as narratives, it allows buyers to ground their decision on a broader and richer set of criteria. Within the EU, first steps in this direction have been made (Moe et al., 2017).

7.3 | Limitations

The study's outcomes and its contributions need to be viewed in the light of its limitations, which also point towards future research opportunities. First, the number of expert interviews was limited, although we did complement these with other data sources. Second, since the expert interviewees were all used or hired by the buyer, the suppliers' viewpoints are not, or at best indirectly, included. Third, we had only partial access to data. Access to informal conversations and e-mail traffic within the organization and with suppliers might have given a richer picture. Fourth, a comparable case that did not follow the European tendering framework was not available as a basis for comparison. Consequently, the effect of the tendering framework could not be directly measured. Our approach was interpretative, in the sense that the experts' frames of reference served as a basis for comparison. The interviewees had views on how it might otherwise have gone based on previous experiences if they had not been forced to conform to European legislation. Further, the interviewees often compared their decision making with that of other organizations in their field. Some of these firms took a very different approach, seemingly based on a different mix of rationalities. A last issue is the study's empirical transferability. As the findings are in line with the theoretically expected shaping by public tendering legislation (Table 2), there is a potential for transferability. However, we studied a case in the health services sector. Health professionals typically use their power to influence strategic decision-making processes. Although it seems likely that other differentiated, multistakeholder public organizations that procure software packages under tendering legislation will face similar shaping influences, differences in intraorganizational dynamics may lead to differences in especially the degrees and kinds of wiggle room used, and therefore, in the decision outcomes. Finally, the wiggle room afforded by public procurement legislation under different procurement procedures within the EU (Moe et al., 2017) or in other developed countries may differ from the restricted tendering procedure as analysed in this study.

7.4 | Future research

Studying other cases, and preferably comparing multiple, cases could verify our exploratory findings. Secondly, since the suppliers' viewpoints were not included, it would be interesting to study their views, strategies, and tactics. Studies that examine both buyer and supplier perspectives as well as their interactions will result in an increased understanding of the dynamics and effects of EU-tendered software selection. Thirdly, there was little evidence of the influence of the wider context covering the industry, intermediaries (consultants) and product development. Future research may pay attention to this issue, particularly because consultants can have a significant influence on the process. Finally, recent studies (Howcroft & Light, 2010) arguing that requirements are continuously evolving raise the issue as to how changing requirements are reconciled, or clash, with the linear selection process induced by the tendering legislation.

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APPENDIX

Interview guide of semistructured interviews with staff members involved in the procurement of the electronic health record system

What is your position and background?

Did you have any prior experience with tendered software selection? Probe.

- 1 What were the most important tendering rules and regulations that had to be followed?
- 2 How was the tendered procurement process organized in terms project structures and team members?
- 3 Which stakeholders were involved?
- 4 Who were involved in the requirements analysis before the actual announcement?
- 5 How was decided which groups and individuals should be included and excluded?
- 6 How were the software requirements determined?
- 7 To what extent did the participants agree and reach consensus about the requirements?
- 8 Are the requirements modified during the decision making process? How and why?
- 9 What was the degree of consensus among participants during the tendering process?
- 10 Who were the suppliers and what were their characteristics?
- 11 Are there any tendering rules or legislation violated? Or any urge? When and why?
- 12 How did you organize the communication with suppliers?
- 13 How do you characterize these communications and what were the effects?
- 14 How were suppliers included and excluded?
- 15 How was the final decision made?
- 16 To what extent did the internal participants support the process and the final outcome?
- 17 How similarly or differently would you organize this process when tendering was not prescribed?
- 18 How do you evaluate this tendered software selection process?
- 19 What were the main benefits and problems of this tendered software selection process?