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**LEARNING TO CONTRACT IN PUBLIC PROCUREMENT: AN EMPIRICAL
EXPLORATION OF THE ROLE OF ORGANIZATIONAL DESIGN IN THE PUBLIC
PROCUREMENT PROCESS**

Working Paper

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Learning to Contract in Public Procurement: An Empirical Exploration of the Role of Organizational Design in the Public Procurement Process

ABSTRACT

How do organizations learn to contract in public procurement? Previous research on learning to contract highlights the importance of contracting capabilities for successfully managing buyer-supplier relationships. According to this research, the design of supplier contracts should be aligned with the attributes of the transaction, which require specialized knowledge that is typically dispersed across different internal units and categories of employees. This gives rise to an organizational design problem of how to facilitate specialization, coordination, and integration across different parts of the procuring organization. Based on two case-studies, we examine the nature of learning processes in public procurement and how organizational design impact contractual learning. Our results show that public procurement contracts change as a result of experiential learning and that the nature of this learning is affected by organizational design. More specifically, we find that the aggregation of economic, technical and legal tasks in specific functional units can strengthen contractual learning through specialization and the standardization of processes, and that the level of structural integration between these units may affect what type of contractual learning that occur.

Keywords: Contracting Capabilities; Learning to Contract; Public procurement; Transaction cost economics

INTRODUCTION

How do organizations learn to contracts in public procurement? Public organizations, such as government agencies, municipalities, and regional government; face increasing demands for securing an efficient use of resources in the procurement of goods and services (Schapper, Veiga Malta, & Gilbert, 2006; Patrucco et al., 2019; Thai, 2001). This warrants a careful examination of how public procurement relationships are contractually governed. Transaction cost economics (TCE) states that organizations will choose the contractual design that best mitigates supplier opportunism given the attributes of the focal transaction (Williamson, 1985). This may involve designing more elaborate contracts with greater safeguards (e.g., termination and penalty clauses) when bilateral dependence and uncertainty is high. However, research also shows that organizations over time learn to govern their contractual relationships in a more efficient manner by developing contracting capabilities (knowing “how much and what kind of detail to include in a contract”) (Argyres & Mayer, 2007: 1060). This form of contractual learning is typically incremental and local, more pronounced for technical than for legal terms, and a function of the amount of previous contractual experience (Argyres, Bercovitz, and Mayer, 2007; Arino et al., 2014; Faems et al., 2008; Lumineau, Frechet, & Puthod, 2011; Mayer & Argyres, 2004; Vanneste & Puranam, 2010; Weber, 2017; Xing et al., 2021).

Knowledge concerning how to design contracts may involve subtle choices concerning how payments are made (Kalnis & Mayer, 2004), how decision and control rights are allocated (Malhotra & Lumineau, 2011), the duration of the contract (Crocker & Masten, 1988; Joskow, 1987), the parties’ roles and responsibilities (Reuer & Arino, 2007; Weber, Mayer, & Macher, 2011), the use of contingency planning (Mayer & Berkovitz, 2008), how communication takes place (Mayer & Argyres, 2004), and what form of dispute resolution that is stipulated (Vanneste & Puranam, 2010; Ryall & Sampson, 2009). We argue that learning and knowledge development concerning these questions presents an organizational design problem that

involves the specialization of employees performing different tasks in the procurement process and the structural integration of specialized units or functions (see Patrucco et al., 2019). While these challenges are also present in private procurement, they are arguable more severe in public procurement because of the special legal demands on neutrality, transparency and accountability that these relationships are subject to, which typically limit contractual adaptiveness and the possibility of using informal or relational mechanisms in contract governance (Knutsson & Thomasson, 2013).

Hence, based on a multiple case-study of a municipality's procurement of cleaning services and a research organization's procurement of a technical system, we explore the nature of contractual learning in public procurement and how it is affected by the internal attributes of the procuring organization. We find that public procurement contracts exhibit significant changes that are driven by learning from previous procurement contracts. The contractual changes we observed were primarily made in contractual safeguards (control-oriented terms) rather than in the technical description of the procured goods and services (coordination-oriented terms). The internal procurement organization played an important role in facilitating these contractual changes. Hence, contractual learning is linked to the consolidation of procurement activity in specialized functional units with sufficient scale to facilitate specialization and standardization of economic, technical and legal tasks. However, contractual learning is also driven by the pattern of interaction between different functional units (economic, technical, legal) during different phases of the procurement process. We specifically highlight the importance of structurally integrating legal specialists in the contract design phase of the procurement process to facilitate the development of templates and control-oriented terms; and the important role of technical specialists for securing experiential feedback on performance during the contract governance phase.

We make three contributions to the literature on public procurement and contractual learning. First, we suggest that research on public procurement should incorporate a learning to contract perspective and insights made in the study of private contractual relationships (e.g., Mayer & Argyres, 2004; Vanneste & Puranam, 2010). Our results show that contract design is challenging in public procurement, not only because of the inherent complexities and knowledge requirements involved in designing contracts (Argyres & Mayer, 2007), but also because of the extensive restrictions on this activity that follow from public procurement laws and regulations (Knutsson & Thomasson, 2014). Legal restrictions concerning how a public organization may interact with suppliers and limitations on changing or terminating contracts are likely to give rise to different contractual hazards than is encountered in the private sector. More specifically, our study indicates that organizations in a public setting will tend to rely more on formal safeguards and control-oriented terms than what would be the case in private procurement. Learning to contract concerning control-oriented terms is thus likely to be more pronounced in public procurement. Second, we also contribute to research on the role of functional specialization when learning to design and evaluate procurement contracts. Previous research describes the distinctive roles of managers, engineers, and lawyer have in this process and how they are associated with the development of different types of contractual terms (e.g., Argyres & Mayer, 2007). We add to this literature by showing how functional specialization in public procurement is driven by the consolidation and centralization of procurement activity. The scale or frequency of procurements, in turn, supports the creation of specialized functions, the articulation of procurement knowledge, and the codification of this knowledge in formalized processes (see Zollo & Winter, 2002). Third, we highlight the important role of structural integration between economic, technical, and legal specialists in the procurement process. Our results show how the integration of the legal function in the procurement process may affect the ability to refine contractual templates and adapt the design of control-oriented terms (e.g.,

penalties/liquidated damages) to other terms and the general attributes of the transaction. The integration of the technical function in the procurement process, on the other hand, plays an important role in securing experiential feedback on previous contractual design choices.

CONTRACTUAL LEARNING AND ORGANIZATION

The main proposition of TCE is that organizations mitigate contractual hazards and reduce transaction costs by “assigning transactions (which differ in their attributes) to governance structures (which are the organizational frameworks within which the integrity of a contractual relation is decided) in a discriminating way” (Williamson, 1985:41). The bounded rationality of actors implies that organizations will not be able to include all relevant contingencies in their contracts; whereas the risk of opportunism suggests that contractual partners may take advantage of the “loopholes” that are inherent in the incomplete contracts entered by bounded rationality actors (Williamson, 1985). The transaction costs that this gives rise to would not be significant if exchange parties that do not live up to contractual obligations could be easily replaced. However, contractual relationships often involve relationship-specific investments and uncertainty that create bilateral dependency, which make it costly to switch exchange partner. Organizations respond to increasing bilateral dependency by implementing more extensive contractual safeguards. For example, if bilateral dependency is high in a procurement relationship, the involved organizations may respond by writing a more extensive contract with greater safeguards and a longer duration; or by producing the good or service inhouse, so that conflicts may be resolved by managerial fiat.

The predictions of the TCE primarily builds on the mechanism of farsighted or hardheaded planning. In other words, the primary reason for why organizations chose a certain contractual design is that they recognize potential contractual hazards stemming from bilateral dependency and select the contractual structure that mitigates these hazards. Naturally, this places a very high, and perhaps unrealistic, burden on the capacity of decision-makers to

foresee the future consequences of contractual choices. In response to this critique, it has been proposed that while decision-maker may be unable to identify the impact of all contractual choices, evolutionary processes may play a role in weeding out decision-makers and organizations that fail to align contractual designs with relevant transaction attributes. Organizations that consistently make bad decisions concerning contractual design will in the long run turn increasingly uncompetitive and eventually be reorganized, liquidated or go bankrupt (Dow, 1987; Hallberg, 2015; Williamson, 1985). Another mechanism that has been proposed is organizational learning (Argyres et al., 2012). While decision-makers within an organization may fail to fully plan for the future and take all relevant factors into account when evaluating different contractual designs, it is likely that individual decision-makers and organizations will learn from their mistakes and gradually get better at aligning the contractual design with the attributes of the transaction (Argyres & Mayer, 2007; Mayer & Argyres, 2004). Contractual learning is thus based on trial-and-error, experience, and the routinization of behavior that has proven to work in previous situations (Argote & Miron-Spector, 2011); and the mechanisms through which individual cognitive interpretations of the environment are aggregated to an organizational level (Cohen & Levinthal, 1990). Organizations primarily learn to contract through the contractual experiences they have in their dealings with other organizations, which amounts to interpreting signals received from ongoing contracting processes and codifying this experiential knowledge in different organizational repositories, such as routines, processes, and artifacts (Zollo & Winter, 2002).

Learning and the Organization of Procurement Contracting

Contractual learning involves the development of knowledge that is typically dispersed across different functions or departments in the contracting organizations; such as economic knowledge held by managers and other commercially oriented employees, technical knowledge held by engineers and other categories of technical personnel, and specialized legal knowledge

primarily held by lawyers and internal legal counsels (Argyres & Mayer, 2007). An effective procurement organization, which allows the organization to learn from new contractual experiences, will thus likely involve specialization within these three functions, as well as mechanisms for structural integration between different units.

Functional Specialization in Contracting. Structural differentiation and integration are important elements of organizational design (Galbraith, 1973, 1977; March and Simon, 1958; Tushman & Nadler, 1978). According to Lawrence and Lorsch (1967: 3-4), structural differentiation refers to the “state of segmentation of the organizational system into subsystems, each of which tends to develop particular attributes in relationship to the requirements posed by its relevant external environment”. This involves a partition of the organization into suitable units or departments that will allow each unit to adapt more effectively to the specific environmental demands associated with the tasks performed within the unit (Gilbert, 2005). The partition of a procuring organization into functional units is likely to a large extent driven by transaction scale. Larger organizations that engage in more procurement contracts enjoy greater economies of specialization in the performance of contractual tasks (Epple, Argote & Devades, 1991, Yelle, 1979), which reinforces the tendency towards structural differentiation. A procuring organization may thus, depending on the scale of its procurement operations, employ trained specialists within different organizational units that deal with certain aspects of the procurement process, which may in turn also be important for what type of knowledge that is developed (see Vanneste & Puranam, 2010).

Argyres and Mayer (2007) identify three different organizational functions or categories of employees (managers, engineers, lawyers) that hold specialized knowledge for designing and developing different types of contractual terms. Hence, the procurement process may be described as building on three organizational functions, which we term economic, technical, and legal. In the context of public procurement, the *economic function* refers to units that are

specialized on issues related to the economic performance of contracts entered by the organization (e.g., procurement officer), the *technical function* refers to units that are specialized on matters related to the functionality of the product or service being procured (e.g., a technical department), and the *legal function* refers to units that are specialized on the legality, verifiability and enforceability of contractual commitments (e.g., administrative lawyer). These three functions tend to play different roles in the contractual process: The economic and technical functions constitute a more important repository of knowledge for developing contractual terms related to the parties' roles/responsibilities and their communication, while the legal function is an important repository for developing terms related to decision and control rights, dispute resolution, and contingency planning (Argyres & Mayer, 2007). In the following analysis, we build on these five different types of terms and clauses in procurement contracts by discriminating between *coordination-oriented terms* (roles/responsibilities, communication) and *control-oriented terms* (decision/control rights, contingency planning, dispute resolution) in order to account for how organizational design may impact different forms of learning in the public procurement process.

Structural Integration in Contracting. Structural integration refers to “the process of achieving unity of effort among the various subsystems in the accomplishment of the organization’s task” (Lawrence and Lorsch, 1967:4). Solving complex problems, such as the design of a public procurement contract, typically require the transferring, integration and alignment of knowledge residing in different individuals, units and department (Nickerson & Zenger, 2004). Organizations that face demands for both differentiation (to enable specialization and task-specific knowledge) and integration (to enable coordination and alignment across units) may have to implement specific organizational integration mechanisms (March and Simon, 1958). This may involve designing an organization with specific cross-functional interfaces, control- and performance evaluation systems that encourage

interfunctional communication, and informal activities aimed at achieving greater social cohesion and interaction between members of different units (Jansen et al., 2009; Tushman & Nadler, 1978; Puranam, Singh, & Chaudhuri, 2009). Overall, this points to a series of more specific empirical questions concerning how different categories of specialized employees are organized in the public procurement process; and how differentiation and integration mechanisms across these functions may affect the performance of contractual tasks and the type of learning that is likely occur.

Organizing Public Procurement

Public procurement typically imposes certain constraints on the procuring organization, such as demand for transparency, accountability, impartiality, political governance, and other limitations imposed by legal rules (Knutsson & Thomasson, 2013; Schapper, Veiga Malta, & Gilbert, 2006). The overall aim of these constraints on public procurement is to secure democratic influence on the use of public resources, to foster mobility and fair competition among suppliers, and to prevent corruption in public organizations. While providing important societal benefits, these demands also give rise to additional costs for public organizations (Johnson, Leenders, & McCue, 2003). Such costs may, for example, be related to the potential multiplicity of goals (e.g., economic, technical, and societal benefits of procurement contracts) and the adaptiveness of contracts (e.g., restrictions on factoring in past supplier performance and trust, changing evaluation criteria, terminating supplier contracts). We conjecture that these differences between private and public procurement are likely to affect how procurement is organized and how contractual learning processes unfold.

Public procurement may be organized in a wide variety of ways. For example, based on a series of case-studies of the role of procurement departments in European municipalities, Patrucco et al. (2019) identify six different organizational configurations for public procurement with different level of centralization and authority within the overall organization.

The role and responsibility of the procurement department varied from full responsibility of procuring all goods and services (authoritative) to a set-up where decision-authority was delegated to individual departments (local). Similarly, a survey by McCue and Pitzer (2000) of the level of centralization of US government procurement organizations show that many organizations rely on a mix of centralized and decentralized structures. The level of centralization and the allocation of authority in the procurement organization is likely to play an important role for how goals are perceived (Glas, Schaupp, & Essig, 2017), how different stakeholder interests are addressed (Kamann, 2007), how professional roles and competencies develop (McVitt et al., 2012), and the possibility of drawing on cross-functional expertise in the procurement process (Schiele, 2005). Further, it also raises important questions concerning how organizational design may impact contractual learning and the development of contracting capabilities in public organizations. Hence, in this study, we particularly focus on the relationship between internal organization, contractual learning, and the development of organizational capabilities in public procurement.

METHOD

This study follows an inductive case study design (Eisenhardt, 1989; Yin, 2003) of two organizations engaged in public procurement. Because of anonymity agreements, respondents and the organizations are presented using the pseudonyms. Alpha is municipality and the case study is focused on Alpha's organization of the procurement of cleaning services in the period of 2012-2020 and the organizational learning associated with this activity. Beta is research organization and the case study is focused on a larger procurement project of a research-related technical system between 2012-2020.

Cases in a multiple case study should be selected so that they either produce similar results for predictable reasons (literal replication), or contrasting results, for predictable reasons (theoretical replication) (Yin, 2003). The two cases in the study were selected following a

broader inquiry into suitable public organizations where advice and guidance from third parties set researchers in contact with relevant decision-makers in the two organizations. Once contact was established explorative interviews were set up to evaluate the suitability of the cases. The result of the explorative interviews indicated that the two selected cases were relevant to the study and also complemented each other in a theoretically relevant way. Alpha's procurement of cleaning services presented an opportunity to study procurement of high-volume services that had historically presented significant challenges related to contractual design and governance, where also contractual and organizational measures had been taken to improve these aspects of the procurement relationships. Beta's procurement of a technical system, on the other hand, presented an opportunity to study a large procurement project for technically advanced equipment, which had also been subject to significant contractual renegotiations and organizational changes. Hence, the selection of the two cases built on what Yin (2003) terms theoretical replication: The different procurement conditions and differences in organization across the two cases were expected to give rise to different contractual solutions and challenges, which in turn can be expected to affect contractual learning.

Data Collection

Both cases were located in proximity to the researchers and data collection could thus easily be arranged through visits to the different sites. The case studies were conducted according to a pre-defined case-study protocol (see Appendix) that specified data collection procedures, data sources (interviews, documents), and the type of questions that the collected data should answer (Yin, 2003). Data collection for the case-studies was done retrospectively through semi-structured interviews and the analysis of internal documents. A total of 21 longer semi-structured interviews were conducted with the individuals most closely involved in the studied procurement activities, as well as managers and other employees involved in the procurement process. The interviews were mainly conducted at each site and lasted

approximately one and half hour each. Internal documents also played an important part in the data collection for both cases. These documents included extensive procurement contracts with suppliers, contractual revisions, and related internal policy documentation of the procurement process. Details about the cases and the collected data is presented in Table 1.

--- Insert Table 1 here ---

Data Analysis

Data analysis procedures were based on case study research (Yin, 2003; Eisenhardt, 1989) and the method of constant comparison (Glaser & Strauss, 1967; Strauss & Corbin, 1998). The interviews were first transcribed and then read through several times while noting themes identified in the text in a separate document and marking the text in the transcript that the particular theme referred to. By iterative comparison of the text sorted under different themes, the number of themes was reduced and individual themes were delimited so that a consistent classification was accomplished. Themes were then given definitions that captured the content of the quotations included under the themes (open coding). A case-description was written based on the outlined structure (chronology). Each case-description described the case in terms of outlining the buyer and seller(s), the technological conditions underlying the transaction, contract design and type of governance, procurement organization and processes, and learning outcomes. Once the cases had been compiled a comparison was made between the cases in order to identify theoretical patterns concerning the link between organization and learning (cross-case analysis). The final step in the data analysis involved matching the pattern emerging from the cross-case analysis with prior studies on procurement and learning to contract in order to identify the specific theoretical and practical contribution of the study (see Yin, 2003).

LEARNING IN PUBLIC PROCUREMENT

The organization of public procurement can take many different forms depending on what good or service that is being procured and the type of organization doing the procurement. The two

cases in this study were selected because they represented two widely different contexts, both in terms of the nature of the exchange and the procuring organization: In the first case, a municipality's procurement of cleaning services, and in the second case, a research organizations procurement of advanced technical equipment.

The Procurement of Cleaning Services at Alpha

It is only when you encounter a real problem and something miserable actually happens, it is only then that you see the weaknesses in a contract. As long as everyone is happy and satisfied, you may not see what you need to improve and change (Procurement Manager, Alpha)

Alpha is a Swedish municipality with an overall organizational structure based on departments, each responsible for a certain service area (e.g., culture, elementary school, services, administration, etc.). Cleaning is a large and important activity for Alpha that has been procured on a departmental basis with the municipality's procurement unit acting as administrative assistant. Cleaning contracts within a certain department typically cover a certain part of that department's activities and have a duration of two years with the possibility of an extension of 24 months. The extension of contracts ultimately depends on whether the department is satisfied with the performance of the supplier, which in turn is linked to the controls performed by Alpha's cleaning governance unit, cleaning support, and the supplier evaluation conducted by the procurement unit. The procurement unit has the overall responsibility for Alpha's procurement strategy, demand/market analysis, developing procurement contracts, conducting municipal procurements, and administering department-specific procurements. The procurement unit is organizationally placed under the municipality administrative department and the unit has approximately 30 employees and is led by a procurement manager. The interviewed procurement officers describe their work tasks as centered on doing market analysis of needs, designing contracts, handling contract signings and governance, and managing supplier disputes. Writing the procurement material/contracts and discussing this with the reference group is perceived as the most time-consuming activity. This includes both more economic matters, such as positioning the procurement towards the relevant market and

deciding on a pricing model, as well as making sure that the procurement document is in line with relevant laws.

The main task of cleaning support is to manage contractually specified quality controls and communications with suppliers. According to the unit manager, cleaning support's main work responsibilities is technical contract governance based on the cleaning standard INSTA800, which standardizes different levels of cleanliness along with specific methods for evaluation. Cleaning support was launched in 2012, first as a temporary project that was later made into a permanent unit, which in 2019 employs five cleaning coordinators. A key element of this organizational set-up, which is unique to the procurement of cleaning, is that the cleaning coordinators are experienced experts in the technical aspects of cleaning. The cleaning coordinators are in close contact with contracted suppliers as well as with the department representatives, which gives a first-hand experience of how procured services are working. The knowledge gained during this governance phase of the procurement may then be utilized as feedback in the development of new procurement contracts.

Alpha's cleaning suppliers vary over time as new services are procured. Suppliers are both smaller local and larger national companies. At the time of the study, Alpha had eight different cleaning suppliers. The number and identity of suppliers have been relatively stable over the last ten years with some minor variation. Contracting cleaning services on a large scale is more challenging than what one might expect on a first glance. On the one hand, the industry is relatively adaptive in terms of available capacity. There is a significant number of potential suppliers even for large contracts, and the level of tangible relationship-specific investments is moderate although new suppliers face significant start-up costs related to training and hiring new employees. Alpha's main challenge in relation to suppliers instead concerns the assessment of service quality, the limited adaptiveness of procurement contracts, and the high cost of contractual termination. The problem of premature termination by suppliers has, in fact, caused

municipality officials to consider the possibility of insourcing cleaning services.¹ It is perceived as a problem that suppliers qualify in tenders on the basis of overoptimistic calculations where they later may find it difficult to deliver contracted quality with a sustainable margin.

Changes in Contracts. An analysis of the contractual templates used for procured cleaning services shows that they have been subject to revisions, although the basic structure of the templates has remained the same in terms of defining the nature of the procured service and the approach to quality controls according to the standard INSTA800. Major changes involve more extensive supplier obligations (e.g., quality controls, employee competence/protection, damage liability) and more extensive control-oriented terms giving Alpha better means of enforcing contractual rights (e.g., price adjustments, rights to withhold payment, penalties, and termination).

Changes in contractual templates are typically made in an incremental fashion between individual procurements depending on the experiences made in the previous procurement. Such changes may be about clarifying the wording of the contract in order to avoid misunderstandings, to modify the agreed number of quality controls, or changing demands on the supplier's training of staff. The most significant change made in the contracts over the past five years in response to contractual experience concerns the introduction of penalty payments for failed controls and stricter clauses for termination. According to a cleaning coordinator, new signals about what Alpha should change in their contracts are continuously being received by cleaning support. These signals may originate from the department where the cleaning is performed, from the supplier, or from the daily follow-up and coordination work carried out by cleaning support. However, the task of revising contractual templates is perceived as sluggish

¹ Departments have the option of using Alpha's internal cleaning unit, which performs frequency cleaning (not according to INSTA800) during work days.

and it was only after the unit brought in an external lawyer that the templates were updated on a more general level. As explained by the procurement manager:

We've had these templates. The templates were already there when I started. It was just that they were ancient already then and needed a major facelift. I tried to get the staff here themselves to do that facelift in different rounds. You know, and then someone who might have started working on it ends up doing something else. Well, there were different things happening here along the way that meant we didn't quite get to the finish line (Procurement manager, Alpha)

According to respondents, an important experience that prompted contractual changes was a major legal dispute with a cleaning supplier that was terminated due to perceived low-quality cleaning. According to respondents, the supplier did not have the infrastructure in place to perform cleaning that met contractual quality requirements. As a result, Alpha chose to terminate the contract, which prompted the supplier to successfully sue Alpha. Alpha appealed, but the process was reconciled before ruling. According to the procurement manager, this court case showed the importance of contractual specifications concerning quality along with strong enforcement and control mechanisms.

Changes in Organization. Key organizational changes in relation to the procurement of cleaning involve the position and expansion of the procurement unit within the municipality and the development of the cleaning support unit. During the last ten years Alpha has continually been moving away from a district-based organization to a more centralized and specialized organization based on functional departments. The procurement unit has, as part of this process, been significantly expanded and consolidated its activities to allow for greater specialization. Among other things, the procurement unit was moved from the service department to the administrative department in order to make procurement a more strategic concern for the municipality. According to the procurement manager, the most important change was the creation of sections within the procurement unit (IT, services, consumables) to facilitate specialization within specific procurement areas. A second major change was the formation of the cleaning support unit, which was an important initiative that strengthened Alpha's procurement of cleaning services by enabling more extensive contract governance of

cleaning services. Hence, cleaning support has been vital for how cleaning services are procured, governed, and especially, how quality is evaluated.

Evaluating the quality of cleaning services is a significant problem for Alpha where INSTA800 provides a potential solution, although the problem has not been completely resolved. For example, one of the cleaning coordinators describes the challenges of interpreting INSTA 800 as evaluating different subjective perceptions of what is clean, which in turn may lead to breakdowns in communication between departments and suppliers. In these situations, cleaning support plays an important role in mediating the relationship, which is accomplished by contractual follow-up meetings with suppliers and departments where results are discussed and communicated in a technically specific manner according to the parameters set in the standard. Other organizational changes related to the procurement of cleaning services include increased standardization, codification of knowledge and routines, and the consolidation of procurement activity through framework agreements. Despite ongoing efforts, respondents generally perceive it to be a problem that many procurement activities are based on the habits and personal preferences of individual procurement officers. To some extent, this may be attributed to a widespread perception that 'all procurements are unique', which has historically led to a reluctance towards formalizing or routinizing procurement processes. Respondents explain that the standardization of processes involve a trade-off. On the one hand, it is considered important to get away from what is described as the earlier 'Wild West' where everyone had their own personal routines and working methods, but on the other hand, respondents do not want a situation where processes are 'over-standardized' and where local learning and possibilities for variation are removed. An important factor influencing this balance is that the procurement unit has grown radically in size, making ad hoc solution less feasible, which drives the formalization and standardization of processes.

The Procurement of a Technical System at Beta

There have been discussions about increased cost for additional activities, there's been discussions for increased costs for unclear scope, there has been discussions about delays, there has been discussions about liquidated damages. We have renegotiated liquidated damages in exchange for additional scope without costs. It's been a fun trip, I must say. It's been difficult situations as well, where not everything is solved (Procurement officer, Beta)

Beta is a large publicly owned research organization. The research conducted at Beta requires a number of advanced technical systems to be designed, procured and installed. For this purpose, a contract was entered with a large European engineering firm (EngComp) to build and install an important technical system. The original tender and the subsequent contract with EngComp were managed in close collaboration between the technical unit, responsible for matters related to design, specification and construction, and the procurement unit, which is responsible for developing the economic aspects of the sourcing of new components, such as procurement strategy, running tenders, negotiating with suppliers, and supporting contract management from an economic perspective. The procurement unit consists of about 13 employees who administer individual procurement projects, such as the EngComp project. Legal services related to procurement and contracting are provided by two legal counsels who are placed within the procurement unit. The involved organizational units retain a high degree of functional specialization. For the technical unit, this professional specialization is natural due to the advanced technical nature of the work being done. Similarly, officers in the procurement unit have commercial background in relevant industries with a strong orientation towards facilitating the commercial aspects procurement projects.

The EngComp procurement project was launched in 2013 as a result of an internal request from the technical unit. The first step of the project was for the procurement unit to do a commercial industry study. This study showed that there were only two potential suppliers for the system, EngComp and a competitor. The invitation to tender was then sent out in 2014 based on an open procedure for public procurement (another possibility would have been to do a negotiated tender). As expected, there were two bidders for the order where EngComp clearly won the tender based on lower price and better technical performance on the evaluation criteria.

The contract with EngComp that was subsequently signed was extensive in terms technical detail and also contained a number of safeguards for protecting Beta, such as the right to realize certain options for additional delivery and extensive penalties/liquidated damages for failure to deliver on time according to the technical specification.

Early in the project, coordination-problems started to materialize in the form of adaptations of the technical specification (change orders) and delays in the delivery and installation of the system. According to the head of the technical unit, these delays were growing over time and eventually posing a real challenge to the timeline of the project, which was dependent on different systems being ready on time in order to go through with testing and commissioning. The situation was complicated because although EngComp was contractually responsible for delivering and installing components on time, part of coordination problems originated with adaptations initiated by Beta. The fundamental coordination problems and delays in the project persisted, and according to the original contract, Beta had a right to substantial liquidated damage. According to respondents at Beta, these potential claims were as large as 10 % of the contract value. In addition to that, there was a sense among the responsible engineers at Beta that EngComp were starting to get nervous about the financial outcomes of the project, and as a result, getting more and more demanding on issues affecting the cost of the project. From Beta's perspective, this made the coordination with EngComp more challenging, and as a result, the technical project head eventually decided that the issue of delays and change orders need to be put to rest by means of a new contractual amendment and revision of the original contract. Hence, the original contract was subject to an extensive renegotiation that was intended to regulate delays, cost increases, change orders, and Beta claims for liquidated damages. The solution agreed upon was to extend the delivery time, effectively eliminating claims of liquidated damages, in return for Beta not having to pay invoices for change orders. While respondents at Beta acknowledge the fact that EngComp was

released from a substantial contractual obligation with little given in return, they also emphasize that Beta priorities in this project were not commercial and that their main objective was to get systems in place so that the system would be up and running on time.

Changes in Contracts. According to the responsible legal counsel at Beta, the template for the EngComp contract came from the former head of legal at Beta who used a template from a former employer (a legal firm). According to respondents, the design of the original contract with EngComp was largely a product of Beta being a young organization at the time without extensive experience in designing contracts for large technical projects. For example, as highlighted by the responsible procurement officer, Beta did at the time of the original contract not have a clearly developed procurement strategy to guide the design of the contract. This lack of experience and a clear strategy affected Beta's choice between types of procurement processes, the timing of the contract (it might have been beneficial to postpone the tender), how the responsibility for installation was regulated in the contract (the extent to which this should be done by EngComp), and how to regulate liquidated damages claims (they were much higher than what Beta eventually wanted to exercise).

The mounting delays in the delivery of the system resulted in a renegotiation of the original contract where the cost of change orders and claims for liquidated damages related to the delays were changed. According to Beta's interpretation of the original contract, the liquidated damages linked to the delays were extensive. However, in order not to threaten the relationship and the future delivery of the system, Beta chose to waive these claims in return for getting smaller change orders for free. The outcome of this revision thus shows how key decision-makers at Beta came to change priorities as they gained new experiences concerning the challenges associated with the execution of the contract, where the adaptiveness to unforeseen contingencies (e.g., change orders, timing of deliveries, coordination) were given greater weight relative to the penalty clauses included in the original contract. According to the

head engineer, important new insights were made during the project concerning the importance of issues related to reliability and maintenance, an aspect of the relationship that was not given sufficient weight in the original contract. According to respondents, the rights to liquidated damages in supplier contracts, may be important for retaining a strong bargaining position, but these contractual terms should only “work under the surface”, thus allowing the parties to retain a cooperative spirit. The importance of building and keeping goodwill in the relationship is emphasized by the head of the technical unit as a means of securing that necessary technical adaptations can be made in a frictionless way: There are always loopholes in any contract, and in a situation where you are dependent on a supplier to make adaptations along the way, your best chance of getting this done is to rely on the goodwill of the supplier.

Changes in Organization. The main organizational change of direct relevance to the EngComp contract was a decision in 2015 to organizationally integrate Beta’s legal department with the procurement unit. The reason was to create better integration between the legal, economic and technical functions. According to a legal counsel, this ambition worked out well and reduced barriers associated with approaching legal, while it also became easier for legal counsels to collect information and engage in informal discussions with procurement officers. The negative effects, on the other hand, were that legal becomes a less visible part of the organization and that it was be harder to exercise authority under these circumstances.

The contracting processes and routines at Beta did also change significantly after the contracts with EngComp was entered. For example, a document called “contract management guidelines” was developed in order to formalize some of the interfaces and more formally describe the ideal process in which different stakeholders should interact when setting up supplier contracts. This change also involved reworking Beta’s procurement strategy. The new procurement strategy focused on providing templates and process descriptions for how contractual relationships with suppliers should be entered. This included defining the

procurement needs, what is expected of the supplier, and how the contractual process should be managed. According to the responsible procurement officer at Beta, an important insight concerning the management of contractual relationships that was made during the EngComp project is the importance of having a clearly defined procurement and contracting strategy before entering tenders. This is important for achieving consistency towards suppliers, which in turn affects bargaining power. The problem is aptly illustrated by the EngComp relationship where the absence of a clear strategy in the beginning of the relationship lead to the inclusion of liquidated damages that Beta later on could not stand by.

ORGANIZATION AND LEARNING

Both Alpha and Beta show different forms of contractual learning that cannot be attributed to changes in transaction attributes. In the case of Alpha, this included changes in contractual templates (more extensive control-oriented terms) and organization (scale, specialized subsections, increased formalization). In the case of Beta, contractual changes included a significant revision of the clauses on liquidated damages to facilitate technological adaptation, integration of the legal function into the procurement unit, and a significantly developed procurement strategy. In this section, we seek to outline the organizational factors that are may affect this contractual learning and facilitate the development of contracting capability. A summary of key findings in the two cases is presented in Table 2.

--- Insert Table 2 here ---

Consolidation, Functional Specialization, and the Standardization of Processes

Procurement has taken a huge step forward, huge standardization [...] This was much more cowboy-like in the early days. Now this has vastly improved [...] They have become more professional. They have hired more people. They have established formal processes. In the beginning, the templates looked quite different. It was not standardized. Now it looks actually like a professional thing (Head of technical unit, Beta)

Functional specialization played an important role for the development of new knowledge concerning how to design and govern contracts in both studied cases. Beta's procurement organization was designed based on a notion of three specialized functions: technical,

economic, and legal. While the procurement organization was underdeveloped and lacked the support of a clear procurement strategy in the initial phases of the EngComp project, the clearly defined knowledge sets and professional roles contained in these three functions played an important role to facilitate the design and negotiation of the contract with EngComp, both in terms of coordination- and control-oriented terms.² Functional specialization in the case of Alpha was initially less pronounced. In fact, addressing this problem was the major concern identified by the procurement manager when initiating the expansion and reorganization of the procurement unit. For cleaning services, this problem was addressed in three steps. The first step involved the centralization of municipality procurement activity across all department to the procurement unit. The increased demand for procurement services allowed the unit to grow in terms of number of employees, which in turn created the necessary conditions for the standardization of processes and further unit specialization in terms of the creation of sections focusing on different types of goods and services.

The second step was the creation of a technically specialized contract governance function in the form of the cleaning support unit. Because of the broad procurement needs of a municipality, developing sufficient internal technical knowledge within each procurement area constitutes a significant challenge that may affect contract design, governance, and the potential to learn based on feedback from governance activities. With the relative unique solution of the cleaning support unit, Alpha gained an opportunity to not only push increased technical specialization within cleaning (and the standard INSTA800), but more importantly, to also significantly improve contractual governance, which in turn strengthened the feedback between governance and contractual design.

The third step involved incorporating previous experiences into contractual templates to be used in new procurements, which was eventually finalized with the involvement of an

² Subsequent revisions to the contract were largely a result of a failure to align legal or control-oriented matters (liquidated damage terms) with other project objectives related to technical coordination between the parties.

external law firm. This last step points to a potential shortcoming in Alpha's legal specialization in the procurement process (for example, compared to Beta). The fact that Alpha, over a period of several year, was unable to implement a major overhaul of its contractual templates show how even relatively simple tasks related to developing contractual templates may require, not only dedicated attention, but also specialist legal knowledge and experience.

Economic-Technical Integration and Learning

The strength is that we exist. That the contract is designed so that it can be followed-up. I think that's a strength. And that you have solved this with a function like cleaning support to takes on incoming contracts. I think this must be a basic security for Alpha. I think there should be contract follow-ups in significantly more areas. I would have liked there to be a political will for a major general review of Alpha's contracts [Manager for Cleaning Support, Alpha]

The integration of the economic and technical functions in the procurement process was a key factor affecting learning and contractual change in both Alpha and Beta. In Alpha, the procurement process for cleaning services was built on a close collaboration between the procurement officers (economic function) and the cleaning coordinators (technical function) where the procurement officers were responsible for market analysis, preparing procurement documents, and tenders; whereas the cleaning coordinators were responsible for technical matters related to cleaning, such as the development of procedures and adoption of standards, quality controls, and supplier communication. When a municipality department perceives a cleaning need it will typically approach the procurement unit with this request. As a first step, the procurement unit then asks cleaning support to visit the concerned premises and speak to department representatives in order to specify the cleaning need in an operational format, which the concerned department and the procurement unit are typically unable to articulate on their own. In this activity, the technical cleaning knowledge of the cleaning coordinators play an important role in translating the more or less articulated need of the department into specifications of the parties' roles and responsibilities that are later picked up on by the procurement unit when preparing the contract.

The second major task performed by cleaning support is post-contract governance in the form of physical/visual quality controls performed according to contractual criteria and the cleaning standard. According to respondents, the key to effective contractual governance is the cleaning coordinators technical knowledge about cleaning and the standards for assessing cleanliness. This knowledge, allows cleaning coordinators to perform the controls in an accurate way, but it also presents an opportunity to channel new knowledge about different ways of performing cleaning, which may then be included in future cleaning contracts through interaction with the procurement unit. An important factor influencing Alpha's learning in the procurement process thus involved the knowledge flows created when technical experts involved in the specification of department needs and hands-on governance activities are invited to weigh in on the evaluation and the design of new contracts. This illustrates how economic-technical integration may impact learning to contract in the public procurement of cleaning services: First, cleaning support's involvement in the early phases of the procurement process where buyer needs are specified provides an important input to learning related to coordination-oriented contractual terms (roles/responsibilities). Second, cleaning support's involvement and joint work with the procurement unit in later contractual governance activities, such as quality controls, provide an important input to learning concerning control-oriented contractual terms (e.g., number of controls, penalties, termination clauses).

The standard procurement process at Beta starts with the responsible technical unit defining a need and creating a technical specification on a procurement request form, which is handed over to the procurement unit who is responsible for developing the procurement documentation, setting up procedures for tender, and contract design. When the contract is in place, the responsibility for the project is handed back to the responsible technical unit who manages contract governance for the duration of the project. Beta thus retains a strong involvement of the technical function throughout projects, whereas the procurement unit is

mainly involved in conjunction with pre-signing activities related to the tender and contract design. In this sense, technical-economic integration is stronger during pre-signing activities (*ex ante*) than under post-signing activities (*ex post*). The observations at Beta thus show how technical-economic integration may change over the lifespan of a procurement project in ways that affect contractual learning concerning different terms and clauses. This may be important in terms of the type of knowledge that is developed because early or pre-signing phases of the procurement process are typically focused on the developing technical specifications, whereas potential problems related to delivery, quality and project contingencies typically occur in the post-signing phases of the project. Hence, many of the coordination and control-oriented problems that arise in a procurement project may never be experienced first-hand by the employees who are responsible for preparing tenders and designing contracts. Naturally, this may affect experiential learning concerning how contractual safeguards and control-oriented terms are matched with technical concerns and overall project performance.

In fact, a major concern when going into the EngComp project was Beta's lack of a clear procurement strategy that specify how economic and technical project-specific concerns should be weighed against each other. According to respondents, one consequence of the lack of a clear strategy was that the contract with EngComp, while being technically well-specified, did not properly balance technical concerns, such as project scope and the division of responsibilities between parties, against control-oriented terms, such as the use of penalties and liquidated damages. In other words, the control-oriented terms of the contract were not adaptive to the type of technical disturbances or contingencies that may be expected in the project (they were too restrictive/strong). As explained by a procurement officer, this is one of the things that Beta has sought remedy by the development of a new procurement strategy, which specifically regulated the interface and interaction between technical units and the procurement unit.

I'm now actually having very intense discussions about the procurement strategy before launching a procurement. I have very detailed discussions about why we ask certain things in the contract. Why do we put some percentage of liquidated damages. Why do we put certain demands on bank

guarantees or if we ask for a company guarantee. How do we define requirements about relationship reporting? These kinds of things have changed significantly. I'm also always asking as much as possible to close up requirements before we go for tenders [...] It's more procedural and yes, we've changed the way we launch procurement procedures. We've changed the way we interact with technical stakeholders. I do a lot of that before procurement is initiated. I do a lot of procurement management. I meet a lot with technical people to discuss procurement strategies. Maybe this is something we didn't do because there was no developed procurement group when this contract was initiated. We have a way of working that is more defined. Now we define the strategy before launching a project (Procurement officer, Beta)

Integration of the Legal Function and Learning

Contractual learning differs from other types of organizational learning because it involves a significant legal aspect related to contract law and design. Legal matters are in many organizations handled by a specialized legal function (administrative lawyers, legal counsel, etc.). In the case of Beta, the legal function was initially (at the time of signing the EngComp contract) set up as an independent department. Respondents describe this organizational setup as promoting the internal visibility and influence of the legal department, but at the same time leading to a lack of communication and repeated disagreements between the legal and procurement unit. While it facilitated specialization and internal legal authority, it was associated with low levels of organizational integration between procurement and legal. In an attempt to address this problem, Beta initiated a reorganization that involved closing down the legal unit and integrating legal counsels directly into the procurement unit. The organizational change resulted in much lower barriers for involving legal in a wider range of procurement matters. According to a legal counsel, this reduction in organizational barriers between the units led to improved information flow in both directions: Because of less social distance, more informal issues were brought to the legal officers' attention, thus allowing them to give their input without it being handled as a formal request from one department to another. Being part of the procurement unit thus allowed legal officers to gain information that would perhaps not have been accessible through formal procedures, thus improving the quality of legal decisions. A legal counsel describes this change as follows:

The change has been that you work more closely with procurement. There is less prestige when you sit in the same group. It's easier. It's not "we're sitting up here and you're sitting there", but it's a little easier communication [...] it's probably just the interaction between procurement and legal, if we call ourselves legal, the lawyers, it's not as formalized. Previously, they had a form that they had to fill out. We got very little input, we thought. Yes, but what kind of contract is it? What's important in this one? What is important just this time? And how are we going to do this? You have a thousand questions. And then we ended up putting together a form because this is what you want, a "request for contract", we call it [...] So now we've stopped doing that. Now it is much less formalized. You send an email, like "hey, I need a contract for the procurement", and you attach the technical documentation. And then you come up with a contract for that. [...] "Tell me if any of that's not right." So, a little bit like, "now I've done my job, let me know if I need to do anything more". It has become less formalized. That's the big change. And so less prestige to go to us because we are in the same team so it is not as sensitive to go up and ask legal, which is fun [Legal counsel, Beta]

In the EngComp project, the events leading from the initial contract to the contractual amendment illustrates how control-oriented terms in procurement contracts may be revised based on experiential learning, and how this learning is affected by the interface between the legal function and other key functions. The specific problem that had to be addressed in the contractual amendment was the relative weight placed on technical adaptiveness to uncertain project contingencies (coordination-oriented issues) versus the inclusion of contractual terms for liquidated damages (control-oriented terms). In the initial contract, the independent legal unit had pushed through extensive penalties in the case of delays or failure to deliver. When negotiating the amendment under the new organization where the legal function had been formally integrated into the procurement unit, these terms were jointly deemed unworkable from a technical coordination perspective. Hence, it was the joint realization by procurement officers and legal counsels working in the procurement unit, that the original contract was lacking sufficient flexibility for *ex post* contractual adaptations, and that the project would benefit from an amendment that nullified several of the stricter control-oriented terms in favor of an approach more oriented towards technical coordination between the parties. As explained by the head of the responsible technical unit:

The general terms, which Beta started with [...] included just impossible liquidated damages, like 100%. Something which nobody would ever sign, I think, at least not in this industry. [...] This was the basics of the frame document, which I had a hard time convincing people internally that it needs to be changed. But I think today it is much more flexible. Now you can attack problems differently and get around these things [...] Again, since there's much better people in the procurement unit, I don't have to take care of this anymore. This is usually fine. In the beginning, in 2013 when we

drafted the main contract, there were just one big contract that was signed, and right after, this was the biggest contract, actually. There was just no experience [Head of technical unit, Beta]

Whereas procurement at Beta, both before and after the reorganization, involved a distinctive legal function that performed specified task related to contract design, Alpha operated with a much less well-articulated differentiation between the legal and economic functions. As is common in municipalities, the procurement officers at Alpha were expected to manage individual procurements and contract design without a direct involvement of legal specialists (the procurement unit had an administrative lawyer focused on disputes and regulations). Given the background of many procurement officers and the general orientation of the unit, this led to a focus on the economic aspects of procurement contracts, while the unit struggled to develop the formal aspects of contractual templates and getting an overview of the contract design challenges it faced. Hence, while a comparison between cleaning contracts entered in 2013 and in 2019 shows that changes were primarily associated with making control-related terms stricter (e.g., increasing penalties, stricter decision-rights), these changes in the contractual templates had actually lagged significantly as a result of the lack of knowledge and drive concerning how to redesign contractual terms and clauses. Many of the changes that were perceived as needed were only dealt with in a structured way once an external lawyer was brought in to review and update the contractual templates. As explained by the procurement manager at Alpha:

During these years, I have tried to get us to improve our basic written material. We have some templates and it's been a bit sluggish with this template work so we adopted a new approach on that recently. I said "now we'll put it out to an outside [law firm] and they'll have to improve our templates. Really do a facelift on them. Then we can take over and manage them." [...] I had a hope that the employees here, because they are extremely competent, would be able to sort it out. But it was probably too heavy to keep up with it in parallel with the daily tasks. So, it became more impactful to put it on a lawyer who can focus on that for two weeks. [Procurement manager, Alpha]

DISCUSSION AND CONCLUSION

Previous research on learning to contract has not extensively studied how internal organization may affect contractual learning; and there are few studies of learning to contract in public procurement. This provides an opportunity to empirically contribute to both the learning to

contract literature and to research on public procurement. Hence, in this paper, we seek to provide a theoretical foundation for the study of contractual learning in public procurement by empirically examining the role of functional specialization and integration in the procurement process.

Theoretical Implications and Propositions

As summarized in Table 2, our results show that public organizations exhibit contractual learning in their procurement processes. In the cases we studied, this learning was most pronounced for the development of what we term control-oriented terms (contractual safeguards/legal terms). Both cases, however, also illustrate how this learning was affected by organizational factors related to the aggregation and standardization of procurement activity in specialized units and the level of structural integration between these units in the procurement process. As analyzed in more detail below, we identify three forms of functional specialization in the procuring organizations: technical (e.g., cleaning support), economic (e.g., procurement unit), and legal (e.g., administrative lawyer, legal counsel). Further, our results also highlight the important impact of functional integration between economic and technical function for facilitating experiential feedback between the governance and design of procurement contracts; and how functional integration between the economic and legal functions supports learning concerning control-oriented contractual safeguards by allowing their design to be more adaptive to the overall economic structure of the transaction.

Functional Specialization in Public Procurement. The question of to what extent the organization of public procurement should be centralized or decentralized has been examined in the literature on public procurement (e.g., Glas, Schaupp, & Essig, 2017; Kamann, 2007; McCue & Pitzer, 2000; Patrucco et al., 2019). In relation to this research, our empirical observations particularly highlight the importance of designing an organizational structure that supports experiential learning based on functional specialization and the standardization of

procurement processes. These observations are consistent with previous research on learning to contract in the private sector, which suggest that contract management builds on specialized subfunctions performed by managers (economic), engineers (technical), and lawyers (legal); where the economic and technical functions constitutes a more important repository of knowledge for developing contractual terms related to the parties' roles/responsibilities and their communication (coordination-oriented terms), while the legal function is an important repository for developing terms related to decision/control rights, dispute resolution, and contingency planning (control-oriented terms) (Argyres and Mayer, 2007).

The defining feature of specialists is that they deal with narrow problems with a high level of frequency (Epple, Argote & Devades, 1991, Yelle, 1979). When organizations centralize procurement activity, they increase the frequency with which specialist activities may be performed, and thus, create an internal demand for specialized subfunctions within the organization. When handling nearly decomposable problems (e.g., specific legal clauses, quality assessment, etc.), functional specialization is arguable conducive to learning because the increased frequency with which the specialized task is performed leads to an increased intensity of experiential learning (Argote & Miron-Spector, 2011). Further, the knowledge held by specialists within their narrow domain allows them to more effectively absorb new knowledge by relating new experiences to previously held knowledge (Cohen & Levinthal, 1990), which allows them to more effectively codify the newly acquired knowledge in standardized routines and processes (Fiedler & Welpe, 2010; Zollo & Winter, 2002). These theoretical mechanisms explain why centralization of procurement activity and increased specialization may constitute an important means through which organizations can facilitate experiential learning concerning how to design and govern public procurement contracts. The specialization of economic-, technical-, and legal functions may thus be used to explain how

different organizational structures affect the speed and effectiveness of learning in public procurement. Hence, we propose the following:

Proposition 1: The greater opportunity a public organization has for aggregation of similar procurement tasks into specialized economic, technical, and legal units; the more effectively it will learn to design and govern public procurement contracts.

Economic-Technical Integration in Public Procurement. Public organizations rely on specialized technical knowledge for the procurement and production of goods and services. This process is, however, typically also constrained by significant cost considerations and the potentially heterogeneous needs of different stakeholders (preferences of users, political bodies, citizens, employees, etc.). Procurement is, in other words, subject to important tradeoffs concerning the best use scarce resources, where potential gains in technical functionality have to be weighed against other economic and political factors (e.g., price, risks, public perception, etc.). The tradeoff between economic and technical concerns in the procurement process is often made more complex by the fact that that these distinctive types of knowledge tend to reside in different employees that are organized in different units or departments. For example, in the case of Alpha, knowledge about the economic aspects of the procurement of cleaning services primarily resided in the procurement officers whereas the technical aspects of this process were managed by a dedicated technical unit of cleaning professionals. In the case of Beta, we can observe a similar division of labor and knowledge between commercially oriented employees in the procurement unit and the highly specialized engineers in the relevant technical unit that initiated the procurement. Hence, public procurement processes often draw on combinations of organizationally dispersed technical and economic knowledge, and rely on the integration of these knowledge sets in order to achieve unity of effort and coordination in the performance of complex tasks (see Lawrence and Lorsch, 1967).

Previous studies on contractual learning have found that contractual learning is typically stronger in the transaction-specific technical aspects of the contract (coordination-oriented terms) than in the often more generic legal aspects (control-oriented terms) (Mayer & Argyres, 2004; Vanneste & Puranam, 2010); and that both the technical and the economic function of an organization are important repositories of knowledge concerning the development and design of the parties' roles/responsibilities and communication (e.g., Argyres & Mayer, 2007). In the case of public procurement, this may involve how technical specialists are vital for defining functionalities or quality levels in a contract whereas specialist in the economic or commercial aspects of the procurement are required to pinpoint market prices and assess relevant risks. Overall, this previous research suggests that technical-economic integration during the procurement process is of key importance for fostering learning concerning coordination-oriented terms. The observations made in both Alpha and Beta concerning how procurement needs were mapped and contractually specified in collaboration between technical and economic units support this notion.

However, as highlighted by our studied cases (the primary contractual learning effect we identified involved control-oriented terms, see table 2), the level of integration between economic and technical units may also have an important effect on learning concerning control-oriented terms by allowing for stronger experiential feedback between post-signing governance activities typically managed by a technical unit and the pre-signing contract design activities that in many cases are handled by an economic unit. This identified pattern of interfunctional feedback between *ex ante* contract design activities and *ex post* contract governance activities is a particularly interesting given the attention paid to contract design activities in prior research on learning to contract (e.g., Argyres & Mayer, 2007). Hence, our results suggest that technical-economic integration in the procurement process may have a positive impact on contractual learning concerning control-oriented terms by facilitating feedback from the technical unit

responsible for contract governance to the economic unit responsible for contract design concerning the level and type of supplier opportunism that the contract should safeguard against. Hence, we propose the following:

Proposition 2: A public organization that enables stronger integration between economic- and technical functions will facilitate stronger experiential feedback between contract design and contract governance, and thus enable more effective learning concerning control-oriented terms in public procurement contracts.

Legal Integration in Public Procurement. Contractual learning differs from other types of organizational learning because it involves a significant legal aspect related to contract law and design (Weber & Mayer, 2011). Legal matters are in many organizations exclusively handled by a specialized legal function consisting of administrative lawyers and legal counsels (Macaulay, 1963). One important challenge in facilitating contractual learning in the public procurement process is thus the integration the legal function in this process. For example, based on a wider inquiry into the role of the legal function in organizations, Bagley (2008) suggests the concept of “legal astuteness” to capture the extent to which an organization is capable of turning its legal function into a proactive agent in economic- and technical decisions. There are, however, many organizational challenges associated with making an organization legally astute. Some of these challenges are related to the specialized nature of legal work in terms of educational background, skills, and typically a narrow professional role (Nelson & Nielson, 2000). Facilitating the hiring and involvement of legal specialists in the procurement process require sufficient scale, consolidation of procurement activities, and economies of specialization.

Our observations in the two studied cases support the notion that legal integration in the procurement process facilitates contractual learning because it allows the organization to align

technical and economic aspects of contracts with the need for contractual safeguards and legal governance mechanisms, and thus to reciprocally explore the complex tradeoffs that exist when organizations search the space of potential combinations between technically or economically oriented coordination-oriented terms and legally oriented control-oriented terms. Hence, building on the previously outlined differentiation between coordination- and control-oriented contractual terms, we suggest that control-oriented contractual terms to a higher extent are dependent on these tradeoffs, and hence, more likely to be affected by the level of legal integration in the procurement process. This specifically involves the organization's capacity for tailoring contractual safeguards in response to technical and economic contingencies, and learning from the experience. Based on our empirical observations, we argue that an organization's capacity in this regard is lower when legal specialists are missing in the procurement process or when the contracting process builds on a highly sequential interaction between a structurally differentiated legal function and other units. Stronger legal integration, on the other hand, facilitates learning concerning control-oriented terms by allowing for a more reciprocal interaction pattern when designing of these terms. Hence, we propose the following:

Proposition 3: Stronger integration of the legal function in the procurement process will facilitate more effective learning concerning control-oriented terms in public procurement contracts by allowing for reciprocal interaction between the legal function and the other involved functions.

Theoretical Contribution and Future Research

Our overall contribution is to show how the learning to contract literature (e.g., Arino et al., 2014; Faems et al., 2008; Lumineau, Frechet, & Puthod, 2011; Mayer & Argyres, 2004; Vanneste & Puranam, 2010; Weber, 2017) and organization theory (e.g., Galbraith, 1973, 1977; Jansen et al., 2009; Lawrence and Lorsch, 1967; March and Simon, 1958; Nickerson & Zenger,

2004; Puranam, Singh, & Chaudhuri, 2009; Tushman & Nadler, 1978) may be applied to inform our understanding of public procurement (e.g., Schapper, Veiga Malta, & Gilbert, 2006; Patrucco et al., 2019; Thai, 2001). Even in the absence of laws and regulations that restrain choice sets and the adaptiveness of the contractual process, designing and governing procurement contracts involve performing tasks that require specialist knowledge that is dispersed across different units in the organization (Argyres & Mayer, 2007). These tasks may involve the development of written documentation of the technical attributes of the procured good or service, specifying the economic conditions of the transaction, and the design of contractual safeguards and legal terms. Our results highlight how many of these organizational and knowledge-based problems are made more challenging by the extensive restrictions on contracting that follow from public procurement laws and regulations (Knutsson & Thomasson, 2014). Hence, we suggest that future research should further investigate how the contractual constraints created by public procurement law impact the design of contracts, how contractual processes are organized, and the type of learning that is likely to occur. We believe that this research would provide important new insight for public procurement research and also enable conditions equivalent of a natural experiment for studying contractual learning in an environment where relational contracting is absent. For example, legal restrictions concerning how a public organization may interact with suppliers and limitations on changing or terminating contracts are likely to give rise to different contractual hazards and opportunities than is encountered in the private sector. Our study indicates that organizations in a public setting will tend to rely more on formal safeguards and control-oriented terms than what would be the case in private procurement. Learning to contract concerning control-oriented terms is thus likely to be more pronounced in public procurement. Naturally, this raises important questions concerning how specific external or institutional conditions may impact the type of functional specialization required for designing and governing contracts and the form of

structural integration mechanisms that best facilitate organizational learning in these different contexts.

Policy Implications

On several accounts, the respondents at both Alpha and Beta did voice concern regarding the constraints that public procurement law impose on the adaptiveness public procurement contracts, and a perceived lack of knowledge for handling the complex tradeoffs created by public procurement law and regulation. For example, in the case of Alpha, respondents highlight the difficulties involved in *ex ante* specifying quality requirement, objectively judging supplier capabilities, handling supplier price miscalculation that may lead to awarded suppliers dropping out, and judging what conditions that are sufficient for legally terminating a contract. At Beta, the respondent instead highlights a set of problems linked to handling *ex ante* technological uncertainty that may impact the scope of the project. In both cases, the general perception is that public procurement law and regulation inflict an additional set of hurdles on the procuring organization that ultimately makes the design and governance of contracts more challenging than in a private context. This underscores the intuition leading into this study that scholars should pay more attention to the public procurement setting in order to theoretically account of how legal restrictions may impact the set of contractual options open to organizations and the mechanisms by which organization learn to design better contracts. In terms of direct policy implications, the studied cases showcase two specific instances of how the organization of public procurement may be improved to facilitate learning and the incremental development of better procurement contracts.

Dedicated Technical Unit for Contract Governance. In the case of Alpha, the setup of the cleaning support unit was generally upheld as a major success by respondents that should be used on a broader scale beyond just cleaning services. Installing a specialized technical unit specifically responsible for the contractual governance of a particular type of service, such as

cleaning, had the benefit of focusing specialized technical knowledge in the post-signing (ex post) phase of the procurement process, which created a strong feedback mechanism that played an important role for finding new technical solutions and developing better procurement contracts. While this approach may come across as a relatively straightforward organizational solution to the problem of contract governance, it appears to be quite uncommon in public organizations (e.g., municipalities) where procurement needs stretch across a wide range of different goods and services that involve different forms of technical knowledge.

Integration of Legal Competence into the Procurement Process. In the case of Beta, the decision to integrate the formerly independent legal unit into the procurement unit was upheld as an organizational advance that enhanced feedback and information flow between procurement officers and legal counsels. Respondents particularly highlight the important role of informal discussion and feedback, which may be hampered by formal inter-unit processes and departmental procedures that may invoke feelings of prestige. However, legal-economic organizational integration may also have downsides. For example, one legal counsel at Beta highlighted how it made legal counsels less visible in the formal organization, which could potentially reduce internal authority.

Conclusion

In this paper, we have addressed the question of how organizations learn to design and govern supplier contracts in public procurement. Based on two case studies of procuring organizations, we present empirically grounded propositions concerning the effect of organizational structure on learning to contract in public organizations. Our results highlight the importance of specialized technical, economic, and legal knowledge in the procurement process; as well as the differential impact of integration mechanisms on the type of learning that is likely to occur.

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TABLE 1

Description of Selected Cases

	Alpha	Beta
Explorative interviews	3 interviews with lawyers specializing in public procurement and commercial contracting	
Case data	12 interviews (approximately 14 hours) Procurement documentation and contracts (82 pages) INSTA800 Cleaning standard Public sources describing organization, policy, and processes	6 interviews (approximately 7 hours) Procurement documentation and contracts (281 pages) Public sources describing organization, policy, and processes
Position of respondents	Procurement manager, procurement officers, cleaning coordinators, department officer, sustainability coordinator, procurement unit division manager, cleaning support unit manager	Head engineer, procurement manager, legal counsel, procurement officers
Empirical setting	Swedish municipality	Publicly owned research organization
Studied relationship	Publicly procured cleaning services delivered according to the Nordic standard INSTA800	Publicly procured customized technical system delivered and installed by large European engineering company (EngComp)
Transaction attributes	2 + 2 years cleaning service contracts on specified objects within the municipality Bilateral dependency in terms of set-up costs and dedicated assets (employees, equipment) Uncertainty concerning delivered quality according to INSTA800	Project-based engineering, manufacturing and assembly Customized technical system Bilateral dependency in terms of design, component sourcing, manufacturing, and assembly Uncertainty concerning timing of installment and commissioning of system in relation to other systems

TABLE 2

SUMMARY OF EMPIRICAL FINDINGS AND INTERPRETATION

	Alpha	Beta	Empirical patterns
Organization and setting	Swedish municipality	Swedish research organization	-
Contractual partner(s)	2+2 years cleaning service contracts with eight local and national cleaning companies	Project-based contract with large European engineering company	-
Original contract	Contractual template based on the standard INSTA800 for regulating roles/responsibilities (coordination-oriented terms). Weak terms regulating termination and no penalties for failed quality controls (control-oriented terms)	Extensive contract based on detailed technical specifications (coordination-oriented terms) and strong liquidated damages/termination clauses in the case of delays and coordination problems (control-oriented terms)	-
Changes in contracts	Added penalty clauses for failed quality controls, stricter terms for contract termination, and more extensive terms concerning sustainability requirements (control-oriented terms)	Changes of liquidated damages terms following unforeseen contingencies resulting in delays and coordination problems (control-oriented terms)	Endogenously driven change of control-oriented terms Control-oriented terms were changed in response to new experiences and insights made in the procurement process (more extensive terms in the case of Alpha and less extensive in the case of Beta)
Functional specialization	Procurement unit significantly expanded, which allowed for specialized sections and more rigorously codified processes Creation of specialized technical unit (Cleaning Support) for contract governance and quality control of procured cleaning services	Expansion of the procurement unit and development of codified procurement processes according to a new procurement strategy made the process more predictable and transparent. Specialized economic, technical, and legal functions perform distinctive tasks in the procurement process	Centralization of procurement activity drives specialization, standardization, and codification of processes The exploration and knowledge retention is facilitated by well-defined functions, and the centralization and standardization of procurement activity (codification)
Economic-technical integration	The procurement unit is responsible for activities leading up to contract signing (economic analysis, contract design, tender) and cleaning support manages later activities related to contract governance, supplier communication, and quality controls. Important events during the contract governance phase are reported back to procurement unit and cleaning support give input on contract design choices	The procurement unit is responsible for activities leading up to contract signing activities (economic analysis, contract design, tender) and the responsible technical unit is responsible for later activities related to contract governance, supplier communication, and quality controls. The responsible technical unit “owns” the contract throughout the process and reports critical events to the procurement unit.	Economic-technical integration facilitates feedback mechanisms between contract design and contract governance Feedback on contractual design choices is gained during the contract governance phase by the technical unit managing this phase. Experiential learning is dependent on interfunctional feedback.
Economic-Legal integration	Legal specialists are normally not involved in the procurement process (administrative lawyer at procurement unit works primarily with legal disputes)	Integration of the legal unit into the procurement unit in order to lower interfunctional barriers in the procurement process	Legal silo Knowledge about control-oriented terms is typically held by legal specialists and legal-economic functional barrier may prevent feedback across units that limit the development and adaptation of control-oriented terms.

APPENDIX

Case-Study Protocol

General

What is your role/position in the organization?

Describe the overall organizational structure that you are working in.

What are the organizational units that are involved in managing supplier relationship?

Who are the key individuals within those units that are involved in managing the supplier relationship?

In general terms, describe the selected suppliers.

In general terms, describe your relationship with the suppliers.

Technological and external conditions

What are the most important external factors or conditions that affect how supplier relationships are arranged and contracted?

Describe the product/service being procured?

What specific capital investments have been made by the parties in order to facilitate the relationship?

What is the annual or total volume/transaction value of the contract regulating the relationship?

What is the level of complexity and uncertainty associated with the relationship?

Design of agreement/contract

How do you design your contracts with suppliers?

How important are different types of terms and clauses in the contract for you?

Who in your organization are involved in developing contractual templates?

How do different types of contractual terms and clauses affect the relationship?

How has the contractual template changed?

What was the reason for the changes?

Who in your organization manages changes in contractual templates?

Learning to contract

If you look at the relevant knowledge that you had when starting working with the selected relationship and compare that knowledge with what you know today, how has that knowledge changed and what do you think that you have learned from the relationship?

Have you made any changes in how you organize (structure) for selecting and managing suppliers?

Have you made any changes in your routines and processes for selecting and managing suppliers?

How does your organization support learning concerning how suppliers are managed?

Organization and processes for contracting

Describe your organization's current processes and competences in setting up and managing contractual relationships with suppliers.

What key individuals within the organization hold relevant knowledge that support the process of setting up and managing contractual relationships with suppliers?

How have your organization's processes and competences in setting up and managing contractual relationships changed over time?

What have been the most important drivers of the development of processes and competences in setting up and managing supplier relationships?