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DOI:

[10.5465/AMBPP.2022.16257abstract](https://doi.org/10.5465/AMBPP.2022.16257abstract)

2022

[Link to publication](#)

Citation for published version (APA):

Hallberg, N. L. (2022). *Contractual Learning and The Development of Heterogeneous Contracting Capabilities*. Paper presented at 82nd Annual Meeting of the Academy of Management, Seattle, United States.
<https://doi.org/10.5465/AMBPP.2022.16257abstract>

Total number of authors:

1

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**CONTRACTUAL LEARNING AND THE DEVELOPMENT OF HETEROGENEOUS
CONTRACTING CAPABILITIES**

Paper presented at the 82nd Annual Meeting of the Academy of Management, Seattle, US,

2022

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Contractual Learning and The Development of Heterogeneous Contracting Capabilities

ABSTRACT

Previous research suggests that parties in contractual relationships adopt a governance structure that economizes on transaction costs, and then over time learn to govern the contractual relationships in a more efficient manner by incrementally aligning contractual terms with transaction attributes based on new experiences made in the relationship. This implies that learning to contract and the development of contracting capabilities are largely experiential and directly related to the parties' amount of contractual experience. We argue that this model is likely to underestimate the level of heterogeneity in contracting capabilities across firms. Hence, we add to the learning to contract literature by suggesting a series of firm- and industry level moderators of the relationship between contractual experience and the development of contracting capabilities. We specifically highlight the role of organizational specialization and integration as factors likely to increase heterogeneity across firms. Because firms with heterogeneous contracting capabilities are subject to differential incentives, a counterintuitive implication of the argument is that strong contractual learning dynamics may in fact lead to reduced incentive alignment and intensified contractual hazards.

Keywords:

Learning to Contract; Contracting Capabilities; Transaction cost economics

How do heterogeneous contracting capabilities develop? According to transaction cost economics (TCE), parties in exchange relationships adopt the governance structure that best mitigates the contractual hazards associated with the transaction being governed (Williamson, 1985). Research on learning to contract develops the basic TCE-model by arguing that parties over time also learn to govern relationships in a more efficient manner by developing contracting capabilities, which allows them to reduce transaction costs by better matching transaction attributes with an appropriate contractual framework (Argyres, Bercovitz, and Mayer, 2007; Mayer and Argyres, 2004; Vanneste & Puranam, 2010). Contracting capabilities are defined as the ability of a firm to know “how much and what kind of detail to include in a contract” (Argyres & Mayer, 2007:1060). The type of decisions that are involved include the choice of overall governance structure, such as market, hierarchy, and hybrid (Williamson, 1985), and the design of specific contractual terms, including roles and responsibilities (Argyres & Mayer, 2007), dispute resolution (Vanneste & Puranam, 2010; Ryall & Sampson, 2009), decision and control rights (Malhotra & Lumineau, 2011; Reuer & Arino, 2007; Weber, Mayer, & Macher, 2011), contract duration (Crocker & Masten, 1988; Joskow, 1987), form of payment (Kalnis & Mayer, 2004), communication (Mayer & Argyres, 2004), and contingency planning (Mayer & Berkovitz, 2008).

Previous research on learning to contract and the development of contracting capabilities has to a large extent focused on the relationship between prior experience/relationship and contractual outcomes (e.g., Argyres & Mayer, 2004; Arino et al., 2014). However, while the amount of contractual experience a firm has is likely to have a significant impact on learning, similar experiences may impact firms’ contractual learning in different ways depending on the internal attributes of the firm and the nature of the focal industry. Failing to account for these firm- and industry level factors may lead to an underestimation of the level of heterogeneity in contracting capabilities across firms. Hence, in this paper, we examine the drivers, mechanisms

and external conditions that are likely to give rise to differential learning to contract across firms, and thus the development of heterogeneous contracting capabilities. This involves outlining the specific conditions under which heterogeneous contracting capabilities are likely to develop and how such heterogeneity may impact specific tasks in contracting process. We focus on three different drivers of heterogeneous contracting capabilities: i) specialization, ii) functional integration and organizational design, and iii) industry conditions related to bilateral dependence, uncertainty, and trust. First, we argue that the development of contracting capabilities is affected by the intensity of contracting activity and the extent to which a firm can realize economies of specialization across specific functions typically involved in the contracting process. Second, by distinguishing between coordination- and governance oriented contractual terms, we address how organizational integration between functionally specialized departments and employees affect learning and the development of contracting capabilities related to different types of contractual terms. Third, building on the distinction between coordination- and governance oriented contractual terms, we argue that particular forms of contractual learning are more prominent under certain industry conditions.

HETEROGENEOUS CONTRACTING CAPABILITIES

Firms can be expected to reduce contractual hazards and 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 dual alignment principle in the basic TCE model outlined above is derived from the behavioral assumptions of bounded rationality and opportunism (Williamson, 1985: 44-47). Bounded rationality (“intendedly rational, but only limitedly so”) prevents actors from including all relevant contingencies in contracts, which introduces the possibility that exchange partners will not honor the perceived intentions of the contract after it is signed. Opportunism (“self-seeking with guile”) implies that actors may in

fact take advantage of the possibilities for economic gain that are associated with incomplete contracts, even if their exchange partner interpret this behavior as deceitful. The transaction costs that bounded rationality and opportunism gives rise to would not be significant if contracting parties can at a low cost replace exchange parties that do not live up to contractual obligations. However, relationship-specific investments and uncertainty create bilateral dependencies between parties that reduce the number of viable trading parties. Firms respond to these circumstances by implementing contractual safeguards and governance structures that allow them to reduce the transaction costs associated with the relationship. If asset specificity and uncertainty are high in a buyer-supplier relationship, actors may respond by vertically integrating and implementing a hierarchy, where incentive conflicts may be resolved by managerial fiat.

Research on contracts and governance in the TCE did not originally focus on evolutionary and learning processes in contract design (Argyres, Bercovitz, and Mayer, 2007). This has, however, become an important question in the literature on learning to contract. Introducing learning in the domain of contracts gives rise to numerous sources of heterogeneity across firms that the basic TCE model abstracts from. An important challenge for research is thus to uncover the nature of this heterogeneity and its dynamics. This involves mapping the dimensions on which contracts differ and the organizational processes that drive this heterogeneity (Oliveira & Lumineau, 2018; Weber, Mayer, & Wu, 2009).

What are contracting capabilities?

According to Argyres and Mayer (2007: 1061), a firm will “experience better contract performance if it aligns the use of various contract terms with transaction attributes following established transaction cost theory, but also if it develops contract design capabilities among appropriate groups of personnel, given the types of terms that tend to be prominent in the firm’s contracts”. Heterogeneity in governance structures and contract design are thus likely a result

of both transaction attributes, such as asset specificity, uncertainty and frequency; and the level of knowledge or capability held by the contracting parties in terms of their organizational structure, processes, routines, and the knowledge of employees involved in the contracting process. From a TCE-perspective, the contracting capability held by firms may be viewed as a moderator of the relationship between transaction attributes and governance structure/contractual design where higher levels of contracting capability led to a better alignment between transaction attributes and contractual structure, which according to the basic TCE model reduces transaction costs. Contracting capabilities are thus important for firms looking to improve the efficiency of their vertical value chain by reducing contractual hazards. Hence, all parties (buyers, suppliers, etc.) in a focal vertical chain stand to gain from other firms developing their contracting capabilities. In more concrete terms, this facet of contracting capabilities includes designing well-functioning contracts that enhance incentive alignment and technical coordination between the parties (coordination-oriented terms) by better specification of roles and responsibilities and communication/information flows.

However, as highlighted by the basic TCE model's emphasis on contracts as safeguards against opportunism, contracting capabilities may also be viewed as factors affecting the distribution of value between contracting parties, which could potentially allow firms with superior contracting capability to capture benefits relative other firms in the vertical chain with weaker capability. From this perspective, knowledge asymmetries between contracting firms pose a potential risk that affect the parties' preferences over different contract designs. In more concrete terms, this aspect of contracting capabilities involves how superior contractual knowledge may be used on a commercial and legal level to design contracts that transfer risk and payments between parties. For example, in terms of the allocation of control/decision rights, contingency planning/penalties, and the chosen framework for dispute resolution (governance-oriented terms). Contracting capabilities are thus related to a firm's knowledge

about how to negotiate and govern quite diverse aspects of exchange relationships with other firms. In this regard, contracting capabilities are akin to other types of capabilities, such as pricing capabilities (Dutta et al., 2003), alliance capability (Dyer & Singh, 1998), and bargaining capability (Gans & Ryall, 2017; Grennan, 2014). As in the case of other capabilities, the development of contracting capabilities is arguable complex because they build on highly specialized knowledge that is functionally dispersed throughout the firm, and involve interaction with another party that is subject to different incentives and internal knowledge constraints related to specialization and organizational integration.

The Role of Specialization in Contractual Learning

A key property of learning to contract and the development of contracting capabilities is the ability of firms to recognize the value of different experiences and pieces of information, interpret and assimilate them into the organization, and figure out how this knowledge should be applied in new contractual processes. According to Lumineau, Fréchet and Puthod (2011), such learning may be about relevant transaction features/attributes, the specifics of the contracting process, or nature of the contracting parties; and follow different types of learning-patterns, such as experiential (based on personal experience), vicarious (based on experts), and inferential (based on analytics/abstract thinking). Learning is thus dependent on experience, trial-and-error, the routinization of successful behavior (Argote & Miron-Spector, 2011), as well as on the individuals' cognitive representations, the aggregation of individual cognitive representations to an organizational level, and the ability to internalize and retain knowledge (Cohen & Levinthal, 1990). Hence, firms primarily learn to contract through having concrete contractual experience in their dealings with other firms (Lumineau, Fréchet, & Puthod, 2011). Learning involves interpreting external signals from the environment that are received in contracting processes and storing this knowledge in different repositories such as individuals, routines, artifacts and processes (Argote & Miron-Spector, 2011).

The level of specialization of employees involved in the contractual process is likely to be an important determinant of the speed of contractual learning (see Epple, Argote & Devades, 1991). Specialists have two advantages relative generalists. First, they hold more sophisticated knowledge within the narrow field they are specialized, which increases learning speed by means of enabling the specialist to relate new experiences to previously held knowledge, use associative learning, and develop task-specific procedures for “learning to learn” (Cohen & Levinthal, 1990). Second, specialists work with narrow tasks with high frequency, which increases the amount of experience with that task in a given time period, and thus also learning speed (Argote & Miron-Specter, 201). The main constraint on the level of specialization that is economically viable (within a firm or a market) is the demand for specialized services (Bylund, 2015; Smith, 1976). Within a firm, this demand is mainly determined by the size or scale of the firm (Lawrence & Lorsch, 1967). Firms with larger operations, more turnover, products and employees typically engage in more contractual activity than smaller firms, which increases the return to specialization of tasks in the contractual process.

Engaging in a large number of contractual relationships facilitate economies of specialization and the division of labor within the contracting firm. Previous studies suggest that the contracting activity of a typical firm may roughly be subdivided into three categories of employees or functions responsible for different tasks: engineers/technical function, managers/commercial function, and lawyers/legal function. Hence, Argyres and Mayer (2007) find that, despite overlap in terms of the tasks performed by the different groups of employees, managers and engineers tend to be a more important repository of contractual knowledge when designing provisions related to the parties’ *roles/responsibilities* and their *communication* (coordination-oriented terms), whereas lawyers constitute a more important repository when designing provisions related to *decision/control rights*, *dispute resolution*, and *contingency planning* (governance-oriented terms). This division of labor in the contracting process

indicates that the specialization of certain employees or departments on particular contractual issues play an important role for contractual learning and the development of contracting capabilities. A larger firm may due the scale of its contracting operations employ trained specialists within organizational units that only deal with narrow aspects of the contracting process that involve specialized knowledge and routines. Examples may include *technical clauses* developed by engineers in a R&D- or quality department (requirements/desired performance of product, see Vanneste & Puranam, 2010), *payment clauses* developed by managers in a sales- or procurement department (e.g., fixed-fee, cost-plus, hybrid, see Kalnins & Mayer, 2004), and *patent clauses* developed by IP-specialized lawyers in an internal legal department (e.g., cross-licensing, indemnity, see Ryall & Sampson, 2009). Many of these options for specialization are not available to smaller firms that do not engage in enough contractual negotiations per year to warrant keeping this form of specialized knowledge in-house. In fact, investing in the development of contracting capabilities that involve technical, commercial and legal expertise may not be profitable for smaller firms that only enter limited number of new contract. These firms may be better off relying on external services (e.g., consultants) or commonly available standardized solutions (e.g., industry contractual templates).

As simple example, consider a small and relatively young MedTech firm that the authors studied. This firm employed senior technical and commercial employees that were directly involved in the contracting process with distributors and suppliers (e.g., Quality manager and Operations manager). However, the firm did not include legal expertise, which was instead sourced from an external law firm that was only superficially involved in the contracting process (checking finalized contractual drafts for obvious errors). According to the Operations manager this set-up was motivated by the fact that they were small and had never been in a serious contractual dispute with its distributor or suppliers. As a result of the strong engagement

of commercial and technical personnel and the lack of legal involvement in the contractual process, contracts were continuously updated and improved on commercial issues (e.g., pricing model, commercial scope, etc.) and technical questions (e.g., quality processes), whereas governance-oriented contractual safeguards were left unchanged and highly standardized. Even though minor disputes potentially related to contractual safeguards had occurred, these events were not perceived as significant by commercial and technical personnel who had their attention on other matters that they were better equipped to deal with. Hence, we argue that large scale firms may improve their contractual learning speed in ways not available to smaller firms by allowing for the aggregation of similar contracting tasks into specialized subfunctions and human capital that only deal with narrow contracting problems. Firms may thus enhance their contractual learning speed by scaling up operations, or by adopting a business model and organizational design that increases contractual intensity and improves the composition of different types of contractual experiences across employees specialized in different tasks. More formally, we propose the following:

Proposition 1: The greater opportunity a firm has for aggregation and specialization of similar contractual tasks due to the scale of its contracting activity, the faster and more effectively it will learn from new contractual experience.

Structural differentiation and integration in contracting

The questions of structural differentiation and integration have long been acknowledged as a major challenge in organizational design (Galbraith, 1973, 1977; Tushman & Nadler, 1978). A closer study of the microfoundations of contracting capability raises a series of important questions concerning how different categories of specialized employees (e.g., lawyers, engineers, managers) are organized across different business units/departments within the firm, and how *differentiation* and *integration mechanisms* across these units affect the firm's

contractual adaptiveness and learning (see Gilbert, 2005; Jansen et al., 2009; Lawrence & Lorsch, 1967). A basic premise is that firms develop contracting capabilities to govern *complex transactions* where the contracting capabilities in question draws on knowledge residing in different individuals across different groups or departments (Nickerson & Zenger, 2004). The firm, therefore, faces a coordination challenge in transferring and combining knowledge potentially held in different parts of the organization by different persons (Kogut & Zander, 1992). Two mechanisms are central for achieving this: structural differentiation and integration. *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” (Lawrence & Lorsch, 1967: 3-4). Differentiation is thus the partition of the firm into suitable business units and departments, which allows each unit to adapt more effectively to the specific environmental demands associated with the tasks performed within the unit (Gilbert, 2005). This refers to how larger firms typically allocate different tasks in the contractual process to separate departments that are organizationally decoupled and follow different reporting structures (e.g., legal, R&D, sales/marketing, etc.).

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). The solution to complex problems requires knowledge residing in different units across the firm to be transferred, integrated, and aligned (Nickerson & Zenger, 2004). Hence, firms that due to the complexity of problems face environmental demands for both differentiation (to enable specialization and task-specific knowledge) and integration (to enable coordination and alignment across units) have to implement specific organizational integration mechanisms (March and Simon, 1958). Such integration mechanisms may include the managerial hierarchy, organizational cross-functional interfaces, control- and performance evaluation systems, and

informal/voluntary activities aimed at achieving greater connectedness and social integration between members of different functions (Jansen et al., 2009; Tushman & Nadler, 1978; Puranam, Singh, & Chaudhuri, 2009).

The locus, or microfoundations, of contracting capabilities may be described in terms of the knowledge about the commercial-, technical, and legal aspects of contracts that resides in different categories of employees. This is typically represented in the organizational structure of firms in terms of the departments or functions that are involved in the contracting process. For example, firms contain certain departments specialized towards the *commercial function* of contracts, such as sales/marketing and procurement; departments oriented towards the *technical function*, such as production, R&D, and quality; and for firms of a certain size, an in-house legal department oriented towards the *legal function* of contracts. Each of these three functions play a different role in the contracting process by means of which specific tasks that are performed within the function and the type of specialized knowledge that is developed. In the following, we build on the conceptual separation between a commercial-, technical-, and legal function of the firm in order to explain how different organizational design choices related to the level of integration between the three functions are likely to affect the speed and effectiveness of contractual learning concerning different elements of contracts. We use Argyres and Mayer's (2007) five categories of contractual terms (roles/responsibilities, decision-/control rights, communications, contingency planning, dispute resolution) that are typically present in complex contracts, while distinguishing between *coordination-oriented terms* (roles/responsibility, communication) and *governance-oriented terms* (decision/control rights, contingency planning, dispute resolution).

As indicated by the term “commercial”, which means “related to profit”, *the commercial function* of the firm is focused on tasks that impact the economic profitability of the contracts entered by the firm. For example, the focus of a procurement department in the contracting

process is on keeping input prices or costs down relative the quality or functionality of the procured good/service. The focus of a sales-/marketing department is on making sure that what is being exchanged matches customer needs, while working to increase sales volume and prices. In both cases, the commercial aspects of the contractual process also include more subtle questions such as what relationship-specific investments to make and how asset ownership/intellectual property in the relationship should be allocated between the parties given how this might affect relative bargaining power and the distribution of risk.

The technical function of the firm may be characterized by its focus on the functionality of the product or service being exchanged and the conditions under which these functionalities are created. This can be specified by drawing more concretely on the type of contract-related activities typically performed in production-, quality-, and R&D departments. For example, the quality department of a selling firm may be responsible for the development of test procedures, conducting product tests prior to sale, and the documentation of the test results, which is included in the product specification and the contractual roles and responsibilities of the parties. Similarly, the production department of a selling firm may be responsible for the validation and description of production processes/routines and equipment/tools that may enter into how the contracting parties communicate their respective roles and responsibilities.

Finally, *the legal function* of the firm may be characterized by its focus on the verifiability and enforceability of the commitments made by the parties in the contract (between the contracting parties and in relation to a third party, such as an arbitrator, courts, etc.). Naturally, some aspects of a contractual relationship lend themselves more easily than others to being specified in a verifiable and enforceable way and may therefore not require the legal function's direct involvement on a case-by-case basis. This may, for example, be the case when drafting certain technical product specifications that by their very nature and way of being communicated (technical drawings, etc.) are of a character that can easily be verified by a third

party. It may also be the case in situations where the firm can rely on more or less standardized and commonly accepted clauses concerning the commercial terms of trade, such as standard statements regulating payment, delivery, etc. Other aspects of the contractual process, such as decision-rights concerning intellectual property, contingency planning, and dispute resolution, may on the other hand require more extensive attention from the legal function.

Hence, we identify three organizational interfaces that are of specific importance in contractual learning and the development of contracting capabilities: commercial-technical, technical-legal-, and legal-commercial. These organizational integration problems are illustrated in Figure 1 below:

Insert Figure 1 about here

Commercial-Technical Integration. Many organizational capabilities, in one form or another, draw heavily on combinations of knowledge sets residing in the commercial- and the technical function of the firm. In the case of some capabilities, such as new product development, this may even be a key interface for the development of the capability in question (O’Leary-Kelly & Flores, 2002). In the case of contracting capabilities, the commercial-technical interface plays a very important role in terms of allowing for an accurate technical specification that is aligned with the needs of the parties and the agreed distribution of risk and payments. This involves securing that the exchange partners’ technical needs are met in an economically feasible way and that the chosen technical solution is communicated in a way that enable mutual understanding of the functionality that is being exchanged.

The main benefit of greater commercial-technical integration in the contractual process is primarily manifested in the design of coordination-oriented terms related to the parties’ roles/responsibilities and communication. Knowledge about how to design these terms in

contracts is of key importance for the development of contracting capabilities and may even be a source of competitive advantage (Argyres and Mayer, 2007). A reason for this is that learning is typically stronger in transaction-specific technical aspects of the contract than in the often more generic legal aspects, which in turn elevates the importance of expertise in the technical domain to foster stronger contractual learning (Vanneste & Puranam, 2010).

As an example of the benefits of technical-commercial integration, consider an observed practice to organize procurement and the management of supplier contracts in cross-functional teams containing a mix of engineers and commercial procurement managers rather than structuring the procurement organization along differentiated functions. This is an example of an organizational design that is likely to lead to stronger integration between commercial personnel and engineers. Although this set-up runs the risk of slowing down some commercial and technical processes, and potentially reduce the extent of commercial and technical specialization, it is likely to lead to a broader search for solutions and thus ultimately a better alignment between agreements made in commercial negotiations with the supplier (e.g., price, volumes, deliveries, etc.) and the output of processes related to product development and quality. Hence, the fact that a rich variety of technical and commercial questions can be examined in a reciprocal rather than sequential way enables the evaluation of a broader and more novel set of combinative options, which is strongly conducive to learning. More generally, we argue that integration mechanisms between the commercial and technical function of the firm enhance learning concerning the development of contractual coordination-oriented clauses.

Proposition 2a: The stronger integration mechanisms between a firm's commercial- and technical functions, the faster and more effectively it will learn to design coordination-oriented terms and clauses.

Commercial-Legal Integration. Contracting capabilities are set apart from many other types of organizational capabilities because they often involve the direct participation of the firm's legal function. Contracts involve a legal component in the sense that they should be verifiable to a third party and thus enforceable by means of contract law and the courts. A key organizational challenge for the development of contracting capabilities is the integration of the legal- and the commercial functions of the firm. As pointed out by Bagley (2008), for a firm to achieve "legal astuteness" it must turn its legal function into a proactive agent in commercial decisions. There are several barriers to accomplishing this: As discussed above, one responsibility of the legal function is to make sure that the firm avoids excessive risks and that the firm's dealings with external actors is documented in an explicit and verifiable way. The responsibility of the commercial function is in many ways very different. Commercial activity arguably builds on successfully handling uncertainty, for example based on "entrepreneurial judgment", on grounds or calculations that are not objectively verifiable. In fact, Knight's (1921) even argued that the defining feature of "uncertainty", which sets it apart from "risk", is that it cannot be objectively calculated, which prevents "uncertainty" from being transferred and sold in markets. According to Knight (1921), it is this unverifiable element of uncertainty that gives rise to profits and drives commercial activity.

This basic tension between the objectives and priorities of the legal- and the commercial functions poses a severe integration challenge for firms. It may, for example, lead to situations where good business opportunities are left unattended because they are at a late stage stopped by the legal function because they are perceived as too "risky" or based on unverifiable agreements that would not hold up in court. It might also lead to situations where the legal function is left completely outside contractual design choices that concern important commercial matters because involving the legal function, along with potential demand for greater transparency and verifiability, is viewed as a friction that might hurt the commercial

aspects of the process. Both these outcomes are quite common and likely to affect contractual learning negatively since legal issues will not be analyzed in direct relation to commercial terms and the overall set-up of the transaction. However, the effect on contractual learning is likely to be different depending on the nature of the particular contractual terms being developed. Learning concerning coordination-oriented contractual terms, such as roles/responsibilities and communication, is less likely to be negatively affected by lack of integration between the legal- and commercial function because these terms rely to higher degree on stable and verifiable attributes of the product/service being exchanged (and are subject to less direct commercial considerations). On the other hand, contractual learning concerning governance-oriented contractual terms, such as decision/control right, contingency planning and dispute resolution, is more likely to be negatively affected because these terms are to a higher extent contingent on the uncertain outcomes of commercial decisions.

For example, consider a firm designing contingency planning clauses with a supplier in the context of a commercial price negotiation where the distribution of risks between the parties, their respective decision rights, and possibilities of claiming liquidated damages, is expected to impact the price demanded by the supplier. In this situation, it is unlikely that the legal function's knowledge concerning how to frame and communicate decision rights, contingency clauses and dispute resolution clauses will inform the commercial structure of the exchange unless it is highly integrated in the commercial negotiations. Similarly, it will be difficult adapt commercial terms to the potentially complex implications of contractual safeguards unless the commercial personnel leading the negotiations are directly involved in structuring these safeguards. The type of integration required in this case may take different forms. It may, as discussed above, involve the use of cross-functional teams, reward structures that encourage legal-commercial integration, and more informally oriented measures that create social integration between the functions (Lawrence & Lorsch, 1967). The key point is that the

likelihood that the firm will try out new contractual safeguards and be able to communicate them effectively in negotiations is significantly lower if it applies a sequential decision-process where the legal and the commercial functions remains structurally differentiated throughout the process. For example, by having the legal function supply a template that the commercial function then uses as a starting point in negotiations, or if the commercial function handles the discussion with the supplier and sends a complete contract draft to the legal function for approval only after the real negotiations have closed. Hence, we argue that higher levels of integration between the legal and the commercial function of the firm is primarily associated with stronger learning dynamics in relation to governance-oriented clauses.

Proposition 2b: The stronger integration mechanisms between a firm's legal- and commercial functions, the faster and more effectively it will learn to design governance-oriented terms and clauses.

Legal-Technical Integration. Another organizational challenge in the development of contracting capabilities is the integration of the legal- and the technical functions of the firm. As discussed before, the technical function plays an important role in the contracting process by being a primary repository of knowledge concerning the functionality of the exchanged goods or services, and the (production) processes that allows for the creation of these functionalities. Hence, in the case of a firm selling some good or service, the technical function will likely be an important knowledge repository concerning how customer needs are best met, the development of new production solutions, and the quality of exchanged goods. In the case of a buying firm, it will be an important source of knowledge concerning the technical capabilities of suppliers, how supplier capabilities are best integrated with the needs of the buying firm, and quality assurance.

A common element in these tasks is the coordination and communication between the contracting parties concerning the technical attributes of what is being exchanged. This

coordination and communication between the parties about the technical attributes in many cases takes place in more or less informal ways as technical personnel in the trading organizations work together to create new solutions. Many of the details of these discussions may thus be implemented without a proper documentation that is approved by responsible managers in the organizations. While this may be beneficial in terms of building trust between individual engineers in the trading organizations and, partly as a result of this, reduce the need of costly governance, it may also increase the risk of misunderstandings that impact coordination negatively. This can, for example, result from a genuine misunderstanding between individual engineers in the different organizations, from a failure of engineers in one organization to get an agreed solution formally approved by managers, and from different forms of opportunistic behavior by individual technical personnel (e.g., not fully disclosing information that exposes a lack of technical capability). This corresponds to the content of contractual terms related to roles/responsibilities and communications. Learning to get these terms right in contracts play an important role in reducing coordination costs between the parties. Hence, while relying on tacit knowledge and relational governance for solving complex technical problems in some cases may be efficient in the short run, it is also likely to lead to unanticipated contractual hazards in the long-run when things do not go as planned. More importantly, it is likely to slow down and make contractual learning that occurs over time less effective because lessons learned from a particular contractual set-up are never made explicit in a codified and verifiable way. This prevents a proper evaluation of the contractual set-up and keeps potential new insights tacit and embodied in individual employees (that may leave the firm). Hence, in order to improve contractual learning for technical contractual terms, the firm should aim to make these aspects of the relationship explicit, codified, and verifiable. This may be accomplished by better integration between the technical- and legal function of the firm

where, as discussed before, the legal function is assumed to be the primary holder of knowledge about the creation of verifiable documentation of goods, services and processes.

Proposition 2c: The stronger integration mechanisms between a firm's legal- and technical functions, the faster and more effectively it will learn to design coordination-oriented terms and clauses.

External Environment and the Development of Contracting Capabilities

A key argument of this paper is that the speed of contractual learning is significantly affected by the internal attributes and organizational design of the contracting firms: Firms with specialized and well-integrated key functions will learn faster and more effectively than firms lacking these internal attributes. Ultimately, the differential learning speed of firms may give rise to heterogeneous capabilities. However, contractual learning and the development of contracting capabilities are also subject to important boundary conditions. In other words, learning affects are likely to vary significantly in strength depending on transaction attributes and the type of external environment in which contracts are entered. External environment refers here to the type of industry that is concerned, including the specific geographical area, which normally corresponds to a certain set of political, social, and cultural institutions (Lane & Bachman, 1996; Teece, 1986). Similarly, the orientation of contracts, and type of learning associated with a specific orientation, may also vary in terms of which types of terms that are typically emphasized in a specific environment (e.g., coordination-oriented, governance-oriented). More specifically, firms' learning to contract will likely differ greatly depending on i) whether it is worthwhile for the firm to invest in contracting capabilities (does the dual alignment principle indicate a need for complex contract of a certain type), and ii) whether the external conditions facing firms are conducive to learning.

Previous research on the design of contracts under different conditions have primarily focused on transaction attributes that give rise to contractual hazards, such as asset specificity

and uncertainty; but also extends to other technical and social elements of the environment, such as task interdependence and trust (Gulati & Singh, 1998; Lane & Bachman, 1996; Mellewigt, Madhok, & Weibel, 2007). Generally, research show that contractual complexity (number of clauses, detail, length) is elevated by high asset specificity/bilateral dependency, measurement difficulties/unobservability, unverifiability, complexity, appropriability, technological change, planned duration, prior/repeated interaction, and lack of trust (Argyres & Mayer, 2007; Mellewigt et al., 2007; Poppo & Zenger, 2002; Reuer & Arino, 2007).

As a baseline proposition for understanding the external determinants of contractual learning, it is reasonable to assume that high levels of contractual complexity or extensiveness will over time increase the firms' experiential learning concerning how to design and manage contracts. In fact, this seems to be a more or less implicit assumption in many previous studies of learning to contract. Hence, one may use the dual alignment principle not only to predict *how* contracts will be designed under different conditions, but also to predict the extent and orientation of the experiential contractual learning that is likely to occur. For example, the importance of typical transaction attributes in driving contractual learning is supported by the empirical findings of Mayer and Argyres (2004) who show how technological uncertainty (customization, innovation, complexity) and interdependency (technological change subject to compatibility issues) lead to the development of increasingly complex contracts between studied firms. Studies also show that contractual learning is stronger for technical/coordination-oriented clauses than for legal/governance-oriented clauses, and that this learning is more pronounced in firms with high levels of technological knowledge (Vanneste & Puranam, 2010).

Learning concerning technical-/coordination-oriented terms and legal/control/governance-oriented terms may be driven by different external factors. This is indicated by Mellewigt et al. (2007) who find that the level of trust between parties differentially moderates the effects of control- and coordination concerns on contractual complexity. The

moderation effect of trust was found to be positive in the case of coordination concerns and negative for control concerns. Hence, firms who trust each other, and as a result experience lower level of behavioral uncertainty, excel in developing more complex coordination-oriented contracts, whereas they refrain from developing more elaborate control-oriented contracts. Naturally, these results speak to the issue of how external conditions affect different dimensions of contractual complexity, such as the development of coordination-oriented versus governance-oriented terms, and what type of learning to expect under these different conditions.

In the following, we highlight how certain environmental, transactional and relational factors may give rise to different types of learning dynamics among contracting firms and thereby affect the development of contracting capabilities. While not directly addressing the emergence of heterogeneity across firms that are subject to similar external conditions, outlining the particular external conditions that are conducive to contractual learning allows for a better understanding of why contracting capabilities are more likely to develop in some industries rather than others. This provides an important boundary condition for models of firm-level heterogeneity by indicating under what conditions capability development is viable and likely to occur.

Bilateral Dependency. Complex contracting is to a large extent driven by bilateral dependency between exchange parties (Williamson, 2010). Firms will under these circumstances seek to increase contractual complexity in order to get sufficient safeguards in place to protect against the potential opportunistic behavior of the exchange partner. Bilateral dependence between contracting parties is primarily created by high levels of asset specificity in the transaction, which may require more extensive and complex contractual safeguards, such as explicitly allocating control/decision right, engaging in contingency planning, and planning for dispute resolution. Bilateral dependency is, however, not limited to exchange relationships where relationship-specific investments are made (Gulati & Singh, 1998). Many industries are

characterized by customized project-based transactions that extend significantly in time and require project-specific adaptations. High levels of non-sequential task interdependence between the activities performed by the parties (Thompson, 1967), may in this context give rise to dependencies that are not based on relationship-specific investments of the kind highlighted by Williamson (1985, 2010). An example of this includes when a seller of a customized product depends on the buyer performing certain tasks at the right moment during a project in order for the good or service to be exchanged as agreed.

Knowing how to design effective contractual safeguards in a relationship characterized by bilateral dependency is a complex organizational problem that is solved by drawing on knowledge that resides in different parts of the organization. Building such knowledge is largely experience-based: Firms that accumulate experience dealing with a certain type of contractual situation get better at solving this particular type of problem (Argote & Miron-Spektor, 2011). It follows that firms who operate in an environment that on a regular basis require the use of complex contracts because of high levels of bilateral dependency are likely to learn how to design complex contracts faster than firm operating in environments characterized by low bilateral dependence where contracts may be simple and standardized. In line with the previously outlined distinction between coordination-oriented and governance-oriented terms and clauses, and standard TCE-logic, bilateral dependency will primarily affect contractual learning concerning the governance-oriented terms of the contract. The mechanism behind this effect is that significant bilateral dependency will make it more pertinent for the parties to put contractual safeguards in place that allocate risk related to unforeseen contingencies that might affect the parties' payoff from the relationship. This will shift incentives towards making use of and developing more complex governance-oriented terms in contracts, which will improve experiential learning in this area. Hence, we propose the following¹:

¹ The positive relationship between bilateral dependence and contractual learning may not be monotonically increasing if contractual hazards prompt a unilateral transfer of control rights under a simple or non-complex

Proposition 3: The more prominent contractual relationships characterized by bilateral dependency are in an industry, the more effectively will firms in that industry learn to develop governance-oriented terms and clauses.

Primary uncertainty. According to Williamson (1985: 56-59) there are three kinds of uncertainty that affect contractual relationships: primary uncertainty (state-contingent lack of knowledge about the world), behavioral uncertainty (surprise resulting from strategic nondisclosure, disguise, or distortion of information), and secondary uncertainty (lack of communication and impossibility of knowing what others know). The explanatory apparatus of TCE, with its focus on opportunism and calculativeness, primarily builds on behavioral uncertainty (Williamson, 2010). Hence, primary uncertainty related to knowledge about the conditions under which the contract is entered is generally downplayed in the basic TCE model. While this limited application of uncertainty fits well within the comparative-static equilibrium framework of the basic TCE model, the dynamics of learning-based models of contracting seem to imply a more symmetrical application of uncertainty that extends across all relevant domains (Foss & Hallberg 2014; Foss & Weber, 2016; Hallberg, 2015). In other words, learning involves a process of discovery in a world that is imperfectly known. Imperfect knowledge might concern the technical attributes of the exchange, the commercial conditions affecting the exchange, the nature of future contingencies, and the ramifications of using a certain contractual design. A key question is thus how different levels of primary uncertainty affects the speed and effectiveness of contractual learning.

contract (e.g., vertical integration, employment contracts), thus eliminating the opportunity for further experiential learning. Further, even if bilateral dependency is not high enough to cause integration, it may still increase the complexity of the transaction beyond levels that are conducive to effective learning by preventing parties from correctly mapping challenges and identifying potential solutions.

The level of primary uncertainty in an industry is likely to have differential impact on learning related to coordination- and governance-oriented contractual terms. Generally, high levels of primary uncertainty is likely to be associated with stronger learning dynamics concerning coordination-oriented contractual terms. The reason behind this effect is that incomplete knowledge concerning the transaction and the underlying technology will give rise to a continuous stream of new discoveries that have a direct impact on the specification of the good or service being exchanged. Such discoveries will prompt firms to refine and update their contracts in order to provide a more accurate description of what is being exchanged. Hence, uncertainty causes firms to review their contracts in order to determine to what extent they are effective, and when potential shortcomings are detected, this leads to search for new and improved contractual solutions (Campbell, 1988; March & Simon, 1958). When primary uncertainty increases, the challenges associated with coordinating, specifying and communicating the nature of the exchange accumulate and the parties will as a result spend more time and effort on evaluating current practices and identifying shortcoming in these practices, which lead to higher levels of contractual learning.

However, increasing primary uncertainty will only be conducive to contractual learning up to a certain point. The reason is that firms' incentives to engage in more extensive contracting is likely to be decreasing at higher levels of primary uncertainty because there are benefits to remaining flexible and avoiding detailed commitment under dynamic conditions where knowledge about the environment is being rapidly updated.² Hence, while new discoveries about the transaction are being made in a rapid pace, the reluctance of firms to

² According to Eisenhardt and Martin (2000:1111) dynamic capabilities (that is, routines for learning and change) "in high-velocity markets are simple, not complicated as they are in moderately dynamic markets. Simple routines keep managers focused on broadly important issues without locking them into specific behaviors or the use of past experience that may be inappropriate given the actions required in a particular situation. Often these routines consist of a few rules that specify boundary conditions on the actions of managers or indicate priorities, important in fast-moving markets where attention is in short supply".

engage in extensive contracting under high primary uncertainty, is likely to reduce experiential learning concerning the development of coordination-oriented terms. In addition, when primary uncertainty reaches higher levels, the ambiguities surrounding the transaction are likely to be severe enough to prevent firms from correctly mapping challenges and identifying solutions, a condition that has a negative impact on learning (Argote & Miron-Spektor, 2011). Hence, while moderate levels of primary uncertainty are conducive to contractual learning concerning coordination-oriented terms, there is a limit to how much uncertainty firms can accommodate while still being able to learn from the challenges associated with contracting. If uncertainty is too high, joint problem recognition, the identification of consistent problems across contracts, planning, and the possibility of communicating solutions become difficult and result in the parties giving up attempts to elaborate on the contract. When this occurs, contractual learning concerning coordination-oriented terms is likely to slow down and eventually decrease as firms rely on other ways of regulating the relationship that are more conducive to high levels of uncertainty. Hence, we propose that:

Proposition 4a: There is an inverted U-shaped relationship between the level of primary uncertainty and the effectiveness with which firms learn to develop coordination-oriented terms and clauses. Learning to contract increases as primary uncertainty changes from low to moderate and decreases as primary uncertainty increases from moderate to high.

Contrary to the effect on coordination-oriented terms, primary uncertainty is likely to have a negative effect on learning concerning governance-oriented terms. When business conditions are unknown, perhaps due to rapid change or inherent complexity, and firms find it hard to map their environment, it becomes increasingly hard to develop relevant and accurate performance measures that may be used to safeguard contractual relationships. As a simple example, consider the use of performance-based pay clauses in employment contracts (governance-

oriented terms) across industries subject to differential levels of uncertainty. Performance-based pay is typically most prominent in activities where the task-environment is known with sufficient certainty to specify reliable and stable performance metrics that reflect a desired job performance (sales representatives, etc.), whereas activities subject to high levels of uncertainty are typically regulated by more open-ended contracts (e.g., researcher, police officer, etc.). Hence, high levels of uncertainty make it more costly to specify extensive governance-oriented terms in contracts (Eisenhardt, 1989), which lead to a less extensive use of these types of contractual terms, and thus also to less experiential learning in this area. For example, high levels of primary uncertainty may increase the cost/risk-premium associated with tying liabilities and payoffs to contractually specified performance metrics and also make it more costly to measure the parties' contractual performance (Barzel, 1997; Jensen & Meckling, 1976).³ Hence, we propose the following:

Proposition 4b: The higher the level of primary uncertainty in an industry, the less effectively will firms learn to develop governance-oriented terms and clauses.

Behavioral Uncertainty and Trust. According to Williamson (1985: 56-59), behavioral uncertainty is defined as “surprise resulting from strategic nondisclosure, disguise, or distortion of information”. Behavioral uncertainty is thus closely related to the concept of “trust”, which in turn has been defined as “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of others” (Rousseau et al., 1998: 395; see also Bhattacharya, Devinney, & Pillutla, 1998; Das & Teng, 2001; Mayer, Davis, & Schoorman, 1995; Nooteboom, 1996). The affinity between “behavioral uncertainty” and “trust” is pinpointed by Coleman (1990) who argues that situations involving

³ It should be noted that TCE is based on the assumption of risk neutrality (Williamson, 1985). However, contractual parties' risk preference may be debated and possibly vary across different firms and contractual situations (Chiles & McMackin, 1996).

trust are very similar to those involving behavioral risk (or behavioral uncertainty), where the risk one actor is willing to take on is dependent on the expected performance of another actor. Situations involving trust may thus, according to Coleman (1990), be seen as a subclass of situations involving (low) risk. Trust allows the trustee to take actions that would not have been possible otherwise, and “if the trustee is trustworthy, the person who places trust is better off than if trust were not placed, whereas if the trustee is not trustworthy, the trustor is worse off than if trust were not placed [...] the action of placing trust involves the trustor’s voluntarily placing resources at the disposal of another party (the trustee), without any real commitment from that other party” (Coleman, 1990: 97-99). The placement of trust may thus be viewed as similar to the type of considerations an actor makes when placing a bet where the actor “knows how much may be lost (the size of the bet), how much may be gained (the amount that might be won), and the chance of winning” (Coleman, 1990: 99).

The question of the nature and level of trust in contractual relationships is directly related to the function of contracts to provide safeguards against potential opportunism in exchange relationships (Mellewigt, Madhok, & Weibel, 2007). Similar to how opportunism has shown to be a both empirically and conceptually challenging concept (Lumineau & Oliveira, 2020), the notion of trust has also sparked debates about its meaning and how it should be empirically measured (McEvily 2011). One challenge, for example, concerns how the concept of trust differs from other core concepts in economic organization, such as *calculativeness* (see Williamson, 1993). Others have raised the question whether trust can at all be meaningfully understood based on a rational choice perspective (as in Coleman, 1990); or if the concept is best understood as a form of automatic *heuristic decision-making* based on cognitive dispositions in humans and repeated historical exposure to certain situations (see McEvily, 2011). These debates about the notion of trust in exchange relationships have lead scholars in different directions. For example, how the contractual set-up may give rise to different forms

of trust, such as trust concerning competence and/or goodwill (Malhotra & Lumineau, 2011); or how the contractual design affect trust dynamics over time (Faems et al., 2008; Vanneste, Puranam, & Kretschmer, 2014).

Building on the definition of trust provided by Coleman (1990), which is closely related to Williamsons (1985) notion of behavioral uncertainty, the primary interest here is on how trust (or behavioral uncertainty), as an element of a broader institutional environment may affect firms' contractual learning (see Lane & Bachman, 1996). The level of trust between contracting parties thus depends on the parties' perceived level of vulnerability in the exchange relationship, which ultimately derives from the parties' more or less positive expectations concerning the behavior of other actors (Coleman, 1990). High levels of trust is found in environments where actors have positive expectations about other actors' behavior. Hence, trust is thus more likely to emerge in environments with less extensive structural contractual hazards, a strong history of successful interactions and an expectation of future interaction (Heide & Miner, 1992).

The evidence concerning how the level of trust between firms affect contractual detail is mixed (Mellewigt, Madhok & Weibel, 2007; Poppo, Zheng Zhou, & Zenger, 2008). On the one hand, a high level of trust is likely to reduce the need for more complex contractual safeguards because it allows for comparatively cost-efficient relational governance. On the other hand, high levels of trust may also make information-sharing and coordination between the parties easier, and thus, increase the parties' incentives to develop and effectively communicate more complex coordination terms and clauses.

The positive effect of trust on contractual complexity is in many cases likely to be driven by the technical functions of the contracting firms. Hence, it may involve engineers in the contracting organizations working closely together to develop new solutions to technical problems and then incorporating these solutions in subsequent contracts. As a simple example,

consider large engineering firm that the authors studied. The firm was active in a relatively small industry with large repeated customer projects where engineers from the the firm and the customers worked closely together over an extended time period for each project. The structure of the commercial contracts and governance-oriented terms were more or less standardized and did typically not change significantly across or during projects whereas technical and coordination-oriented terms (e.g., specifications, quality assurance, etc.) were subject to continuous development based on an openhearted dialogue between engineers in both firms. Trust, rooted in personal ties, the exchange history and expectations for future projects, where central to achieving this openhearted technical dialogue that induced continuous development of these terms.

Hence, when trust is high in these types of situations, it will lead to more extensive documentation and more open-hearted discussions on the best ways to improve contractual terms related to the parties' roles/responsibilities and communication, which is likely to create a positive learning dynamic concerning the development of coordination-oriented terms and clauses. Inversely, lack of trust effectively reduces the parties' incentives to engage in knowledge sharing because it is uncertain how the contractual partner will use this knowledge. The effect of trust on learning concerning governance-oriented terms is likely to be the opposite from coordination-oriented terms. In situations where a contractual partner's behavior is known and predictable (high trust) there is likely less perceived need to review and update governance-oriented contractual terms. This will lead to lower levels of experiential learning concerning the development of these types of clauses. We thus suggest the following:

Proposition 5: The higher the level of trust in an industry, the more effectively will firms learn to develop coordination-oriented terms and the less effectively they will learn to develop governance-oriented terms.

CONCLUDING DISCUSSION

The TCE has come a long way in explaining the economic organization of firms based on what is fundamentally a comparative-static equilibrium approach. The predictive benefits of this approach are quite obvious, and have led to the characterization of the TCE as an “empirical success story” (Williamson, 2000: 605). However, particular drawbacks associated with the static approach have also become apparent when contrasting the TCE with other theoretical perspectives, such as evolutionary economics and the capability approach (Argyres et al., 2011). Hence, while managerially informed, adaptive and farsighted planning provide a strong operational basis for predicting the emergence of particular contractual and organizational forms, it abstracts from potential important new insights related to learning, disequilibrium, uncertainty, path-dependence, and serendipity. One important contribution of the relatively new stream of research on learning to contract is thus to uncover the capacity of firms for endogenous change in their contractual structure. Generally, such endogenous change may, for example, come about as a result of instantaneous and individual-oriented processes, such as entrepreneurial judgment (Foss & Klein, 2012) or *ad hoc* problem-solving (Winter, 2003), as well as more incremental collective-level processes, such as organizational learning (Vanneste & Puranam, 2010) and the development of contracting capabilities (Argyres & Mayer, 2007).

In this paper, we specifically focus on outlining firm-level drivers and mechanisms that give rise to differential contractual learning and the development of heterogeneous contracting capabilities. Hence, we argue that the development of contracting capabilities is grounded in the extent to which the firm can realize economies of specialization across technological, commercial and legal personnel involved in the contracting process. Specialization presents an organizational design problem related to the integration between functionally specialized departments and employees. Specifically, we identify three functional interfaces that influence the level and type of contractual learning in firms: commercial-technical, legal-commercial,

and legal-technical. Last, we build on the basic TCE model to outline relevant boundary conditions for contractual learning in terms of external conditions that impact the incentives and opportunities for contractual learning. A key insight from this model is that while there are several important firm-level factors that are likely to shape both the magnitude and direction of learning to contract in firms, there are also important external factors that may severely limit the potential benefits from developing contracting capabilities. We may thus expect to find significant variations in capability across firms within the same industry or external environment, as well as large variations across industries. This is a potentially important insight because interfirm coordination is likely to be subject to more severe frictions when contracting firms are heterogeneous. Hence, strong contractual learning dynamics may in fact lead to reduced incentive alignment and intensified contractual hazards.

Future research may thus focus more on describing and explaining industry-level differences in contractual learning and capability. This could involve examining differences in contractual structure across industries and different geographical areas. It could also involve studying contractual relationships at the interface between different industries and/or national contexts where the contracting firms may be expected to have very different experiences based on their history and background.

The results outlined in this paper contribute to a stream of research that seeks to uncover the nature of contractual learning and the internal make-up of contracting capabilities. In relation to this research, the model outlined in this paper specifically addresses the sources and drivers of firm-level heterogeneity in contracting capabilities, and thus the particular circumstances under which heterogeneous contracting capabilities are likely to emerge. From a normative firm-level perspective, the results carry both bad and good news on the issue of building or improving contracting capabilities. The bad news for managers is that learning to contract is likely to be path-dependent and subject to increasing returns to scale and

specialization which strongly favors large established firms. This is likely to restrict firms' ability to accomplish more instantaneous changes in the level of contracting capability. The good news for managers, however, is that a firm's learning to contract and the development of contracting capabilities may be enhanced by an organizational design that supports integration between the specialized functions involved in the contracting process. This presents an opportunity for managers to experientially improve contracting capabilities based on a thoughtful organizational design that is adapted to the external environment and the returns to contractual learning that are present in the specific industry.

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FIGURE 1

Organizational Integration: Contracting Capability

