

**SOLVING CONTRACTING PROBLEMS: HOW AN MNC ADJUSTED
CONTRACTING KNOWLEDGE TO LOCAL REQUIREMENTS**

Abstract. Drawing on the problem-solving perspective of the knowledge-based view (KBV), we propose and assess how a business resolved the problem of how best to contract with suppliers as a business of a multinational corporation (MNC) entering a new country with a legal system different from their own. We posit such a business will search for knowledge from outside the firm codified in the standard industry templates for both legal systems and combine it with firm knowledge accumulated by the MNC in prior contracting. We then analyze the contracting templates developed by a business of a French MNC hired by the United Kingdom government to build a major project in the UK. We find the resulting customized portfolio of contracting templates reflect the negotiated shared beliefs of the authority-based hierarchy, defining the area of the solution landscape where directional search will take place during supplier negotiations. We discover they resolved their contracting problem by addressing six sub-problems associated with distinctive knowledge sets and designing six customized templates. Our comparison of the two standard industry templates and six customized templates suggest the business integrated contracting knowledge taken from two legal systems and the MNC in their portfolio of customized templates.

Keywords: *Knowledge-based View; Alliance Governance and Processes; Global/International Strategies & Organization and Coordination in MNCs*

INTRODUCTION

Contracting research has argued that the contracts the parties design to create and capture value shape the formation and management of inter-organizational relationships (for example, Argyres, Bercovitz, & Zanarone, 2019; Ozmel, Reuer, & Gulati, 2013). Furthermore, research has shown companies can learn to appropriate the value created when they contract and that their contracting knowledge can provide them with a competitive advantage relative to their competitors (Anand & Khanna, 2000; Argyres & Mayer, 2007; Ariño & de la Torre, 1998; Mayer & Argyres, 2004; Reitzig & Puranam, 2009). This research stream has also recognized that some contracts are transactional while others are more relational (Mayer & Teece, 2008; Ryall & Sampson, 2009), and that incomplete contracts are more efficient when the contracting context is uncertain, and the dynamics of the relationship between the parties is evolving (Dyer & Singh, 1998). Thus, contracts are acknowledged to be central inter-organizational governance mechanisms (Stinchcombe, 1985), and important framing devices in inter-organizational relationships (Foss & Weber, 2016).

Because multinational corporations (MNCs) have many contractual relationships with a myriad of companies across different industries and countries around the world (Zhou & Xu, 2012), their businesses can be expected to leverage internal and external knowledge and experience to answer the question of “how best to contract with suppliers?” when they first enter a new country with a new legal system. Typically, such businesses will acquire external knowledge on how contracts differ in the country with the new legal system by reviewing the boilerplate terms in the standard contract templates developed for the industry and country they plan to participate in and the products/services they plan to procure (Poppo, Zhou, & Ryu, 2008; Vanneste & Puranam, 2010). Trade associations, industry bodies and/or government agencies develop standard contract templates that are consistent with the legal system and local practices of the countries

where they are used (Ben-Shahar & White, 2006). While standard templates provide the basic structure of a businesses' portfolio of customized contract templates, they adjust the templates for their own contracting purposes and incorporate the lessons they and their parent company have learned contracting with suppliers in different industries and countries before beginning contract negotiations. Furthermore, businesses typically develop a contract portfolio, including a range of different customized contract templates, specific to products and services, procured from suppliers from different countries.

A consideration of the customized templates MNCs' businesses develop, help to address several gaps in the contracting literature. To date, much of the contracting research has considered dyadic contracting relationships, i.e., specific contracting relationships between two partners (for example, Ariño & de la Torre, 1998; Mayer & Argyres, 2004), while to our knowledge customized contract portfolios have not been studied. Prior research has also typically looked at one type of relationship (Blumberg, 2001) or one type of contract (Mayer & Teece, 2008). Studies have not previously adopted a portfolio approach, where researchers investigate how a business adjusts its portfolio of customized contract templates, with the assistance of the corporate headquarters, to address emerging requirements. Because a business's portfolio of customized templates has a major impact on subsequent contract negotiations and relationship management with suppliers, this is an important research topic to explore.

Prior contracting studies have also mainly focused on learning in a relationship when contracting with the same supplier over time (e.g., Mayer & Argyres, 2004), or investigated MNCs moving from one mature legal system to a less mature legal system where contracts are less important governance mechanisms (e.g., Zhou & Xu, 2012). While management contracting research recognizes that contract templates are often used (e.g., Poppo et al., 2008), we believe

this to be the first in-depth case study conducted in the organizational literature to evaluate the adjustments made to standard contract templates and their boilerplate terms when businesses customize their portfolio of contract templates. More specifically, we consider the changes made in the portfolio of customized contracts a business designs when entering a country governed by a legal system not familiar to the MNC.

In contrast to prior studies on learning to contract, we apply the problem-solving perspective of the knowledge-based view (KBV) to answer the question: How should a business design a portfolio of customized contract templates? We assess the modifications made in the portfolio of customized contract templates designed by a business of a MNC moving from one legal system to another. This portfolio of customized templates solve the contracting problem by defining six sub-problems related to different kinds of suppliers, which then define the area of the solution landscape where directional search will take place during actual negotiations with suppliers. We want to understand better how the contract knowledge incorporated in customized contract templates combine the knowledge gained from standardized contract templates for the industry in a new legal system and the knowledge the business and their MNC have gained contracting with similar suppliers in another legal system. Thus, our study explores the following more specific research questions. First, how does a business of an MNC participating in the construction industry design their portfolio of customized contract templates when building a major project in a common law country, when their contracting knowledge and experience comes from contracting with suppliers from countries who have civil law legal systems similar to their home country? Second, what contract (sub-) clauses included in the portfolio of customized contract templates are in the common law and civil law standardized contract templates, and which ones come from the stock of knowledge accumulated by the MNC?

We use the problem-solving perspective of the knowledge-based view (KBV) to frame our in-depth case study of the design of the portfolio of customized contract templates by a wholly owned UK-based business of a French MNC contracted by the UK government to build a major project. We posit and find that the portfolio of customized contract templates developed reflect the negotiated shared beliefs of the authority-based hierarchy, and that they define the area of the solution landscape where directional search takes place when contract negotiation initially begins with individual suppliers. Evidence suggests the business answered the contracting problem by defined six sub-problems associated with distinctive knowledge sets in this moderate-interaction problem, although there were some similarities in design choices across the six sub-problems.

We contributed to the literature in two primary ways. First, extend the contracting literature by exploring how MNCs' design portfolios of customized contract templates when a business enters a country with a new legal system and how they incorporate external knowledge acquired from standard contract templates with internal knowledge from within the authority-based hierarchy. To our knowledge, this is the first contracting study in the organizational literature to analyze a portfolio of customized contract templates. We also study in-depth four types of core clauses in the customized contracts designed to work with suppliers in countries with two legal systems, namely communication channels, decision rights, incentives, and dispute resolution. The detailed analysis notes the clauses, sub-clauses, and shifts in responsibilities and rights when comparing standard to customized contract templates and clauses and sub-clauses that come from knowledge internal to the MNC. Second, we contribute to the problem-solving perspective of KBV, by showing how a business of an MNC solved the problem of how best to contract with suppliers when entering a new country with an unfamiliar legal system. We found that they broke the contracting problem down into six sub-problems, each related to different types of suppliers

with distinctive knowledge sets, and designed a customized contract templates for each. However, we also reveal that they incorporated similarities across templates to assist in integrating work across the various types of suppliers. This illustrates how authority-based hierarchies use group heuristics negotiated by the actors based on their logic and each actor's self-interest and political position to combine external and internal knowledge to define the area of the solution landscape where directional search will take place, when suppliers begin to negotiate their contracts.

We begin our paper by reviewing the problem-solving perspective of KBV, how MNCs use standard industry contract templates, and characteristics of civil law and common law legal systems. Next, we describe our study and report our findings. Finally, using these finding we develop propositions and suggest directions for future research.

LITERATURE REVIEW

Problem-Solving Perspective of Knowledge Based View (KBV)

The problem-solving perspective of KBV focuses on the efficiency of alternative organizational forms in *generating* knowledge. It argues that a problem's complexity influences the optimum method of solution search for the knowledge necessary to solve the problem and the most appropriate means of organizing search (Caner, Cohen, & Pil, 2017; Felin & Zenger, 2016; Grant, 1996a, 1996b; Nickerson & Zenger, 2004; Posen, Keil, Kim, & Meissner, 2018). It predicts the benefits and costs of governing organizational solution search for solving problems using markets, hierarchies, and hybrid organizational forms. The problem-solving perspective of KBV contends that these three governance forms differ fundamentally in their application of the organizational features governing solution search: communication channels developed to support knowledge transfer, decision rights of who determines the path of solution search, and incentives that motivate search (Nickerson & Zenger, 2004).

According to the problem-solving perspective, the task of the manager is to accumulate and protect valuable knowledge by selecting valuable problems to solve (Nickerson & Zenger, 2004). Once managers have selected a problem and chosen a governance form, they must decide how to search for solutions to solve the problem within and out-side the firm (Fleming & Sorenson, 2004). The problem-solving perspective proposes two approaches to the search for solutions to problems: directional and heuristic. In directional or local search, managers seek feedback on new combinations of knowledge based on experiential search or search through trial and error (Cyert & March, 1963; March & Simon, 1958), where new knowledge combinations are considered by changing one design feature of the problem at a time (Gavetti & Levinthal, 2000). Individuals or groups of actors independently pursue trials, observe the solution value of the change in the design element, and either stay on the same path of search or restore the design to its original form (Nickerson & Zenger, 2004). Heuristic or cognitive search is a solution search in which individuals or groups cognitively evaluate the probable consequences of search design choices instead of relying on feedback based on trials (March & Simon, 1958; Posen et al., 2018; Simon, 1991). In heuristic search, cognitive maps or implicit theory, of how knowledge sets and choices relevant to the problem interact, determine solution performance of search trials (Nickerson & Zenger, 2004). Cognitive maps are group heuristics of negotiated beliefs shaped by the quality of actors' logic, as well as their self-interest and political position (Walsh & Fahey, 1986).

While directional search and market-based governance are appropriate for simple problems, heuristic search and hierarchy-based governance are more appropriate for complex problems (Macher & Boerner, 2012). More specifically, the problem-solving perspective proposes that complex problems that require moderate-interaction to solve are nearly decomposable and can be broken down into sub-problems linked to distinctive knowledge sets (Nickerson & Zenger,

2004). Although the design choices made for one sub-problem is not completely independent of design choices made for other sub-problems, it is argued that within sub-problems there is greater interaction among knowledge sets than between sub-problems. Furthermore, the perspective says that moderate-interaction problems benefit from heuristic search followed by directional search, because heuristic search defines the area of the solution landscape where directional search will subsequently take place.

The question of how best to contract with suppliers, when a business of an MNC that builds major construction projects moves into a new country with an unfamiliar legal system, is by definition a complex problem. However, we contend that this problem is nearly decomposable and requires moderate-interaction, because the problem can be broken down into sub-problems associated with distinctive knowledge sets based on the nature of the work supplied and the legal systems in which suppliers work. Furthermore, we posit that authority-based hierarchy is the best governance form to use when developing a shared heuristic or cognitive representation to define and structure sub-problems by imposing constraints or design rules that narrow the area of the solution landscape searched. In our case by designing a portfolio of customized contract templates. Once the search heuristic defines the sub-problems, directional search will proceed as individuals and groups within the business negotiate and manage market-based contracts with their suppliers. To understand why authority-based hierarchy is the best governance form for an efficient production of knowledge in this context, we next discuss MNCs and their design of contracts.

MNCs' Efficient Design of Contracts

Recently there has been an increasing focus on how companies efficiently design and use governance mechanisms, especially contracts, to manage relationships with other firms (Argyres & Mayer, 2007; Lumineau, Fréchet, & Puthod, 2011; Mayer & Argyres, 2004). Contracts, as a

form of inter-organizational governance, are vital for MNCs to create and appropriate value in relationships with other firms, and research has shown that firms' contracting knowledge or capabilities can provide them with a competitive advantage relative to their competitors (Vanneste & Puranam, 2010). In order to efficiently contract, MNCs must search for external knowledge to combine with internal knowledge, and efficiently transfer knowledge acquired in the various businesses across the globe. Overtime MNCs acquire a stock of knowledge that allows them to efficiently contract in different industries, countries, and legal systems (Argyres & Mayer, 2007).

Based on the problem-solving perspective, we assume that the key knowledge-based question MNC's businesses face is not how to organize to exploit already developed knowledge, but rather how to organize to efficiently generate knowledge (Nickerson & Zenger, 2004). We also assume that businesses should possess a theory to guide their efforts at value creation and appropriation through sourcing (Felin & Zenger, 2016; Nickerson & Silverman, 2007; Reitzig & Puranam, 2009). An important problem associated with value creation for any business unit is how to develop and manage their suppliers; i.e., how to best organize the search for solutions to sourcing problems that optimize the "likelihood, speed, and cost with which valuable solutions are discovered" (Nickerson & Zenger, 2004: 618). We believe that business management responsible for locating and contracting with companies in a new country with an unfamiliar legal system will take the following steps consistent with the problem-solving perspective. First, they will negotiate a heuristic within the authority-based hierarchy of their MNC that breaks down the contracting problem based on sub-problems associated with different knowledge sets and create alternative governance structures in the form of a portfolio of customized contract templates. Second, individuals and groups within the business will then select a contract template from their portfolio that matches supplier related problems as a starting point for negotiating contracts with suppliers.

Organizational studies in strategy and international business have revealed that the design and usage of contracts is influenced by a country's legal system (Zhou & Poppo, 2010). For example, Zhou & Xu (2012) found that in weaker legal systems contracts are less enforceable than in more developed legal systems, where corporations can rely more on courts to enforce the terms of their contracts. Thus, in more mature legal systems businesses will spend a substantial amount of time and resources developing a portfolio of customized contract templates, because these legal systems have stronger property rights protection than weaker legal systems (Schilke & Lumineau, 2018). This allows firms contracting in countries with strong property rights protection to secure and appropriate value from their property rights.

Furthermore, we can expect MNC business managers to adjust contracts, when they move into a country with an unfamiliar legal system. For example, a common story regarding the use of formal contracts in China is that Chinese managers ignore the formal contract. Other enforcement mechanisms may sometimes operate, such as a relational contract, which stipulate that if the Chinese manufacturer leaks patented products the exchange is terminated forever (Schepker, Oh, Martynov, & Poppo, 2014). When partners are culturally distant, monitoring is more costly and less likely to occur, and cultural distinctions may hinder the development of relational capabilities and communication of expectations (Schepker et al., 2014). Several studies have investigated UK or USA firms moving to China, a less mature legal system in a developing economy, and its impact on relational and contractual governance mechanisms (e.g., Zhou & Poppo, 2010). However, extant studies provide limited insights as to how firms effectively design contracts to address contracting problems, appropriate value, and generate knowledge when establishing relationships with suppliers in a country with a mature legal system.

Legal Systems and Standard Contract Templates

The differences in legal systems and local practices across countries create a context in which MNCs need to adapt their portfolio of customized contract templates in order to negotiate with and manage new suppliers in new markets, and simultaneously continue to supply from their global partners. A ‘legal system’ is a procedure or process used for interpreting and enforcing the law (Friedman, 1975). The two most common legal systems are civil law and common law, which combined represent over 230 countries (Dainow, 1966). In civil law the central source of laws are codifications in a constitution or statutes passed by the legislature to amend a code recognized as authoritative (Dainow, 1966). On the other hand, common law is a system of law based on the decisions in cases by judges and juries, commonly referred to as legal precedents (Plucknett, 2001). Thus, the basis of common law is the interpretation of the law revealed in cases rather than laws developed or made by legislative enactments associated with civil law.

Within these two distinct legal systems, very different local business practices have emerged, in particular contracting standards. ATOM Group (fictional name), the diversified multinational corporation headquartered in Western Europe we selected for our study, has traditionally used the FIDIC (Fédération Internationale Des Ingénieurs-Conseils) family of contracts, developed by the International Federation of Consulting Engineers, with its use dating back to 1957. It has an explicit focus on risks and liabilities in its approach to managing relationships, as illustrated by the fact that the ‘Claims Disputes and Arbitration’ clause are the most frequently used clause in the contract. This family of contracts, which are more consistent with civil law, have historically been used by multinational construction businesses to contract with suppliers also based in countries with legal systems based on civil law. However, in 1994 the UK conducted an investigation into perceived problems in the UK construction industry, which

resulted in the Latham Report (1994) describing the industry as ineffective, fragmented, and incapable of delivering to its customers. The report recommended adoption of greater teamwork, more partnering practices, and the development of a new family of contracts called NEC (New Engineering Contract). The NEC family of contracts is specifically designed for “clarity, flexibility, and stimulating good management” and is the preferred choice for the UK Government procuring large-scale projects. The adoption of NEC contracts has taken place primarily for three reasons. First, NEC contracts were designed to enforce and ensure a more collaborative way of managing relationships between client and suppliers. Second, NEC contracts were intended to be flexible enough to apply to a wide variety of commercial situations, work, and locations. Third, they are written in easily understood English and legal terminology was simplified.

Thus, our case study explores the following research questions. First, how does a business of an MNC participating in the construction industry design their portfolio of customized contract templates when building a major project in a common law country, when their contracting knowledge and experience comes from contracting with companies from countries who have civil law legal systems similar to their home country? Second, what contract (sub-) clauses included in the customized contract templates are in the common law and civil law standardized contract templates, and which ones come from the stock of knowledge accumulated by the MNC?

METHODS

Research Design and Case Selection

We addressed our research question through a multi-method, in-depth case study aimed at elaborating new theory. Theory elaboration is often necessary to investigate unaddressed questions in established theory with the effort to extend it. To select our research site, we identified a UK subsidiary of a business in a diversified MNC headquartered in Western Europe that needed to

adapt their contract portfolio to work with local suppliers in a common law country, while also contracting with international suppliers from countries whose legal systems are based on civil law. This stands in contrast to prior studies that have primarily focused on businesses in countries with legal systems based on common law (i.e. UK or US firms) moving to less developed legal systems based on civil law such as China (e.g. Zhou & Poppo, 2010). Following Schilke & Lumineau (2018, p.2849), who stated that “it seems likely that the contracting process may play a less central role in simpler, shorter, or more exploitation-oriented types of alliances”, we selected a context that required longer, more collaborative types of relationships: i.e., a construction project for a nuclear power plant expected to take over a decade to complete. Once an appropriate case site was located, we solicited permission from the UK subsidiary, the business it was part of, and the corporate parent to conduct the study. They gave their permission. Our purpose was to access the UK subsidiary’s portfolio of customized contract templates in order to assess the adaptations made to the industry standard templates with boilerplate terms for a business entering a common law legal system for the first time.

The MNC, referred to as ATOM Group, is an integrated electricity company, active in all areas of the business: generation, transmission, distribution, energy supply, and energy trading services. A global leader in low-carbon energies, ATOM Group has developed a diversified generation-mix based on nuclear power, hydropower, new renewable energies, and thermal energy. It is involved in supplying energy and services to over 37 million customers around the world and operates over 50 nuclear reactors in Western Europe. In addition, ATOM Group is part of a joint venture with an Asian nuclear organization that is building two reactors in Asia. ATOM Energy (ATOM Group’s subsidiary in the UK) is currently responsible for producing about 1/5th of the country’s needs from its nuclear power stations, wind farms, coal and gas power stations,

and combined heat and power plants. The company supplies gas and electricity to more than six million businesses and residential customers. In 2008, ATOM Energy established a subsidiary called New Nuclear Sites (NNS) to have sole responsibility for activities related to design, construction, and commissioning of UK nuclear power stations. ATOM Group has the knowledge of the design of the power station and supports NNS on the management of detailed designs and any subsequent modifications, early procurement, and maintenance of codes and standards.

After a long negotiation process, the UK government approved the 'strike price' in late 2013 and granted NNS approval to start building the ABC nuclear power plant in the South West of the UK. The current value of the project is over £15bn (approx. \$20bn) and it is expected to meet about 7% of UK's electricity needs. Additionally, NNS is contractually committed to award over 50% of its supplier contracts to UK businesses. In order to contract with UK businesses, however, NNS needed to adapt its parent's contract practices and portfolio to include customized contract templates based on NEC contracting standards used by the UK construction industry, although it would use FIDIC templates with global suppliers primarily based in Western Europe.

The case is characterized by an authority-based hierarchy, because the Central Procurement Committee (CPC), consisting of commercial and legal professionals located in ATOM Group's headquarter, is responsible for deciding when to use NEC and FIDIC contract families, the customization of the standard templates, and the specific contract templates to use for a particular supplier. This is an appropriate context for our study as the CPC is the "central figure" or final authority with regards to how NNS designs its portfolio of contracts with suppliers to address governance sub-problems in sourcing work from suppliers with different knowledge sets based in countries with either a common or civil law system (Nickerson & Zenger, 2004). The CPC "economizes on the extensive and costly knowledge sharing and education that would need to

occur were the governance of solution search organized through a market interface” (Nickerson & Zenger, 2004, p. 624). When problems are complex, such as contracting with suppliers to build a nuclear power plant, an efficient search for solutions to sub-problems demands the use of a shared heuristic to impose constraints or design rules on each sub-problem to narrow the area of the search solution landscape before initiating directional search; i.e., before contracts can be negotiated with individual suppliers. In other words, in order to address the contracting problem, the CPC defined and structured sub-problems (via the use of customized contract templates for different works and legal systems) by imposing constraints or design rules on each sub-problem, hence greatly narrowing the area of the solution landscape to be searched. The authority-based hierarchy has the overall decision power as “within the boundaries of hierarchy, the courts exercise forbearance” (Nickerson & Zenger, 2004, p. 625). In other words, courts will not hear disputes internal to the firm or dictate a path of problem search. Similarly, because individual actors (e.g., managers) have limited capacity and motivation to influence the path of search, the selection and customization of contract templates across both families of contracts (i.e. NEC and FIDIC) is done by the CPC. The FIDIC contracting family is an artefact of the organization’s existing contracting capability developed constructing over 50 nuclear power stations in Western Europe under civil law. In contrast, the NEC contracting family represents a new contracting form for the MNC, adjusting to emerging requirements in a new country (i.e. UK) and its common legal system.

Data Collection

We gathered data between 2015 and 2019. We collected information from publicly available reports (e.g. financial reports, newsletters, industry reports); standard and customized contract templates; site visits; and interviews with internal and external organizational informants. We collected data using a three-step recursive strategy. In the first step, carried out in 2015 to 2017,

we gathered information from reports (for example, NEC, 2016; Nuclear conference report, 2018; New Civil Engineer, 2019), site visits, observations and conducted interviews with sector experts, to understand key aspects of both legal systems as well as changes in the industry with regards to collaboration and contracting. In the second phase (mid-2017 to end-2018), we collected interviews and archival data from key internal and external informants. This helped to gain a deeper understanding of the process of selecting standard templates and designing the portfolio of customized contract templates. Once this step was completed, we proceeded with a first round of data analysis to understand in detail the differences between the standard FIDIC and NEC contract templates and how they reflect their respective legal systems. However, we were unable to account completely for the different adaptations reflected in the three FIDIC and three NEC customized templates. In the third stage (end-2018 to end-2019) we gathered new interview data, focused on better understanding how NNS adjusted their contract portfolio to work in the UK. We also analyzed all six customized FIDIC and NEC contract templates.

We put a great deal of effort into gathering reliable and objective information from our informants (Alvesson, 2003). Thus, we interviewed various stakeholders with different lengths of tenure in NNS, with disparate hierarchical and functional roles, as well as key external organizations such as law firms, to access diverse perspectives that allowed us to triangulate data. In order to minimize respondents' biases (Patton, 2002), we designed an interview protocol (Alvesson, 2003) that we adapted to the characteristics of different informants and refined over time as the research progressed and theoretical constructs emerged. Finally, we drew on archival data as a source of information to triangulate insights emerging from each round of interviews (Alvesson, 2003). We gathered data until we reached an in-depth understanding of the phenomena under investigation and the new data collected did not provide any fresh and relevant information

for the development of new theory, thus we reached data saturation. The following sections explain in detail the data collected.

Standard and customized contract templates. We gathered the standard templates with boilerplate terms for FIDIC and NEC. Historically, the business unit that builds nuclear plants, hereafter called ATOM Nuclear, had used a portfolio of six customized contract templates for contracting with different types of suppliers. Given NNS's commitment to the UK government to contract with UK suppliers for at least 50% of the total cost of building the plant, NNS first had to decide what work they would conduct with UK suppliers and what work they would contract to suppliers outside the UK. As illustrated in a quote by NNS's Commercial Director: "*The project was given the go ahead because the project would contribute a large portion of its spend to the UK industry and this is a massive benefit for the country and region*". They decided to contract with UK suppliers for engineering services (ECC), term service (TSC), to be used for the appointment of a supplier for a period of time to manage and provide a service such as food, transportation and housing, and professional services (PSC). They decided to contract with international suppliers for equipment design and manufacturing (EDM), equipment design, manufacturing, and support (EDMS), and equipment design, manufacturing, installation and support (EDMIS). Thus, in order to determine the area for solution search for these six sub-problems, NNS needed to design a portfolio of contracts that included six customized contract templates. They decided to source the ECC, TSC, and PSC with UK suppliers and the EDM, EDMS, and EDMIS with international suppliers with expertise in nuclear equipment design, manufacturing, installation, and support. We obtained the NEC and FIDIC standard templates and consensual access to NNS's customized templates across their contracting portfolio, three customized NEC templates - TSC, PSC, ECC – and three customized FIDIC templates - EDM,

EDMS, EDMIS - which were content analyzed. Overall, the two standard and six customized templates consisted of 1,119 pages, over 383,000 words, and more than 3,000 clauses.

Interviews. We conducted, recorded, and transcribed 27 interviews in total, which overall accounted for over 28 hours of interviews. Our multiple informants (Miller, Cardinal, & Glick, 1997) included interviews with commercial improvement managers, commercial leads, senior commercial managers, and directors. All interviewees had extensive experience in the energy and construction sector and were familiar with contracting practices in the UK and Western Europe. Additionally, we conducted interviews with legal experts including lawyers and law professors to gain a deeper understanding of both legal systems and contracting families. The recorded and transcribed interviews were semi-structured, with broad, general questions oriented toward understanding the development of the contract templates and how these templates are used to support collaboration. At each interview, two researchers asked interviewees to describe the chronology and details of the events that led to the development and customization of standard NEC and FIDIC contract templates. We triangulated the chronology and description of changes with interview data, site visits, and secondary documents including PowerPoint presentations, company and industry reports, and websites (Gibbert, Ruigrok, & Wicki, 2008).

Archival data and observations during site visits, supplier events, and steering committee sessions. We also collected archival data and observations to triangulate findings from interviews and contract templates. Our privileged access included policy documents, internal reports, and internal correspondence. We also collected articles, industry reports, press releases, and ATOM Group annual reports for the period 2010 to 2019. This gave us a deeper understanding of the industry, key suppliers, and governance issues. We conducted four site visits (overall 20h) to the NNS' project site, and attended two full-day supplier events (overall 16h). Additionally, we

observed three steering committee sessions where employees of NNS discussed the customized templates (overall 12h). We sought to better understand NSS's key practices when dealing with suppliers and governance challenges arising from the project. These observations were vital to understand how the organization is not only setting up customized templates, but also how NNS is preparing for contract negotiations with suppliers using these customized templates.

Data Analysis

In the first stage of our analysis, we compared the standard NEC and standard FIDIC templates and their boilerplate terms to the three customized templates they planned to use with UK suppliers and the three customized templates they planned to use with international suppliers respectively. We analyzed in detail the standard NEC and FIDIC contracts to understand the overall structure, key themes and content of the templates. We then wrote 30-page (NEC template) and 60-page (FIDIC template) summaries of the templates, which were cross-checked by all authors. This led to the development of a table comparing the two standard contract templates, illustrating the common and unique clauses. Our findings were later cross-checked with key informants, observations, and archival data (Lincoln & Guba, 1985). Data obtained in the interviews, observations, and archival data allowed us to better interpret the detailed contract clauses and sub-clauses in order to develop a very detailed understanding of how the six customized contract templates differed from the standard contract templates.

The standard NEC template had 10 core clauses, while the standard FIDIC template had 20 core clauses. Based on theoretical sampling from the problem-solving perspective of KBV, we chose to focus our analysis on communication channels, design rights, and incentives (see the Appendix B for the definitions used). We also chose to consider the dispute resolution clause, because of its prominence in previous contracting research (e.g. Lumineau and Malhotra, 2011).

A careful review of the clauses led us to focus our analysis on five of the 10 core clauses in the NEC contracts: General (communication channels; totaling 11 sub-clauses), the supplier's main responsibilities as well as risk and insurance (decision rights, totaling 23 sub-clauses), payment (incentives, totaling 8 sub-clauses), and dispute resolution (totaling 8 sub-clauses). For the FIDIC contracts we carefully content analyzed nine of the 20 core clauses: general (communication, totaling 14 sub-clauses), six clauses focused on decision rights (the employer, the engineer, the contractor (supplier)¹, risks and responsibilities, insurance, and force majeure, totaling 60 sub-clauses), contract price and pay (incentive, totaling 21 sub-clauses), and dispute resolution (totaling 15 sub-clauses).

The results from this first step of the analysis allowed us to document which sub-clauses from the standard templates remained in the customized templates, were added to the customized templates or deleted, as well as added specificity and shifts in parties' responsibilities. This helped to understand the similarities and differences with regards to contract terms between the standard template for a contracting family and its related three customized contracting templates. Additionally, interviews with industry and legal experts as well as the analysis of archival data helped to clarify key similarities and differences.

In the second stage, we analyzed in more detail the portfolio of six customized contract templates used by NNS in order to determine the source of the differences across and between the three customized NEC and three FIDIC templates. We noted whether a sub-clause was taken from either of the standard templates and determining, if possible, the source of the knowledge codified into the customized templates. First we coded whether the new sub-clauses that appeared on the

¹ We use the terms supplier and contractor interchangeably. In the construction context, contracting templates and contracts refer to suppliers as contractors. We use the term while referring to specific contract clauses and sub-clauses and use the term supplier for theoretical discussions.

three customized NEC templates and the three customized FIDIC templates reflected sub-clauses in the standard NEC template. If so we coded these clauses as external knowledge acquired from the industry in a common law context. We then considered whether the six customized templates included clauses from the standard FIDIC template. If they did we coded these clauses as external knowledge acquired from the industry (influence from civil law context). If new sub-clauses were not found in either of the standard templates but were found across all or most of the customized templates, they were coded as being the result of ATOM Group's internal knowledge². We expected to find that NNS/CPC would search for and combined knowledge from external and internal sources to customize the required portfolio of contract templates.

FINDINGS

This section presents the analysis reporting how NNS, working with the CPC of ATOM Group, customized its contract templates in terms of four core clauses: communication, decision rights, incentives, and dispute resolution. We report : (1) how the contract templates were customized; (2) which sub-clauses came from the NEC and FIDIC standard templates (SN & SF); (3) which sub-clauses from the standard templates were dropped (SD); and (4) which sub-clauses were added that were not on either NEC or FIDIC standard contract template (C). We also specify when more details were added to the standard clause in column 'D' (D = details) and consider the specific attributes of certain clauses, such as, who is communicating with whom in the communication clauses, shifts in rights and responsibilities.

Communication Clause

As noted in Table 1a, the NNS, with the oversight and final acceptance of the ATOM Group's oversight committee (i.e., CPC), customized three NEC templates (ECC, TSC, PSC). They

² To illustrate our analysis, we have provided examples of our coding for Communication clauses in Table 1a and 1b and Incentive clauses in Table 2a and 2b.

incorporating eight sub-clauses found in the original NEC standard's ten sub-clauses: (1) Trust and cooperation, (2) Illegal or impossible scope, (3) Definitions, (4) Interpretation of the law, (5) Communication channels, (6) Early warnings, (7) Ambiguities, and (8) Communication through the NNS administrator. The sub-clause 'Additional working area' was retained only in the ECC template and was dropped from other the TSC and PSC templates. This is because the clause was only relevant for the delivery of engineering services. However, they added more specificity to some of the sub-clauses when compared to others as reflected in the D columns. For example, in the definitions sub-clause the number of points changed from thirteen in the standard NEC template to 91, 79, and 71 in the ECC, TSC, and PSC templates, respectively. Only one sub-clause was added to the customized NEC templates (Force Majeure Events), which was also found in the standard FIDIC template (SF) under the clause entitled 'Force Majeure'. Thus, we found strong evidence the standard NEC template with boilerplate terms and the common law legal system contributed new external knowledge to the customized NEC templates, while there was a minor contribution coming from the standard FIDIC template. In our analysis, we see that seven of the eleven sub-clauses reflected two-way communication. By two-way communication (> <) we refer to a two-way conversations between NNS and the supplier, while one way communication (< or >) is that one party, the supplier or NNS, respectively, will communicate one way. We assume that the details added to the standard NEC sub-clauses and directional details represented industry knowledge internal to CPC, having worked in the industry for many years.

The three customized FIDIC templates (EDM, EDMS, and EDMIS) retained all of the fourteen standard sub-clauses found in the standard FIDIC templates (SF). In some sub-clauses there were details added, while leaving others unchanged (see columns D). For example, in the sub-clause on definitions, the number of points increased from 58 in the standard FIDIC template,

to 117, 141, and 123 in the EDM, EDMS, and EDMIS templates, respectively. No new sub-clauses were added to these three customized FIDIC templates. In summary, the customized FIDIC templates used by NNS reflect the standard FIDIC templates sub-clauses, consistent with the legal system governed by civil law, although the project will take place in a common law country. This suggests that these three customized FIDIC templates mirror industry knowledge consistent with the civil law context of their international suppliers. Surprisingly, we found that ten of the fourteen communication sub-clauses in the standard FIDIC template are two-way (i.e., it needs to flow both ways between NNS and the supplier). In contrast, although we found the majority of communication sub-clauses to be two-way in direction (11 out of 14), we also found some evidence of 1-way communication. In the three customized FIDIC templates, we found that NNS altered the direction of communication from two-way to one-way in two sub-clauses: ‘Contracting’ and ‘Legal compliance’. They also changed the direction of communication from 1-way to 2-way in one sub-clause: ‘Document priority’. We assume these changes were made based on internal knowledge CPC gained over time working with these suppliers.

Insert Tables 1a and 1b about here

Decision Rights Clause

The NNS, with the oversight and final acceptance by CPC, customized the three NEC templates (ECC, TSC, and PSC) retaining 15 out of the original 17 sub-clauses from the standard NEC template in some of the three templates. Consistent with our expectation, NNS added more points to some of these sub-clauses, as reflected in columns D (details). One sub-clause ‘If the contractor does not insure’ was dropped across the three templates, with its corresponding provisions covered under sub-clauses 10 and 19, and another sub-clause ‘additional working areas’ was dropped in

TSC and PSC templates. We assume these changes were made based on internal knowledge accumulated by the ATOM Group's CPC or NNS managers.

In addition, six sub-clauses were added in all three templates: health and safety, additional requirements, cancellation/ change in cover, failure to provide insurance, insurance vitiating/termination, and claims under insurance policies (sub-clauses 16 to 21). The sub-clause on 'health and safety' was found in the FIDIC standard template (SF). In other words, we found evidence of the civil law influencing NNS's NEC contracting templates. We further found some of the additional requirements (i.e., prevention of nuisance, export control, and collateral warranties) across all six templates (i.e., both NEC and FIDIC) in sub-clauses 18, 19, 20, and 21 (C). We deduced that these sub-clauses were influenced by the CPC's internal knowledge developed working in the industry over time. Finally, an additional clause on 'Employer's obligations' was added to the PSC template. We concluded that this sub-clause came from the CPC's knowledge of contracting this type of work (i.e., professional services) in the past.

When customizing its FIDIC templates, NNS and CPC retained 46 (SF) out of the 51 sub-clauses found in the standard FIDIC template in one or more of its three templates (EDM, EDMS, and EDMIS). Furthermore, as reflected in columns D, they added more points to some of these sub-clauses (for example, sub-clauses 14, 17, and 22), and reduced them in others (for example, sub-clauses 10, 19, and 23). They also dropped five sub-clauses (SD) across all three customized templates. They further added ten sub-clauses to one or more of the customized templates. Six of these were found in the NEC standard (47, 48, 49, 50, 51, 53), while four sub-clauses were not found in either standard (25, 52, 54, 55). We conclude that the first six sub-clauses represent new knowledge the CPC acquired from industry experience in a common law context. We further found three of the new sub-clauses (49, 51, and 53) in all six customized templates (i.e., both FIDIC and

NEC). After a careful review of the precise wording of the new sub-clauses, we determined that these three sub-clauses serve as mechanisms to integrate the six kinds of suppliers across the two legal systems. A review of the wording of the four new sub-clauses not found in either the NEC or FIDIC standard (25, 52, 54, and 55) lead us to conclude they were influenced by the CPC's internal knowledge stock developed from contracting with equipment suppliers over time. Thus, we find evidence that the customized EDM, EDMS, and EDMIS templates include knowledge sourced from industry norms in both civil and common law countries and internal knowledge accumulated over time by the MNC.

Incentive Clause

As noted in Table 2a, the NNS customized three NEC templates (ECC, TSC, PSC) by retaining all of the three standard sub-clauses: (1) Assessing the amount due, (2) Payment, and (3) Defined cost. The only exception was the PSC template, where the 'Defined cost' sub-clause was dropped. As expected, they also added more specificity to these sub-clauses, as reflected in the D columns. For example, the points in 'Assessing the amount due' sub-clause, the number of points increased from 5 in the standard template to 11, 10, and 10 points in the ECC, TSC, and PSC templates, respectively. Furthermore, they added five new sub-clauses (C) to some of the customized templates: (1) Construction industry scheme, (2) Activity schedule and price, (3) Accounts and records, (4) Assessing tasks or providing the service, and (5) Contractor's share. Two of these sub-clauses: 'Construction industry scheme' and 'Contractor's share' were added across the three templates. The 'Accounts and records' sub-clause was only added to the PSC template; and 'Assessing tasks or providing the service' sub-clause was added to both ECC and TSC templates. None of these additions were found in the FIDIC standard template, suggesting that these additions were based on the stock of knowledge the CPC and NNS managers had accumulated.

Insert Tables 2a and 2b about here

In Table 2b, we see the three FIDIC templates (EDM, EDMS, and EDMIS) were more customized. First, out of the 15 sub-clauses in the standard FIDIC template, only four were retained: (1) Payment of retention money, (2) Cessation of employer’s responsibility, (3) The contract price, and (4) Currencies of payment. While CPC/NNS added some detail to sub-clauses (2) and (3), it removed some detail from the other two (as reflected in the D columns). The eleven sub-clauses that were dropped were concerned with instalment-based payment terms and were replaced with the six new sub-clauses added across the three customized templates: (5) Construction industry scheme, (6) Payment terms, (7) Deduction or withholding for taxes, (8) Conditions precedent to payment, (9) VAT, and (10) Taxes. These sub-clauses were consistent with lump sum payment terms. Sub-clauses (5), (7), (9), and (10) were found in all six customized templates, but not in either the NEC or FIDIC standard templates, leading us to conclude these clauses came from internal corporate knowledge stocks. A careful review of the wording used in sub-clause (5), suggested this term served as a mechanism for coordinating the six types of suppliers under the two legal systems; i.e., getting all the suppliers on the same page. Sub-clause (8) listed three conditions: performance security, parent company guarantee, and collateral warranty, but only the first of these was found in the customized NEC templates. ‘Deduction or withholding for taxes’, sub-clause (7), was not found on the customized NEC templates. Thus, we found evidence that the FIDIC standard template, but not the NEC standard template, influenced the three customized FIDIC templates. Furthermore, the sub-clauses added provide evidence to suggest the ATOM Group adapted internal knowledge gained from prior experience to fine tune contractual requirements to define the area where search would begin to solve the six sub-problems – how to contract payment terms for their three suppliers under civil law.

Dispute Resolution Clause

The NNS, with the oversight and final acceptance by CPC, customized three NEC templates (ECC, TSC, PSC) by retaining the following four sub-clauses from the standard NEC template (SN): (1) Dispute Resolution, (2) The Adjudicator, (3) The Adjudication, and (4) Tribunal Review. Four more sub-clauses were added to the customized NEC templates (C): (5) Dispute resolution process outline, (6) Senior Representatives, (7) Mediation, and (8) Joinder and Consolidation. Although the added sub-clauses were not found to be either in the standard NEC or FIDIC templates, they were in the customized FIDIC templates. Thus, we concluded that these sub-clauses were based on stocks of internal knowledge accumulated by the ATOM Group over time.

The three customized FIDIC templates, NNS deleted seven sub-clauses and retained only one sub-clause found in the standard FIDIC template: Contractor's claims (1). They also added seven new sub-clauses: (2) Senior Representatives, (3) Mediation, (4) Joinder and Consolidation, (5) Dispute resolution process outline, (6) Identified and defined terms, (7) Adjudication, and (8) Arbitration. An assessment of the sub-clauses found that the first four of these (2, 3, 4, 5) were found on the customized FIDIC templates and not in either of the standard templates, thus they were coded as evidence of internal knowledge developed by ATOM Group. The only difference between the customized FIDIC and NEC templates in these four sub-clauses was two additional point in (5) related to the English courts. This and the three other sub-clauses (6, 7, 8) added to this dispute resolution clause were judged to be consistent with sub-clauses taken from the standard NEC template and to reflect English law: (6) parallels Dispute resolution, (7) is covered in Tribunal review, and (8) covers both the adjudication process and who is the adjudicator (Adjudication, Adjudicator). Once again, we find evidence that suggests that the three customized FIDIC templates incorporated knowledge taken from industry norms of civil law and common law

contexts, and internal knowledge acquired by the ATOM Group in the past. However, in the dispute resolution clauses of the customized FIDIC templates we found more evidence that the location of the build in the UK influenced the templates than in the core clauses related to communication, decision rights and incentives.

Comparison of Clauses

This section presents a comparison of customization across the four investigated clauses: communication, decision rights, incentives, and dispute resolution. The customized contract templates varied in the extent to which they differed from the standard templates. In the communication clauses, more detail was added to six out of the nine sub-clauses retained from the NEC standard template. Similar changes were observed in the FIDIC communication clause, where nine out of fourteen sub-clauses retained from the FIDIC standard template were made more detailed. In case of the decision rights clauses, more details were added to eleven of the fifteen sub-clauses retained from the standard NEC template. In comparison, 31 out of 46 sub-clauses retained from the FIDIC template had more detail added. More details in the incentive clauses were added to all three sub-clauses retained from the NEC standard templates, while only two out of four sub-clauses retained from the FIDIC standard template were made more detailed. Finally, in the case of the dispute resolution clause, only one out of the four sub-clauses retained from the NEC template included more detail. Similarly, the only sub-clause retained from the standard FIDIC template was more detailed than the standard. These accumulated results suggest standard templates are not intended to be the actual templates a business uses to begin negotiating contracts with suppliers. Rather, the area where the search for solutions to the problem of contracting with suppliers (i.e., where negotiations with suppliers will begin) depends on the unique characteristics

of the kinds of suppliers to be contracted with, the legal system governing the contracts, and the accumulated knowledge stocks of the MNC.

We also investigated the magnitude of change (D) in each of the sub-clauses reflected in the customized templates, irrespective of the change including either an addition of detail to the standard sub-clause or a removal of detail from the standard sub-clause. In the communication clause, six of the nine sub-clauses retained from the standard NEC template were changed. The sub-clause 'Definitions' was most radically changed (i.e., D=5), as the number of definitions was increased from 19 in standard template to 91 in the customized template. In contrast, the communication sub-clauses in the FIDIC standard template were more radically adapted in the customized FIDIC templates, with eleven of the fourteen sub-clauses retained from the standard template changed. The most radical changes were observed in four sub-clauses: definitions, communication channels, employer's use of contractor's documents, and contractor's use of employer's documents. In the decision rights clause, eleven of the fifteen sub-clauses retained from the standard NEC template were changed, with more changes observed in six clauses: providing the works, subcontracting, indemnity, insurance cover, using contractor's design, and insurance policies. In contrast, 37 of the 46 sub-clauses retained from the standard FIDIC template were changed, with thirteen clauses changed more radically: Engineer's instructions, performance security, subcontractors, transport of goods, progress reports, site security, protection of the environment, employer's risks, limitation of liability, general requirements, definition and nature, and consequences of force majeure. In the incentive clause, all three sub-clauses retained from the standard NEC template, with two clauses changed more radically, assessing the amount due, and defined cost. Similarly, modifications were made to all four sub-clauses retained from the standard FIDIC template, with two clauses changed more substantially: payment of retention money, and

currencies of payment. Finally, in case of the dispute resolution sub-clause, one out of the four retained standard NEC sub-clauses, and the one sub-clause retained from the standard FIDIC sub-clause were retained, with no substantial changes to the clauses retained. These results suggest that in customizing the standard contract templates, the CPC paid particular attention to revising and adding more detail to the decision rights clause, and emphasized incentives to guide the solution search before starting the solution search. They appeared to pay relatively less attention to the communication channels for facilitating knowledge exchange to support the solution search.

Given NNS' particular emphasis on the decision rights and incentives, we also examined the patterns of the shift of rights and responsibilities from the standard to customized templates. When comparing standard with customized templates, we found a pattern of shifts in responsibility to the supplier and shifts in rights to NNS. For example, NNS retained the rights to access the site and impose restrictions on lower-order sub-contracting. Given the highly sensitive nature of the project, NNS also owned the responsibility for health and safety, and insurance. However, the key focus in these clauses was to shift in more responsibilities towards the supplier. For example, the the supplier had to ensure that they work smoothly with NNS and other suppliers. Furthermore, the suppliers had to ensure that their work does not disrupt or constrain other suppliers' work by, for example, restricting their work area. NNS also shared some of the responsibilities with the suppliers, such as indemnifying and holding each other harmless, maintenance of insurance covers and policies. Interviews with independent legal professionals revealed that this shift reduces the contract price, as the suppliers tend to include the payment for insurance premiums in the contract price. Interestingly, this phenomenon was observed only in the NEC templates. In contrast, in the FIDIC template, both NNS and the supplier retained their individual responsibilities for the insurance. Therefore, we concluded that the sharing of insurance responsibilities was the effect of

the legal system. Finally, in case of FIDIC contracts, where the work was to be contracted on a fixed-price basis, the supplier had to ensure the sufficiency of the amount *ex-ante*. This approach to incentivizing the solution search was apparent in the incentives clause, where NNS seized the rights for assessing the amount and deciding on the time when the assessment is made. Similarly, NNS made the supplier responsible for maintaining a certain set of records and held the rights to inspect the records at any time. In sum, our findings suggest that CPS's was motivated to make these changes by their desire to own the decision rights before solution search, and to rely on incentives to motivate the solution search.

DISCUSSION AND CONCLUSIONS

We posit that a subsidiary of an MNC business, building a nuclear power plant, will seek to solve the problem of how best to contract with suppliers using a problem-solving approach. We proposed that they would customize their portfolio of contract templates to incorporate industry knowledge in the context of the legal systems involved as well as their internal stock of knowledge when they first enter a country with a legal system different from their home country. We now turn to how our findings extend the problem-solving perspective and the organizational contracting literature by deepening our understanding of standard industry templates and their boilerplate clauses, as well as their impact on a business subsidiary's portfolio of customized contracting templates.

We are the first to our knowledge to apply the problem-solving perspective of KBV to organizational contracting. Our findings suggest an MNCs' businesses, seeking to contract in a common law system when their home country has a civil law system, will search for knowledge from outside the firm (flow) codified in the standard contract templates in both common and civil law contexts and combine it with the reservoir of firm knowledge (stock) developed through prior contracting experience. In the context of a moderate interaction problem that is nearly

decomposable (Nickerson & Zenger, 2004), we found evidence that the subsidiary needed to design a portfolio of customized contract templates to address six sub-problems and used implicit theory to define the area where the search for these contracting solutions would begin before using directional search to negotiate with individual suppliers. More specifically, when entering a new legal context the MNC, business and subsidiary managers modified their heuristics and implicit theories by searching for new external knowledge and combined it with internal knowledge. This is a vital step in designing a portfolio of customized contract templates.

MNCs have many contractual relationships with a myriad of companies across different industries and countries around the world (Zhou & Xu, 2012). Our study shows how a business subsidiary can leverage an MNC's internal knowledge and experience when they first begin contracting with companies in a legal system different from the one in their home country. The business under investigation acquired external knowledge on how contracts differ in the country with the new legal system by reviewing the standard contract templates with boilerplate terms developed for the industry and country they were to be participate and the products/services they planned to procure. We reveal that although boilerplate terms provide the basic structure of the portfolio of customized contract templates, this subsidiary and their corporate parent heuristically developed a customized portfolio of six contract templates that incorporated external knowledge from the industry standards of both the new country's legal system and the industry standards in their focal legal system. They also appeared to incorporate lessons they had learned in the past, contracting with companies in different industries and countries. This ability to combine external and internal knowledge, when customizing contract templates with boilerplate terms, can arguably provide this MNC with a competitive advantage relative to their competitors.

Prior work has considered dyadic contracting relationships, i.e., specific contracting relationships between two partners (Mayer & Argyres, 2004; Ariño & de la Torre, 1998), while to our knowledge customized contract portfolios have not been studied. Prior research has also typically looked at one type of relationship (e.g., Blumberg, 2001) or one type of contract (Mayer & Teece, 2008). In contrast to prior work, our study investigated how a subsidiary modified NEC and FIDIC standard industry templates to design a portfolio of customized contract templates, with the assistance of the corporate headquarters, to address emerging requirements. Comparing the portfolio of customized contract templates designed by a subsidiary with core clauses taken from standard contract templates from two different legal system sheds light on the degree of customization conducted by an MNC entering a country with a new legal system. We believe that this is a vital gap in prior organizational contracting literature, because MNCs portfolios of customized templates have a major impact on subsequent contract negotiation and relationship management phases of contracting with suppliers (Roehrich, Tyler, Kalra, & Squire, 2020).

We also extend the understanding of how MNCs design portfolios of customized contract templates to specificity meet the needs for contracting with different types of suppliers. We investigated in-depth the portfolio of customized templates created by an MNC to answer this contracting problem and its six sub-problems. In order to address the emerging six sub-problems, the MNC created a family of six customized contract templates to contract for different types of work across two legal systems – civil and common law. They did this by keeping some sub-clauses on the industry standard template from the appropriate legal system, adding some sub-clauses found in the industry standard template of an alternative legal system, adding some sub-clauses not found on the industry standard of either legal system, and deleted some of the standard sub-clauses. While evidence was available to determine if customized templates contained sub-clauses

from NEC and FIDIC, we assumed that the sub-clauses not found on either standard came from the MNC's stock of internal knowledge. More specifically, we explored the sources of the sub-clauses related to communication, property rights, incentives, and dispute resolution. We even found evidence of adaptations in contracts with international suppliers from countries with a civil legal system, when the subsidiary would be doing business in a common law country. These six customized contract templates, based on the standard NEC and FIDIC templates, also differed based on the type of work. Thus, the legal system and the type of supplier influenced the definition of the sub-problems and how customized templates defined the area of the solution landscape where directional search would take place during subsequent negotiate with local and international suppliers. To our knowledge, we are the first in the organizational literature on contracting to compare and contrast four types of core clauses – communication channels, decision rights, incentives, and dispute resolution – in a portfolio of customized templates applied in two legal systems. We also explore the details added to the standard sub-clauses and shifts in responsibilities and rights from standard templates to the portfolio of customized contract templates

This study focused on standard construction contracts in two legal systems and a portfolio of customized contract templates based on these two contract families, namely NEC and FIDIC. Both types of contract families are mainly used for relationships in complex infrastructure projects. Future research should compare our findings with the standard and customized contract templates of contract families in other industries and also explore how standards are incorporated into customized templates in settings other than suppliers, such as alliances or joint ventures. Finally, we encourage future research to consider the contract portfolios for MNCs dealing mainly with small-to medium-sized projects in other industries and countries.

Most of the findings reported here come from a detailed analysis of two standard templates and six customized templates. Future studies should draw more on in-depth interviews with managers, observations, and secondary sources. This would further inform the literature on the internal process MNCs use to design customized templates. Specifically, who at what level (subsidiary, business and corporate) and in what job role (e.g., legal, purchasing, and logistics) requests that certain sub-clauses are added or deleted and wording is changed. It would also be helpful to observe individuals in different legal systems as they discuss contract families and how best to shape the customization process of contract templates in organizations.

Our study provides guidance for organizations and managers who are developing customized contract templates to contract in a new legal system. We show that negotiations with suppliers can be more efficient by focusing on clauses relevant to communication channels supporting knowledge transfer, decision rights, and incentives to motivate the solution search. MNCs should also recognize the importance of having a centralized committee at corporate where contracting knowledge is stored and applied to subsequent contract templates across the corporation. Contracting knowledge should include knowledge gained from contracting with different suppliers for a variety of works, as well as from diverse contracting approaches used in different countries and legal systems. Centralizing the contracting knowledge at the corporate level, while also searching for new external knowledge, will allow an MNC to customize templates more efficiently before entering contract negotiations in a new country. This is especially important for MNCs working in more mature legal systems as the role of the contract is vital in inter-organizational relationships. We hope that our findings will encourage further research to augment our understanding of the development of customized contract templates as a vital step before entering contract negotiations and relationship management phases with suppliers.

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Table 1a: NEC Communication sub-clauses

Source	Standard NEC	Pts	Customized ECC	Pts	D	Customized TSC	Pts	D	Customized PSC	Pts	D
SN	1. Trust and cooperation ><	1		1			1			1	
SN	2. Illegal/impossible scope ><	1		1			1			1	
SN	3. Definitions ><	19		91	5		79	4		71	4
SN	4. Interpretation of the law ><	4		14	4		15	4		14	4
SN	5. Channels ><	8		10	2		10	2		12	3
SN	6. Early warnings ><	4		5	2		5	2		5	2
SN	7. Ambiguities ><	1	Responsibility (→ Supplier)	3	4	Responsibility (→ Supplier)	3	4	Responsibility (→ Supplier)	3	4
SN	8. Through NNS Admin >	4	Right to take work (→ NNS) Responsibility (→ Supplier)	7	4	Right to take work (→ NNS) Responsibility (→ Supplier)	6	3	Right to take work (→ NNS) Responsibility (→ Supplier)	2	-2
SN	9. Additional working area	1		1							
SF	10. Force Majeure events		From FIDIC Std >			From FIDIC Std >			From FIDIC Std >		
SD	11. Work obstruction >										

Table-1b: FIDIC Communication sub-clauses

Source	Standard FIDIC	Pts	Customized EDM	Pts	D	Customized EDMS	Pts	D	Customized EDMIS	Pts	D
SF	1. Scoping errors ><	2		2			2			2	
SF	2. Share confidential info. <	1		1			1			1	
SF	3. Joint/ several liability <	3		3			3			3	
SF	4. Definitions ><	58		117	4		141	5		123	4
SF	5. Interpretation of the law ><	4		14	4		14	4		14	4
SF	6. Channels ><	3		14	5		14	5		14	5
SF	7. Law ><	3		3	2		3	2		3	2
SF	8. Document priority ><	8		9	4		9	4		9	4
SF	9. Contracting ><	1	Responsibility (→ Supplier) <	1	-3	Responsibility (→ Supplier) <	1	-3	Responsibility (→ Supplier) <	1	-3
SF	10. Assigning work ><	2	Responsibility (→ Supplier)	2	3	Responsibility (→ Supplier)	2	3	Responsibility (→ Supplier)	2	3
SF	11. Document protection ><	3	Responsibility (→ both)	2	-1	Responsibility (→ both)	2	-1	Responsibility (→ both)	2	-1
SF	12. Employer using Contractor's documents ><	6	Rights (→ NNS)	13	5	Rights (→ NNS)	13	5	Rights (→ NNS)	13	5
SF	13. Contractor using Employer's documents ><	1		5	5		5	5		5	5
SF	14. Legal compliance ><	3	Responsibility (→ Supplier) <	6	4	Responsibility (→ Supplier) <	6	4	Responsibility (→ Supplier) <	6	4

Legend for lettering: SN = Standard sub-clause NEC; SF = standard sub-clause FIDIC; SD = dropped standard; D = details (1= Low to 5= High, + = more, - = less)

Communication direction: >: 1-way (NNS→Supplier), <: 1-way (Supplier→NNS), ><: 2-way

Color coding: no color = NEC or FIDIC standard retained respectively; light grey = from FIDIC standard; dark grey = deleted from standard NEC standard

Table 2a: NEC Incentive sub-clauses

	Standard NEC	Pt	Customized ECC	Pt	D	Customized TSC	Pts	D	Customized PSC	Pt	D
SN	1. Assessing the amount due; I: Supplier	5	resp (→Supplier)	10	5	resp (→Supplier)	9	4	resp (→Supplier)	9	4
SN	2. Payment (Instalment option); I: Supplier	4	right (→NNS)	8	4	resp (→both)	5	1	right (→NNS)	8	4
SN	3. Defined Cost; I: Supplier	1	right (→NNS), resp (→ supplier)	3	5	right (→NNS), resp (→ supplier)	3	5			
C	4. Construction Industry Scheme		Internal knowledge: coordination	5		Internal knowledge: coordination	5		Internal knowledge: coordination	5	
C	5. Activity Schedule and price		Activity Schedule and price	3		Activity Schedule and price	3				
C	6. Accounts and records								Accounts and records	1	
C	7. Assessing tasks/ providing the service					Providing the service	4		Assessing tasks	4	
C	8. Contractor's Share		I & DI(→Supplier)	4		I & DI(→Supplier)	4		I & DI(→Supplier)	4	

Table 2b: FIDIC Incentive sub-clauses

	Standard FIDIC	Pt	Customized EDM	Pt	D	Customized EDMS	Pt	D	Customized EDMIS	Pt	D
SF	1. The Contract price; I: Supplier	5		3	-2		3	-2		4	-1
SF	2. Payment of retention money; DI: Supplier	4		3	5		3	5		3	5
SF	3. Cessation of Employer's resp; Resp (←NNS)	4		4	2		4	2		4	2
SF	4. Currencies of payment	6		1	-5		1	-5		1	-5
C	5. Construction Industry Scheme; Internal knowledge			5			5			5	
C	6. Payment terms		Final payment; DI (→ Supplier)	3		Final payment; DI (→ Supplier)	3		Final payment; DI (→ Supplier)	3	
C	7. Deduction/withholding payment		DI (→ Supplier)	1		DI (→ Supplier)	1		DI (→ Supplier)	1	
C	8. Conditions precedent to payment I/DI: Supplier			6			6			6	
C	9. VAT; Included in Payment (NEC)			2			2			2	
C	10. Taxes; Included in Misc. (NEC), Internal knowledge			1			1			1	
SD	11. Advance payment; I: Supplier										
SD	12. Application: Interim Payment Cert.; I: Supplier										
SD	13. Payment schedule (instalments)										
SD	14. Materials for works (instalments)										
SD	15. Issue of Interim Payment Cert										
SD	16. Payment (by instalments)										
SD	17. Delayed payment; DI: NNS										
SD	18. Statement at completion										
SD	19. Application: Final payment cert										
SD	20. Discharge										
SD	21. Issue: Final payment cert										

Legend: SN = NEC standard sub-clause; SF = FIDIC standard sub-clause; C = customized from other source; SD = dropped FIDIC standard; D = details (1= Low to 5= High; + = more, - = less)

Color coding: no color = NEC or FIDIC standard retained respectively; light grey = from other source; dark grey = deleted from standard NEC or FIDIC respectively