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Continuous Contracting in Software Outsourcing: Towards A Configurational Theory

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Abstract

Contemporary software outsourcing projects increasingly employ continuous contracting, where an umbrella agreement is followed by periodic contracts. Consequently, both contract design and project control become episodic, thereby dissolving the traditional boundary between the two and requiring managers to holistically combine them into cohesive governance configurations aimed at achieving alignment and flexibility. Despite the growing popularity of continuous contracting, we lack insights into how governance configurations are formed, evolve, and influence project outcomes. We address this gap through a longitudinal, multimethod study of 33 governance episodes across three multiyear software projects executed under a common umbrella agreement. Using thematic analysis, we first identified three dimensions (content, contingency, timing) to capture salient characteristics of both contract design and project control. Applying crisp-set qualitative comparative analysis (csQCA), we then identified eight governance configurations, consistently linked to specific alignment and flexibility outcomes. The narrative analysis revealed that these episodic outcomes depend on specific interactions among the governance elements within a configuration—namely, whether they substitute for each other (replacing interactions) or offset their limitations (compensating interactions). It furthermore showed how governance configurations evolve across successive episodes: Initially, managers primarily rely on configurations producing either alignment or flexibility. However, as trust and knowledge increase, the governance repertoire expands, enabling configurations that simultaneously achieve alignment and flexibility through compensating interactions. Managers can thus steer projects more deliberately, thereby enhancing overall project performance. We synthesized these insights into a configurational theory of continuous contracting with important implications for outsourcing governance research and actionable guidance for practitioners.

Keywords: Software Outsourcing Governance, Contract Design, Project Control, Alignment, Flexibility, Governance Configurations, Governance Episodes, csQCA, Multimethod Study

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1 Introduction

In complex and uncertain software outsourcing projects, achieving successful project outcomes remains challenging: Issues such as project escalation, rising costs, and poorly designed systems often lead to unsatisfactory project performance (Deloitte, 2018, 2022; Vitasek, 2016). To navigate these risks, organizations increasingly favor contract structures that allow flexible adaptation of governance mechanisms[1] to shifting goals

[1] In this manuscript, we use governance specifically to refer to contract design and project control mechanisms, consistent with its established meaning in outsourcing research and distinct from how the term is used in other

and priorities (Everest, 2019). Industry reports confirm that flexible, iterative contracting is emerging as the future of outsourcing (KPMG, 2023), with the International Association of Outsourcing Professionals ranking "flexible contracts" among the top industry trends (IAOP, 2023). One approach that aligns with these developments is continuous contracting—a multistage governance process in which an umbrella agreement is followed by a series of periodic contracts that inherit, refine, and extend its terms over time (Mouzas & Furmston, 2008, 2013). Continuous contracting thus promises to reduce the likelihood of costly disputes and ex post contract renegotiations, historically prevalent in rigid, long-term outsourcing agreements (Mouzas & Furmston, 2008, 2013).

However, while continuous contracting promises adaptability, it also introduces new challenges. Traditionally, a single comprehensive contract was established ex ante for the entire project duration (e.g., Benaroch et al., 2016; Chen & Bharadwaj, 2009). After concluding this ex ante contract, outsourcing managers steered the project toward established goals by selecting and executing appropriate project controls (Rustagi et al., 2008; Tiwana & Keil, 2009). Continuous contracting, by contrast, segments governance into a sequence of recurring episodes, each characterized by the introduction of a new, written periodic contract (contract design) and the deployment of corresponding control mechanisms and activities to manage project execution (project control). This approach dissolves the clear boundary traditionally separating contract design from project control. Instead, during each episode, multiple contract design *and* project control mechanisms are combined into a holistic response aimed at actively managing episodes toward desirable outcomes. Thus, by recasting governance as a series of discrete "episodes," continuous contracting introduces a fundamentally different way of managing complex and dynamic outsourcing relationships. This episodic turn represents a new governance paradigm challenging conventional conceptions of contract design and project control.

Despite the growing popularity of continuous contracting, limited understanding exists regarding how this integrated approach influences overall project performance. Specifically, little is known about how managers reconcile the competing requirements of maintaining alignment while granting flexibility to address change and uncertainty in each episode, and how these recurring governance actions cumulatively enhance project performance. Addressing this gap is crucial for advancing theoretical understanding of the interplay between contract design and project control, and for supporting practitioners navigating the complexities and dynamics of contemporary software outsourcing. Therefore, we pose the following research question: *How does continuous contracting, enacted through episodic contract design and project control choices, influence project performance in software outsourcing?*

To answer this question, we first examine governance at the episode level, where managers combine salient contract design and project control mechanisms with the goal of achieving alignment and flexibility. Second, we probe how consecutive configurations formed across the project lifespan contribute to overall project performance. Thus, to unravel the theoretical mechanisms through which continuous contracting affects overall project performance, we investigate the following subquestions:

1. *What are the salient configurations of contract design and project control elements for each period, and how do they shape the alignment and flexibility outcomes within that period?*
2. *How and why do these configurations evolve over time, and how does this evolution affect overall project performance?*

We addressed these questions through a theory-generating, exploratory case study of three multiyear projects executed under the same umbrella agreement (Eisenhardt, 1989; Yin, 2009). We examined 33 periodic contracts covering all governance episodes within this arrangement. Our research employed a case-informed, multimethod qualitative comparative analysis (QCA) approach (Rihoux et al., 2021), drawing on rich qualitative data analyzed through inductive, computational, and abductive reasoning. The QCA revealed eight distinct governance configurations, each sufficient to produce specific combinations of episodic alignment and flexibility outcomes. Further qualitative analysis indicated that these outcomes depend on specific interactions among governance elements—namely, whether governance elements substitute for each other (replacing interactions) or offset each other's limitations (compensating interactions) (Subquestion 1). Our diachronic analysis further unpacked how these configurations evolve as trust and project-specific knowledge accumulate. Initially, managers primarily rely on configurations characterized by replacing interactions, which optimize either alignment or flexibility, but not both. As trust and knowledge grow, managers gain access to an expanded governance repertoire, enabling configurations that leverage compensating interactions and contribute to achieving alignment and flexibility

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domains (e.g., IT governance or corporate governance) (Huber et al. 2013; Kotlarsky et al. 2020; Tiwana et al. 2013).

simultaneously. This enables the parties to more deliberately steer projects towards desired episodic outcomes, thereby enhancing project performance.

By addressing these subquestions, we offer a configurational theory of continuous contracting, elucidating how episodic governance choices cumulatively shape overall project performance. Our findings carry significant implications for the literature on outsourcing governance and provide practical guidance to managers in continuous contracting contexts.

The remainder of the article is structured as follows. We first introduce continuous contracting as an increasingly popular yet understudied governance approach. Next, we formulate a conceptual framework identifying the key governance elements relevant under continuous contracting. We then present our research design, followed by findings that reveal governance configurations and explain their evolution. Finally, we discuss the theoretical and practical implications.

2 Background

2.1 Continuous Contracting: Repeated Periodic Contracts Under an Umbrella Agreement

Economic exchanges span a continuum from market-based spot transactions to hierarchical exchanges (Ouchi, 1980; Williamson, 1979). Between these extremes lie longer-term arrangements, such as joint ventures and strategic alliances, governed by open-ended, relational contracts (Gambal et al., 2022; Li, 2014; Ouchi, 1980; Rai et al., 2009; Ravindran et al., 2015). Such arrangements are prevalent in environments characterized by high uncertainty and rapid change, where articulating detailed obligations ex ante is challenging (Chellappa & Saraf, 2010).

In software outsourcing—often characterized by uncertainty, volatility, and rapidly changing requirements (Cao et al., 2013; Hsu et al., 2022; Ramesh et al., 2012)—one particular form of relational contracting known as continuous contracting has recently gained traction (Deloitte, 2022; KPMG, 2023). Continuous contracting establishes an umbrella agreement that outlines general principles, property rights, confidentiality, and payment terms over an extended or open-ended duration (Mouzas & Furmston, 2008). Rather than providing exhaustive detail, this agreement serves as a guiding "constitution" for future periodic contracts, often renewed annually, and commonly termed "purchase orders" or "statements of work" (Mouzas & Ford, 2006; Mouzas & Furmston, 2008). Periodic contracts enable adaptation to emerging needs, shifting priorities, and changing market conditions—promising a level of flexibility that static, ex ante contracts often lack (Goo et al., 2009; Holmstrom Olsson, 2008).

Traditionally, contract design and project control unfold in separate, self-contained phases: An ex ante contract is designed pre-project, and project control activities follow after kick-off. This phasic separation is mirrored in two outsourcing governance research streams: one focusing on contract design, investigating antecedents and consequences of variance in the ex ante contract structures (e.g., Benaroch et al., 2016; Chen & Bharadwaj, 2009; Gefen et al., 2008; Gopal & Koka, 2012), and another examining project control mechanisms, explaining their selection (Rustagi et al., 2008; Tiwana & Keil, 2009) and their consequences (Gopal & Gosain, 2010; Rustagi et al., 2008; Srivastava & Teo, 2012; Tiwana, 2010; Tiwana & Keil, 2009).

The periodic nature of continuous contracting allows for repeated adjustments of both contract design and project control during project execution, thereby dissolving their traditional temporal and logical boundaries. Analyzing continuous contracting thus requires an analytic shift. Previously siloed approaches treating contract design and project controls as distinct and sequential (Chen & Bharadwaj, 2009; Rustagi et al., 2008; Tiwana, 2010) are ill-suited to explain governance outcomes when contracting episodes combine multiple governance mechanisms simultaneously. Additionally, as contract design becomes recurring rather than one-off, the analytic focus must shift from the project as a whole to individual episodes. Moreover, the simultaneous interplay of multiple governance elements makes their effects unlikely to be independent, additive, and linear. For instance, a particular contract design choice may yield beneficial outcomes only alongside certain project controls. Such conjunctural effects (Ragin, 1987) are poorly captured by generalized linear models (e.g., OLS), commonly used in traditional outsourcing governance research (Misangyi et al., 2017).

Therefore, this study adopts a configurational perspective to explain outcomes of continuous contracting. This approach explicitly addresses the nonlinear and conjunctural nature of governance choices (Misangyi et al., 2017; Park & Mithas, 2020; Ragin, 1987). By examining the combinations and interactions of multiple governance elements, we clarify how managers periodically achieve (or fail to achieve) intended outcomes (alignment and flexibility). Moreover, analyzing sequences of these configurations sheds light on governance dynamics, revealing how evolving patterns ultimately shape the overall project outcome. The next section introduces our conceptual framework guiding this analysis.

2.2 A Framework of Governance Configurations

Since QCA is rooted in set theory, conditions (i.e., configuration elements) and outcomes must reflect categorical difference in kind rather than gradual difference in degree (Misangyi et al., 2017). Consequently, we next formulate a conceptual lexicon to identify governance configurations, understood as combinations of contract design and project control elements that jointly produce distinct episodic outcomes (Misangyi et al., 2017; Mithas et al., 2022).

2.2.1 Episodic Governance Outcomes: Alignment and Flexibility

Prior outsourcing research primarily explained aggregate project outcomes—such as timeliness, cost, or quality—assessed retrospectively after project completion (Benaroch et al., 2016; Perrow, 1961; Wiener et al., 2016). However, evaluating continuous contracting requires outcome measures that are meaningful at the episode level. Two outcomes are particularly relevant at this level: alignment and flexibility (Cao et al., 2013; Gregory & Keil, 2014).

Alignment refers to a state where vendor efforts and deliverables conform to goals and behaviors stipulated in the contract (Cao et al., 2013; Gregory & Keil, 2014; Tiwana, 2010; Wiener et al., 2016). To achieve alignment, managers can select certain contract design or project control elements, such as detailed contract clauses safeguarding against opportunism (Benaroch et al., 2016; Wiener et al., 2016). However, due to environmental uncertainty and bounded rationality, comprehensive ex ante contracting is difficult. Thus, managers also need to grant *flexibility*, allowing vendors to adjust behaviors autonomously in response to change (Cao et al., 2013; Gregory & Keil, 2014; Tiwana, 2010; Wiener et al., 2016). Flexibility can be fostered, for example, by "declaring admissible [contract] dimensions for adjustment" (Williamson, 1979, p. 251), such as giving vendors discretion to change behaviors as conditions evolve (Benaroch et al., 2016; Cao et al., 2013; Tiwana, 2010; Wiener et al., 2016).

Although both alignment and flexibility are desirable, tensions often arise between them (Gregory & Keil, 2014; Ramesh et al., 2012; Tiwana, 2010). Moreover, their relative importance can vary. Alignment may suffice when software projects are stable, while change or uncertainty may necessitate simultaneous alignment and flexibility (Gregory & Keil, 2014; Mohr, 1973). Thus, we distinguish four episodic outcomes: (1) *not aligned* and *not flexible*, (2) *aligned* but *not flexible*, (3) *flexible* but *not aligned*, and (4) both *aligned* and *flexible*.

[2] The inference method is reported in the method section below and in Appendices B and D.

2.2.2 Governance Configuration Elements

For effective configurational analysis, it is essential to select a meaningful yet manageable set of conditions (Rihoux & Ragin, 2009). Accordingly, we sought governance elements that capture meaningful variation and link plausibly to alignment and flexibility outcomes (Misangyi et al., 2017). We also sought conceptual distinctions that could be applied at both the contract and project control levels. We identified elements through an iterative process, combining inductive insights from empirical data with theoretical triangulation (Boyatzis, 1998; Charmaz, 2006; Mithas et al., 2022).[2] Through this process, we arrived at three theoretically distinct dimensions relevant to both contract design and project control: (1) content, (2) contingency, and (3) timing (see Table 1 for definitions and codes).

Content: It is well-established in outsourcing research that the extensiveness of an ex ante contract influences project outcomes (Benaroch et al., 2016; Chen & Bharadwaj, 2009). Extensive contracts safeguard more effectively against alignment failures compared to simpler, standardized contracts (Benaroch et al., 2016; Chen & Bharadwaj, 2009). Traditionally, researchers have operationalized this extensiveness by categorizing and counting contract clauses and computing an index for extensiveness (Lacity et al., 2010). However, this conventional metric is less meaningful under a continuous contracting regime, where all periodic contracts follow a template inherited from the umbrella agreement. Counting clauses thus produces little meaningful variation. A more suitable conceptualization assesses whether a periodic contract *deviates* from the umbrella agreement's standard clauses (specific) or adheres strictly to them (not specific). Such deviations indicate deliberate, context-sensitive enrichment of the contract's content, reflecting governance choices tailored to specific tasks, processes, or personnel.

A similar logic applies to project controls. Rather than exclusively relying on boilerplate controls, client managers may adopt more granular, detailed, and context-specific measures. For example, managers might introduce detailed performance metrics tailored explicitly to ongoing project issues or unique project characteristics (specific), rather than applying default or generic measures drawn from standard project management repertoires (not specific). This mirrors distinctions between more authoritative and tighter control versus the enabling and looser control styles noted in prior research (Gregory et al., 2013; Wiener et al., 2016, p. 16).

Table 1. Episodic Governance Choices: Outcomes and Conditions

Concept definition	Categorical values	Codes
Elements of governance configurations		
Content refers to the extent to which contractual elements or project controls are detailed and tailored to the project beyond general templates.	*Specific:* The periodic contract specifies or project controls use detailed, clearly defined expectations regarding outcomes, behaviors, or inputs that go beyond general templates. *Not specific:* The periodic contract does not specify or project controls do not use detailed, clearly defined expectations regarding outcomes, behaviors, or inputs that go beyond general templates.	*Contract design* ▪ A periodic contract specifies additional deliverables, goals, or requirements beyond the standard contract template (specific) ▪ The new periodic contract follows the template without specifying additional content (not specific) *Project control* ▪ Project participant performance is monitored using detailed, well-defined outcomes, behaviors, or inputs (specific) ▪ Project participant performance is monitored through generic or loosely defined outcomes, behaviors, or inputs (not specific)
Contingency refers to the degree of latitude given to project participants through the periodic contract or control mechanisms to adapt tasks, goals, or behaviors as necessary.	*Latitude:* The periodic contract explicitly stipulates or project controls allow for discretion to adapt goals tasks or behaviors. *No latitude:* The periodic contract does not explicitly stipulate or project controls do not allow for discretion to adapt goals tasks or behaviors.	*Contract design* ▪ Periodic contract includes an explicit task buffer (latitude) ▪ Periodic contract does not contain explicit stipulations for vendor discretion (no latitude) *Project control* ▪ Participants have discretion to adjust project goals, tasks, or behaviors outside the current periodic contract(s) (latitude) ▪ Participants have no leeway to adjust goals, tasks, or behaviors beyond the current periodic contract(s) (no latitude)
Timing refers to how quickly contract adjustments or control changes are enacted after new needs are identified.	*Instantaneous:* Changes to the contract or controls are made immediately after new requirements or issues are identified. *Non-instantaneous:* Changes to the contract or controls are not made immediately after new requirements or issues are identified.	*Contract design* ▪ A new periodic contract is introduced immediately upon identifying new needs or outside of scheduled renewal periods (instantaneous). ▪ A new periodic contract is introduced with a delay or as part of the annual renewal period, or retroactively formalizes already completed work (not instantaneous) *Project control* ▪ Project controls are updated immediately after new requirements or issues arise (instantaneous) ▪ Project controls are changed after a delay or are not updated in response to new requirements (not instantaneous)
Episodic outcomes of governance configurations		
Alignment: The vendor's work complies with the contract-based goals and behaviors.	*Aligned:* Goals stated in periodic contracts, such as time, costs, and quality are met. *Not aligned:* Goals defined in periodic contracts, such as time, cost or quality are not met.	*Aligned:* Vendor conforms with goals stipulated in the periodic contracts *Not aligned:* Vendor does not conform to the goals stipulated in the periodic contracts
Flexibility: The extent to which the vendor adapted project execution processes to new circumstances not recognized or anticipated in past contracts.	*Flexible:* Vendor autonomously adjusts project execution to meet new or changing circumstances. *Not flexible:* Vendor does not autonomously adjust project execution to meet new or changing circumstances.	*Flexible:* Vendor autonomously adjusts ▪ Timelines ▪ Deliverables ▪ Resources *Not flexible:* Vendor does not autonomously adjust ▪ Timelines ▪ Deliverables ▪ Resource allocation

Contingency: Prior research highlights the importance of contingency provisions—clauses that formalize procedures for adjusting contracts to unforeseen circumstances—in outsourcing contracts (Chen & Bharadwaj, 2009; Goo et al., 2009). Similarly, project control research highlights the benefits of control mechanisms that enable adaptive responses to evolving conditions (Gregory et al., 2013; Wiener et al., 2016). Consistent with these insights, we posit that episodic governance choices in continuous contracting include mechanisms granting *latitude* to vendors, i.e., autonomy to undertake tasks not explicitly stipulated in the current contract.

For instance, a periodic contract can include a "task buffer" clause permitting the vendor to reallocate resources when unexpected issues arise, without requiring formal contract modifications (Benaroch et al., 2016; Goo et al., 2009). Analogously, at the project control level, latitude can be implemented via self-control mechanisms, empowering vendor team members to self-assign tasks and operate independently (Tiwana, 2008). Conversely, contracts and controls without such latitude provisions strictly constrain vendors to preestablished terms.

Timing: Timing refers to how quickly managers implement contractual or control adjustments upon identifying new needs. Timing is particularly salient in continuous contracting due to the regularized rhythm for periodic contract renewal established by umbrella agreements (Mouzas, 2014; Mouzas & Furmston, 2008). For example, the studied projects adhered to annual renewal intervals—introducing new contracts on the same date each year. Deviations from this established rhythm thus signal a meaningful difference in continuous contracting contexts.

To capture these nuances, we distinguish *instantaneous* from *non-instantaneous changes*. The predefined (annual) renewal cycle serves as a temporal anchor to differentiate between the two: If a periodic contract is introduced *ahead of* the anticipated renewal date, it is *instantaneous*. Conversely, if the elements in the periodic contract are introduced and enforced during the scheduled renewal period, it is *non-instantaneous*. The default is thus non-instantaneous enforcement. We apply the same logic to project controls: if control changes occur before the scheduled renewal, they are instantaneous; otherwise, they are non-instantaneous.

By varying timing, managers can temporally coordinate contract design and project control changes, allowing them to frontload some governance choices while applying others retroactively. For example, in several episodes, managers enacted immediate (instantaneous) project control changes in response to emerging issues yet deferred formalizing corresponding contractual goals until the next scheduled renewal (non-instantaneous contract change).

2.2.3 Governance Configurations as Holistic Constellations of Interacting Elements

A central tenet of the configurational approach is that elements within configurations do not operate in isolation but interact in complex ways to jointly shape outcomes (Misangyi et al., 2017). Thus, to understand episodic governance outcomes, we must examine how contract design and project control mechanisms interact within each episode. Due to these interactions, configurations that lead to the same episodic outcome may differ markedly in their composition (equifinality), and identical governance elements may generate different outcomes depending on their interactions with other elements (causal asymmetry) (Misangyi et al., 2017). For instance, a contractual safeguard may enhance alignment when paired with a particular control mechanism but prove detrimental when combined with another.

The conceptual lexicon formulated above allows us to use QCA to identify distinct governance configurations associated with episodic outcomes (Misangyi et al., 2017; Rihoux & Ragin, 2009). These configurations can then be read as causal recipes specifying which elements matter or do not matter for a given episodic outcome of alignment and flexibility (factorial logic). Furthermore, by examining interactions, we can theorize how and why governance elements combine into episodic configurations that achieve these outcomes (combinatorial logic). This configurational perspective thus helps explain the complex interplay of governance elements within episodes, and their cumulative influence on overall project performance.

3 Method

Given the dearth of research on continuous contracting, we designed a longitudinal, exploratory, multilevel case study using qualitative comparative analysis (QCA) (Rihoux et al., 2021).[3] The study's sequential, multimethod research design (Figure 1) follows recommended guidelines for QCA studies (Mattke et al., 2022, Appendix A). By integrating qualitative exploratory analysis with computational csQCA (Rihoux et al., 2021), we address the research questions in three steps. First, in a qualitative pre-QCA phase, we conducted an open thematic analysis of our rich empirical data to identify contract design and project control elements relevant under continuous contracting and discovered alignment and flexibility as relevant episodic outcomes.

[3] Only longitudinal research designs enable examining governance choices and their effects under continuous contracting. The difficulty of collecting such data may partly explain the scarcity of research on this topic.

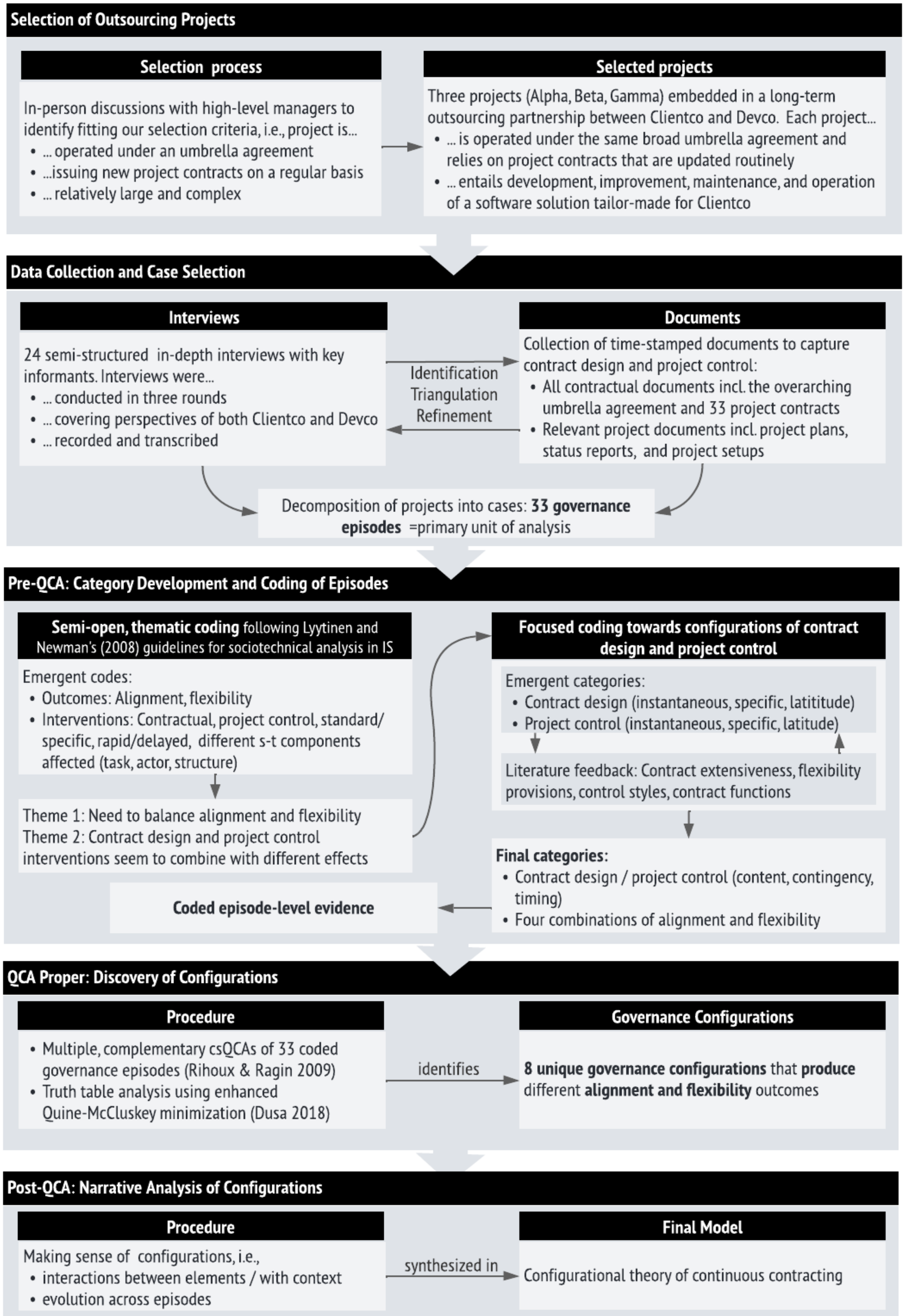

Figure 1. Sequential Multimethod Design

Second, we employed csQCA to determine how the governance elements combine into configurations associated with these outcomes (Park & Mithas, 2020). Third, drawing on the QCA results, we carried out a narrative analysis of identified configurations and their evolution, examining why specific configurations emerged, how governance elements interacted, and how configuration dynamics impacted overall project performance.

3.1 Case Selection, Unit of Analysis, and Data Collection

Site and case selection: We used theoretical sampling to select illuminating cases aligned with our research questions (Yin, 2009). Specifically, we selected a client-vendor dyad where continuous contracting had been practiced for some time, ensuring ecological validity. The chosen partnership involved Clientco, a large Swiss financial service company, and Devco, a midsized Latvian service provider. Their partnership was governed by an umbrella agreement that stipulated the use of periodic contracts. From the portfolio of projects operated under this umbrella agreement, we selected three projects in which periodic contracts were introduced at the start of each calendar year and which adhered to the same contract template inherited from the umbrella agreement. Moreover, all selected projects were large and significant and organized under similar project management principles. These elements of homogeneity ensured comparability (Rihoux & Ragin, 2009).

Unit of analysis: In QCA, the unit of analysis (the "case") must align with the study's theoretical and empirical goals (Rihoux & Lobe, 2009, p. 20). Following historical QCA studies treating discrete periods as separate cases (Rihoux & Lobe, 2009, p. 227; Rihoux & Ragin, 2009), we defined each governance episode as a distinct case. A governance episode is a distinct period within a continuous contracting relationship, initiated by a contract renewal process, during which contract design and project control elements combine into a coherent governance configuration guiding project execution until the next renewal. Thus, instead of treating entire projects as single cases, we decomposed the three selected projects into episodes, identifying 33 episodes, labelled [1] through [33].

Data collection: The goal of data collection was to gain a deep contextual understanding of each project and governance episode (Rihoux et al., 2021; Rihoux & Ragin, 2009). This was accomplished through longitudinal data collection conducted in three rounds (Table 2). Each round involved interviews with key informants directly involved in contract design and project control activities from both client and vendor organizations, ensuring that the data captured insights from the principal actors and decision makers (Charmaz, 2006). This resulted in a data corpus of 24 interviews producing approximately 450 pages of transcribed material. We supplemented these interviews with an extensive set of time-stamped documents, including the umbrella agreement, 33 periodic contracts, and related project documentation. Additionally, site visits carried out in each round provided firsthand observational data that helped us understand the participants' work environment in which governance choices were enacted.

Table 2. Characteristics of Sampled Projects

	Gamma	**Beta**	**Alpha**
Budget	~8.8 million USD	~5.5 million USD	~1.5 million USD
Software to be developed	Workflow management and accounting system	Tool to calculate price of an insurance policy	Tool to access and analyze financial data
Project duration	6 years	5 years	5 years
Umbrella agreement	Yes	Yes	Yes
# Of periodic contracts (clauses/pages)	13 (57/71) (referred to as [1] to [13])	14 (94/122) (referred to as [14] to [27])	6 (44/52) (referred to as [28] to [33])
Development method	Agile	Agile	Agile
Project documents	Project plan, project setup, case study	Project plan, project setup, audit report, and satisfaction report	Project plan, project setup, success story
*Interviews**	Round 1: 1 Round 2: 3 Round 3: 2 Cross-project: 2	Round 1: 2 Round 2: 4 Round 3: 2 Cross-project: 2	Round 1: 3 Round 2: 2 Round 3: 1 Cross-project: 2
Roles of interviewees	PL, ITL, CBA, SM, CVM, CCO	PL, ITL1, ITL2, SM/CBA, VR, CVM, CCO	PL, ITL, CBA, SM, CVM, CCO

Note: PL = project lead, ITL = IT lead, CBA = Chief business analyst, SM = scrum master, VR = vendor representative, CVM = chief vendor management, CCO = chief contracting officer. *Interviews lasted 60-90 minutes and were recorded, transcribed, and checked for accuracy with the interviewees.

This extensive data enabled us to reconstruct a detailed history of governance changes within each project. It offered ample opportunities to triangulate evidence across data sources (e.g., interview accounts and documents) and perspectives (e.g., client and vendor) to alleviate recall and anchoring bias (Miles & Huberman, 1994). During the interviews, we asked participants to produce visual timelines of events and outcomes. This enhanced our comprehension of the project progression and chronology. The timelines were used in subsequent interviews to validate, modify, and refine our understanding of the governance dynamics to mitigate observer bias (Miles & Huberman, 1994).

3.2 Pre-QCA: Conduct Open Thematic analysis

QCA represents each case as a constellation of conditions and an outcome (Rihoux et al., 2021; Rihoux & Ragin, 2009). To achieve this, we employed a semi-open thematic coding approach (Boyatzis, 1998), an abductive procedure integrating insights from our episodic data with established governance concepts (Rihoux & Ragin, 2009). Our initial round of coding sought to identify governance challenges and interventions, using the sociotechnical model of system change as a sensitizing device (Lyytinen & Newman, 2008). This enabled us to code governance challenges and interventions in terms of sociotechnical elements and their interactions (task/technology; technology/people etc.). This analysis yielded two central themes: (1) the need to balance alignment and flexibility, and (2) the continuous, systematic combination of contract design and project control elements that produced varying outcomes.

These insights guided the second coding round, where we synthesized governance elements into parsimonious and theoretically grounded categories suitable for configurational analysis[4] (Rihoux & Ragin, 2009). This resulted in our three dimensions of contract design and project control: content, contingency, and timing (see Table 1). Appendix B details this process, and Appendix C provides illustrative coding examples. We then applied these codes to all 33 governance episodes, creating a Boolean matrix where each row represented an episode, and columns represented the binary presence (1) or absence (0) of each governance element and outcome. The matrix served as an input for the csQCA.

3.3 QCA: Determining Configurations

We used the csQCA module in R, employing the enhanced Quine-McCluskey algorithm (Duşa, 2018) to determine how governance elements combine into configurations producing alignment and flexibility outcomes. We set the algorithm to search for conservative solutions, aligning with our goal of data-driven discovery, as it avoids counterfactual inferences of configurations for which no empirical evidence exists (Duşa, 2018; Rihoux & Ragin, 2009).

While csQCA commonly assumes a single binary outcome (Rihoux & Ragin, 2009), our theoretical framing features two orthogonal outcomes—alignment and flexibility. To accommodate two outcomes, we conducted four separate QCAs: one each for the presence/absence of alignment and the presence/absence of flexibility (Mattke et al., 2022). These analyses identified 16 governance configurations: four associated with alignment, four with its absence, five with flexibility, and three with its absence. The minimized Boolean expressions corresponding to these configurations are reported in Appendix D.

We next consolidated the 16 configurations into a parsimonious set by accounting for the intersection of episodic outcomes through a set-theoretic examination of the cases underlying the different configurations. In doing so, we paid "attention to explanatory overlap and… similarities and differences across configurations" (Park et al., 2020, p. 1506), following Pflügner et al. (2024), who applied a similar analysis using fuzzy sets. Several configurations shared identical conditions and underlying cases but produced distinct outcomes. In such cases, we merged the conditions and outcomes, identifying eight overlapping pairs, as shown in Table 3.

Six of the pairs featured identical governance conditions and underlying cases but diverged in outcomes. For example, one configuration linked to "not aligned" (Configuration 3 in Table 3) shared conditions and cases with another configuration tied to "flexible" (Configuration 4). From a set-theoretic perspective, these configurations intersected fully in conditions and cases but were disjointed in terms of outcome. Accordingly, we consolidated each pair into a single configuration with combined outcomes by creating the union of the configurations. For example, the pair mentioned above became a configuration producing "flexible" and "not aligned."

For the remaining pairs (Configurations 13/14 and 7/8) featuring near-identical conditions except for a "don't care" condition, we retained the configurations without the "don't care" condition for two reasons. First, it allowed for a clearer delineation of the conditions essential for achieving an outcome (Park et al., 2020). Second, it yielded more stringent configurations and eliminated overlaps where a single case fit multiple configurations. This procedure consolidated the original 16 configurations into a final set of eight, each associated with a unique pattern of conditions producing all feasible combinations of alignment and flexibility. We performed additional robustness checks described in Appendix E to ensure the validity of this procedure.

[4] QCA research recommends reducing the number of conditions as the number of cases decreases, analogous to power analysis in statistics. For 33 cases, 5-6 conditions are advisable (Marx & Dusa, 2011).

Table 3. Consolidating Pairs of Similar Configurations

	Conditions						Outcomes						
Configuration	**Instant contract**	**Instant control**	**Specific contract**	**Specific control**	**Latitude contract**	**Latitude control**	**Aligned**	**Flexible**	**Cases**	**inclS**	**covS**	**covU**	**Comment**
1	0	0	0	0	0	0	0		1, 5, 8, 9, 10, 11, 12, 13, 23, 26	1	.53	.53	Configuration explaining alignment and configuration explaining flexibility identical in terms of conditions and underlying cases
2	0	0	0	0	0	0		0	1, 5, 8, 9, 10, 11, 12, 13, 23, 26	1	.56	.56	
→	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***0***	***1, 5, 8, 9, 10, 11, 12, 13, 23, 26***	***1***	***1***	***1***	
3	0	0	0	0	1	1	0		3, 6, 7	1	.16	.16	Configuration explaining alignment and configuration explaining flexibility identical in terms of conditions and underlying cases
4	0	0	0	0	1	1		1	3, 6, 7	1	.20	.20	
→	***0***	***0***	***0***	***0***	***1***	***1***	***0***	***1***	***3, 6, 7***	***1***	***.33***	***.33***	
5	0	1	0	0	0	1	0		4	1	.05	.05	Configuration explaining alignment and configuration explaining flexibility identical in terms of conditions and underlying cases
6	0	1	0	0	0	1		1	4	1	.07	.07	
→	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**4**	**1**	**.11**	**.11**	
7	0	0	1	0	0	1	0		17, 18, 19, 20, 21	1	.26	.26	Opted for the configuration without the "don't care' condition which allows a clean delineation of the conditions necessary to achieve the outcome.
8	0	0	1	dc	0	1		1	17, 18, 19, 20, 21; 14, 15	1	.47	.33	
→	***0***	***0***	***1***	***0***	***0***	***1***	***0***	***1***	***17, 18, 19, 20, 21***	***1***	***.56***	***.56***	
9	0	dc	1	1	0	1	1		14, 15; 28	1	.21	.07	Configuration explaining alignment and configuration explaining flexibility identical in terms of conditions and underlying cases
10	0	dc	1	1	0	1		1	14, 15; 28	1	.21	.07	
→	***0***	***Dc***	***1***	***1***	***0***	***1***	***1***	***1***	***14, 15; 28***	***1***	***.5***	***.5***	
11	1	1	1	1	0	0	1		2, 16, 25, 27, 29, 30, 33	1	.5	.5	Configuration explaining alignment and configuration explaining flexibility identical in terms of conditions and underlying cases
12	1	1	1	1	0	0		0	2, 16, 25, 27, 29, 30, 33	1	.39	.39	
→	***1***	***1***	***1***	***1***	***0***	***0***		***0***	***2, 16, 25, 27, 29, 30, 33***	***1***	***.88***	***.88***	
13	0	0	1	1	0	Dc	1		24; 14, 15	1			Opted for the configuration without the 'don't care' condition which allows a clean delineation of conditions necessary to achieve the outcome.
14	0	0	1	1	0	0		0	24	1			
→	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**24**	**1**	**.12**	**.12**	
15	1	1	1	1	1	0	1		22, 31, 32	1	.21	.21	Configuration explaining alignment and configuration explaining flexibility identical in terms of conditions and underlying cases
16	1	1	1	1	1	1		1	22, 31, 32	1	.20	.20	
→	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**22, 31, 32**	**1**	**.5**	**.5**	

Note: Each black-framed block contrasts pairs of configurations with *similar or identical conditions and underlying cases* but distinct outcomes and shows how they are consolidated into a single configuration associated with the same underlying cases and combined outcomes.

3.4 Post-QCA: Narrative Analysis of Configurations

Following the QCA, we conducted a narrative analysis to elucidate the temporal and functional mechanisms underlying the identified configurations (Aversa et al., 2015; Rihoux & Ragin, 2009; Rihoux et al., 2021). This involved reexamining the qualitative data associated with each configuration. We employed process visualization, memo writing, and cross-tabulation techniques (Charmaz, 2006; Miles & Huberman, 1994) to parse the factorial and combinatorial logics underlying each configuration (Park & Mithas, 2020). Sensitized by existing distinctions between different types of interactions between governance elements (Huber et al., 2013), we developed "causal" narratives explaining how and why governance elements combined to produce episodic outcomes (Polkinghorne, 1995).

Narrative analysis was also critical in tracing and explaining the evolution of governance configurations. For this diachronic analysis, episodes were arranged chronologically to detect evolutionary patterns, clarify interactions with contextual factors, and assess cumulative impacts on overall project performance (Lyytinen & Newman, 2008; Miles & Huberman, 1994). Finally, we synthesized the findings from the QCA and narrative analyses into our configurational theory of continuous contracting.

4 Findings

We present our findings in three parts. First, we report the results of the QCA analysis, identifying governance configurations of contract design and project control elements associated with different episodic alignment and flexibility outcomes. These results directly address the first subquestion raised in the Introduction. The second part provides narratives of each configuration, detailing how governance elements interact to produce specific outcomes in a given context. Finally, we synthesize insights from our diachronic analysis, highlighting temporal patterns of configuration change and how this change contributed to overall project performance, thereby addressing the second research subquestion.

4.1 Episodic Governance Configurations

Figure 2 displays the eight configurations identified through our csQCA, collectively accounting for all 33 governance episodes. Per QCA reporting conventions, each rectangle represents one unique governance configuration producing one of the four possible governance outcomes. From the Figure, we note that only one configuration ("N_1") results in the outcome of "neither flexible nor aligned." In contrast, multiple equifinal pathways exist for achieving the other outcomes: three configurations (F_1, F_2, and F_3) produce the outcome "flexible," two (A_1 and A_2) produce "aligned," and two (AF_1 and AF_2) yield "aligned and flexible."

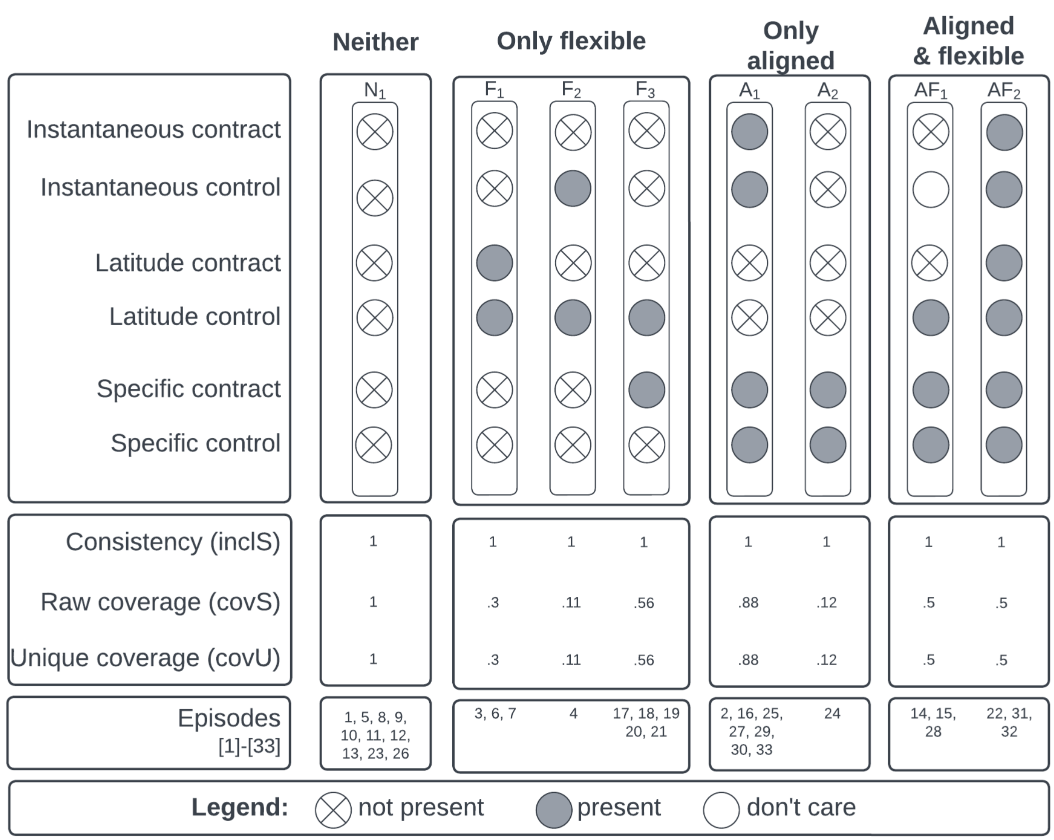

Figure 2. Governance Configurations and Outcomes

Figure 2 also reports consistency and coverage measures (Rihoux & Ragin, 2009). Consistency, akin to R^2 in variance-based analysis, conveys how reliably a given configuration is associated with its outcome. It is reported through the inclusion score (inclS), representing the proportion of cases where both the configuration and its outcomes co-occur (Duşa, 2018). All identified configurations demonstrated perfect consistency (i.e., inclS = 1): whenever the conditions identified by the configuration are present, the corresponding outcome invariably occurs (Rihoux & Ragin, 2009). Coverage provides insight into the empirical relevance of each configuration (Park et al., 2020). The raw coverage score (covS) gives the proportion of cases covered by a configuration among all cases leading to the same outcome (Duşa, 2018). For instance, F_1's coverage score of 0.33 implies it encompasses 33% of all cases producing the outcome "flexibility = present and aligned = absent," while F_2 covers 11% of these cases, suggesting F_1's larger empirical relevance. The unique coverage (covU) score denotes the proportion of cases uniquely attributable to a configuration (Duşa, 2018). Figure 2 shows that for all eight configurations covS = covU, implying that our configurations are non-overlapping and unambiguously delineate between outcomes (Duşa, 2018; Rihoux & Ragin, 2009).

4.2 Narrative Analysis of Configurations

4.2.1 Neither Alignment- Nor Flexibility-Focused Configurations

The configuration producing neither alignment nor flexibility has *all six governance elements absent*. The configuration typifies project governance "by default": Client managers mechanistically use the contract template and its standard project controls. During the annual contract renewal, boilerplate clauses from the contract template are copied verbatim into the periodic contract without due diligence. There are no deviations from the template, and governance choices are not specific and provide no latitude. Changes take place at the regular renewal point (not instantaneous)—the project runs on "auto pilot."

Narrative N_1: Multiple episodes with the N_1 configuration occurred in the Gamma project. For instance, during one episode, Clientco requested integration of Gamma with its data warehouse (DwH). As the integration was not covered in the existing contract, it was included during the contract renewal [8]. The new contract referenced the development of a "connector" but otherwise adhered to the boilerplate clauses. At the project level, the vendor assigned developers to design and implement the connector. By summer 2012, however, it became clear that the DwH integration could not be completed under current contract terms. To address this gap, two additional contracts were created: the first [11] expanded the scope of quality control, and the second extended the scope of development work [12]—but both were vague on execution detail. At the project level, a quality expert was hired, and an additional software engineer was tasked with integration. Under the new contracts, the project introduced the first version of the connector (fall 2012), and the project transitioned to maintenance (early 2013). However, the newly created connector increased software complexity, leading to non-alignment:

> *When we were still in the project mode, we solved such issues with additional resources concealing our real problems. Now, in maintenance we have a tighter budget. Now, the complexity of Gamma hits us with full force…. We have to pay off our technical debt.* (PM)

The complexity undermined the maintainability goal (not aligned) and made it difficult for the vendor to change the system (not flexible):

> *… the complexity is so high! We need several weeks to perform a regression test. We need to test each change of the software against 2,000 test cases. 2,000! That's massive… 500, maybe 700 would be ideal for such a system. Of course, this massively increases the maintenance effort, and it makes the application very vulnerable.* (IT lead)

4.2.2 Flexibility-Focused Configurations

Three configurations fostered *flexibility* outcome (i.e., F_1, F_2, and F_3). These configurations share three common elements: Periodic contracts are not introduced instantaneously, project controls provide latitude, but controls are not specific. Each configuration pairs this core of shared elements with a distinct combination of the remaining three elements that act as functional equivalents to one another, rendering each set replaceable by the others.

Narrative F_1: In configuration F_1, the periodic contract lacks detailed deliverables (contract = not specific) but contains a task buffer (latitude contract = present), providing the vendor freedom to experiment through informal control (latitude control = present). Such configurations were common in the Gamma project. The initial goal of Gamma was to develop a workflow system supporting claims managers in processing reinsurance policies. However, after the system was implemented, Clientco expanded the scope to include the "technical accounting" group—a separate department within Clientco whose operations were closely linked with the tasks of claims managers. Yet there was no contract covering the adaptations required:

> *What we did not really factor in was that… claims initiate a process, and the output of this process is handed over to technical accounting.* (PM)

> *Despite the close connection between claims and technical accounting, they [technical accounting] only wanted the workflow management [part of the Gamma system]. They wanted to continue to use their established booking system.* (PM)

F_1 configurations were used to address this issue. For example, the parties introduced a new periodic contract during the annual renewal [3]. Although explicitly confined to improving technical accounting functions, the contract did not detail task specifications but instead provided a 30% buffer to accommodate unplanned work. This buffer allowed the team assigned to technical accounting to develop and test new features for technical accounting, while the buffer granted flexibility in addressing issues in the claims implementation. Using these F_1 configurations, the parties were able to satisfy the needs of the two distinct user groups:

> *It took some management and a couple of releases, but we finally managed to balance claims and technical accounting.* (IT lead)

Narrative F_2: In configuration F_2, flexibility emerges not from predefined buffers (latitude contract = absent), but by deliberately deferring formal contractual stipulations (instantaneous contract = absent) to give project personnel leeway to exercise self-control (latitude control = present) and independently explore solutions right away (instantaneous control = present). For example, in the Beta project, this configuration was used when faced with the task of integrating the Beta system—initially a workflow tool for claims managers—with a booking system used by the US technical accounting team. The parties initially refrained from introducing a new periodic contract (instantaneous contract change = absent). In the interim, they granted project personnel the latitude to develop "off-the-books" solutions that extended beyond the specifications included in the current contract. Once a feasible solution had been identified, a periodic contract was signed retroactively, formalizing the work already performed.

Narrative F_3: Configuration F_3 introduces flexibility by contracting individual expertise. Here, contract clauses specify characteristics of the vendor employees expected to perform the task (contract = specific). Instead of relying on buffers to induce latitude (latitude contract = absent), this approach ensures that qualified individuals are responsible for designated project tasks, and these individuals are granted autonomy to exercise self-control and independently explore solutions (latitude control = present). F_3 configurations were the most common configurations offering flexibility. They were used extensively in the Beta project, having the goal to develop a system to support reinsurance underwriters in calculating risk premiums:

> *Underwriters use statistics and other actuarial information to calculate risks…, and based on this calculation, they decide how much a customer should pay for insurance.* (PM)

The Beta system was found helpful by underwriters in reinsurance, so Clientco decided to extend and adapt the system to serve underwriters who were also in the credit business:

> *We have to add credit ratings. So, it's not about liability insurance; this is about our lending business… the content of the work is totally different.* (PM)

In response to the significant uncertainty and evolving requirements following the extension of the system to credit underwriting, client managers adopted F_3 configurations. Without a preexisting contract covering the development of the "credit" functionality, two new contracts were concluded detailing the expertise expected from the vendor's side:

> *What I contract from Devco is fixed, named, capacity. I receive [human] resources from Devco, with a long-term focus. I am only interested in the name and that this "name" is in the project longer than just 6 months or so. It is extremely important that we get to know them.* (PO)

The first contract [17] specified the necessary technological developer skills, while the second [18] identified an individual, "Igor S.," for quality assurance. On the vendor side, the specifications were met by assigning two experts with specialized knowledge. These experts tackled unforeseen implementation and testing challenges, and the close-knit interactions with these individuals led to the emergence of trusted relationships.

> *Devco's key personnel sits sometimes next to us, we can show them thing and in the evening we have a beer together. We have in inter-personal relationship with them* (PO)

> *With people like Anna and Igor we still have a very good relationship. They have been team members for a long time, we know each other very well.* (PO)

Despite these efforts, the project struggled to fully meet the needs of the "credit" group, leading to a "very critical situation" (PM), when the group "even threatened not to adopt the [underwriter] system" (VM).

4.2.3 Alignment-Focused Configurations

Two configurations produced alignment (A_1 and A_2). They share four common elements: both rely on contracts and controls that are *specific* and that do *not offer latitude*. Specifically, client managers used these configurations to introduce specific deliverables or technological design constraints not present in the contract template. Though these additions seemed minor, they significantly influenced project control: When contracts detailed specific deliverables, these introduced targeted outcome controls. Conversely, when contracts incorporated technological constraints, meticulous behavior controls were implemented.

Each configuration paired this core of shared elements with changes that were either instantaneous (A_1) or not instantaneous (A_2), functioning as interchangeable paths to alignment. In most episodes, the core of shared changes occurred *instantaneously,* as shown by the high coverage score of A_1 compared to A_2 configurations.

Narrative A_2: The Beta and Gamma projects frequently employed alignment-focused configurations. For example, when the Beta project's growing system maintenance effort began undermining cost-saving targets, a new periodic contract with detailed deliverables was introduced at the annual renewal. This contract set a six-month moratorium for new feature development in favor of a focus on refactoring the system architecture. The aim was to reduce maintenance effort by removing "technical debt" (IT lead). These specific contractual stipulations underpinned targeted outcome controls: at the project level, developers and QA experts were evaluated based on their contributions to architectural improvements [24].

Narrative A_1: While these measures proved effective in mitigating technical debt, the six-month refactoring effort was not enough to fully achieve the desired maintainability. To address this, an A_1 configuration was implemented by issuing a periodic contract mandating QA experts to prepare the system for "test automation" in accordance with a framework for automated "unit, GUI, and integration tests" [25]. These contractual stipulations served as the basis for meticulous behavior controls, shifting QA experts' focus from generic quality outcomes to adhering strictly to the testing framework. As the PM noted, these changes together led to "massive improvements in the maintenance effort," aligning with maintainability goals.

4.2.4 Flexibility- and Alignment-Focused Configurations

Two configurations (AF_1 and AF_2) simultaneously foster alignment and flexibility by blending governance elements from alignment- and flexibility-focused configurations. Common to both is that periodic contracts contain *detailed deliverables* (specific contract = present) used to track development work during the episode (specific control = present) while also providing projects with leeway to self-control some aspects of their work (latitude control = present). Each configuration paired this shared core with a distinct combination of the remaining elements: In AF_1, the deliberate delaying of the periodic contract (instantaneous contract change = absent) provided the necessary leeway, whereas AF_2 configurations provided leeway through distinct contractual stipulations like a task buffer. Within each configuration, governance elements not only represented interchangeable pathways to the same dual outcome but also compensated for one another's limitations, ensuring that alignment did not undermine flexibility or vice versa.

Narrative AF_1: AF_1 configurations were employed at the start of the Beta and Alpha projects, when high task uncertainty meant immediate contractual commitments would risk introducing rigidity. Instead of defining contractual stipulations upfront, managers delayed contract formalization, allowing governance to unfold organically as knowledge of project needs emerged. For example, in the Beta project, Devco initially lacked familiarity with the complexities involved in developing a tool for reinsurance underwriters calculating risk premiums. Rather than imposing rigid contractual specifications, the parties adopted an "off-the-books" approach—allowing Devco to develop a prototype informally before formalizing contract details. This delay helped identify critical technologies (e.g., "server technologies" and ".Net"), relevant user groups ("property" and "casualty"), and "key features [that] needed to be implemented" (IT lead). Afterwards, the parties used this knowledge to formulate a periodic contract [14], retroactively covering the development work already conducted alongside a couple of new detailed deliverables that Devco was expected to fulfill subsequently. At the project level, tight monitoring of these deliverables minimized effort fluctuations and maintained budget adherence, ensuring initial flexibility did not compromise alignment.

Narrative AF_2: While AF_1 achieved alignment and flexibility by deferring contract formalization, AF_2 configurations pursued the same dual outcome by pairing explicit deliverables with an explicit buffer. For instance, in the Alpha project, when the previously allocated budget was insufficient to develop a critical feature ("new meeting feature" [IT lead]), a new contract was created with detailed deliverables [32] expressed in "user stories, acceptance criteria, and mock-up designs" (IT lead) and stipulating a "30% task buffer" (IT lead). At the project level, developers were evaluated based on "meeting feature deliverables" (PM), with the task buffer providing them the latitude to "figure out technically feasible solutions" (PM) to challenges not foreseen in the contract.

Table 4. Comparison of Three Projects

	Gamma	Beta	Alpha
Project sequence	Earliest Q1 2008-Q1 2013	In-between Q1 2009-Q4 2013	Latest Q4 2009-Q4 2013
Episodes	[1]-[13]	[14]- [27]	[28]-[33]
N	.62	.14	.00
A (A_1, A_2)	.07 (.07, .00)	.29 (.21, .07)	.50 (.50, .00)
F (F_1, F_2, F_3)	.31 (.23, .08, .00)	.37 (.00, .00, 0.37)	.00
AF (AF_1, AF_2)	.00 (.00, .00)	.21 (.14, .07)	.50 (.17, .33)
Overall project performance	Continued performance problems	Periodic performance problems	Continued performance

4.3 Cross-Episode Analysis

This section reviews interactions among governance elements as well as the evolution of governance configurations across episodes. The analysis demonstrates how internal interactions among governance elements within a configuration explain episodic outcomes, while changing contextual conditions—such as accumulating trust and knowledge—shape which governance configurations become viable over time.

4.3.1 Post Hoc Analysis of Interactions Among Governance Elements

Our narrative analysis revealed two interaction types among governance elements that influenced how managers constructed configurations to achieve different episodic outcomes. First, we observed *replacing interactions*, where governance elements were functionally equivalent and therefore interchangeable. For example, flexibility could be achieved either through contractually defined task buffers (F_1) or by deferring contractual formalization (F_2). Similarly, detailed outcome-based controls combined with either an instantaneous (A_1) or a non-instantaneous contract, and control changes (A_2) provided alternative pathways to alignment. Thus, replacing interactions created equifinal pathways to the same episodic outcome.

Second, we observed *compensating interactions*, where governance elements with distinct strengths offset each other's limitations. This was evident in configurations AF_1 and AF_2, where specific contractual deliverables were paired with latitude-enhancing mechanisms, such as task buffers or delayed contracts. Such synergistic interactions allowed managers to simultaneously achieve both alignment and flexibility within a single governance episode (rather than only one or the other).

4.3.2 Evolution of Configurations

Table 4 summarizes the temporal evolution of governance configurations across the three studied projects: Gamma (the earliest), Beta (the intermediate), and Alpha (the latest). By comparing governance configurations across these projects, we identified a clear temporal progression in governance choices. Gamma predominantly relied on N-type configurations in 8 out of 13 episodes (62% of the episodes) and used F-type configurations for 31% of the episodes, with A-type configurations appearing only once. In contrast, Alpha never employed N-type or F-type configurations, instead relying exclusively on A-type (50%) and AF-type configurations (50%). Beta, the middle project, fell between these two extremes in terms of using different configurations (N: 14%, A: 29%, F: 36%, AF: 21%).

This progression indicates a deliberate shift away from N-type configurations, followed by a reduced reliance on F-type configurations, culminating in a stronger preference for A-type and AF-type configurations. Furthermore, we observed a temporal progression within the AF category itself. Initially, AF_1 configurations were employed at a project's outset (e.g., episodes [14], [15] in Beta and [28] in Alpha) to grant the team time to reduce task uncertainty before finalizing contractual details. Later in the projects, AF_1 configurations were replaced by AF_2 configurations as uncertainty diminished over time (see [22] for Beta and [31], [32] for Alpha).

4.3.3 Changes in Knowledge and Trust as Contextual Drivers of Evolution

Our diachronic analysis highlights that changes in trust and knowledge drove the evolution of governance configurations over time. As managers and teams accumulated contextual knowledge, they increasingly adopted information-rich contractual stipulations (A1, A2, AF2), which required advanced understanding of project goals, user requirements, and system specifics. This knowledge emerged organically through experience, but it can also be actively cultivated through close, sustained collaboration between the client and the vendor.

Similarly, trust—defined as a willingness to be vulnerable based on positive expectations of another party's benevolence, competence, and integrity (Rousseau et al., 1998)—played a pivotal role in shaping governance choices over time. As mutual trust between the client and the vendor grew, managers felt more confident in granting vendor personnel wider latitude, increasing the use of configurations F_1, F_2, AF_1, and AF_2 (e.g., via buffers or by temporarily working without a valid contract). Conversely, declining trust prompted shifts toward stricter, alignment-focused configurations. For example, in the earliest project, Gamma, trust in the vendor initially enabled the use of F_1 and F_2 configurations, but when subsequent vendor underperformance eroded trust, these configurations were abandoned. In Beta, trust was actively cultivated by contractually arranging face-to-face meetings among experts (see [17] through [21]). Building on this growing trust, Clientco temporarily expanded the autonomy of Devco's employees (as observed in [22]). Yet, later, when trust waned after unfamiliar vendor employees joined the project, managers reverted to configurations with detailed contractual stipulations and tighter controls.

These patterns reflect *enabling interactions*, where earlier governance choices established conditions enhancing the effectiveness or feasibility of subsequent governance elements. For example, trust-building measures (e.g., contracting named experts, fostering collaboration through face-to-face interactions) enabled managers to introduce latitude-enhancing governance elements in later episodes. Likewise, accumulating project knowledge permitted increasingly precise contractual stipulations, enhancing alignment. Thus, enabling interactions and associated accumulation of trust and knowledge progressively expanded managers' governance choice repertoires, fostering increasingly sophisticated governance configurations over time.

4.3.4 Overall Project Performance

Table 4 also summarizes overall project performance. Gamma, relying heavily on N-type configurations, consistently faced performance issues: Budgets "were regularly overrun" (AO); releases kept "coming in late" (AO), and in low quality. In contrast, Alpha, which relied exclusively on configurations fostering alignment or both alignment and flexibility, demonstrated the best performance.

> *They basically over-fulfilled the contract by successfully designing a fully functional solution with extremely sophisticated security. Everybody was very happy. The project was even in time*. (IT lead)

> *The security was fantastic. Usability was very good. The board just loved it.* (IT lead)

Beta occupied a middle ground. Despite using more AF-type and F-type configurations than Gamma, Beta's occasional reliance on N-type configurations caused periodic performance issues. However, these were ultimately overcome by adjusting governance configurations:

> *Beta just couldn't handle the massive number of ratings…. We had to admit that it [easier maintenance] was just not possible with the chosen architecture.* (Performance problems)

> *Beta showed massive improvements in the maintenance effort and the US credit users showed steep rises in satisfaction.* (Performance problems addressed)

4.4 A Configurational Theory of Continuous Contracting

Our analysis reveals that through continuous contracting, outsourcing managers are able to combine three governance choice dimensions—each with two possible states and applicable to both contract design and project control elements—to form 64 theoretically feasible governance configurations (see "choice elements of contract design and project control" in Figure 3). However, only eight of these configurations were used in our empirical setting. Each identified configuration constitutes a sufficient causal pathway to a particular combination of episodic alignment and flexibility outcomes. Crucially, governance choices are not simply additive; rather, their interactions shape episodic outcomes by substituting for each other, compensating for mutual shortcomings, or enabling new governance possibilities.

When only replacing interactions occur, governance elements act as functional substitutes, providing managers with multiple equifinal pathways to achieve either alignment or flexibility, but not both simultaneously. For example, the absence of a contractual contingency clause could be offset by contracting specific actors and granting them discretion, effectively replicating the flexibility-enhancing function of contingency provisions.

In contrast, when both compensating interactions and replacing interactions are present, configurations can simultaneously foster both alignment and flexibility. Compensating interactions occur when governance elements with complementary strengths and weaknesses are combined to balance their respective limitations. For instance, while highly specific contracts promoted alignment, they could also introduce rigidity. Pairing such contracts with latitude-enhancing controls, such as vendor discretion over certain tasks, offsets rigidity, allowing managers to achieve both alignment and flexibility concurrently.

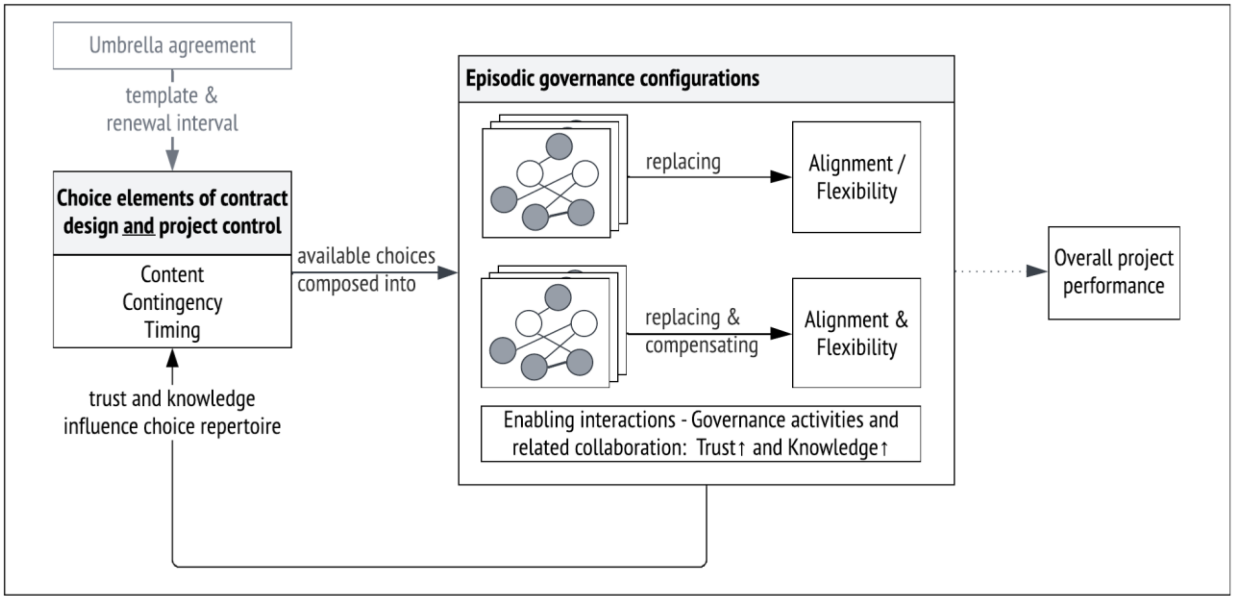

Figure 3. Configurational Theory of Continuous Contracting

Enabling interactions play a critical role in shaping governance choices over time. Unlike replacing or compensating interactions, which determine episodic outcomes, enabling interactions expand the governance repertoire available to managers in subsequent episodes. Specifically, trust and knowledge accumulation influence which governance choices become feasible later. Trust-building mechanisms give managers confidence to introduce latitude-enhancing elements, while increasing project-specific knowledge enables managers to incorporate more specific contractual stipulations, facilitating alignment as projects progressed.

Over successive episodes, these enabling interactions drive an evolutionary shift in governance configurations. Early on, managers predominantly employ simpler configurations that optimize either alignment or flexibility. As trust and knowledge accumulate, however, managers adopt more sophisticated configurations that feature compensating interactions among governance elements, which are capable of balancing alignment and flexibility simultaneously. Thus, although no single configuration guarantees overall project success, managers are able to cultivate conditions that allow them to progressively refine governance configurations over time, thereby laying the foundation for sustained improvements in project performance.

5 Discussion

Using thematic, QCA, and narrative analyses of 33 episodes from three projects under one umbrella agreement, this study develops a configurational theory of continuous contracting. Our findings address how continuous contracting influences project performance by answering two specific subquestions. First, our QCA analysis reveals eight governance configurations, each consistently producing specific episodic outcomes of alignment and flexibility. Our approach of uncovering distinct, holistic configurations aligns with configurational frameworks in the tradition of Mintzberg (1979), Miles et al. (1978), and Fiss (2011), which emphasize how organizational elements coalesce into archetypes that shape outcomes. Further qualitative analysis highlights how these episodic outcomes depend on specific interactions among the governance elements within a configuration—namely, whether they substitute for each other (replacing interactions) or offset mutual limitations (compensating interactions). These findings answer the first subquestion regarding salient configurations and their episodic effects.

The second subquestion asked how and why these configurations evolve over time, and how this evolution affects overall project performance. Our configurational theory shows that configurations evolve in response to accumulating trust and project-specific knowledge across successive episodes. Initially, managers primarily rely on configurations featuring replacing interactions, producing either alignment or flexibility. However, as trust and knowledge increase, the governance repertoire expands, enabling configurations that simultaneously achieve alignment and flexibility through compensating interactions. Managers can thus steer projects more deliberately, thereby enhancing overall project performance.

By unpacking how evolving configurations influence project performance over time, we address a problem situated at the core of information systems research, as articulated by Benbasat and Zmud (2003). Specifically, our configurational theory highlights that under continuous contracting, outsourcing governance cannot be understood by examining governance elements in isolation. Instead, they form holistic, recurring configurations that evolve periodically and collectively shape overall project performance. While traditional governance theories emphasize the importance of thorough ex ante stipulations and rely on linear assumptions, our findings show how episodic recombination of contract and control elements enables managers to deliberately pivot between alignment and flexibility. This breaks with the idea that governance becomes "locked in" after initial contracting and control decisions. Table 5 highlights key differences between our configurational theory and traditional theories of outsourcing governance. Next, we discuss the significant theoretical implications arising from these differences.

5.1 Novel Mechanisms to Balance Alignment and Flexibility

The dimensions of content, contingency, and timing address the "what is" question in theory building (Gregor, 2006, p. 620) by capturing salient governance characteristics specific to continuous contracting. In traditional outsourcing, contract extensiveness and formal control—measures of how much and how explicitly information is specified—predict project outcomes (Benaroch et al., 2016; Chen & Bharadwaj, 2009; Wiener et al., 2016). However, these constructs fall short in continuous contracting, where contracts recur episodically and are enacted in conjunction with project controls. In such settings, the extent to which contractual elements or project controls are tailored beyond general templates becomes critical. Our *content* dimension therefore moves beyond quantifying information volume by introducing a qualitative differentiation capturing how elements traditionally considered project management responsibilities—such as task allocations (configurations A_1, A_2, AF_1, and AF_2) or personnel qualifications (configuration F_3)—become integrated into contract design.

The contingency dimension captures how parties engaged in continuous contracting anticipate and mitigate task and environmental uncertainties through governance mechanisms offering built-in flexibility. This logic aligns with established theories of governance under uncertainty such as transaction cost economics (Williamson, 1979), which advocate using ex ante contractual arrangements to account for known or foreseeable uncertainties by stipulating "admissible dimensions for adjustment" (Williamson, 1979, p. 251). In software outsourcing, contractual structures consistent with this principle include structured redetermination processes, enabling parties to adjust tasks within specified parameters and thus treating the future as largely predictable (Benaroch et al., 2016; Goo et al., 2009). In our cases, task buffers fulfilled this role by granting vendors discretion to adapt within defined boundaries. This approach promoted flexibility without incurring transaction costs associated with formal renegotiation.

Table 5. Differences Between Traditional Governance Theories and Continuous Contracting Theory

Dimension	**Traditional theories of outsourcing governance**	**Continuous contracting theory**
Boundary conditions	Applicable in outsourcing governance contexts focused on ex ante contracts and subsequent choices of project controls.	Applicable in outsourcing governance contexts where contracts recur and are enacted in conjunction with project control choices.
Governance decision problem	One-time selection of a contract design, followed by an independent choice of project controls.	Ongoing recombination of multiple contract design and project control elements into governance configurations with significant interactions between chosen elements.
Primary constructs ("What is")	Focuses on capturing salient elements of ex ante contract design and subsequent project controls, using distinct sets of constructs.	Focuses on capturing salient elements of periodic contracts *and* project controls when enacted together and repeatedly through three unified dimensions (*content*, *contingency, timing)*.
Nature of causality (explanation)	Independent causality with symmetric, single-path, additive relationships.	Conjunctural causality with asymmetric and equifinal relationships.
Explanatory focus	Ex ante contract and project controls function as separate predictors for project outcomes.	Governance configurations serve as predictors of alignment and flexibility during project execution, with overall project outcomes emerging cumulatively across multiple episodes.

In contrast, the timing dimension captures a fundamentally different mechanism to fostering flexibility, which is effective under unknown uncertainties. While the contingency dimension assumes some predictability, the timing dimension allows parties to deliberately modulate when commitments are made, so that they can be deferred until uncertainties become clearer. Specifically, our findings uncovered mechanisms whereby parties deliberately postponed the formal conclusion of a contract until sufficient information became available (F_2, AF_1). This approach enabled parties to effectively cope with the unknowable (Powell, 1990)—a challenge frequently encountered in innovative software projects (Cao et al., 2013; Hsu et al., 2022; Ramesh et al., 2012). The ability to deliberately time contract and control elements allowed managers to create configurations that were both structured and adaptable, making them particularly suited to the highly dynamic nature of software outsourcing projects.

This logic notably diverges from traditional governance models, which handle uncertainty by anticipating and specifying future conditions (Williamson, 1979). Instead, timing emphasizes iterative learning over prediction: Rather than front-loading contracts with conjectures of desirable or undesirable future states, contracts are adapted retroactively, based on insights gained in preceding contracting cycles. Thus, the timing dimension makes continuous contracting responsive to "the unforeseeable"—not through prediction and specification but through iterative, learning-based adaptation.

Despite these evident flexibility advantages, continuous contracting entails recurring negotiation and implementation costs (Mouzas & Furmston, 2008, 2013; Williamson, 1979). Unlike traditional one-off contracting—where contracts are designed once (e.g., Benaroch et al., 2016; Chen & Bharadwaj, 2009)—continuous contracting entails repeated efforts that are less cost-efficient in stable environments. However, these costs become justified as task and environmental uncertainties increase, unlocking the unique advantages of the adaptive approach. While traditional contracting approaches typically lack explicit mechanisms for embedding learning into future contracts—because there is usually only a single, ex ante contract—continuous contracting directly incorporates insights from past episodes into subsequent agreements. By systematically embedding ongoing learning, continuous contracting progressively expands the governance repertoire available to the parties—thereby enhancing their long-term adaptability to evolving project demands and conditions.

Although our findings position continuous contracting within the broader family of relational governance approaches, they also clarify how it diverges from traditional approaches such as joint ventures or strategic alliances. In those arrangements, partners often share broader collaborative goals and rely on relatively stable, high-level agreements that are not frequently renegotiated (Gambal et al., 2022; Li, 2014; Rai et al., 2009; Ravindran et al., 2015). By contrast, continuous contracting addresses a principal–agent dynamic in which one party delivers to another's specifications (Mouzas & Ford, 2006; Mouzas & Furmston, 2008), necessitating more granular, episodic interventions. This episodic structure—enabled by the three governance dimensions of content, contingency, and timing—affords iterative recalibration, which is especially valuable in high-uncertainty environments where ex ante obligations cannot be comprehensively articulated. Thus, while continuous contracting shares a relational orientation, its configurational logic provides a tighter, more frequently updated mechanism for governing projects that face shifting demands and require ongoing adaptation.

5.2 Novel Explanations for Governance Consequences

Our configurational theory of continuous contracting explains outcomes by unpacking how contract design and project control elements interact episodically within configurations and cumulatively across contracting periods. The explanatory power of this theory (Gregor, 2006) lies in its identification of eight distinct governance configurations—each producing a particular combination of alignment and flexibility—thereby advancing testable propositions for future confirmatory studies. These explanations differ fundamentally from existing outsourcing governance theories by incorporating assumptions of causal asymmetry and equifinality.

Traditional outsourcing governance studies assume linear, additive, and independent causality (e.g., Benaroch et al., 2016; Chen & Bharadwaj, 2009; Gefen et al., 2008; Gopal & Koka, 2012; Rustagi et al., 2008; Tiwana & Keil, 2009), implying that each governance element independently contributes to outcomes. By contrast, our configurations demonstrate causal asymmetry, meaning that the nature and direction of impact of any governance element (e.g., contract content) depends on the presence or absence of other elements within the same configuration (e.g., control timing). For instance, configuration F_2 achieves flexibility through a nonspecific contract combined with instantaneous controls, whereas F_3 achieves flexibility through specific contracts combined with non-instantaneous control changes.

This causal asymmetry arises from internal interactions among content, contingency, and timing dimensions, and it alters the logic for selecting governance elements, prompting a reconsideration of prevailing explanations for how and why governance choices produce outcomes. In traditional approaches, governance outcomes emerge from additive effects of individual factors. Managers, thus, manipulate each factor—such as contract extensiveness—independently. Indeed, previous studies examining the effects of individual governance elements, whether in contract design (e.g., Benaroch et al., 2016; Chen & Bharadwaj, 2009; Gefen et al., 2008; Gopal & Koka, 2012) or project control (Gopal & Gosain, 2010; Rustagi et al., 2008; Tiwana & Keil, 2009), have demonstrated benefits from such isolated adjustments (reflected by the size of beta coefficients). However, in continuous contracting, governance outcomes result from systemic dependencies among elements, rendering isolated manipulations ineffective. As a result, governance decisions shift from selecting and manipulating individual elements to constructing holistic configurations. Managers must therefore focus on effectively combining contract design and project controls in ways that recognize their replacing, compensating, and enabling interactions.

Equifinality—the possibility of achieving the same outcome through multiple configurations—is another feature that distinguishes our theory from existing explanations. Our findings show how equifinal configurations result from replacing interactions among functionally equivalent governance elements. For instance, both F_3 and F_1 configurations foster flexibility. Thus, multiple pathways exist to achieve the same outcome, emphasizing the importance of identifying systems of elements rather than isolated effects.

By focusing not only on interactions among governance elements within configurations but also on how these configurations interact with contextual factors, our findings identify trust and local knowledge not as static preconditions but as endogenously accumulating stocks that continuously expand (or constrain) the repertoire of possible governance configurations. This transforms trust and local knowledge from external determinants shaping governance mechanisms unilaterally into resources that can be cultivated actively to unlock new episodic choices. For example, flexibility-oriented configurations (e.g., F_3) foster interpersonal trust, which, in turn, enables managers to implement trust-dependent configurations (e.g., F_1, F_2, and AF_1). Similarly, the local knowledge accumulated through such collaborative experiences becomes indispensable for designing targeted, contract-based controls supporting alignment (see A_1 and A_2) or alignment and flexibility (see AF_1 and AF_2). Our findings unpack these reciprocal interactions within the context of continuous contracting, highlighting how their characteristics differ markedly from the reciprocal dynamics documented in traditional outsourcing contexts (Gregory et al., 2013; Huber et al., 2013; Krancher et al., 2022; Kranz, 2021; Lioliou et al., 2014). Specifically, we reveal how governance decisions simultaneously shape and are shaped by evolving trust and local knowledge, enabling managers to deliberately and adaptively steer projects toward alignment, flexibility, or both, as project demands evolve across successive episodes.

Finally, our theory explains how overall project performance emerges from the cumulative effects of successive governance configurations across episodes. Thus, it is not single configurations that determine overall success but the cumulative sequencing of configurations and their dynamic interplay with evolving contexts that ultimately shape performance. This process-oriented perspective contrasts with traditional governance theories, which regard project outcomes as products of distant, singular governance choices (Benaroch et al., 2016; Chen & Bharadwaj, 2009; Gefen et al., 2008; Gopal et al., 2003; Ryall & Sampson, 2009). In continuous contracting, ex ante design remains relevant through umbrella agreements, but analytical emphasis shifts to adaptive sequences of interrelated governance elements, recognizing these sequences as primary determinants of project performance.

5.3 Future Research and Managerial Implications

Our governance configurations represent formal statements linking conditions to outcomes, offering testable propositions that future research can validate through confirmatory studies. The complex causality inherent to our theory carries important implications for the research designs these studies should adopt. First, due to the asymmetric nature of causality, future research should not examine the isolated effects of single mechanisms but instead should seek to identify cohesive systems of interdependent elements and predict their combined effects. Thus, future work should explore how discrete changes in the composition of governance configurations—rather than continuous adjustments of individual factors—drive outcomes, often in nonlinear ways. Second, recognizing equifinality, researchers aiming to predict alignment and flexibility should theorize over a range of functionally equivalent configurations instead of presuming a single causal pathway. Third, given that overall project performance emerges cumulatively from selected sequences of configurations rather than any singular configuration, future research should further refine and validate these temporal relationships using robust time-series data and set-theoretic sequence analysis techniques (Dușa, 2018). Such confirmatory research designs will help validate our findings, generated within the context of a single client-vendor partnership under one umbrella agreement. Fourth, as all studied projects followed agile methodologies, their iterative and incremental nature likely facilitated the episodic dynamics of continuous contracting. Future research should thus investigate how different software development methodologies (e.g., agile vs. waterfall) influence the combinatorial dynamics of contract design and project control and how these differences affect the ability of governance configurations to achieve alignment and flexibility.

Our findings offer several practical implications for outsourcing governance. Given the increasing adoption of continuous contracting, managers should rethink their governance approach, shifting from isolated contract design and control activities toward simultaneously designing and monitoring integrated governance configurations. Rather than optimizing single elements, managers should understand how contract design and project control choices interact—particularly how they can substitute for or complement each other—to achieve desired levels of alignment and flexibility within each project episode. Additionally, managers should actively invest in building trust and accumulating project-specific knowledge, as these factors progressively expand their governance repertoire, enabling more sophisticated configurations capable of simultaneously achieving alignment and flexibility. Over successive contracting episodes, managers can thereby deliberately steer governance choices to respond adaptively to evolving project demands, improving overall project performance.

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Appendix A

Table A1. Compliance with QCA Guidelines in IS Research (Mattke et al., 2022)

Step	Action
Step 1: Develop a configurational model	Specific case-based knowledge used to develop and justify selection of conditions (see section "Toward an episodic framework of selecting governance configurations") Selection of six conditions ensuring that the number of conditions is appropriate for the sample size (i.e., 6/33=.18 and therefore does not exceed the recommended threshold of .20).
Step 2: Collect and validate the data	Purposeful selection of cases falling into our domain of interest (continuous contracting) Selected cases entail configurations leading to high and low level of outcomes Data scrutinized for validity through triangulation across different pieces/sources of evidence and member checks
Step 3: Calibrate the data	Calibration of qualitative data into crisp sets rather than fuzzy sets because multiple conditions are inherently binary and were developed to represent clear differences in kind rather than degree (e.g., presence/absence of specific contract, presence/absence of instantaneous contract) Refinement of calibration anchors through iterative, case-informed concept development (see "Pre-QCA: Thematic analysis) leading to clearly defined points of full membership and full non-membership as presented in Table 1.
Step 4a: Analyze necessary conditions for high outcome	Analysis of necessity for *aligned* = present using consistency threshold of 1 and a coverage cut-off of 0.6 Analysis of necessity for *flexibility* = present using consistency threshold of 1 and a coverage cut-off of 0.6 Consistency and coverage values for each condition (above the threshold) reported in Appendix D.
Step 4b: Analyze necessary conditions for low outcome	Analysis of necessity for *aligned* = absent using consistency threshold of 1 and a coverage cut-off of 0.6 Analysis of necessity for *flexibility* = absent using consistency threshold of 1 and a coverage cut-off of 0.6 Consistency and coverage values for each condition (above the threshold) reported in Appendix D.
Step 5a: Analyze sufficient configuration for the high level of the outcome	Construction of truth tables for high outcomes Frequency threshold for inclusion set to 1 as recommended by Greckhamer et al. (2013) to ensure that significant proportions of observations are included. Performing logical minimization procedure to the sufficient configurations (see Appendix D for minimized Boolean expression) Reporting number of possible configurations and logical remainders *For flexibility = present:* Number of possible configurations: 64 Number of observed configurations in data: 5 Logical remainders: 64-5 = 59 LRI: 55/64 = .92 *For alignment = present:* Number of possible configurations: 64 Number of observed configurations in data: 4 Logical remainders: 64-4 = 60 LRI: 60/64 = .94 Distribution of cases across configurations reported in Appendix D
Step 5b: Analyze sufficient configurations for the low level of the outcome	Construction of truth tables for high outcomes Frequency threshold for inclusion set to 1 as recommended by Greckhamer et al. (2013) to ensure that significant proportions of observations are included. Performing logical minimization procedure to the sufficient configurations (see Appendix D for minimized Boolean expression) Reporting number of possible configurations and logical remainders *For flexibility = not present:* Number of possible configurations: 64 Number of observed configurations in data: 3 Logical remainders: 64-3 = 61 LRI: 61/64 = .95 *For alignment = not present:* Number of possible configurations: 64 Number of observed configurations in data: 4 Logical remainders: 64-4 = 60 LRI: 60/64 = .94 Distribution of cases across configurations reported in Appendix D
Step 6: Report the findings	Minimized sufficient configurations graphically reported (see Appendix D) Relevant consistency and coverage measures to judge data quality and robustness of findings reported in Appendix D.
Step 7: Validate the findings	Robust calibration of qualitative data into crisp sets through multiple rounds of abductive concept development (see Appendix B and C for details) Multiple, complementary QCA analyses yield consistent configurations supporting the validity of identified multi-outcome relationships.

Appendix B

Table B1. Thematic Coding of Categories

Stage 1: Iterative rounds of semi-open coding (spring 2015 - spring 2018)
Coding logic: Using a generic sociotechnical framework (PSIC model) to identify and acquire a deep understanding of the main governance challenges (in terms of socio-technical gaps) and the interventions actors take in response to these challenges (Lyytinen & Newman, 2008).
Emergent codes Round 1: Sociotechnical gap (subcodes: structure, task, actor, technology), Contractual intervention (subcodes: contract design intervention, Planned × Forward-oriented contract, Unplanned × Forward-oriented contract, Unplanned- × Backward-oriented contract, Planned × Backward-oriented contract, standard contractual content, nonstandard contractual content (task, actor, design), Knowledge and expertise (subcodes: task knowledge, actor knowledge, technological knowledge), governance outcomes (subcodes: different state changes from open to closed sociotechnical gap).
Emergent codes Round 2: Contract interventions (subcodes: standard/specific, rapid/delayed, task/actor/structure), Project control intervention (subcodes: standard/specific, rapid/delayed, task/actor/structure), Governance outcomes (subcodes: alignment/flexibility).
Emergent themes: Need to balance alignment and flexibility (Theme 1), Contract design and project control interventions appear to combine with different effects (Theme 2).
Stage 2: Focused coding towards configurations of contract design and project control conditions (summer 2018 - summer 2019)
Coding logic: Synthesizing contract design and project control codes towards a small number of key categorical differences. Constant refinement of codes through iterative literature feedback.
Emergent categories: Contract design (subcodes: instantaneous, extensive, loose), project control (subcodes: fast, specific, latitude), outcomes (Alignment and/or flexibility).
Literature feedback: Contract extensiveness (Benaroch et al., 2016; Chen & Bharadwaj, 2009), flexibility provisions (Chen & Bharadwaj, 2009; Goo et al., 2009), authoritative/tight vs. relaxed/enabling control styles (Gregory et al., 2013; Wiener et al., 2016, p. 16), contract functions (safeguarding, coordination, adaptability) (Benaroch et al., 2016; Chen & Bharadwaj, 2009).
Final categories: Contract design / project control (subcodes: content, contingency, timing), outcomes (subcodes: four distinct combinations of alignment and flexibility)

Appendix C

Table C1. Coding Table for Each Outcome

Concept	Definition and ranges	Indicators	Origins
Governance outcomes			
Alignment	The vendor's work complies with the contract-based goals and behaviors.	Goals stated in periodic contracts such as time, costs, and quality are being met (aligned) Goals defined in periodic contracts such as time, cost or in quality are not met (not aligned)	*To be honest user satisfaction could have surely been better and we certainly still have quality problem… lots of defects…* (Scrum master & technology lead, Beta) [not aligned] *But I think now [after the latest changes], the new users of the credit functionality are very satisfied. That is at least what I have heard.* (Scrum master & technology lead, Beta) [aligned] *… in 2011 [after a specific rollout], there was quite some excitement because iPad were something new and now being able to use them to check our dashboard, that was just incredible* (Business analyst, Alpha, aligned)
Flexibility	The extent to which the vendor adapted project execution processes to new circumstances not recognized or anticipated in past contracts.	Vendor autonomously adjusts project execution to meet new or changing circumstances (flexible) Vendor does not autonomously adjust project execution to meet new or changing circumstances (not flexible)	*Above all, Devco has proven to act very flexibly. A key characteristic of CREW is fluctuation, is change…. last-minute stuff… I am very satisfied with Devco… because they were able to use their room-to-maneuver to cope with the business pressure.* [IT lead, Gamma] *… and there [in the vendor team], they make the specifications, and they also prioritize them in the vendor team. In essence, they are completely independent from myself… the story teams… the feature teams, they can work on their own and adapt.* (IT lead, Gamma).

Appendix D

Table D1. Minimized Boolean Expressions (main analysis)

	Minimized Boolean expression	inclS	covS	covU	Cases
Outcome: Aligned					
1	~InstantContract*~InstantControl*SpecificContract* SpecificControl*~LatitudeContract	1.0	0.214	.071	24; 14, 15
2	~InstantContract*SpecificContract*SpecificControl* ~LatitudeContract*LatitudeControl	1.0	.214	.071	14, 15; 28
3	InstantContract*InstantControl*SpecificContract* SpecificControl*~LatitudeContract*~LatitudeControl	1.0	.500	.500	2, 16, 25, 27, 29, 30, 33
4	InstantContract*InstantControl*SpecificContract* SpecificControl*LatitudeContract*LatitudeControl	1.0	.214	.214	22, 31, 32
Outcome: Not aligned					
1	~InstantContract*~InstantControl*~SpecificContract* ~SpecificControl*LatitudeContract*LatitudeControl	1.0	.158	.158	3, 6, 7
2	~InstantContract*~InstantControl*SpecificContract* ~SpecificControl*~LatitudeContract*LatitudeControl	1.0	.263	.263	17, 18, 19, 20, 21
3	~InstantContract*InstantControl*~SpecificContract* ~SpecificControl*~LatitudeContract*LatitudeControl	1.0	.053	.053	4
4	~InstantContract*~InstantControl*~SpecificContract* ~SpecificControl*~LatitudeContract*~LatitudeControl	1.0	.526	.562	1, 5, 8, 9, 10, 11, 12, 13, 23, 26
Outcome: Flexible					
1	~InstantContract*~InstantControl*SpecificContract* ~LatitudeContract*LatitudeControl	1.0	.467	.333	17, 18, 19, 20, 21; 14, 15
2	~InstantContract*SpecificContract*SpecificControl* ~LatitudeContract*LatitudeControl	1.0	.200	.067	14, 15; 28
3	~InstantContract*~InstantControl*~SpecificContract* ~SpecificControl*LatitudeContract*LatitudeControl	1.0	.200	.200	3, 6, 7
4	~InstantContract*InstantControl*~SpecificContract* ~SpecificControl*~LatitudeContract*LatitudeControl	1.0	.067	.067	4
5	InstantContract*InstantControl*SpecificContract* SpecificControl*LatitudeContract*LatitudeControl	1.0	.200	.200	22, 31, 32
Outcome: Not flexible					
1	~InstantContract*~InstantControl*SpecificContract* SpecificControl*~LatitudeContract*~LatitudeControl	1.0	.056	.056	24
2	InstantContract*InstantControl*SpecificContract* SpecificControl*~LatitudeContract*~LatitudeControl	1.0	.389	.389	2, 16, 25, 27, 29, 30, 33
3	~InstantContract*~InstantControl*~SpecificContract*~SpecificControl* ~LatitudeContract*~LatitudeControl	1.0	.556	.556	1, 5, 8, 9, 10, 11, 12, 13, 23, 2

Appendix E: Robustness Checks

It is important to discern any patterns between conditions and outcomes that might have obscured the analysis. Such confounding patterns can arise if conditions and outcomes intersect excessively, making it difficult to ascertain which single configuration unambiguously produces which outcome. For instance, if all cases where flexibility is present (Outcome 1) also exhibit alignment (Outcome 2), it becomes challenging to identify the conditions that contribute uniquely to one outcome without affecting the other. To guard against this situation, we verified that all outcome and configuration connections demonstrated only partial rather than complete overlap. Empirically, our results confirm that the two outcomes were unrelated. For example, cases where flexibility was present overlapped with cases where alignment was present but also with cases where alignment was absent. Similarly, we observed partial overlap in explanatory conditions, identifying distinct configurations for “only aligned” or “only flexible” outcomes as well as intersecting conditions for those cases displaying both outcomes. These findings underscore the robustness and validity of our analysis and the asymmetrical and equifinal character of causal conditions.

As a final robustness check, we conducted four additional QCA analyses, each treating a distinct combination of alignment and flexibility as a singular binary outcome: (1) neither alignment nor flexibility is present (coded as 1), or otherwise (coded as 0); (2) alignment is present, but flexibility is not (coded as 1), or otherwise (coded as 0); (3) flexibility is present but alignment is not (coded as 1), or otherwise (coded as 0); (4) both alignment and flexibility are present (coded as 1), or otherwise (coded as 0). These additional analyses reproduced the same eight configurations, thereby reinforcing the stability and credibility of our initial findings as in the Boolean expressions shown below.

Table E1. Minimized Boolean Expressions (Robustness Check, Combined Outcomes)

	Minimized Boolean expression	inclS	covS	covU	Cases
Outcome: Neither flexible nor aligned					
1	~InstantContract*~InstantControl*~SpecificContract*~SpecificControl*~LatitudeContract*~LatitudeControl	1.0	1.0	-	1, 5, 8, 9, 10, 11, 12, 13, 23, 26
Outcome: Only aligned					
1	InstantContract*InstantControl*SpecificContract*SpecificControl*~LatitudeContract*~LatitudeControl	1.0	.875	.875	2, 16, 25, 27, 29, 30, 33
2	~InstantContract*~InstantControl*SpecificContract*SpecificControl*~LatitudeContract*~LatitudeControl	1.0	.125	.125	24
Outcome: Only flexible					
1	~InstantContract*~InstantControl*~SpecificContract*~SpecificControl*LatitudeContract*LatitudeControl	1.0	.333	.333	3, 6, 7
2	~InstantContract*InstantControl*~SpecificContract*~SpecificControl*~LatitudeContract*LatitudeControl	1.0	.111	.111	4
3	~InstantContract*~InstantControl*SpecificContract*~SpecificControl*~LatitudeContract*LatitudeControl	1.0	.556	.556	17, 18, 19, 20, 21
Outcome: Flexible and aligned					
	~InstantContract*SpecificContract*SpecificControl*~LatitudeContract*LatitudeControl	1.0	.50	.50	15; 14, 28
	InstantContract*InstantControl*SpecificContract*SpecificControl*LatitudeContract*LatitudeControl	1.0	.50	.50	22, 31, 32

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