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Politics, public servants, and profits: Institutional complexity and temporary hybridization in a public infrastructure alliance project

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Abstract

Public infrastructure projects must comply with the divergent and even conflicting demands of multiple institutional logics causing institutional complexity. Despite the increasing interest in different forms of complexities in projects, we lack empirical illustrations and rigorous theorizing of mechanisms for responding to institutional complexity. This paper demonstrates how public buyers of a tunnel construction project formed a hybrid organization of a multi-party project alliance to respond to institutional complexity. We delineate a process of temporary hybridization through which the competing logics of a bureaucratic state, corporate market, and multiple professions were combined within the temporary project alliance organization. Such temporary hybridization not only focused on selective coupling with external demands but also mitigated internal tensions. Our findings emphasize a blended organizational structure, jointly formed governance and incentive systems, and the facilitation of social interaction to build a temporary yet sustainable hybrid organization capable of combining conflicting institutional logics.

Keywords: Institutional logics; Institutional complexity; Hybrid organizing; Public infrastructure projects; Temporary hybridization; Project alliance

1. Introduction

Public infrastructure projects—such as the development of transportation, energy, telecommunication, and water supply systems—account for the increasing intensity of global economic activity (Söderlund et al., 2017). The Global Infrastructure Hub (2017) has forecasted that such undertakings will require investments of over 90 trillion USD (or 3.55% of global GDP) in the next two decades. The key managerial issue in such public inter-organizational projects is combining the efforts of multiple, and often divergent, organizations (Jones and Lichtenstein, 2008; Oliveira and Lumineau, 2017). Previous studies suggest that managerial challenges stem from the structural and dynamic complexities of such projects or from the great number of constantly changing technical components and organizational actors (Brady and Davies, 2014; Ramasesh and Browning, 2014). There is a plethora of approaches for overcoming such complexities, such as employing systems integration through innovative contracts (Davies et al., 2009; Gil, 2009), adopting more collective decision-making processes (Gil et al., 2012; Gil and Pinto, 2018), decomposing the project into manageable entities (Davies and Mackenzie, 2014), and improving communication across project organizations (Roehrich and Lewis, 2014). Thus, previous project management research has predominantly focused on formal coordination and governance mechanisms internal to a project —such as contracts, monetary incentives, communication routines, and decision-making heuristics—through which diverse actors can establish a common ground for working with each other (Oliveira and Lumineau, 2017).

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Project management researchers have also been increasingly emphasizing the importance of social structures and have revealed how institutions (i.e., norms, beliefs, conventions, values, and taken-for-granted practices) in a particular social context not only constrain but enable action in project-based organizing (Aaltonen and Turkulainen, 2018; Engwall, 2003; Grabher, 2002; Jones and Lichtenstein, 2008; Morris and Geraldi, 2011; Sydow et al., 2004), how such actions may come to reshape the old social structures (Tukiainen and Granqvist, 2016) and create new ones (Söderlund et al., 2017; van Marrewijk, 2017). Recently, calls have been made to critically account for the impact of the surrounding society on project organizing (and vice versa) to further enrich so-called project studies (Geraldi and Söderlund, 2018) and allow a more dynamic perspective on inter-organizational projects to emerge (Sydow and Braun, 2018). Consequently, the difficulties of undertaking coordination and collaboration in public infrastructure projects may not purely stem from their complex inter-organizational nature, such as the mere number of different organizational entities (i.e., structural complexity), but from institutional differences, such as the divergent perceptions regarding the legitimate means and ends of a project (Dille and Söderlund, 2011, 2013; Geraldi et al., 2011; Orr and Scott, 2008). This requires complementing formal contractual governance mechanisms with more relational and social mechanisms, which could mitigate institutional tensions (Benítez-Ávila et al., 2018). Such conflicting institutional demands are particularly strong in public infrastructure projects, which must comply with the operating logics of government bureaucracies and business firms (Jay, 2013; Jooste and Scott, 2012) and achieve legitimacy in the eyes of diverse stakeholders, such as the local community (Di Maddaloni and Davis, 2018). Thus, in addition to different internal complexities, the managers of public projects must respond to the institutional complexity that arises externally from the surrounding social context (Biesenthal et al., 2018).

Institutional complexity entails a contradictory situation where an organization's actions are hindered when it faces multiple conflicting, or at least divergent, institutional demands due to the presence of multiple institutional logics (Greenwood et al., 2011; Kraatz and Block, 2008; Raynard, 2016; Vermeulen et al., 2016). Institutional logics are widely available and shared prescriptions on the legitimate actions and so-called meta-theoretical frameworks of institutions that guide the behavior of organizations (Friedland and Alford, 1991; Ocasio et al., 2017; Thornton et al., 2012). Thus, organizations that must appear legitimate by adopting multiple logics must seek a way to satisfy divergent, and occasionally, conflicting institutional demands (Boxenbaum and Jonsson, 2008).

Organizations can adopt different strategies to respond to institutional complexity (Oliver, 1991). The simplest are avoidance or deliberate defiance of competing logics (Mair et al., 2015). However, failure to comply with multiple logics may pose a risk to the organization's survival (Pache and Santos, 2013a); therefore, combining multiple logics through the adoption of organizational hybridization—a deliberate change process for settling conflicting demands (Schildt and Perkmann, 2017)—is suggested as a more effective approach (Battilana and Lee, 2014; Battilana et al., 2017). However, organizational hybridization is a time-consuming process that entails internal change in an organization (Battilana and Dorado, 2010; Evers, 2005; Mair et al., 2015; Pache and Santos, 2013a) and involves a potential re-positioning of the organization within the field (Kraatz and Block, 2008; Raynard, 2016). Thus, previous research on hybridization has essentially assumed that an organization possesses a sufficient level of autonomy and power over its activities to actually implement such a change (Battilana et al., 2017).

Past research has shown that public projects are implemented in multiple organizational forms, such as public–private partnerships (PPPs) (Bishop and Waring, 2016; Jooste and Scott, 2012), and integrated project deliveries (Fischer et al., 2017), like project alliances (Chen et al., 2012; Hietajärvi and Aaltonen, 2018; Laan et al., 2011; Walker and Lloyd-Walker, 2015). As these forms aim to unite the efforts of multiple organizations and comply with divergent institutional demands, such as those of multiple stakeholders, they represent hybrid forms of organizing. PPPs have proven to be innovative hybrid organizing forms (Jay, 2013), but due to their more long-standing existence (Osei-Kyei and Chan, 2015), they can adopt a hybrid form through long-term organizational change (Bishop and Waring, 2016) and learning (Hartmann et al., 2014). However, a project alliance, as a unique multi-party contractual arrangement involving the creation of a temporary alliance organization that shares the risks and rewards of a project (Walker and Lloyd-Walker, 2015), arguably must rely on varied yet unknown mechanisms in order to attain a hybrid form and meet the demands of multiple yet conflicting institutional logics.

Understanding the potential of project alliances for resolving institutional conflicts would help to further explain recent empirical evidence that project alliances have been, on many occasions, the most efficient and effective way to deliver large and complex projects in the public infrastructure sector (Suprapto et al., 2016; Walker et al., 2015). Despite the proposed usefulness of the institutional theory lens for managing public infrastructure projects (Biesenthal et al., 2018), past empirical research has only examined institutional complexity in such projects to a limited extent (for notable exceptions in the context of global projects, see Javernick-Will and Scott, 2011; Orr and Scott, 2008; Scott, 2012 and regarding inter-disciplinary projects, see Dille et al., 2018). This may have amplified the assumption that problems in public infrastructure projects arise primarily from poor coordination and integration of actors; in fact, they may also result from poorly managed institutional tensions (Dille and Söderlund, 2011, 2013) and failure to build, paradoxically, a temporary but sustainable hybrid organization (Battilana and Dorado, 2010).

The purpose of this paper is to examine how does organizational hybridization occur in a public infrastructure alliance project. In particular, by empirically investigating the Lakeside Tunnel Project implemented in a Northern-European country, we develop a conceptual process model explaining the

phenomenon of temporary hybridization, through which the created temporary multi-party alliance organization was able to respond to various external demands of bureaucratic state logic and corporate market logic, as well as to mitigate internal tensions caused by divergent professional logics. In addition, we discuss the model in light of previous literature to delineate our contributions and open avenues for further research.

2. Theoretical background

2.1. Multiple institutional logics and institutional complexity

Early neoinstitutional theory shows that seeking legitimacy in the organizational field (e.g., in a specific industry) may define an organization's success and consequently its behavior (Dimaggio and Powell, 1983; Meyer and Rowan, 1977). More recent views further posit that organizational fields involve multiple prescriptions of legitimate action, i.e. institutional logics, a phenomenon that is defined as institutional pluralism or multiplicity (Friedland and Alford, 1991; Kraatz and Block, 2008; Thornton et al., 2012). All organizing therefore occurs in institutionally pluralistic setting (Greenwood et al., 2011; Schildt and Perkmann, 2017), but when demands of multiple logics are highly divergent or even conflicting and become to simultaneously define the means and/or ends of organizing, an organization faces institutional complexity, with which it must cope to avoid organizational paralysis (Pache and Santos, 2013a).

Institutional complexity can be divided into three analytical dimensions: level of incompatibility between the competing logics, unsettled prioritization between the logics, and jurisdictional overlap or the extent to which the demands of logics target the same jurisdictional spaces—that is, organizations (Raynard, 2016). In turn, this creates different types of complexities, such as volatile (Raynard, 2016) or contested (Besharov and Smith, 2014) complexity when logics are incompatible, lack prioritization, and affect multiple actors in the field. For example, public infrastructure projects face such a contested and volatile situation when they need to balance between contradicting logics of government bureaucracies and private enterprises (Jay, 2013; Jooste and Scott, 2012).

Organizational responses to institutional complexity range from pure avoidance and defiance (Oliver, 1991; Pache and Santos, 2010) to decoupling the symbolic representation from the actual operational structures (Boxenbaum and Jonsson, 2008; Meyer and Rowan, 1977) or seeking a manipulated compromise between logics (Kraatz and Block, 2008). Such defensive strategies appear efficient when organizations can safeguard themselves from external pressures and when demands target organizational means rather than goals (Pache and Santos, 2010). However, they appear problematic in the volatile inter-organizational setting where a single organization does not possess sole authority or possibility for isolation (Dille et al., 2018). Therefore, more recent research (Battilana et al., 2017; Pache and Santos, 2013a; Smets et al., 2015) has proposed logic combination through hybrid organizing as a more effective means to respond to volatile institutional complexity.

2.2. Hybrid organizing as a response to institutional complexity

There exists a wealth of literature discussing hybrid organizations purely from the perspective of an organizational structure, such as describing networked forms of organizations as hybrids (see, e.g., Powell, 1990). We deviate from this line of study and explicitly focus on the stream describing a hybrid organization as a specific organizing form to combine multiple institutional logics (Battilana and Lee, 2014). More specifically, we define organizational hybridization as a change process through which organizations aim to transfer from one organizational settlement (i.e., configuration of structural and cognitive elements of organizing) into a new one by instantiating multiple societal rationales, such as institutional logics, in their values, structures, goals, and practices (Battilana et al., 2017; Schildt and Perkmann, 2017).

A hybrid form of organizing is especially necessary for organizations that (1) involve a wide variety of stakeholders, (2) pursue multiple and often conflicting goals, and (3) engage in divergent or inconsistent activities (Besharov and Smith, 2014; Mair et al., 2015). Building a hybrid organization requires forming a new organizational settlement through re-configuring and integrating different structures, practices, and cognitive elements, such as schemas from different logics, to meet external demands (Battilana et al., 2017; Schildt and Perkmann, 2017). This may occur through selective coupling, which implies the adoption of a creative mixture of selected practices to comply with the demands of divergent logics (Pache and Santos, 2013a). The use of such practices can then be governed by creating governance mechanisms that ensure the appraisal of distinctive logics (Mair et al., 2015). Furthermore, human resource management practices and active socialization and sensegiving regarding the organization's hybridized goals and practices are reported to be essential for integrating organizational members and for constructing new cognitive schemas or ways of thinking and acting (Battilana and Dorado, 2010; Schildt and Perkmann, 2017). These efforts can be combined with congruent incentive systems for rewarding actors for attaining hybridized goals (Wittmer, 1991).

Hybridization is not a linear process and will most likely raise opposition and create uncertainty and ambiguity (Evers, 2005; Jay, 2013), as would any radical organizational change process (Greenwood and Hinings, 1996). This is particularly true when the hybrid form lacks external support (Battilana and Lee, 2014; Raynard, 2016) as well as due to internal conflicts caused by clashes of employees' existing perceptions and schemas regarding legitimate practices and goals (Bishop and Waring, 2016). While the selective coupling of external demands might prove successful for gaining external legitimacy, mitigating internal tensions typically entails employees' long-term socialization processes (Battilana and Dorado, 2010). Hence, negotiations and joint sensemaking within a hybrid organization as well as with external parties are seen as means

to mitigate conflicts caused by multiple logics (Bishop and Waring, 2016; Jay, 2013).

A common feature of the reported approaches to building hybrid organizations is that they require a tremendous amount of time and effort. This casts doubt on the suitability of hybridization as a response mechanism to institutional complexity in public infrastructure projects, which are more or less inter-organizational and temporary undertakings.

2.3. A project alliance as a hybrid organizational form for public infrastructure projects

Public infrastructure projects face conflicting institutional demands when they must bring together multiple, diverse organizational actors with varying goals (Clegg et al., 2002; Jones and Lichtenstein, 2008). Unfortunately, existing public infrastructure sector procurement systems underlining traditional lump-sum contracts have been claimed to facilitate price competition instead of long-term orientation, trust building, and mitigation of (institutional) conflicts (Bygballe and Ingemansson, 2014; Dubois and Gadde, 2002). Furthermore, the structural properties of the infrastructure sector have been traditionally characterized by separated responsibilities and a low level of integration among the various actors, which create rather poor premises for a balanced combination of divergent institutional logics (Winch, 1998).

However, recent evidence indicates a shift toward more collaboration-oriented and integrated project delivery forms, such as project alliancing (Lahdenperä, 2017). From a contractual perspective, a project alliance differs from a traditional lump-sum delivery (e.g., design and construct) because it aims to accommodate the different logics of participating clients, designers, and contractors through a multi-party joint contract and commercial model. This facilitates the creation of a temporary joint alliance organization, the sharing of risk and rewards, and unanimous decision-making (Walker and Lloyd-Walker, 2015).

Therefore, a project alliance represents a temporary hybrid organization seeking to combine multiple institutional logics. The project alliancing practices, such as a joint value-for-money thought process and setting up shared key results areas (KRAs) (Walker and Lloyd-Walker, 2014) and alliance identity (Hietajärvi and Aaltonen, 2018), can be seen as attempts to find a settlement of cognitive elements or different schemas and mindsets enacted by project participants (Schildt and Perkmann, 2017). Furthermore, the early integration and co-location of designers and contractors (Kokkonen and Vaagaasar, 2017) and facilitation of interaction and socialization (Aaltonen and Turkulainen, 2018) are hallmarks of structural configurations combining the logics of multiple professions. Thus, we define a project alliance as an integrated project organization consisting of representatives of multiple independent organizations uniting their efforts for what is often termed *best-for-project*. Hence, a project alliance is an instantiation of a hybrid organization in the specific context of project-based organizing.

We argue that setting up a project alliance requires undergoing a process of hybridization in which multiple, conflicting logics are combined and implanted into the structures and practices of a jointly formed alliance organization. As argued earlier, the inter-organizational, task-specific, and temporary nature of public projects (Burke and Morley, 2016) may significantly affect the patterns of hybridization. To investigate and clarify these potential discrepancies of organizational hybridization in temporary multi-actor projects, we next report on empirical research on the Lakeside Tunnel Alliance to address how organizational hybridization occurs in a public infrastructure alliance project.

3. Research design and methods

Our in-depth, single case study on the Lakeside Tunnel Project is based on abductive reasoning (Ketokivi and Choi, 2014) through which we aimed to elaborate existing theories on the management of public infrastructure projects, institutional complexity, and hybrid organizing. We reconciled general theoretical claims with our particular findings to identify potential contextual idiosyncrasies that would provide avenues for theoretical contributions, such as explaining the process of hybridization in a temporary project context.

3.1. Case background

Our unit of analysis was the Lakeside Tunnel Project, which aimed at building a 2.3-km tunnel under the city center located in Northern Europe. An initial alliance agreement of the Lake Side Tunnel, worth 180 million Euros, was signed in July 2012 and the tunnel was completed in November 2016. Political debates, initial scoping studies, acceptance, and tendering processes date back as far as 2008. The tunnel became a hot political theme for municipal elections in 2012. The newly elected city council finally approved the funding in September 2013 after the development phase of the project.

Furthermore, while being one of the first major alliance projects in the Northern European country of implementation (referred now on as the case country), the project was strongly linked to preceding events and actions taken by one of project's two public purchasing organizations, the National Transport Agency (NTA), and other major organizations in the infrastructure sector when they developed an project alliance model that would meet the requirements of the European Union (EU) procurement legislation. Therefore, our analysis spanned the events preceding and appearing outside of the Lakeside Tunnel Project, and we particularly focused on the front end of the project—the initial project stage before the actual funding decision, during which the legitimacy of the project is typically built between multiple parties (see, e.g., Matinheikki et al., 2016). Fig. 1 presents a summary of the most prominent events during this long period of time; we have separated the events that occurred within and outside the project alliance organization.

The Lakeside Tunnel Alliance consisted of representatives of five organizations. There were two public buyers—the NTA and the City—and three private service providers—the main

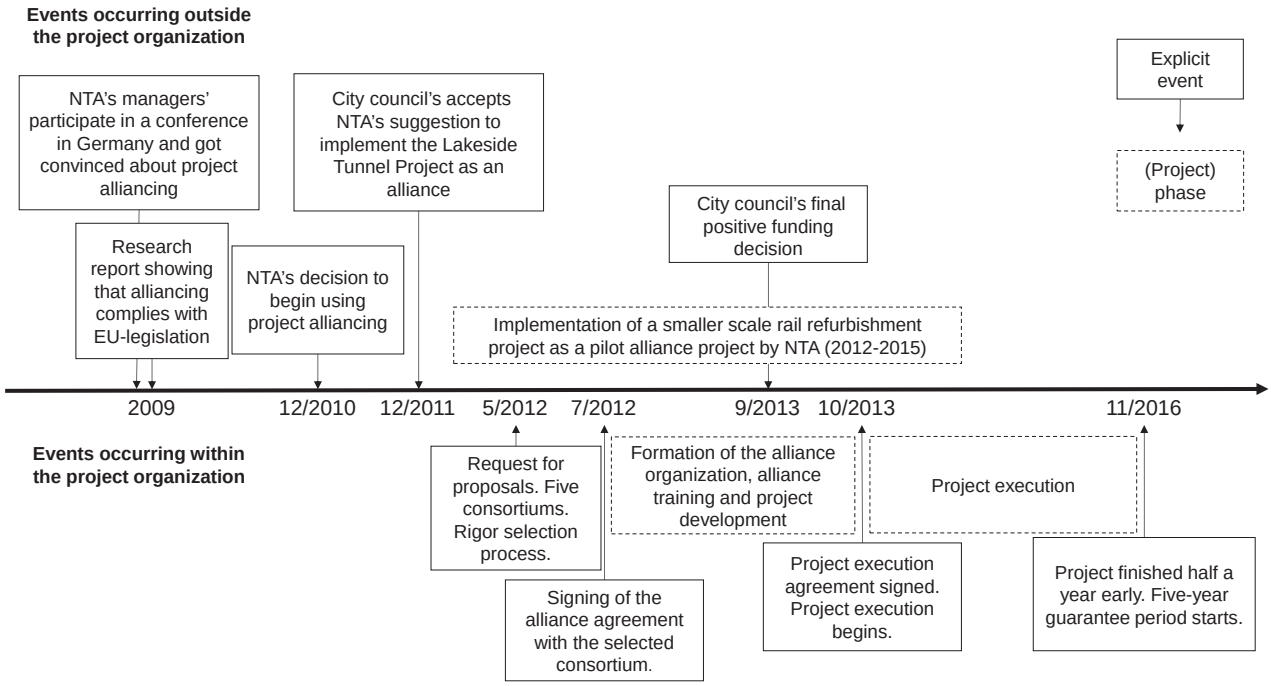

Fig. 1. Timeline showing the most prominent case events.

contractor, Infra Contractor Inc. (pseudonym), an engineering company called Rock Engineering Inc. (pseudonym) responsible for underground design, and an engineering and architecture company called General Engineering and Architecture Inc. (pseudonym) responsible for tunnel and roadway designs. The public buyers selected the private partners for the alliance through a rigorous selection process that took place in spring 2012. The selection was based on a monetary component—the service providers' requested service fee—and qualitative criteria, such as the organizations' prior experience and capability for collaboration, which were tested in multi-day workshops. The five organizations established a multi-party alliance agreement and formed a joint alliance organization, diluting the boundaries of the participating organizations, to work together on a best-for-project basis. The alliance then developed a technical solution—a target-outturn-cost (TOC) (to be approved by the city council)—as well as a commercial model including key result areas defining the service providers' bonuses and possible sanctions and eventually implemented the project. Fig. 2 illustrates the structure of the project alliance organization and shows how representatives of the different organizations were positioned.

3.2. Data collection

We collected the empirical material by interviewing representatives of the five organizations. Furthermore, we interviewed individuals from the NTA who had participated in the earlier pilot alliance project as well as prominent experts who had been influential in developing the alliance model in the case country. In total, we conducted 19 interviews. We conducted three interviews concerning the pilot project and introduction of the alliance model during November and December 2014, and 12 interviews regarding the Lakeside Tunnel Project in February and March 2015. Furthermore, in 2016, we interviewed two local alliance consultants, in 2017, one senior researcher, and in 2018, an Australian alliance consultant, who all had played pivotal roles in setting up and developing the project alliance model in the case country. Interviews lasted between 86 and 120 min and all were recorded and transcribed verbatim. The interviews were semi-structured and focused on the interviewees' backgrounds in the construction industry, their descriptions of project-related, as well as preceding, events, the project's management, and the roles of different organizations and individuals. Table 1 presents the interviewees' roles, professional backgrounds, and organizations, along with the duration and place of the interviews. The interviews were conducted in the local language and the quotations used in the paper were translated into English by the authors (except the Australian consultant, whom we interviewed in English).

To triangulate our primary data sources, we collected extensive secondary data by following the intensive media discussion on the Lakeside Tunnel Project and the introduction of the alliance model in the case context (a database of 123 case-specific news articles retrieved from one local and one national newspaper by using the search keyword "project alliance"), as well as receiving rich project documentation, such as official project plans, innovation reports, a value-for-money report, and press releases. Furthermore, we retrieved publicly available minutes of city council meetings that dealt with the funding decisions of the Lakeside Tunnel Project, which helped with triangulation and the general laws and regulations governing the construction of public infrastructure.

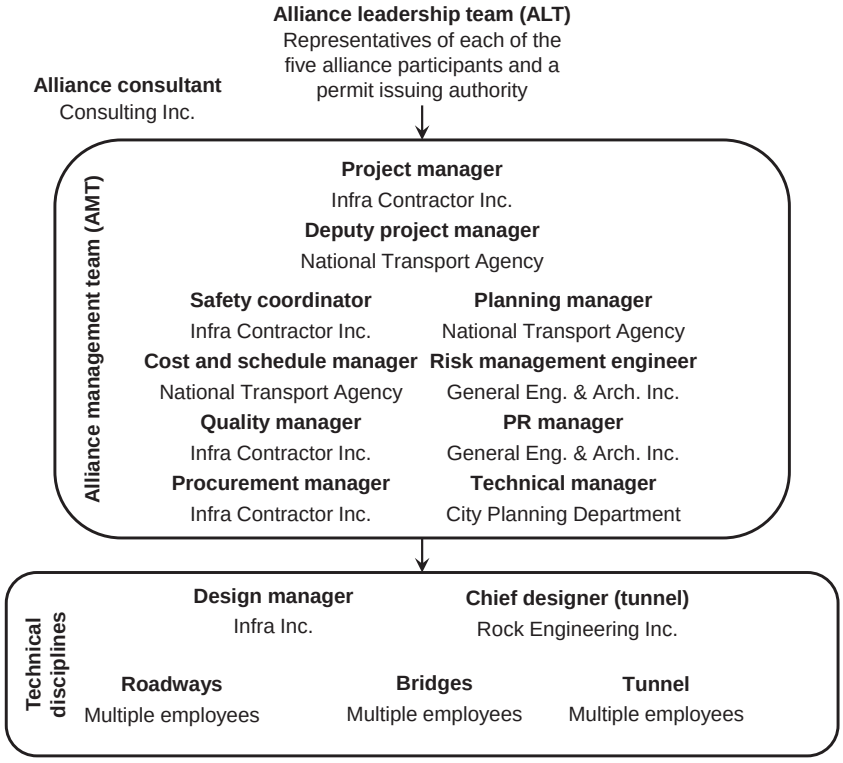

Fig. 2. Simplified organizational structure of the Lakeside Tunnel Alliance.

3.3. Data analysis

3.3.1. Identification of institutional logics, their varied demands, and the conflicts they cause

The first stage of our analysis was aimed at understanding which institutional logics were at play in the context of the Lakeside Tunnel Project. To this end, we applied an abductive "pattern matching approach" (Reay and Jones, 2016). As our analytical framework, we used the seven ideal types of institutional logics (family, religion, state, market, profession, corporation, and community) given by Friedland and Alford (1991) and Thornton et al. (2012). At this stage, we analyzed our interviewees' descriptions of varying demands placed on public infrastructure projects in general and on the Lakeside Tunnel Project in particular, as well as a wide variety of secondary material describing conventional contracting practices and legal requirements (industry reports, public procurement law, industry regulations, and media sources). Thereafter, we linked these demands with the ideal types of institutional logics. Through this abductive analysis process (comparing empirical findings with existing literature), we identified the three prevalent logics of the bureaucratic state, corporate market, and professions. We perceived the corporate market logic as a combination of two ideal types (corporate and market) rather than two separate logics, as was done by Jay (2013). This is because we identified closely intertwined threads of these logics, such as the emergence of hierarchical corporate structures in public projects to improve efficiency and allow private companies to accumulate greater profits. We illustrate the results of this analysis in sub-Section 4.1 and summarize the results in Table 2.

Identifying the different institutional demands, gave us a clear indication that public infrastructure projects in our case context are subject to demands of multiple institutional logics (i.e. institutional pluralism/multiplicity). Furthermore, when we analyzed our informants' explanations about the perceived key problems in the field and their experiences in past infrastructure projects, we became more convinced that these plural demands had created conflicts, such as a constant juxtaposition of public and private organizations and a lack of collaboration between different professions. Therefore, we concluded that multiple logics were aggregated into institutional complexity in public infrastructure projects, which the NTA wanted to solve by adopting project alliancing. We explain some of the conflicts in depth at the end of sub-Section 4.1.

3.3.2. Identification of mechanisms of hybridization

At the second stage of our analysis, we wanted to understand how the NTA and other organizations responded to institutional complexity; therefore, we applied a more inductive analysis approach (Gioia et al., 2013). We initiated this stage by creating a chronological storyline of events that took place between 2008 and 2015. To cope with retrospective and positive biases, we utilized multiple interviewees' descriptions as well as the described archival data.

To understand how the adoption of alliancing happened, we first aimed to identify initial concepts related to different mechanisms through which conflicting demands were

Table 1
The numbered list of interviews, with interviewees' roles and backgrounds, organization as well as date, duration, and place of the interview.

No	Interviewee's role and professional background	Description of the organization	Date and duration	Place
1	Assistant project manager of the pilot project • A public servant	The National Transport Agency (NTA) • A state authority responsible for constructing and maintaining national roads, railways, and watercourses • Under direct supervision and funding of Ministry of Transport and Communication • Bureaucratic organization (employees are public servants) • The implementer of the first national infrastructure alliance project (a smaller scale pilot before the Lakeside Tunnel) • One of the two public buyers and member of the alliance • Responsible for the maintenance of the forthcoming tunnel	27.11.2014 • 1:51:28	Co-locational space of the pilot project
2	Chairman of the alliance leadership team (both the pilot and the Lakeside Tunnel projects) • A public servant with decades of experience in public organizations	The NTA • See the description above	27.11.2014 • 1:32:09	Co-locational space of the pilot project
3	Alliance project manager of the pilot project • A civil engineer (M.Sc.) with extensive working experience	Constructor Inc. (pseudonym) • Main contractor responsible for the overall design and construction of the first alliance pilot project	5.12.2014 1:49:31	Co-locational space of the pilot project
4	Design director of the pilot project • A design engineer (Master of Science, M.Sc.) with extensive design working experience	Constructor Inc. (pseudonym) • See the description above	10.12.2014 • 1:31:00	Co-locational space of the pilot project
5	Project manager • An engineer with project management experience in Infra Contractor Inc.	Infra contractor Inc. • Main contractor responsible for the excavation and construction of the tunnel and supporting infrastructure • A major player in the national infrastructure field • A member of the project alliance • Hired several subcontractors for the site work, who were not under alliance contract	16.2.2015 1:13:50	Co-locational space of the Lakeside Tunnel Project
6	Health, safety, and environment (HSE) coordinator • A civil engineer with working experience from public and private organizations in the infrastructure industry	Infra contractor Inc. (pseudonym) • See the description above	16.2.2015 1:02:43	Co-locational space of the Lakeside Tunnel Project
7	Deputy project manager • A public servant with decades of experience in public sector projects	The NTA • See the description above	9.3.2015 1:57:48	Co-locational space of the Lakeside Tunnel Project
8	Procurement manager • A public servant	City Planning Department • Responsible for city development • Bureaucratic organization (employees are “city officials/public servants”)One of the two public buyers and a member of the alliance	9.3.2015 1:29:36	Office premises of the City Planning Department
9	Chairman of the alliance leadership team (2nd interview) • A public servant with decades of experience in public organizations	The NTA • See the description above	17.3.2015 0:56:12	Co-locational space of the Lakeside Tunnel Project
10	Planning manager • A civil engineer with a private sector background	Infra contractor Inc. • See the description above	17.3.2015 2:00:59	Co-locational space of the Lakeside Tunnel Project
11	Public relations (PR) manager • An environmental consultant	General Engineering and Architecture Inc. (pseudonym) • A major domestic engineering office responsible for overall project planning, infrastructure designing, and project communicationsA member of the project alliance	17.3.2015 1:31:10	Co-locational space of the Lakeside Tunnel Project

Table 1 (*continued*)

No	Interviewee's role and professional background	Description of the organization	Date and duration	Place
12	Technical project director	Rock Engineering Inc. (pseudonym)	23.3.2015	Office premises of Rock Engineering Inc.
	• A geotechnical engineer (M.Sc.) with decades of private sector experience	• A private engineering office specialized in excavation and rock engineering • A member of the project alliance • Responsible of geological and excavation designing and rock engineering	• 1:26:27	
13	Chief structural designer	Rock Engineering Inc.	23.3.2015	Office premises of Rock Engineering Inc.
	• A geotechnical engineer with a background in the private sector	• See the description above	• 1:26:27	
14	Project cost engineer	Infra contractor Inc. (pseudonym)	24.3.2015	Co-locational space of the Lakeside Tunnel Project
	• A civil engineer working with a background in the private sector	• See the description above	• 1:39:13	
15	Procurement manager	Infra contractor Inc.	24.3.2015	Co-locational space of the Lakeside Tunnel Project
	• A civil engineer with decades of experience in public organizations, but recently shifted to the private sector	• See the description above	• 1:11:33	
16	Project alliancing consultant	Consulting Corp. (a pseudonym)	23.3.2016	Office premises of the consultancy
	• Master of Science in construction management with extensive experience in integrated project deliveries	• A construction company offering also alliance consulting services in the case country	• 1:27:00	
17	Project alliancing consultant	Consulting Inc. (pseudonym)	29.3.2016	Office premises of the consultancy
	• Founding partner of Consulting Inc.	• First consulting company focusing on project alliance consulting in the case country • Not a member of the alliance, but provided alliance training and facilitated workshops	• 1:53:00	
18	Senior researcher	The National Research Centre (NRC)	11.5.2017	Office premises of the researcher
	• Doctor of construction management, with a research background	• A national research institute that had participated in the past research projects investigating collaborative project models • The senior researcher had participated in advising the NTA managers and helped in the development of a commercial model of the project	• 1:33:00	
19	Project alliancing consultant	Foreign Consulting Corp. (a pseudonym)	10.5.2018	Via telecom.
	• B·Sc. in civil engineering • Decades long experience from global construction industry and project alliancing	• A consulting company specializing in project alliance consulting in Australia	• 1:43:00	

responded to when initiating and implementing the Lakeside Tunnel Project and then group these mechanisms into categories. Through the first-order coding of important events and actions, we initially found a pattern of the importance of the NTA's pre-project actions to ensure the legitimacy of the alliance model as well as to convince project stakeholders of the model's suitability for the Lakeside Tunnel Project. Furthermore, we identified multiple mechanisms of how the formed alliance organization attempted to cope with different institutional demands.

We then endeavored to put these first-order descriptions into more meaningful and theory-related categories (second-order themes) and employ axial coding to identify potential relationships between the themes (Gioia et al., 2013) and aggregate these relationships into two different hybridization mechanisms—*responses to external demands* and *mitigation of internal tension*—creating a clear data structure, which is illustrated in Fig. 3 involving also the identified demands of multiple institutional logics. Finally, by accounting for temporal relationships between the second-order themes, we utilized the data structure to formulate a conceptual process model (Langley, 1999) of temporary hybridization, shown in Fig. 4. To increase the trustworthiness of our data and the transparency of our analysis, we have provided representative quotations related to each second-order theme in Appendix A1.

Table 2
Institutional logics and their instantiation in the context of the Lakeside Tunnel Project.

Institutional logics	Corporate market	Bureaucratic state	Professions
Ideal type of organization	Business enterprise	Government bureau	Professional group
Sources of legitimacy	Share price *Private service providers aim at economic success and profit-making in public projects and are willing to use any means necessary to win the bid over public projects to increase their market share, leading to opaque project scoping & pricing and reaping profits by billing extra work.*	Democratic participation *Approval of the Lakeside Tunnel Project required a decision from both the national parliament (covering the NTA's share or 30% of total costs) and the local city council department.*	Personal expertise *Key personnel such as construction managers and chief designers of construction projects required sufficient education and expertise in order to participate in public projects.*
Sources of authority	Shareholder activism/top management *A major portion of the infrastructure construction market is dominated by a handful of publicly listed companies that are predominantly aiming to increase shareholder value.* *Public projects had adopted hierarchical governance structures with separate project-steering groups and management teams to allow better corporate control over them.*	Bureaucratic decision-making *Public funding of infrastructure projects mandates tight procurement processes that obey procurement law, as well as cost control and transparent reporting to safeguard tax payers' money.*	Obedience of professional guidelines set by professional associations and national regulations *Diverging higher education programs to educate different professional groups, complemented by professional education and certificates.* *Tight national legislation and industry guidelines defining the qualifications of professionals as well as applicable design and construction practices.*
Basis of strategy	Increase efficiency, profit and market share *Profit maximization by private service providers on the public buyers' expense.* *Private contractor's motivation to bid for unprofitable projects just to keep control over the market.*	Increase community good *Public projects were ultimately undertaken to improve the services of the local communities.*	Increase personal reputation *Professional groups, such as The National Association of Civil Engineers, had strong will to improve the expertise of their members and the visibility and appreciation of the entire profession.*

4. Temporary hybridization in the lakeside tunnel project

We begin this section by showing how different institutional logics instantiated themselves and created institutional complexity. Then we explain how the conflicting demands of multiple logics were responded to through project alliancing. Based on our inductive analysis, we delineated the conceptual process model of temporary hybridization in Fig. 4.

4.1. Conflicting demands of multiple institutional logics causing institutional complexity

We identified that the Lakeside Tunnel Project faced strong pressures from the three distinct logics of the corporate market, bureaucratic state, and professions. We summarize the results of pattern-matching efforts in Table 2, which describes the basic variable attributes of each logic (the Y-axis; adopted from Thornton et al., 2012) and provides our interpretations of the empirical instantiation of these attributes (the X-axis).

4.1.1. Corporate market logic

In the public infrastructure sector, the corporate market logic emphasizes that markets are the most efficient means of acquiring public goods and services, and that private corporations should offer their services to public organizations (via markets) to generate profits and increase their market share to create value for shareholders. Our interviewees labeled contractors in particular as being focused on profit-making and self-interested gains, as well as on the narrow temporal dimension (quarterly cycles) in their cognitive processes. One informant working on the contractor side describes such behavior as follows:

> "It feels like learned behaviour, but contractors tend to be really calculative, disclose information and tell about problems only when they really have to."

In addition to private companies, public agencies, such as the NTA, were forced to utilize market mechanisms to appear legitimate and comply with the public procurement legislation. This is explicitly highlighted in the procurement law (2 §), which states that "the purpose of the law is to improve the efficient use of public funds, advance the implementation of high quality, innovative and sustainable procurements and secure the equal opportunities of private companies and other collectives to offer goods, services and construction projects in the bidding contests of public procurements." Thus, the law emphasizes the importance of competitive bidding and market transactions as plausible means of achieving high quality, innovativeness, and sustainability. Unfortunately, our interviewees reported that the law had led to situations where private companies attempted to minimize the project's scope in

Fig. 3. Data structure.

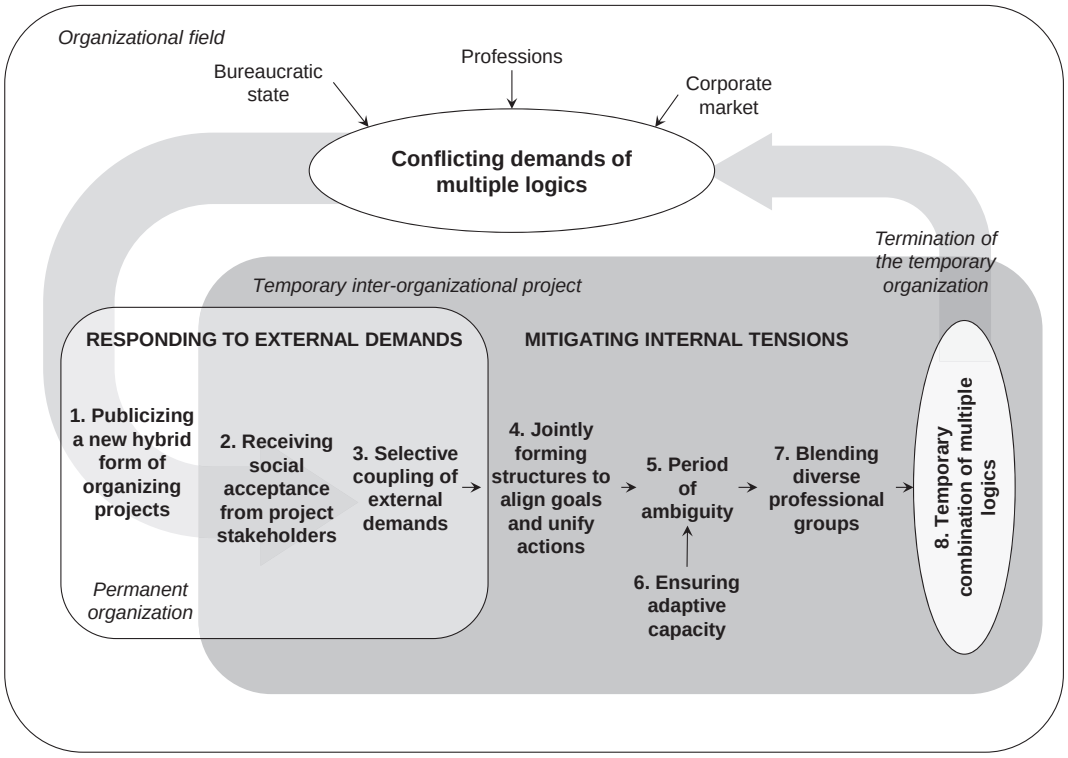

Fig. 4. Conceptual process model of temporary hybridization.

their bids to win the deal and then reap profits by extending the scope and billing for extra work, which is clearly in conflict with the quality and cost-efficiency requirements of the public sector.

4.1.2. Bureaucratic state logic

The bureaucratic state logic underlines the importance of transparent and democratic decision-making, a strong welfare state, and public ownership of infrastructure assets. The NTA is a state bureau responsible for the country's roads, railways, and waterways, and it operates directly under the Ministry of Transport and Communications. This implies that the annual budget for infrastructure development is prepared by the NTA together with the Ministry, and final acceptance is undertaken by the national parliament. The Lakeside Tunnel Project, like any major public infrastructure project, needed to undergo a long political process to receive acceptance by both the national parliament and local city council, which both allocated the funding (30% by the state, 70% by the city). The national parliament accepted its funding proportion in 2012, but the city's funding proportion initiated a political battle that prolonged the final decision of the city council to September 2013. Such long civic decision-making process can also leave the project budget open for politicizing such as deliberate cost cutting by politicians trying to save their political careers (see e.g. Flyvbjerg, 2014). One informant describes the potential for po as follows:

> "Sometimes, these projects feel like a great pyramid scheme meaning that some politician has decided the upper cost limit and then we [contractors] need just implement it with that, no questions asked."

Furthermore, as a state bureau, the NTA's goal was not to make a profit out of its assets; instead, its projects were always aimed at producing a publicly available good, since there existed strong national opposition to the privatization of infrastructure assets. The NTA managers had perceived it to be difficult to combine a goal that had a longer time horizon with private companies' shorter-term profit-making goals. Interestingly, the public procurement law was considered to amplify institutional tensions because the requirement of competitive bidding had made the formation of longer-term partnerships nearly impossible. In addition, major projects were at risk of becoming divided into too many poorly integrated individual pieces.

4.1.3. Professional logics

In addition to the logics of the corporate market and bureaucratic state, the logics of individual professional groups were identifiable in the case context. The public infrastructure sector is a relatively mature field comprising rather segregated professions, such as architects, designers (e.g., structural engineers), contractors (e.g., construction managers), and public servants. Each of these groups of professions appeared to have its own professional associations that created a strong sense of identity in each group. For example, the National Association of Civil Engineers did not allow anyone without a master's degree in civil engineering to become a member. Furthermore, national construction regulations, which were developed as an extension of, and in congruence with, national

construction law, determined the specific qualification requirements (e.g., minimum years of experience, professional certificates) for different roles (e.g., designers, construction managers, architects). The regulations also strongly determined acceptable design principles as well as construction and management practices. Our interviewees reported that such specialization in professional groups had led to a low level of collaboration and suspicious attitudes toward other groups. Such segregation appeared to surface during higher education, when different professions were considered as separate disciplines with their own education programs.

4.1.4. Conflicting demands causing institutional complexity

Our empirical analysis showed how the three logics of the corporate market, bureaucratic state, and professions created divergent and even conflicting demands in the context of public projects, such as the Lakeside Tunnel. We argue that these demands then came to perplex the organization of public infrastructure projects and create institutional complexity. The complexity seems to have appeared especially as conflicts between the corporate market and bureaucratic state logics, but also within the logics of professions due to the actors' different professional backgrounds.

The fundamental discrepancy between the goals of the bureaucratic state and corporate market logics (i.e., public good vs. private profits) reportedly reinforced a constant juxtaposition of the public buyer and private service providers. The former typically accused the latter of delivering poor quality and reaping profits through billing for extra work, while the latter blamed the former for slow and bureaucratic decision-making and micro-managing. As we explain in the following sub-sections, our informants saw project alliancing as a potential way to mitigate this juxtaposition, as one of the interviewees from the private sector explained:

> "The big thing here is that these kinds of constant disputes with the buyer, which consume a lot of energy, are non-existent [in a project alliance]. The focus is on actions, not in any kind of gimmickry of billing or wondering about extra work, which happens in usual projects."

In addition, in many ways, it was unclear for the actors which logic must have been followed for public projects to appear legitimate, since there seemed not to exist any field-level prioritization of logics; rather, the strongest party seemed to dictate the rules of the project, which created a situation of volatile complexity (Raynard, 2016).

Furthermore, the diverging norms, practices, and codes of conduct of different professions or professional logics appeared to create friction in conventional projects, but also during the initial stages of the Lakeside Tunnel Project. One informant described the drastic differences in the mind-sets of contractors and designers, which caused problems in project organizing (e.g., scheduling), amplified by institutional support (i.e., institutionalized conventional contract forms and incentive models):

> "In general, the contractor has a great interest to just get the project implemented efficiently and quickly. That also forms the incentives for the contractor while the designer's reward is based on the quality of the design (not on efficiency). They have this kind of differing perspective… This forms some sorts of contradictions when a contractor wants that things proceed quickly and the designer has different role-related goals."

In the following sub-sections, we explain how the NTA and other Lakeside Tunnel Project participants adopted project alliancing principles to construct a hybrid organization combining the rationales of different logics into their modus operandi, which helped in responding to external demands and mitigating internal tensions.

4.2. Responding to external demands

4.2.1. Publicizing a new hybrid form of organizing

In 2009, a group of NTA managers heard an Australian consultant's conference presentation explaining the benefits of project alliancing in undertaking complex infrastructure projects. The managers marked this as the starting point for them to seek alternative ways of procuring infrastructure assets. However, they soon learned that researchers of the National Research Centre (NRC) had already undertaken research on new types of procurement models, which led the NTA and the NRC to undertake a joint research project exploring the suitability of the alliance model in the case context. At this point, the Australian alliance model's compliance with European procurement legislation was unclear. The legislation dictated that the selection of suppliers should be at least partially based on clear monetary component (i.e. project price). The basic principle of project alliancing is that the project budget or target outturn cost be jointly developed with a buyer and alliance members, thereby complicating bidding based on the total price of the project. In the research project, legal specialists and numerous major private and public organizations were consulted to resolve the clash with the procurement law. As an outcome, the NRC published a report delineating a "competitive single target cost approach to project alliancing," which met the demands of the European procurement law by basing the competitive bidding on private providers' profit margin or service fee rather than on the total price of the project (for a better description of the approach, see Lahdenperä, 2010). The NTA's director described the importance of solving the legal issue:

> "We [the NTA] had the courage and capability to interpret the public procurement legislation in a clever way. Everybody out there in other countries said that this was against the EU directives. But we have used our internal as well as external lawyers and they have said that there is no conflict. We just need to add a certain monetary component as one bidding criterion. Apparently, elsewhere, there has not been the courage or will to do this."

The report ensured compliance with legislative institutional pressures on the public buyers and legitimized the use of the project alliance model in the case country; it also gave the NTA managers an opportunity to adopt the model for the first time in a rail refurbishment project in 2011. The pilot project proved to be successful and important for developing the NTA's internal

routines for selecting members of the alliance organizations and undertaking work in a highly collaborative environment. However, the project was technically and organizationally rather simple and without much of a political dimension, since the NTA, as the sole public buyer, did not need to convince other parties of the benefits of the model. Therefore, it was not until the Lakeside Tunnel Project that the capability of project alliancing to solve an even greater number of institutional demands was put to an acid test.

4.2.2. Receiving social acceptance from project stakeholders

The NTA's decision to implement the Lakeside Tunnel Project through an alliance model required acceptance from the city council. The NTA managers had already had a promising discussion with the representatives of the City Planning Department, whose managers also saw great potential in alliancing. Thus, the NTA managers and a local alliance consultant organized a seminar for the city council and invited an Australian consultant to explain the fundamentals of project alliancing. Then the NTA managers, with the support of the City Planning Department, emphasized the cost-saving opportunities that alliancing could offer when the project plan and TOC were estimated jointly with designers and contractors and referring to successful Australian cases. The Australian consultant recalls the seminar as follows:

> "Mr A (a manager of the NTA) and Mr B (project alliancing consultant) invited me to Finland to co-organize a seminar for the tunnel project stakeholders such as city council members. The seminar was predominantly given by me and these guys were co-facilitators, we had professional translators and all. I think that some people in the audience were really against the project but I got an impression that they got the idea of alliancing."

The economic rationale and potential savings in project budget helped convince the city council, which decided in January 2012 that a project alliance between the City Planning Department and the NTA should be formed. They were given permission to open a public bidding process to select private service providers. However, at this point, it was not yet guaranteed that the project would actually be implemented, because the final funding decision had yet to be reached.

4.2.3. Selective coupling of external demands

In summer 2012, after a rigorous selection process, the multi-party alliance organization was formed among the five organizations, which then set to establish the project concept, TOC, as well as a governance structure defining the project goals and incentive system. After receiving a detailed project plan and budget, the newly elected city council finally showed the green light and accepted the funding scheme in September 2013. Some of the informants as well as media outlets described this as somewhat surprising, since the project had received negative publicity before the municipal elections and had been criticized for being far too expensive. The positive decision required four local politicians to vote against their party's election promise to halt the project. These individuals justified their radical decision by stating that the technical solution developed by the alliance was the most feasible one and that the tunnel would improve the economic climate of the city.

After the positive decision and when the project implementation proceeded, the tunnel project actually began to receive much more positive attention in the media and eventually received the annual prize of the National Association of Civil Engineers in 2016 and the project of the year award from the National Project Management Association in 2017. Hence, our interviewees, local and national media, and the overall construction industry perceived the Lakeside Tunnel Project as successful (in terms of budget, schedule, usability of the tunnel, and management of public relations).

We argue that this was at least partially because the key organizations, the NTA and the City Planning Department, were able to selectively couple with external demands to gain legitimacy from various sources. Despite the delay in the political decision-making process, it was considered to be a necessary approach for project approval in order to appear legitimate in the eyes of the citizens by giving them a possibility to at least indirectly participate in the decision-making through the elections. This implied that the city council's final decision was considered democratically sound and unquestionable. A representative of the City Planning Department described the importance of the final positive decision as follows:

> "The city council's positive funding decision required a really heavy decision-making process. The discussion circled, of course, around project costs, but a clear question mark was about whether this [alliance] model can really work and ensure the benefits it promises. The applicability of the alliance model was constantly pointed out by the political opposition. We just needed to provide different clarifications, reports, and references time after time before they finally were assured that it could work."

In a similar vein, the selection of alliance partners was organized through competitive bidding, which ensured compliance with the procurement law. Using bidders' service fees (resembling suppliers' profits) as a selection criterion complied with the corporate market logic, when open but reasonable profit generation was allowed for private companies. Most importantly, the negotiation-based process enabled the selection of private service providers with the best capabilities and experience, further legitimizing the project. Finally, the joint alliance organization resembled a typical corporate hierarchical structure, satisfying the demands of the corporate market logic by providing efficiency in internal communications and an improved platform for innovation.

4.3. Mitigating internal tensions

4.3.1. Jointly forming structures to align goals and unify actions

The essence of project alliancing is to form a contract and a commercial model that allows all organizations to benefit from

the project. This implies that the Lakeside Tunnel Project aimed to provide a public good in the most cost-efficient manner in accordance with the bureaucratic state logic, but also allowed reasonable profits for private service providers, thereby complying with the corporate market logic. The alliance members crafted the alliance contract and the commercial model that defined the incentive structure explicitly to reflect this ideal; this implied that all service providers would receive higher bonuses if they would bear the TOC. For example, the contractor and designers would gain monetary bonuses if the target cost went under 5%. A manager of a private contractor described the clarity and importance of the contract as a behavior-guiding artifact as follows:

> "Well, if I exaggerate a bit, when one just once skims through the alliance contract, one does not need to take another look, because it defines pretty well what we need to do. However, it does not involve any complex clauses about fines or anything because there is no need for such things, since we are in this together. The contract is really clear, which is a good thing, since in conventional cases, one needs to interpret the contract with a magnifying glass."

To ensure that the project worked toward a shared interest, the alliance adopted a corporate-like governance structure, such as a separate alliance leadership team (resembling the board of directors of a private company) and alliance management team (resembling the top management team of a private company), both having representatives of all the alliance members. Hence, such a governance structure would allow for integrating different organizations, but also enhance efficiency in the decision-making. Furthermore, since such a hierarchical decision-making structure complied with the typical structure of business corporations as well as state bureaucracies, it helped the project participants to better understand their role and the line of command within the temporary alliance organization. Moreover, they did not need to request acceptance from their home organizations.

Finally, potential conflicts among diverse organizations were mitigated by symbolically emphasizing that all organizations were in the same boat and working toward achieving the best for the project. Such rhetoric was clearly visible in the project contract and project documents as well as in the everyday language used by our interviewees.

4.3.2. Ensuring adaptive capacity

The NTA managers were aware that because project alliancing was a new delivery model in the case study country, it would be basically unknown to everyone except for a few NTA employees who had participated in the pilot project. To overcome potential organizational inertia and mitigate the risk of resistance, rigorous psychological testing of all key persons within the alliance organization was undertaken to ensure that they were sufficiently adaptive to comply with divergent demands. Furthermore, the last round of the selection process for private service providers involved a series of workshops that modeled the routine tasks performed in an alliance organization, while third-party organizational psychologists analyzed the performance of two remaining consortiums. In addition, the consortiums needed to provide comprehensive clarification regarding their experience and capabilities from technically similar projects. By adopting these extreme means in selecting the organizations and individual employees, the NTA managers wanted to verify both the technical capacity of service providers and the adaptive capacity of individual employees and ensure that they would be capable of working within the highly pluralistic context of the Lakeside Tunnel Project.

4.3.3. Period of ambiguity

Despite the handpicking of individuals and the creation of supporting structures and mechanisms, strong ambiguity existed at the beginning of the project, when employees were not familiar with what was legitimate in the alliance organization or whose goals to pursue. Questions such as what to do first and who was in charge kept arising. The parallel existence of multiple professional norms partially persisted in day-to-day interactions and practices, such as in project meetings where different organizations framed their own problems as the most important ones. However, as the project proceeded and participants learned from their experiences, they shifted their emphasis from thinking about "their" problems to "the project's" problems.

4.3.4. Blending diverse professional groups

The major problems from which the ambiguity seemed to arise were the internal roles of the project employees and potential conflict among the professional logics of different groups. Therefore, to combine the different professional logics, a series of amendments to the organizational structure and daily routines, sensegiving efforts, and training were required to eventually beat the period of ambiguity when different professional groups began to interact and work with the actual tasks of designing the tunnel. In addition, the interviewees emphasized the importance of alliance training as a clear attempt to explain what was expected from them. The public relations (PR) manager described this as follows:

> "Orientation is one thing in which we introduce the fundamental principles of the alliance model. Then, we have these development days every now and then; for example, the next one is tomorrow. We organize these scheduling workshops in which we carefully analyze all the tasks to be undertaken during the next six months. There we have all the disciplines present—designers, contractors, and so on. And at the very beginning, we had this alliance training or coaching where we had an external consultant, Mr. N.N. He also facilitates these scheduling days as well as some other workshops and joins the development days."

The basic rationale given in the training was that the point of the alliance was not to change anything too dramatically; the professionals were given the opportunity to focus completely

on their specific duties in constructing the tunnel without any additional burden from their home organizations. Furthermore, co-locating all the alliance's employees to a shared co-locational space, or "Big Room," next to the project site helped blend employees with different professional backgrounds and increase informal interaction across professions. For example, the close proximity of the project site allowed designers to quickly visit the site and give advice to contractors regarding the actual implementation of their design; thus, this helped to increase collaboration among the diverse professional groups and mitigate any negative stereotypical beliefs about each profession. Continuous training and shared workshops increased social interaction and trust, which were further facilitated through the common rhetoric of labeling everyone as being in the same boat and working toward achieving the best for the project.

4.4. Temporary combination of multiple logics

We argue that the series of events and actions described above led to the temporary combination of multiple institutional logics within the formed alliance organization. This means that the Lakeside Tunnel Alliance, as a hybrid organization, did not overrule or favor any of the institutional sources of legitimacy but adopted specific structures, practices, and cognitive elements to harmonize the discrepancies among the logics by deliberately seeking compliance with the diverging demands. For example, the public buyers—the NTA and the City Planning Department—did not deny the effectiveness of market mechanisms and profit-making of the private companies, which the corporate market logic demands. On the contrary, they aimed to utilize these mechanisms by openly asking private companies to bid for the project and offering them a fair share of the profit if the project succeeded. In a similar vein, an institutional refinement of the Australian-based alliance contract model was required to meet the EU procurement laws and regulations and ensure consistency with the bureaucratic state logic. Furthermore, the underlying strategy of the bureaucratic state logic, to produce a public good, was enforced by assuring that the needs of the community were met—such as safety, the usability of the tunnel, and media image—by jointly developing incentive mechanisms that would reward alliance participants for accounting for the communal aspect of the project.

To cope with the short period of ambiguity and internal tensions within the formed hybrid organization, a careful selection of employees was required to ensure that they would be adaptive to a logic-combining context. In addition, training, planned isolation, and blending of multiple professional groups enabled employees with different organizational backgrounds to find a common tone and comply with the demands of different professional logics through increased collaboration. Table 3 summarizes the identified mechanisms of temporary hybridization through which the Lakeside Tunnel Alliance complied with the conflicting demands of multiple institutional logics.

5. Concluding discussion

The research on institutional complexity describes hybrid organizations as an effective means to respond to the conflicting demands of multiple institutional logics (Battilana and Lee, 2014; Battilana et al., 2017; Mair et al., 2015; Pache and Santos, 2013a). Previous theorizations and empirical examples of hybrid organizations predominantly assume that the process of hybridization occurs in a more or less permanent organization and possesses sufficient power and capability to alter its structures and practices (Schildt and Perkmann, 2017). However, this is rarely the case in the domain of public infrastructure projects, which are inter-organizational and temporary by their nature. Our study examined how organizational hybridization occurred in a public infrastructure alliance project. As an outcome of our empirical analysis of the Lakeside Tunnel Project, we presented a conceptual process model of temporary hybridization in Fig. 4.

The first stage of the model, publicizing a new hybrid form of organizing, emphasizes the importance of more permanent field-level structures (Clegg et al., 2002; Grabher, 2002; Sydow and Staber, 2002: Sydow et al., 2004) as determinants of organizing in projects. Project alliancing, as a new form of organizing in the case context, probably was not introduced and developed within the project because the project stakeholders would not have considered it legitimate to use a major and politically sensitive infrastructure project as a testing ground. Instead, multiple years of developmental work through research projects, motivated by positive results from Australia, as well as the testing of the alliance form of organizing on a smaller scale —the "vanguard project" (Brady and Davies, 2004)—were mandatory for establishing legitimacy internally and externally. Such preliminary stage in hybridization complements the existing view that hybrid forms of organizing, like any new organizational form, do not necessarily develop in a vacuum but may be adopted from other institutional fields (see, e.g., Zietsma and Lawrence, 2010).

The second stage of the model shows that since the NTA did not have the authority to dictate rules, receiving social acceptance from other project stakeholders was necessary for the adoption of the hybrid form. The demand for acceptance stems from the basic nature of public projects as having complex social and organizational settings in which even a powerful actor cannot command by fiat (Matinheikki et al., 2016). We complement the work of Bishop and Waring (2016), who describe the process of hybridization as one that occurs through micro-level negotiations among different parties. Our findings imply that the negotiations were not only aimed at mitigating potential tensions in the process of organizing but also at ensuring the external legitimacy of the hybrid form itself and thus complement the existing view of organizational fields as enabling but dynamic structures for new public procurement models (Jooste and Scott, 2012).

The third stage of the model regarding selective coupling with external demands complements the existing view of selective coupling as "the purposeful enactment of selected practices among a pool of competing alternatives" (Pache and

Table 3
Mechanisms of meeting demands of multiple institutional logics in temporary hybridization.

Institutional logics	Institutional demands	Mechanisms to selectively couple with external demands	Mechanisms to mitigate internal tensions
Corporate market logic	Competitive bidding from market	Competitive bidding was based on qualitative criteria and profit margin.	N/A
	Profit-making	Profit margin as one selection criterion allowing reasonable profits for private suppliers.	Jointly designed incentive and governance structure.
	Hierarchical business organization	One joint organization, which represented a hierarchical structure with a separate alliance management and leadership teams.	All the alliance members had a representative in the alliance management and leadership teams.
Bureaucratic state logic	Compliance with laws	The Australian model was adjusted to meet local laws by using profit margin as a bidding criterion.	Crafting the project alliance agreement to define legitimate behavior.
	Transparent and political decision-making	The elected city council was responsible for the final acceptance of the project funding. The publicly open budget, extensions had to be accepted by the city council.	Equal inclusion of alliance members into the decision-making bodies.
	Aim to create public good	Community-based KRAs (e.g. usability of the tunnel, media image of the project). Openly communicating the goals to the wider public.	Alliance training in which the KRAs were explained to all project participants.
Professional logic	Professional norms and code of conduct	Tight selection criteria for alliance member organizations and project employees based on experience and formal qualifications.	Alliance training. Regular developmental workshops. Structural blending and co-location. Emphasizing trust and the best-for-the project thinking.

Santos, 2013a: 994) by showing that selective coupling is not merely an enactment of existing practices but also involves devising new practices (e.g., competitive bidding based on a service fee) as well as developing overall structures (incentive structure based on key result areas), which selectively meet the demands of multiple logics. Thus, we conclude that in the context of public infrastructure projects, which must comply with the demands of multiple logics, projects should adopt a form of a dissenting hybrid (Mair et al., 2015).

With regard to internal tensions that arose mostly from divergent professional logics during the fourth stage of the model, we found that jointly crafted mechanisms, such as the governance and incentive system, partially helped mitigate internal conflicts when the diverse goals of public and private actors were harmonized. This joint effort enabled different organizations to build consensus and overcome their categorical demands (e.g., profit-making) and form new situated norms to guide the organizing. The development of such jointly agreed and situated goals, behavioral norms and institutions reportedly spur collective action (Matinheikki et al., 2017a; Ostrom, 1990). Our findings complement the recent views underlining the importance of formally and informally governed collective action for successfully undertaking public infrastructure projects (Gil and Pinto, 2018) by emphasizing their capability to mitigate institutional conflicts.

Despite the jointly crafted governance structure, a period of ambiguity arose during the fifth stage of our model. It seems evident that such a period and even strong opposition would emerge in radical organizational change, such as hybridization, which is aimed at revising cognitive schemes or complete mindsets of individuals (Greenwood & Hinings, 1996; Schildt and Perkmann, 2017). Our model indicates the pivotal role of well-established structures, official training programs, and hand-picking individuals on the basis of their adaptive capacity (the sixth stage in the model), which enabled the employees to overcome the period of ambiguity (as reported also by Battilana and Dorado, 2010; Besharov and Smith, 2014). In addition, routine interaction played an even more important role as a mediator between formal governance mechanisms and solving institutional tensions (for similar findings in the PPP context see Benítez-Ávila et al., 2018), enabling representatives of different professions to overcome persistent beliefs and focus on a common goal—constructing the tunnel in the best manner possible. In our case, this dialogue and interaction were achieved through a blended organizational structure, as indicated during the seventh stage of the model.

Therefore, we argue that the process of temporary hybridization may eventually lead to a balanced combination of multiple logics and that such a process is fundamentally rooted in interaction and negotiations (Bishop and Waring, 2016; Jay, 2013) between actors, who are forced to combine different logics in their actions. This outcome of logic combination was illustrated in the eighth stage of the model.

Finally, we reflect upon the temporariness of the logic combination outcome and the indicated termination point of the temporary organization in the model. Although our results reveal that the template of a hybrid form had become partially available in the field, complying the previous views on the embeddedness of projects in surrounding knowledge and other social structures (Jones and Lichtenstein, 2008; Sydow et al., 2004), our empirical findings indicate that the logic combination was not a permanent end-state of the project. Instead, our interviewees were reasonably confident that their organization will continue to mainly undertake conventional projects, despite the experienced benefits of alliancing. They considered project alliancing to be suitable for extremely risky projects.

Therefore, our model possesses a linkage leading back to the field-level institutional complexity after the termination of the temporary hybrid organization. This leads to an interesting yet under-researched question regarding the role of social structures—such as organizing templates, experience sharing, and the evolution of industry standards and norms—in disseminating organizational response mechanisms to institutional complexities within the organizational field (see, e.g., Micelotta et al., 2017). Our empirical analysis revealed only weak threads of knowledge dissemination through lessons learned among other field actors. In addition, it would be highly unlikely that the organizations that participated in the Lakeside Tunnel Alliance will ever form another identical hybrid organization. Hence, a question remains: In what kind of structure will the knowledge of the process of temporary hybridization remain, if at all? We would suggest examining not just industry standards and an organization's internal knowledge repositories but also professionals and their practices, through which projects are undertaken (Grabher and Thiel, 2015; Javernick-Will and Scott, 2011).

5.1. Implications for theory

Our study makes an important contribution to the scholarly knowledge of hybrid organizations and management of public infrastructure projects. We have developed a conceptual process model showing that institutional complexity can be responded to by adopting a hybrid form of organizing in a temporary organization.

Our study also contributes to the trend in institutional theory of hybrid organizing of responding to institutional complexity (Battilana and Dorado, 2010; Jay, 2013; Mair et al., 2015; Pache and Santos, 2013a) by adopting an inter-organizational and temporary-project perspective. In general, our findings empirically validate the existing theoretical argument that project-based and task-oriented arrangements are effective means of responding to volatile institutional complexity (Raynard, 2016) and facilitating institutional change (Matinheikki et al., 2017b; Tukiainen and Granqvist, 2016). In addition, we provide nascent theorizing on how the temporary nature of projects affects organizational hybridization. To that end, we define temporary hybridization as a process aimed at combining the multiple institutional logics into the goals, structures, and practices of a temporary organization set to achieve a given task in a limited period of time.

For project management scholars, we want to emphasize that in addition to various types of complexities (Geraldi et al., 2011), public infrastructure projects face and should respond to institutional complexity. Thus, we complement the nascent stream of theory arguing that the challenges of project organizing may arise from the project's institutional setting (Biesenthal et al., 2018; Dille et al., 2018; Javernick-Will and Scott, 2011; Morris and Geraldi, 2011). More specifically, we add the process of temporary hybridization to involve the development of a set of different mechanisms through which conflicting institutional demands and internal tensions can be handled within inter-organizational projects. Further, we show that such responses cannot be taken only in the domain of temporary organizing; certain preceding actions are also required by more permanent organizations and field-level actors to make hybrid organizing templates available and accepted in the field (Jooste and Scott, 2012). This finding complements existing views regarding the embeddedness of projects and the role of field-level knowledge structures (Grabher and Thiel, 2015; Sydow et al., 2004), thereby blurring the line between temporary and permanent organizing by showing them as two closely interlinked domains (Stjerne and Svejenova, 2016; Winch, 2014).

In addition, our study contributes to the specific arena of project alliancing and management of public infrastructure projects by showing that the reported success of alliance contracts (Suprapto et al., 2016; Walker et al., 2015) not only results from increased collaboration and better integration and coordination but also from the capability of alliances, as hybrid organizations, to overcome institutional tensions. We consider this relevant because it can enable project managers and researchers alike to target their efforts beyond the micro-managing of tasks. This study illustrates how to ensure the creation of social structures and working environments (Walker and Lloyd-Walker, 2014), and the adoption of practices that facilitate meeting external demands and mitigating internal tensions caused by multiple institutional logics.

5.2. Implications for practice

Despite the theoretical focus of this paper, we want to underline that understanding the social aspects of project organizing is an essential requirement of modern project management practice. Therefore, it is crucial for managers to understand that major infrastructure projects need to identify and satisfy the demands of multiple institutional logics. We have delineated project alliancing as one potential organizational response to the institutional complexity caused by the presence of multiple logics. The essence of alliancing is not just mindlessly applying it to one's project but carefully considering how the jointly developed incentives and governance structures may mitigate both external demands and internal tensions. Table 3 could especially provide managers potential ideas on how the project alliancing principles may be used to resolve institutional conflicts.

5.3. Limitations and avenues for future research

We acknowledge that our single case study on the Lakeside Tunnel Project was purely based on interviews with a group of key individuals and a vast number of documents, thus permitting only an analytical generalization of the findings (i.e., the conceptual model). We encourage other researchers examining projects in different institutional settings to continue providing rich empirical examples of how the institutional context not just defines but potentially complicates project-based organizing and how temporary hybridization may mitigate tensions. In addition, more micro-level descriptions

through participant observations would further enhance the understanding of the routine interactions in which institutional logics are reproduced and how potential conflicts are faced and mitigated. Such an approach might further explain how the temporary project setting actually hinders or facilitates combining logics at the individual level and make an important contribution to the growing body of knowledge of individual responses to institutional complexity (see, e.g., Pache and Santos, 2013b; Smets et al., 2015).

Finally, what our current observations do not tell us is how the story of project alliancing in the case country continues and how the project events could feed field-level structures. So far, we have settled for indicating that institutional complexity persists after the dissolution of the temporary organization. However, an interesting question remains: Could the new hybrid form of delivering projects become institutionalized and start functioning as a new hybrid logic in its own right? Addressing such questions might provide a fruitful contribution to the nascent stream of institutional theory that aims to explain which organizational responses to institutional complexity trickle back down to the field and which are more likely to remain local (Micelotta et al., 2017; York et al., 2016).

The theorization of projects, organizations and institutions appears to be maturing, and we hope that our linkage of these literature streams with that of hybrid organizations will enable a more fine-grained understanding of the roles and dynamics of institutions governing and being shaped by project-based organizing.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijproman.2018.07.004.

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