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**DOI**

[10.1016/j.ijproman.2020.11.004](https://doi.org/10.1016/j.ijproman.2020.11.004)

**Publication date**

2021

**Document Version**

Final published version

**Published in**

International Journal of Project Management

**Citation (APA)**

Hetemi, E., Marrewijk, A. V., Jerbrant, A., & Bosch-Rekvelde, M. (2021). The recursive interaction of institutional fields and managerial legitimation in large-scale projects. *International Journal of Project Management*, 39(3), 295-307. <https://doi.org/10.1016/j.ijproman.2020.11.004>

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# The recursive interaction of institutional fields and managerial legitimacy in large-scale projects

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## ARTICLE INFO

### Keywords:

Large-scale projects

Industry

Institutional field complexity

Legitimacy

Institutional theory

Case study

## ABSTRACT

Heeding recent calls for more studies on the relationship between projects and institutions, this paper reports on a collaborative case study to shed light on the recursive relations of large-scale projects and their institutional fields. Given the industry as the field-level institution, this study explores how two project organizations experienced the industry changes, its influence on the arrangement of large-scale projects, and the management response used to legitimize these arrangements. The qualitative secondary data analysis of two High-Speed rail projects in Spain and The Netherlands is based on semi-structured interviews, observations, and document analysis. This paper provides the institutional fields' contextual detail and deepens our understanding of temporal institutional complexity that bound large-scale project arrangements. The findings suggest that in both cases the management responses altered across time and evolved depending on the salience of the institutional pressure, through the interplay with 1) regulative, 2) normative, and 3) dynamic cultural-cognitive forces, resulting in cycles of project legitimacy.

## 1. Introduction

An organizing form defined as megaproject, global project, or service-led project gained renowned influence in recent years (Scott, et al., 2011; Gemünden, 2015; Söderlund, et al., 2018). These labels apply to large-scale projects that typically involve multi-organizations and deliver a substantial physical infrastructure or a complex product with a lifecycle that can extend for decades and across industries (Sanderson, 2012; Scott & Levitt, 2017; Hetemi, et al., 2020b). Large-scale projects are complex endeavors embedded in highly institutionalized social structures, involving public and private actors with various rationalities, modes of collaboration, and project management competencies (Brunet, 2019; Hetemi, Gemünden, & Ordieres-Meré, 2020a; van Marrewijk, 2016). While large-scale projects are an essential vehicle for developing sustainability-oriented infrastructure that helps overcome many of today's societal concerns, their performance in terms of budget and time remains poor (Flyvbjerg, 2014; Flyvbjerg et al., 2018). Flyvbjerg and colleagues have been central in explaining the irrationality in the planning of large-scale projects and pointing to the importance of cost/benefit analysis for improved performance (Flyvbjerg et al.,

2018). These insights, however, highlight instrumental factors and consider technical elements that decontextualize the projects from their environment (cf. Ainamo et al., 2010; Hetemi, Gemünden & Ordieres-Meré, 2020a), and provide limited explanatory power concerning recurrent problems with large-scale projects (van Marrewijk et al., 2008). The new generation of large-scale projects compels efforts that require management to minimize effects on the surrounding environment and seek legitimacy for the project (Uriarte, 2019; van den Ende & van Marrewijk, 2019).

Increasingly it is recognized that large-scale project arrangements and their organizing largely depend on the characteristics of the institutional field in which they operate (Scott, 2012; Biesenthal et al., 2018; Lieftink, Smits & Lauche, 2019; Winch and Maytorena-Sanchez, 2020). It is the set of decisions, goal-formulation, financing, and levels of actor participation in these projects, which we call the project arrangement. DiMaggio and Powell (1983, p. 148) define the institutional field as “recognized areas of institutional life: key suppliers, resource and product consumers, regulatory agencies, and other organizations that produce similar services or products.” Given this definition, “industries” are often seen as institutional fields (e.g., Zietsma, Groenewegen & Logue, 2017; Lieftink et al., 2019). Large-scale projects extend across the institutional

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<https://doi.org/10.1016/j.ijproman.2020.11.004>

Received 5 December 2019; Received in revised form 17 October 2020; Accepted 19 November 2020

Available online 3 December 2020

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fields (Scott, 2012; Dille, Söderlund and Clegg, 2018; Lieftink et al., 2019). Hence, the development of these projects is related to numerous salient institutional elements such as the regulatory environment (Miller & Lessard, 2000; Chi & Javernick-Will, 2011), social footprint (i.e., the size, composition and the populations affected) (Di Maddaloni & Davis, 2017), environmental complexity (Bosch-Rekvelde et al., 2011), etc. Yet, the relatively temporary nature and structural hybridity of large-scale project arrangements allows a response to shifting situational challenges (Raynard, 2016). The challenge, however, lies in finding a dynamic balance in response to the temporal institutional field shifts (cf. Pemsel & Söderlund, 2020).

So far, extant research has, for the most part, not dealt with the dynamics of institutional field shifts and their influences on large-scale projects. We agree with other scholars (e.g., Biesenthal et al., 2018; Söderlund & Sydow, 2019), that project studies may have described “what” institutional forces impact large-scale projects. Yet we know very little of “how” these forces influence the arrangement of projects and their organizing over time. Hence, we align ourselves with scholars who explore the institutional processes – the relation between institutional fields and large-scale projects (e.g., Dille, et al., 2018; Lieftink et al., 2019; Matinheikki, Aaltonen & Walker, 2019). Accordingly, our study aims to understand how institutional field(s) influence the arrangements of large-scale projects and how managers legitimize the arrangements. At the most general level, legitimacy refers to the degree of alignment among the project organization’s structures, procedures, and the orders and assumptions of its institutional field (Scott, 2012). We specifically focus on how the institutional field shift over time – the existing industrial restructuring – influences the large-scale project arrangements.

To fully grasp how shifting institutional fields influence project arrangements, we draw from the recent stream in institutional theory, emphasizing institutional complexity and legitimacy (Greenwood et al., 2011; Raynard, 2016). We explore how industry-wide reformations produce temporal pressures for project adaptation. In this view, project organizations do not simply extract legitimacy from the field-level institutions, but rather struggle to find legitimacy, in a playing field in which institutional logics and project arrangements including governing practices co-exist and evolve throughout the project lifecycle.

The institutional approach enables us to deconstruct the temporal dynamic and multifaceted relationship between the institutional field and the project organization (Söderlund & Sydow, 2019). It gives an insight into the inter-institutional nature of large-scale projects (Dille & Söderlund, 2011), characterized by multiple “authorities” and conflicting “stakeholders” proffering alternative bases of legitimation (Scott et al., 2011, p. 60). Methodologically, we build on a collaborative case study (George et al., 2005), and use secondary analysis of qualitative data from two in-depth case studies. Two High-Speed rail Line (HSL) projects were studied: HSL Madrid-Barcelona (1990–2017, Spain), and HSL South (1998–2009, Netherlands). Data gathered in 1995–2018 was analyzed, including a subset of the primary studies’ data, observations, official reports and internal documents, 17 interviews on the Spanish case, and 19 interviews on the Dutch case.

This research is aligned with the growing interests of project scholars in institutional theory (Bresnen, 2016; Söderlund & Sydow, 2019) and makes a two-fold contribution to the debate on large-scale project organizing. The first contribution is that we provide a detailed account of the effects of field restructuring to large-scale infrastructure projects as inter-organizational setting as asked for by others (cf. Sydow & Braun, 2018). We found that project actor responses were not single and sustainable responses, nor framed the whole time strategically as frequently highlighted (e.g., Derakhshan, et al., 2019; Nguyen et al., 2019), but primarily temporal responses focused on gaining social legitimacy. In light of the emerging industry principles, new industry procedures, and substantive agendas, diverse legitimacy approaches co-occurred and alternated (i.e., normative, technical, etc.), thus, creating what we label as cycles of project legitimacy process. Secondly, we develop a dynamic and nuanced insight concerning the recursive influence

of institutional fields on project life through the role of regulative, normative, and cultural-cognitive forces that the reformation of collaboration management (re)created through the course of large-scale projects. Our analyses established different types of legitimation approaches as unfolding events in which project actors engaged in a rather temporal responsive manner. We found three legitimation acquisition approaches that the management of the two studied HSL projects employed in coping with the pressure from the institutional fields throughout the projects’ lifecycle. Our findings affirm that the arrangements made by project actors (organizations and individuals alike) are possibly partial and heavily influenced by changes in the industry structure.

After this introduction, the paper is structured as follows. First, the institutional theory and legitimacy concept is critically reviewed, followed by the research design and methods used in this paper. Third, the findings are shared addressing the institutional field, and its influence in the HSL projects’ arrangement, the responses that their management employs for coping with it, the acquisition approaches to gain legitimacy. Finally, the discussion and conclusion sections provide the analysis, implications, paper limitations, and future research suggestions.

## 2. Institutional theory and legitimacy

The institutional theory is known for its capacity to contextualize organizational phenomena (Scott, 1987). It has a sociological flavor, questioning whether individual choices and preferences can be adequately understood despite historical and cultural frameworks in which they are embedded (DiMaggio & Powell, 1983). In our research context, this implies that the institutional field – the industry – penetrates the large-scale (projects) temporary organizing and creates the lenses through which project actors view the world.

### 2.1. Institutional complexity and legitimacy (what, where and how)

An influential line that runs institutional theory is the institutional logics perspective, which stands against the individualist rationalism perspective and brings society back into the meaningful practice of organizational spheres (Thornton, Ocasio and Lounsbury, 2012, 2015; see also Friedland and Alford, 1991). Defined as the “socially constructed, historical patterns of cultural symbols and material practices” that signify patterns that constitute proper behavior and establish the criteria for legitimacy (Thornton et al., 2012, p. 2), institutional logics bridges societal institutions that yield stability and meaning with the legitimate actions of the individual (project or organization). Typically, (project) organizations cope with multiple logics, underpinning different and often contradictory norms, understandings, and identities, thus experiencing institutional complexity (Greenwood et al., 2011). The underlying argument is that (project) organizations’ ability to engage or respond to multiple logics that manifest at the institutional field delivers legitimacy but also has implications for their performance in solving today’s complex societal concerns (Greenwood et al., 2011; Raynard, 2016).

Legitimacy is the cornerstone of the institutional theory, understood as the social acceptability and credibility that the project organization requires to survive and thrive in their environment (Pedersen & Dobbin, 2006; Scott, 2012). In project studies the concept of legitimacy and institutional theory at large is nascent (Bresnen, 2016; Biesenthal et al., 2018; Söderlund & Sydow, 2019). Previous research has considered different management actions to be critical in achieving project legitimacy. Some studies have focused on decision process strategies and factors considering legitimacy-as-property (e.g., Aaltonen, 2013; Nguyen et al., 2019), a fixed resource that is measurable and operationally manageable. Little is known about the process of legitimacy building, how managers legitimize these arrangements and how the project processes and activities are affected by their institutional field (cf. van den Ende & van Marrewijk, 2019).

We therefore turn our attention to organization studies where the concept of legitimacy has received significant attention and has

been the subject of extensive research (Deephhouse & Suchman, 2008; Suddaby, Bitektine & Haack, 2017). Organizational scholars have focused their efforts on investigating the essential properties of legitimacy and have categorized it into different typologies. Suchman's, influential typology identifies three broad types of legitimacy: pragmatic, moral, and cognitive (see Suchman, 1995).

Organization studies literature is particularly helpful for understanding the what, where, and how of legitimacy. Yet, a profound reflection on the social nature of legitimacy is needed as the concept is built on both the strategic (Oliver, 1991) and institutional traditions (e.g., Meyer & Rowan 1977; DiMaggio & Powell 1983). To our knowledge, current project studies seem to ignore such consequences. In response to the question of what legitimacy is, we incline towards the process perspective. Thus, legitimacy is understood here as not being a stable condition, but rather “as being actively and continually negotiated” (Suddaby et al., 2017, p. 24). It is an ongoing process showing that the actions are appropriate within the socially constructed system of norms and values, which must repeatedly be “created, recreated and conquered” (ibid. p. 25). Contrary to the prior understanding in project studies (e.g., Aaltonen, 2013), legitimacy is not monolithic and can vary over time. Indeed the same project practices, actions, and judgments can become legitimate or not over time.

Turning to the second implied question, where does it occur? When legitimacy is seen as a process, a multi-level analysis is required including the institutional project field and the project actors' inter-relations (Scott, 2012). To date, legitimacy in project studies has adopted cross-sectional case studies to identify stable strategies (e.g., Aaltonen, 2013; Nguyen et al., 2019) and elements of legitimacy (e.g., Derakhshan et al. 2019). Taking an institutional approach, Scott (2012) commends that each project, independently of its scale and scope, will be confronted by its institutional field. The field will include (1) relevant governmental organizations (local or national levels including tax agencies and offices reinforcing labor and environmental standards); (2) individual and organizational residents residing in and sharing the project environment (the groups that have already established normative and cultural-cognitive frameworks); (3) those currently employed in the affected sector (e.g., union organizations); (4) social movement organizations (e.g., professional associations, concerned with normative arguments); and (5) potential beneficiaries (those whose interests are served in the event that the project development takes place).

To address the third and last question: how does legitimacy occur?, we need to account for the institutional approach in the project, entailing a close understanding of the inter-organizational facets over a period. Through the institutional prism (Scott, 2013), legitimacy is understood via the process of how the project organization creates and maintains “alignment” between the internal structural/ performance characteristics and external field pressures in building legitimacy. Suddaby et al (2017), addressing the concept of legitimacy, observed three distinct organizational approaches to gaining legitimacy – a “fit” with the environmental pressures: (1) isomorphism or adaptation to fit underlying cultural-cognitive legitimacy basis, (2) decoupling or adaptation within two environments or signaling normative legitimacy and (3) performing or demonstrating technical legitimacy. The mechanisms to ensure legitimacy equal roughly Scott's (2013) outlining of three kinds of ‘institutional pillars’: technical/regulative, normative, and cultural-cognitive, which serves our framing.

## 2.2. Project response mechanisms to institutional complexity and pressures

Large-scale projects' temporariness and the conditions of institutional complexity can have major implications for the project management and legitimacy (Dille & Söderlund, 2011; Greenwood et al., 2011; Scott, 2012; Dille et al., 2018). Institutional complexity resembles the multivocal understandings that project actors pose in the management of large-scale projects (Biesenthal et al., 2018; Gottlieb et al., 2020; Winch & Maytorena-Sanchez, 2020). The “temporariness” of

large-scale projects poses significant management challenges (Grabher & Thiel, 2015, p. 330). Precisely their temporariness and the nature of institutional complexity concerning large-scale projects imply the need for explicitly connecting them as projects in multiple contexts (Manning, 2008). In the broader picture, large-scale project arrangement and their organizing are not subject to the intra-organizational constraints only or their technical environment. There are also joint constraints and enablers from the institutional field, such as the inter-organizational network (Sydow & Braun, 2018) or the sector and industry (Manning, 2008; Scott, 2012). Projects are embedded in other permanent institutional, but still changing, environments (Manning, 2008; Winch & Maytorena-Sanchez, 2020).

Hitherto, scholars have recognized the importance of large-scale projects in acquiring knowledge of local institutions (Grabher & Thiel, 2015), and the necessity for aligning the project with the institutional field (Engwall, 2003; Chi & Javernick-Will, 2011). However, project studies are ambiguous when discussing the institutional field of the project (Scott et al., 2011; Scott, 2012). Some associate it with the formal and regulatory bodies – treating institutions as environments external to the project (e.g., Miller & Lessard 2000). Others treat it as a field that needs attention but can be managed by the project manager (e.g., Morris & Gerdaldi, 2011; Aaltonen, 2013). We agree with Söderlund & Sydow (2019) that project studies would benefit from adding the institutional ingredients of meaning, concept categories, and models for organizing, per institutional theory. In this regard, it is no longer possible to think of the institutional fields as being out there (Granqvist & Gustafsson, 2016; Tukiainen & Granqvist, 2016). Instead, their elements are part of the project organization, infusing it with value and connecting it with long-term structures. These considerations underscore the opportunity to address institutional field complexity through institutional project response mechanisms, temporary organizing, and hybrids (Granqvist & Gustafsson, 2016; Raynard, 2016). Furthermore, these insights suggest that projects as “temporary organizations” with “institutional termination” provide an immense potential for temporal analysis of the recursive interaction between inter-organizational projects and their institutional fields; on how large-scale projects as relatively temporary endeavors rely upon, cope with and reshape longer-term structures (cf. Grabher & Thiel, 2015).

How the institutional field influences large-scale projects and how projects respond to institutional complexity and pressure has recently attracted academic attention (Hall & Scott, 2019; Matinheikki et al., 2019; Qiu et al., 2019; Gottlieb et al., 2020). Not surprisingly an emergent and growing stream of research has started to examine the use of “hybrid” and relatively temporary arrangements for coping with volatile complexity (cf. Raynard, 2016). For instance, Gottlieb et al. (2020) see the dynamic shaping of project partnerships, influenced by changing and comingling institutional logics. They distinguish diverse coping mechanisms to institutional demands through: (1) articulating new logics, (2) disassociating existing practices, (3) redefining roles, and (4) creating rules to facilitate collaboration. Matinheikki et al. (2019) show how public commissioners of a tunnel construction project adopted project alliancing principles to construct a hybrid organization to respond to institutional complexity, combining the rationales of different logics into their modus operandi. To respond to external demands, they used three mechanisms: (1) publicizing a new hybrid form of organizing, (2) receiving social acceptance from project stakeholders, and (3) selective coupling of external demands. To mitigate internal tensions, they used three other mechanisms: (1) jointly forming structures to align goals and unify actions, (2) ensuring adaptive capacity, and (3) blending diverse professional groups. Qiu et al. (2019) contemplate four coping mechanisms of institutional complexity in their study of the Hong Kong-Zhuhai-Macao Bridge. Two mechanisms were found for alleviating the impact of conflicting institutional demands on the performance: (1) the establishment of a system leader to coordinate with the governments, and (2) the localization of practices to reduce the conflicts between the regulations and standards of the three involved regions. Furthermore,



they found two mechanisms for reducing the micro-level impact of conflicting institutional demands through: (1) the creation of the structure of a hierarchical function for tasks and organization, and (2) the flexible design of the project organization. A distinction can thus be made between the macro and micro institutional complexity of responses. Besides this, response mechanisms of projects to cope with institutional complexity and pressure can also shift over time.

Van den Ende and van Marrewijk (2019) found that in a metro tunnel megaproject the strategies for coping with institutional pressure shifted; from oppressive use of military police to repositioning the project as environmentally sensitive, inclusive and open; from hiding from public debate to engaging in public debate and making the project more visible and accessible; and from declaring future metro lines taboo to engaging and communicating with society over new metro lines. Furthermore, the response mechanism can influence institutional complexity. Hall and Scott (2019) for example, report on a temporary project-based organization that significantly transformed the institutional frameworks and associated rules, norms, and belief systems surrounding construction project organizations – in much the same way as (a lineage of) innovative exploratory projects can transform the institutional framework of the construction sector and thus create an opening for sustainable innovations (Koch-Ørvad et al., 2019). A mechanism for responding to institutional pressure is thus a multi-level phenomenon, which can change over time and can transform institutional frameworks.

### 3. Research design and methods

We build on a collaborative case study design to understand the recursive relations between large-scale projects and their institutional fields. A collaborative case study design is a case comparison method, including cases, built by different scholars (George et al., 2005). According to George et al., scholars are “increasingly working collaboratively across cases to advance shared substantive research programs” (ibid. 55). However, a structured and focused case comparison is difficult to carry out, when different scholars have undertaken each case study, as reported here. Specific methodological considerations are needed when using existing data to generate new knowledge (Heaton, 2008; Andrews et al., 2012; Dufour & Richard, 2019). We return to them in section 3.4.

#### 3.1. Case selection

The railway sector in Europe has undergone considerable (de)centralization variation over time as a sector (Geyer & Davies, 2000). We selected the two cases – the HSL Madrid-Barcelona and HSL South – through theoretical sampling because we consider them to be suitable and revelatory in the light of institutional constructs (Eisenhardt & Graebner, 2007). Firstly, the cases were comparable as they were conducted within the same industry. Although the institutional reform of the rail sector took place in different years, 1995 in the Netherlands and 2002 in Spain, both cases share related institutional elements within the European rail industry, i.e., sharing similar industry structures such as the ERTMS safety systems, among others. We consider a complex of diverse organizations sharing the same or related institutional habits as the focus of analysis. In this context, we treat specific processes and project activities in detail, but it is “the nesting of these processes into the whole that gives them meaning” (Scott, 1987, p. 494). Secondly, both cases provided access to potentially rich critical data. They were considered both symbolic in terms of infrastructure investment, and there was considerable documentary evidence of them in newspapers, audits, and official reports (Report, 2012, 2017; Omega Team Report, 2014). Both of the cases that we examine here illustrate organizing and practices driven both by the industry’s structural changes and the agency in projects.

#### 3.2. Brief description of primary data collected

Over more than 15 years, data were collected through semi-structured interviews, observations, secondary data sources, audits, and official reports. The primary source of information consisted of 137 interviews with respondents from the Madrid-Barcelona HSL project and the HSL South. We have collected data from multiple levels and different actor viewpoints, including Adif and ProRail management division, major contractors, and suppliers. Interviews were semi-structured, lasted approximately between one and two and a half hours each, and were digitally recorded and transcribed. In Table 1, we explain the primary data collected for both cases in greater detail.

#### 3.3. Qualitative secondary data analysis

For the secondary data analysis (Andrews et al., 2012; Dufour & Richard, 2019), which is the focus of this paper, a subset of the data from the primary studies included observations, reports, and internal documents, 17 interviews for case I, and 19 interviews for case II. The first and second authors were part of the independent research data collection teams, and they analyzed the primary data for the specific cases published in peer-reviewed journals, which helped avoid the main pitfalls of secondary analysis (Andrews et al., 2012). However, a limitation is that the first author participated only in the second half of the data collection process for the first case – the second period, see Table 1. The extensive case studies and detailed data collection process are reported in research articles A and B. In this paper, we pooled the data collected separately for the two cases. We worked with two other independent researchers, the third and fourth authors, in carrying out the secondary analysis. In the secondary data analysis, an in-depth investigation of the emergent aspects of data that were only partially addressed in the prime studies is undertaken. Indeed the hindsight approach, which we employ, is conceived to overcome the essential problem in large-scale project research of the time-frozen cross-section of a process that unfolds over many years. The benefits of this approach have also been reported as the “wisdom of hindsight” (Dufour & Richard, 2019). Employing this approach avails the known outcomes of the HSL cases, and the depth of the primary data collected over 15 years.

Since it is difficult to objectively measure the influence of the institutional field on large-scale projects (Tolbert & Barley, 1997; Scott, 2012), we used an interpretative research approach consciously attempting to discover interviewees’ points of view (Gioia, Corley & Hamilton, 2013). Following the guidelines set for qualitative inquiry (Denzin & Lincoln, 2011), we used both first and second-order analyses. In the first-order analysis, we aimed to understand the peculiarities and the overall implications of the institutional field – the industrial structure where the project organizations resided. Given the suggestions of earlier research that links actions and institutions (Tolbert & Barley, 1997), we considered these tasks in the secondary data analysis that analytically correspond to the research process. They include: 1) Defining the institutional field as an industry, which in this case had undergone change over the term of the implemented HSL projects; 2) Tracing activities at the HSL project sites and extracting transcripts referring to activities of particular periods corresponding to the change; 3) Reviewing scripts for evidence of change in interaction patterns during the same periods; 4) Connecting findings from observational data with other sources of data on the industry restructuring, e.g., official reports (Report, 2012, 2017; Omega Team Report, 2014).

Through sampling of the primary data collected, we increased the possibility of revealing transcripts to maintain the suspected industry influences while actively scanning for data to disconfirm the presence of such relations (Chiasson & Davidson, 2005). We employed event structure analysis to identify the main cross-case patterns of importance: the institutional field – the industrial structure, the philosophy, and legal boundaries influencing the project processes and its organizing. From this part of the analysis, four institutional fields or industry-

**Table 1**

A summary of primary data collected.

Data collection method		Data collected
Case I: Madrid-Barcelona HSL project		
Semi-structured interviews	First period (1996–2010)	40 interviews with the HSL PM, Adif Quality Controller, Head of Infrastructure Projects, Engineer at Organization B, project proponent and other relevant actors. Average duration was slightly over one hour.
	Second period (2015–2018)	12 interviews with the program managers and other relevant actors (project managers, construction manager at Adif, Organization A Contractor PM, Organization B Supplier, Organization C Contractor PM). Average duration was slightly over one hour.
(Participant) Observations	First period (1996–2010)	Participant observations Group interviews Extensive informal communication
	Second period (2015–2018)	The insider spent 2–3 days per week at the organization's offices and conducted observations: 7 management meetings Extensive informal communication Field notes for each of the days spent on site
Case II: HSL South project		
Semi-structured interviews	First period (2003–2005)	85 interviews with four public organizations in the field involved: the Ministry of Infrastructure and Environment; Rijkswaterstaat, which manages road and water infrastructure; ProRail, which manages rail infrastructure; and the passenger rail operator Dutch Railways. The HSL PM, Adif Quality Controller, Head of Infrastructure Projects, Engineer at Organization B, project proponent and other relevant actors. Average duration was slightly over one hour.
	Second period (2007–2010)	10 interviews with relevant stakeholders in the project (project managers, construction managers, and other large contractors and suppliers involved in the project)
	Third period (2014–2015)	Three interviews were held with former HSL managers
(Participant) Observations	First interval (2003–2005)	Participant observations were carried out for 18 months, for three days a week Group interviews Desk research Extensive informal communication
	second interval (2015–2018)	Extensive informal communication Field notes for each of the days spent on site
Document analysis for both case I, and II.	In total more than 30 documents: For both cases we reviewed internal program documents (internal financial and audit reports, overview presentations, internal organization and escalation matrices, lessons learned, and program tools, e.g., risk logs). Organization-wide guidelines and frameworks for project and program risk management related to the HSL Madrid-Barcelona. Three parliamentary enquiries related to the HSL South project: the enquiry of the HSL tender process (Survey-Committee-Construction, 2002), of the decision-making process used (Commission-Duijvensteijn, 2004), and of the tendering for the high-speed trains called Fyra (Parliamentary-Commission, 2015). 300+ pages of public material drawn from the press coverage of the HSL projects.	

related themes emerged: 1) the restructuring of the railway sector, 2) assignment of the project, 3) tender regulations, and 4) fragmentation of project organization.

In the second-order analysis, we aimed to understand how the managers legitimize the HSL project arrangements, and the responses that their management employs for coping with the institutional influence. While there were no hypotheses *a priori*, to ensure comparability between the cases, the content analysis of the data was guided by Scott (2013). The data at this stage were analyzed, studying how our interviewees interpreted the “institutional environment” and “the project” to see how the former influenced their activities, over time and practice. In this phase of the analysis, we adopted an iterative method of constant comparison, moving between the data and the institutional theory. Employing the “pattern inducing,” analysis (Reay and Jones, 2016), we tabulated the project participants’ activities on each project and their management responses for coping with the institutional influences. For instance, whether, due to sector reforms in the railway industry, the project activities were influenced; or whether safety and engineering norms changed, and how they affected the project operations, etc. In tracing the management responses through time, we paid particular attention to events within the project level, and in the institutional field level—the peripheral events seemingly remote from the project—in creating a time dependent storyline of events, see Fig. 1.

For each case, the most frequent activities related to legitimation were grouped and later coded. Again, we followed Tolbert and Barley's (1997) recommendations and adopted these processes for analyzing scripts: 1) arranged data by categories and unit of observation, 2) identified activities within categories, 3) identified commonalities across cases, and 4) compared transcripts over time. We consider the railway industry to be a relatively highly institutionalized field, an industry with

existing practices, power structures, governance mechanisms, and subject positions, which helped us to distinguish the industry influences (Zietsma et al., 2017). For each institutional field dimension (e.g., industry organization member interaction, involving new procedures, rules), a legitimation element was set and coded independently. From the detailed case analyses and their comparison, three legitimation acquisition approaches were distinguished. We discuss them extensively in section 6. At the end of the secondary data analysis, the augmented data structure was created, see Table 2. We show the representative quotations, first themes, and empirical events as supplementary material for space reasons.

#### 3.4. Criteria for judging the trustworthiness of the research design

We draw on the social science research quality criteria for the research design (Denzin & Lincoln, 2011). For space reasons, as supplementary material we provide the criteria and the steps to address the requirements of both cases in greater detail. We also indicate the key issues related to qualitative secondary data analysis (Heaton, 2008; Dufour & Richard, 2019), and we explain the measures we have taken to overcome them.

#### 4. The institutional field of the Spanish HSL (Case I)

High-speed trains started developing in Spain in the 1990s. The Madrid-Barcelona HSL (1990–2017) was ambitiously planned and designed to reach speeds of 350 km/h, connecting Spanish capital Madrid with the city of Barcelona. It also connected Spain to the European high-speed rail network. Adif (owner) developed the project scope based on three major construction segments. The first segment relied on ERTMS

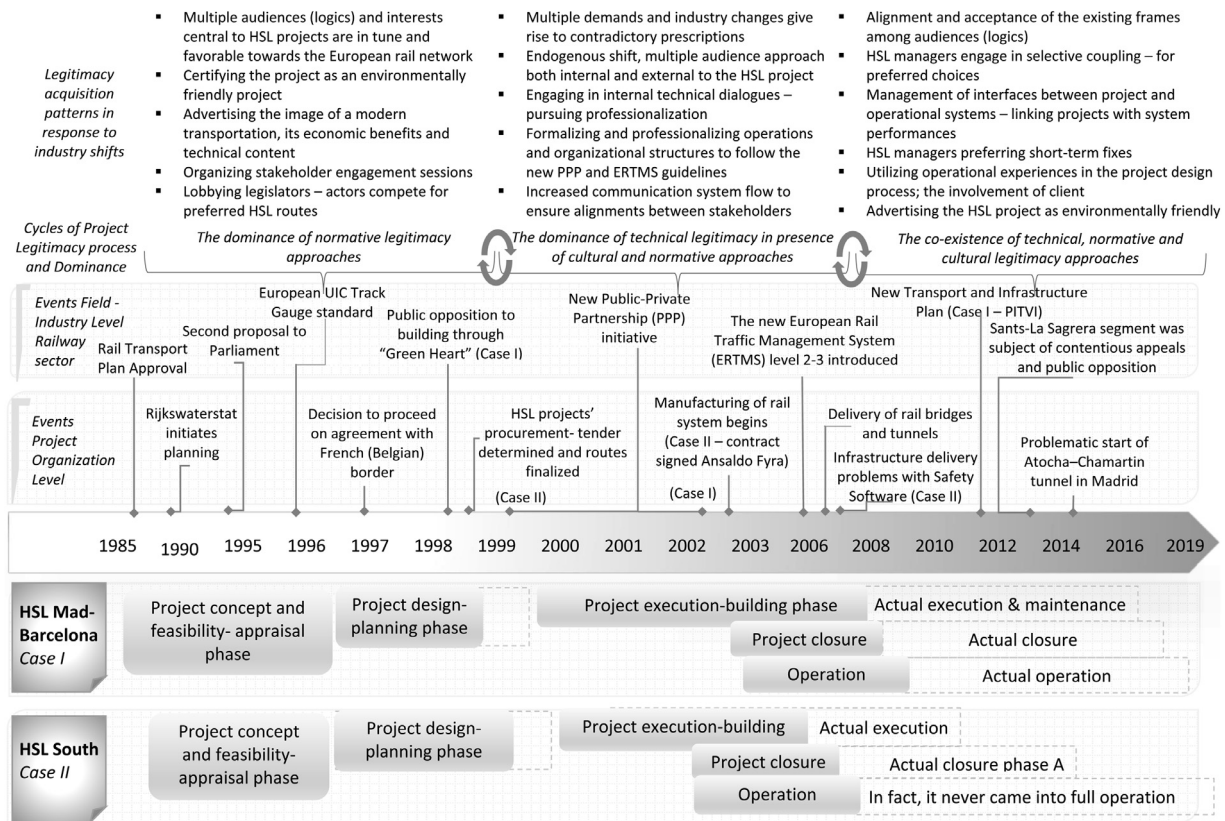


Fig. 1. Identified actions to legitimization approaches, comparing both HSL project case timelines.

Table 2

Data structure, codes, themes and emergent categories.

Some codes	Themes	Categories
Railway industry changes	Restructuring of the railway sector	
Public tendering law		
Changes in project procurement		
Shifts in infrastructure market	Assignment of the project	
Hierarchical governance and organization		
Diverse teams and expertise	Tender regulations	The influence of the institutional field in the project arrangement
ERTMS system		
Installation and manufacturing standards		
Project governing and the link to the parent organization		
Project segmentation	Fragmentation of project organization	
Collaboration or actors' interaction		
PPP		
Managers perform and proactively inform stakeholders	Normative/Moral legitimacy	
Managers review industrial regulations periodically		
Managers engage in selective coupling		
Project members adopt best PM practice and other industry guidelines		
Mimicking standards, and inclined to complementary technology adoption	Cultural-cognitive legitimization	Project legitimacy
Endorse project members to participate in external technical discourses		
Set up of IT integration within organization		
Advertising the image of a modern transportation	Technical/Pragmatic legitimization	
Advertising the project and its economic benefits and technical content		

1.0, while the other two relied on ERTMS 2.0. The project's network team continuously rearranged the project's design and plans, redefining its scope.

#### 4.1. Restructuring of the railway sector

The HSL project being embedded in the transportation sector has, over time, undergone considerable centralization and decentralization. Until the early 1990s, most European railway systems were organized in state-owned and vertically integrated monopolies (Geyer & Davies, 2000; Gruening, 2001). Since the mid-1990s, however, the rail-

way systems have been restructured and deregulated, breaking the monopolistic positions based on the EU Directive (Dir.91/440/EEC 1991). Such circumstances led to the emergence of new co-operation patterns among the railway supply industry and the operators. Accordingly, in 2003, during the Madrid-Barcelona HSL project, the railway sector was reorganized, laying the foundation for new players to enter the market. The public agency Adif was created and acted as the infrastructure manager of the Madrid-Barcelona HSL. Adif replaced the already assigned functions of both the GIF and the operator – RENFE. At the same time, a new public body was created, the business entity RENFE-Operadora [the operator]. The European rail industry, the Ministry of Infrastruc-



ture Development, the Government of Catalonia, Madrid and Barcelona city councils, the European Investment Bank, Adif, RENFE-Operadora, large contractors, and other specialized suppliers were principal actors forming the structure of the project's institutional field (Report, 2017).

#### 4.2. Assignment of the project

During the HSL project implementation, Adif procured the work, performed the supervision, and managed the project of the lines' construction. The industry and regulatory regime influenced the management actions, as the transportation sector and the rail industry were increasingly based on contractual relationships. In Spain, the formal authorization for project initiation was given by the Ministry of Infrastructure Development, which instructed the Sub-directorate of Railway Planning to prepare an informative study involving the detailed design and planning as well as the environmental and social impact of the project. With that, the ministry issued a formal order to Adif to start the construction of the line, including the search for the financing of the new HSL from European funds, and overall to execute the project. Nevertheless, this formal order to Adif was given before the informative study was approved. As the Ministry of Environment processed the environmental impact statement, its progress was beyond the control of the Ministry of Infrastructure Development. This resulted in major setbacks, such as modifications that influenced the implementation and management. The PM at Adif described: "There is no time to conduct a feasibility study or to assess the infrastructure needs accurately." (Interview with former HSL PM, December 1997).

#### 4.3. Tender regulations

The management of the HSL project was divided into three parts, closely linked to the management of the contracts and the legal regime, precisely related to the public sector tendering law. Adif is 100% publicly owned, i.e., the Spanish government holds 100% of the shares and is represented on the board. As indicated earlier, the planning and design of the HSL project were an "entry". This holds until 2003; after that and because of insufficient in-house resources, the Ministry of Infrastructure Development decided to initiate the tendering as a Public-Private Partnership (PPP), i.e., combining EU funds with private financing resources (Fara et al., 2018).

The HSL project involved procurement through multiple contractors and suppliers at different points in time and contract packages, e.g., tracks, signal systems, installations, energy systems. There were two main contract types: Design-Bid-Build (DBB), and Design-Build (DB). On the one hand, within DBB contracts, the contractors were not involved in the design and specification of the work, but the contractors could suggest alternative solutions. Adif discussed the solutions with the contractors, and when they were technically equal and economically complementary to the agreement proposed in tendering documents, then Adif's management advanced that solution. It is worth noting that at the time of the project's implementation, the Spanish contractors and suppliers were among the largest worldwide, and they employed in-house engineers (Belmonte, 2016; Report, 2017). Following the European tendering laws and regulations for the sector, the lion's share of the contract packages in the HSL project, over 75%, were tendered through prequalification. However, the Spanish public administration tended to protect the local consulting and design engineering firms (Report, 2013). Adif focused on competitive tendering and selected the contractors based on the lowest bid/price. Besides, due to public tendering law, there were no long-term collaborative arrangements, i.e., procurement was based on a contract-by-contract relationship. On the other hand, the adoption of DB for heavy civil infrastructure, such as tunnels and bridges, occurred because Adif expected the contractors or specialist suppliers to provide innovative technologies in such a complex endeavor (Internal document; cooperation agreement, 2006). DB involved two contracts for the 28.7 km Guadarrama tunnel, and two others to connect different

nodes to the existing rail networks (Internal document; financial report, 2009). Each contract was given to an independent consortium.

#### 4.4. Fragmentation of project organization

When a project is as complex as the HSL execution, it is not possible to define the management model on one level. As seen above, this type of project is developed through a series of performance units that address either a specific specialty in line, or segments of the same. In Adif, the works were divided between specialist teams (the internal project stakeholders) at the Spanish regional headquarters. They worked with a range of suppliers and (sub)contractors. The project involved three main internal stakeholders: 1) the construction and engineering team, 2) the operations and engineering team, and 3) the infrastructure exploitation team. Due to the project procurement methods adopted, these specific teams were not involved in the project, which posed severe challenges for the project implementation process. For instance, only the engineering team was involved early in the project and not the other two teams, which influenced future interactions. The project workers had to relate to and make sense of different teams' opinions and processes, but not all were aware of the implications. Not all team members had access or enough time to relate to the more macro level. The structural changes in the project affected the implementation process, which also led to the re-adjustment of the organizational structure over time. The team members were focused on getting the work done. But this also yielded the issue of alignment within the internal teams as raised by a member of Adif's management, who highlighted the following:

"I work closely together with the engineering and design team, and I prioritize and reprioritize work according to their requests. They are flexible to some extent, but they have a program pattern, and they need to deliver accordingly. We could improve the learning process and gain mutual benefits, which we currently do not have." (Transcript of a research-related meeting with Adif's management, June 2017.)

### 5. The institutional field of the Dutch HSL (Case II)

In the 1990s, the High-Speed Line South (HSL South) was a symbol of European integration (van Marrewijk, 2017). The HSL South connects Amsterdam to Brussels and the further Trans European Network of high-speed lines. The megaproject, which started in 1995, was completed in 2009 with four years of delay (van Marrewijk, 2017) and ran over budget; originally contracted for €6.87 billion, it finally costed €9.79 billion (Omega Team Report, 2010, 2014). Finally, the high-speed line never came into full operation as the delivery of new high-speed trains was first delayed and later cancelled by Dutch Railways.

#### 5.1. Restructuring of the railway sector

During the initial period of the HSL South, the 1990s, the Dutch government intended to liberalize the Dutch rail sector. This anti-monopolistic thinking dominated the European political agenda in the 1990s (van Duijnhoven, 2010) and the Dutch government was optimistic over a European rail market, open to competition. Consequently, in 1995 Dutch Railways was privatized, with the Dutch government being the sole shareholder. The relation between the national government and Dutch Railways was stable and secure, but tensions over the quality and price of rail transport regularly emerged. Therefore, ten years later, the organization was split into the passenger railway operator Dutch Railways and the infrastructure owner ProRail. This split would allow for more competition on the Dutch railway. ProRail became a department of the Ministry of I&E and was responsible for the construction and maintenance of the rail network (van Duijnhoven, 2010). The Ministry of I&E initiated rail projects and controlled the budget, while ProRail was responsible for the initiation, decision-making, and operating phases of the rail projects. However, only recently the Dutch government decided, after a number of rail incidents and after dropping the

idea of competition on the rail network, to merge Dutch Railways and ProRail again, 15 years after their separation. Experts in the field of rail transport are very critical and think this structural merger does nothing to help improve their collaboration.

### 5.2. Assignment of the project

Back in the 1990s the Ministry of I&E was still positive about the philosophy of new public management, which advocated reducing the responsibilities of the public sector on the basis that market organizations could do such tasks more cheaply and better than public-sector organizations (Gruening, 2001). The Ministry of I&E wanted to break the monopolistic position of Dutch Railways and assigned the Department of Infrastructure and Water Management, in this paper called DIWM, to manage the HSL project. This department is normally responsible for the design, construction, management, and maintenance of road and water infrastructure and had no experience with rail construction. To their astonishment, Dutch Railways were sidelined, and it was only after the project was finished that the rail track was handed over to them. Consequently, only very few project managers came from Dutch Railways, while the CEO reported via the secretary-general of the Ministry to the Minister of I&E.

### 5.3. Tender regulations

The HSL project is the largest PPP contract ever awarded by the Dutch government and one of the most significant high-speed railway projects in Europe to date. This PPP contract has a construction period of five years covering the design, build, and financing of the superstructure for the HSL line, followed by a twenty-five-year maintenance period. Although most of the designing was the result of public-private cooperation, and the hybrid organizational construction was reflected in the way the project organizations were empowered (70% of the employees were hired on a temporal basis, 30% were public employees), exploitation remained a matter of the state. With the PPP contract, the Dutch government saw opportunities to break the monopolistic position of Dutch Railways by publicly tendering the high-speed line concession. Dutch Railways were very afraid that the line would be operated by one of their powerful competitors, such as Deutsche Bahn or the French SNCF. Therefore, Dutch Railways tried, unsuccessfully, to prevent the public tendering of the HSL South concession. Therefore, they saw no option other than to make an offer the government could not refuse, which was twice as high as the bids of the competitors. Not surprisingly, all the interviewees said they immediately knew that the offer and expected turnover were unrealistic.

### 5.4. Fragmentation of project organization

The institutional environment is clearly visible in the structure of the HSL South project organization. The HSL project, like the first case, was split into three parts. This splitting into three separate parts was intended to speed up the realization of the HSL megaproject and to make possible the public tendering of the concession and the private financing of the rail infrastructure. The first part was the foundation of the rail network, consisting of the construction of embankments, tunnels, viaducts and bridges. This infrastructure work was divided into five PPP contracts for the foundation. Furthermore, there was a separate contract for a seven-kilometer tunnel, and a contract to connect the new rail line to the existing network. Each contract was awarded to a different construction consortium after a tendering procedure. The second part of the HSL project consisted of constructing rail infrastructure, which comprises rails, electrification and systems for communication and safety. This second part was designed, built, financed and maintained by a consortium comprising investors, international banks, and private companies. Until 2031, the Dutch government will pay the consortium a yearly fee to maintain the HSL and guarantee an availability

rate of 99.46%. The third part of the HSL project was the transport franchise. As described earlier, the exclusive right to deliver train services was granted to the highest bidding party, which was Dutch Railways.

## 6. Legitimation acquisition approaches

The institutional field elements influenced the two HSL project arrangements and their organizing. The institutional reforms, the industry changes created boundaries and shaped the processes in the studied HSL projects. However, our research findings indicate that the project management teams were not passive but developed responses for coping with these changes. We found patterns of normative, cultural-cognitive, and technical legitimation acquisition approaches in both cases, underlining the adaptation to the industry changes and the agency in projects. We describe them in detail in the following sections.

### 6.1. Patterns of legitimation acquisition approaches in Case I

**Normative legitimation approaches:** Being under government regulation, Adif's management established a phased review-based model, seeking legitimacy for their project management actions. This model, following a linear path, provided guidelines for their operations in respect of the project. However, several events in the project context prevented the Adif PM from always making a "rational decision". Due to high uncertainty, project managers sometimes ignored the process guidelines:

"We were very task-oriented and not behavior-focused. We needed a giant step to becoming better organized. There were process guidelines, which described how to run things, but the way we lived life, the project had little to do with them." (Interview with the construction manager, October 2016)

In this context, PMs at Adif and their contractors engaged in improvisational actions, relating to "soft" aspects and demands for the project, rather than the "hard" key performance indicators. At the other end, the contractors similarly did not follow the guidelines thoroughly. Often they did not render the details in the project plan, sending a vague design to the Adif project controller for confirmation. This helped to safeguard them from contextual influences. Regarding this, the Adif CM drew special attention to contractors' behavior: "It seems to be a well-known behavior: contractors tend to be very crafty and disclose information or reveal problems only when they really have to. It is better for their business". (Interview with construction manager at Adif, March 2018). However, for Adif and the private organizations and other parties involved, it was essential to have standardized project management models and comply with them.

**Cultural-cognitive legitimation approaches:** Our interviewees described situations where, even though the new rules and guidelines did not provide optimal conditions for rational choices, it was almost impossible to confront them. Adif's management was willing to adopt certain practices and expected others to do the same. In this context, the project actors felt safer following the preferred methods. The project members followed them – because the legitimation of their actions was crucial for the execution of the project. They had to relate to, and make sense for, different audience levels. The Adif PM described how the management was affected: "It was challenging to deliver our part of the project. I had to relate to and analyze the work repeatedly and intensively, not only for the task at hand but also at macro levels." (Interview with Adif PM, October 2016.)

Therefore, the preferences of Adif's management were not individually determined: instead, individuals fitted themselves to the activities and expectations of others while responding at different levels. Besides, the Adif managers were aware that repetitive choices enhanced efficiency but made them less flexible. In this context, we observed a lack of motivation on the part of Adif's management to consider alternatives regarding the project. Instead, the behavior that reinforced repetitive choices gained legitimacy, triggering greater acceptance by the project

members. An interview with the head of infrastructure projects illustrates this:

“We have a factor called social rentability that is valuable! ... For instance, if you give reasons for a specific part of the project not performing and having problems due to communication, this argument is considered prior to financial rentability.” (Transcript of the notes collected during a research-related meeting with Adif’s management, April 2017)

Technical legitimization approaches: Mimicking standards and formalizing operations through the use and form of complementary management systems (e.g., the use of management standards and national construction regulations in conformity with public law) explicitly guided the procurement methods, thus restricting the agents’ choices. Similarly, the ERTMS system and its corresponding products represented a supporting tool, reinforcing some options over others. The management practices at the project level were influenced by the regulatory framework and the industry practices in the public sector – the public procurement law shaped management processes and activities by, for example, reinforcing work divisions due to cost limitations. Thus, the project was divided into multiple packages, and the management had to manage individual work packages that, simultaneously, influenced each other. In this context, the management at Adif and the private parties (contractors and suppliers) performed their work through repeated interactions on several work packages. Such regulated public procurement and the industry standards had a corresponding effect on the contractors, which focused on becoming more functional in proposing multiple solutions that would involve similar processes and activities.

Importantly, the HSL Madrid-Barcelona project sustained and sailed on regardless of the disturbances – legislative, governmental, and administrative.

## 6.2. Patterns of legitimization acquisition approaches in Case II

Normative legitimization approaches: The HSL South project was defined as a result of a political discussion on future mobility in the Netherlands in relation to surrounding countries. The project design that followed was “new” in the sense that the project group rejected a “sound blueprint” plan in advance (despite governmental pressure) but preferred a participative model of project development. The DIWM project administration, which further developed the plan, comprised governmental professionals with a broad budget mandate and a strong sense of autonomy. They intended to develop an innovative tendering procedure for the PPP contracts and a new philosophy of public-private collaboration, both of which were new to the Netherlands. This focus on innovation and autonomy resulted in a strong identification of employees with the project. As has been observed in earlier studies (Willems et al. 2020) such identification triggered a process of isolation, which is the cutting off of connections with the mother organizations by the project organization; “they [DIWM] were not open and developed an attitude that put others off. They went their own way” (Interview with ProRail manager, December 2003). In this way, railway infrastructure owner ProRail was excluded from the HSL project organization; “There wasn’t a cooperative attitude” (Interview with a manager from the Ministry of I&E, September 2003).

Cultural-cognitive legitimization approaches: ProRail argued that it had 100 years of experience in rail construction and that it was formally responsible for the construction and maintenance of rail infrastructure in the Netherlands. ProRail preferred to opt for a matrix model in which it would have greater authority. It wanted to design infrastructure and manage a part of the project itself: “Our proposition was to give certain parts of the project to the different partners, and that these partners would be accountable to the project management” (Interview with ProRail manager, January 2004). DIWM and ProRail could not agree on how the activities should be organized, and ProRail was left with little or no authority in the project organization: “We were lonely wolves in

the wilderness. There was only one person with rail knowledge, and that was me” (Interview with former ProRail manager, November 2003).

Technical legitimization approaches: Conflicts over project control had arisen earlier between ProRail and DIWM, which is why detailed protocols for responsibilities, roles, and cooperation were designed for joint projects. In the HSL South project, DIWM signed a cooperation agreement with ProRail, as expertise on constructing such a complex megaproject was needed: “Given the size of the project, the complexity and the challenges for the organization of construction work and innovative technologies, it is necessary to use all the available knowledge” (Internal document; cooperation agreement, 2000). This painful exclusion of ProRail from the construction phase of the HSL South project was risky for the Ministry of I&E as ProRail would, after completion, be responsible for the maintenance of the HSL. There was a risk that ProRail would blame DIWM for bad rail construction. Indeed, in October 2015, the findings of a technical study, commissioned by ProRail, indicated that some of the concrete used in the project was of very poor quality. Respondents from ProRail criticized the DIWM’s approach to the HSL South:

“We were not constructing a rail line, but dikes and tunnels. There was a dominant focus on the environment with many adaptations, and that is why [the rail] seems to be a roller coaster. There is only one good rail line, and that is a straight line.” (Interview with former ProRail manager, November 2003)

The HSL South project survived, yet it never came into full operation.

## 7. Discussion

This paper aims to understand how institutional field(s) influenced the arrangements of two HSL projects and how managers legitimized the arrangements. The findings from our collaborative case studies illustrate the legitimizing patterns that make the institutional project field level part of the project’s life. Recognizing changes in the industry helps in understanding the issues and making sense of the actors’ project patterns of legitimization. The findings contribute two main insights into the relationship between projects and their institutional fields.

### 7.1. Disturbance in the institutional project’s field

The first insight is that the institutional project fields are in continual flux. Our secondary qualitative data analysis shows that over time, even matured fields re-form due to shifts in social systems, giving rise to new conditions to which the project actors (organizations and individuals) responded (Greenwood et al., 2011; Raynard, 2016). These findings contrast with previous literature on the project’s institutional environment consideration (e.g., Morris & Gerdali, 2011), which primarily portrays the institutional field as sequentially ordered and relatively stable.

Our empirical account shows that the institutional reform of both national railway sectors (Duijnhoven, 2010) and the introduction of PPP contracting created turbulences at the project level, but with different consequences. In the Spanish case, Adif emerged from the reforms and strengthened their position within the HSL project by procuring the work, supervising it, and managing the lines’ construction project. Whereas, in the Dutch case, the reforms were deeply unsettling for ProRail, potentially challenging its central role on the project delivery. As large and innovative contracts were inexperienced to the organization, it gave rise to a conflict with the main actor Rijkswaterstaat, which held ProRail off from managing and controlling the project. Thus, the reforms made some project actors less powerful, altering the power differentials with other actors in the project setting. In both cases, we see that the exercise of power was subtle and discreet during the period of disturbance; such as setting agendas and controlling negotiations. This indicates that the industry reformation (this critical juncture) produced relatively larger discursive spaces for renegotiation of the project actors’ power and authority. In sum, we examined similar project organizations

and industry settings purposefully. Yet we detected that the changing institutional field influence is not an invariant process affecting all actors in the project setting equally.

A crucial constitutional condition in the project setting, influencing whether an organization pursues an appropriate response, is the organizational position that enables them to affect the development and design of the new project arrangements. The government, the regulatory system, and the industrial dynamics in particular are essential institutional forces, particularly concerning the arrangement of large-scale projects (Chi & Javernick-Will, 2011; Scott, 2012). We see from our cases that the institutional influence increasingly stems from the international level, for instance through the European industrial regulations and optimistic political dream of integrating Europe into one political-economic community. So, the legitimacy required to convey these types of projects is contested and remains within the inter-institutional project actors, the industry, the local and international government bodies.

The influence of the institutional field's changes manifested through normative structures of organizations and industrial regimes. The rules and norms, these institutional forces, altered the established meaning system in the large-scale project setting, shifting influences of internal and external forces in the HSL projects. Several actors and forces critically influenced the HSL projects' governance structures and other project processes and activities. In the following we turn to the evolving collective legitimacy perceptions between the industry and project actor's subset.

## 7.2. The project as a dynamic setting of institutional forces

The second insight of our study is that the influence of the institutional fields is not unidirectional; that project legitimacy, in consequence, is neither given, nor does it purely emerge. That is, the management legitimacy acquisition approaches did not manifest merely as a consequence of the institutional project field's changes or because of critical junctures but instead by a contested change along a continuum, which culminated with the reformation's implementation. We identified that the HSL project managers used three legitimation acquisition approaches to cope with the institutional field changes, which created pressures to adapt throughout the project lifecycle. We thereby developed a narrative and timeline of events illustrating the legitimacy approach variation during the HSL projects given changes within the project, and the institutional field level, see Fig. 1. We exposed how actors engage in multiple legitimation activities in the confluence of institutional field and industry pressures. This event time view, which we have undertaken, enabled us to thoroughly appreciate the legitimacy approaches as they proceed cyclically and capture the resulting slow endogenous shifts more realistically.

We provide a temporal dynamic on cycles of project legitimacy process and our interpretation of the empirical constitutive features when comparing both cases legitimating approach dominance throughout the project lifecycle. The project's front-end promulgate the normative structures of organizations and industrial regimes as dominant in project life participation. Hence, it is the normative legitimating approaches that reflected the positive evaluation of the HSL project organizations. In such conditions, both cases had to be constructed, aligned with the time requirements. Thus, the project managers' normative legitimating approaches dominated, see Fig. 1. At this stage, HSL management was much more willing to initiate procedural rather than substantive solutions, despite their proposals being framed in communications emphasizing their contributions to project organizational efficiency. While thus far seemingly fluid, the HSL project's legitimacy approaches were not without resistance. Instead, the project's legitimating process was inherently challenged by the emerging issues and their active presence in institutional fields' level.

At the project implementation level, the technical elements were dominant, so technical legitimacy prevailed. At this stage, according to our findings, the project gained prominence through the project man-

agers' performing approaches. Further insight concerns the HSL management's considerations of the role of integrative arrangements – continually recognizing the need to secure endorsement by field-level industry actors, see Fig. 1. In both cases, the project managers turned to activities that enabled better communication with their “central stakeholders.” This conformance occurred both at the project front-end and the project implementation level. In the former case, however, the project proponents gave meaning to the decision to build by advertising the image of modern transportation and connecting to the European rail network. Concern focused mainly on normative (external) legitimacy while addressing both project organizational and technical issues related to the HSL projects in a rather superficial manner. Yet, we observed that the rules do not always govern social action in projects, i.e., that although present – the changing norms and regulations did not directly affect the project and line management behavior. Accordingly, in both cases, the project organization's normative structure became partly coupled with its behavior structure. In such a context, the project managers at Adif and their contractors, for example, engaged in improvisational actions relating to the “soft” objectives and demands of the project rather than the “hard” cost performance indicators. Similarly, our interviewees from ProRail criticized the Rijkswaterstaat approach of the HSL South project. Hence, these findings affirm one of the main contributions of the open systems perspective – the understanding that an organization's normative structure is only loosely coupled with its behavior (Scott & Davis, 2007).

Besides, even in rare cases throughout the project lifecycle where the HSL project organization's enjoyed support and recognition as a relatively legitimate actor; we observed no perfect alignment to the field level institutions – the industry. Adopting a less focal view, we observed that the management, in both cases, followed guidelines without acknowledging their peculiar influences or developing them further. For instance, the PPP adoption was selected without actually demonstrating value-for-money over the traditional means (cf. Fara et al., 2018). The interviewees generally interpreted the necessity for their projects to be aligned with central stakeholders, such as the EU, the regional and local governmental bodies. This indicates that the PM efforts were not framed strategically, at least not solely, as part of the existing literature highlights (e.g., Aaltonen, 2013; Derakhshan et al., 2019).

In sum, the disturbance in the institutional project's field, the industry changing conditions, contested the HSL projects' development. They had a direct bearing on project legitimacy as an intervening discourse approach among the field's changing conditions and the project's relevance. In light of the emerging industry principles, new industry procedures, and substantive agendas, diverse legitimacy approaches co-occurred and alternated (i.e., normative, technical, etc.), thus, creating what we label as cycles of project legitimacy process, see Fig. 1.

## 8. Conclusions

In this paper, we expand the theory of temporary organizing (Lundin & Söderholm, 1995) by focusing attention to the thus far downplayed inter-organizing facet (Sydow & Braun, 2018; Hetemi et al., 2020b). We provide an understanding of large-scale projects as temporary (inter-) organizations operating under conditions of temporal institutional complexity (Greenwood et al., 2011; Dille et al., 2018). We have studied this by linking and recognizing the heterogeneity of institutional fields (cf. Greenwood et al., 2011; Raynard, 2016), and the legitimacy concept fluidity (cf. Suddaby et al., 2017). We explore how the institutional field, in part, determines the project arrangements of two HSL projects and how project managers use legitimating practices to cope with the institutional field shifts. The paper makes the following contributions to the project studies.

### 8.1. Theoretical contribution

First, it contributes to a deeper understanding of institutional fields – the industry – across which large-scale projects extend. Although prior



literature has focused on horizontal embeddedness (van den Ende & van Marrewijk, 2019; Hetemi et al., 2020b), this paper provides a relational account of institutional complexity. It links the project to vertical hierarchies – to the industry – to systems at broader and wider levels and to nonlocal horizontal embeddedness. The paper stresses that the industry is in continual flux and highlights the effects of the industry changes on the two large-scale infrastructure projects studied. Besides, while Hetemi et al. (2020a) focus on the relational ties – the network and influential mechanisms among the project actors – this paper directs attention to the institutional fields' structural context itself. This study is thus one of the first empirical attempts in project management institutional research, and in wider project studies research, to take account of the large-scale project industry dynamics. The value of bringing the institutional-based view to large-scale project arrangement and its organizing lies in its recognition of the interplay between structure and processes across levels (Scott, 2013; Söderlund and Sydow, 2019).

The paper affirms that large-scale project organizations experience changes in the industry, and the ensuing institutional influence, to varying degrees, which influences their responses. It substantiates that the constellation of the disturbed institutional fields and their influence on large-scale projects are just as essential to the project development as their economic and technical demands. In other words, any attempt to understand large-scale project organizing should consider the industry processes and dynamics accordingly. Taking the industry dynamics into account sustains the interpretation of findings and generates recommendations that are closer to the actuality of the project and, therefore, applicable to practice (cf. Chiasson and Davidson, 2005). Studying this empirically entails a relational, institutional perspective that links projects with their industry and its dynamics. Therefore, scholars should avoid assumptions of industry uniformity and refrain from ignoring industry changes and their influences on large-scale projects.

Second, extant literature on project studies has typically portrayed legitimacy acquisition approaches as fixed and invariant – project scholars have not considered how the institutional fields and the salience of their elements change over time, thus influencing the management's behavior (e.g., Derakhshan et al., 2019; Nguyen et al., 2019). Dille et al. and Pemsel & Söderlund (see Dille et al., 2018; Pemsel and Söderlund, 2020) are a notable exception in this context. Building on them, our study accounts for how project actors navigate and cope with the institutional field shift – the industry changes – in their attempts to legitimize their projects. Consequently, rather than examining the strategic legitimation efforts of specific focal project organizations, we emphasize how project legitimation occurs as a structuration process (Giddens, 1984). In this paper we illustrate and reflect that the relationship between the institutional field, the industry and the project organization is not a one-way process, with emphasis on determinant institutional effects (Söderlund & Sydow, 2019). Instead, it is a recursive process by which the long-term institutions both shape and are in turn shaped by large-scale (project) temporary organizations as hybrids.

Hitherto empirical studies imply that project organizations enact single and sustainable responses (e.g., Nguyen et al., 2019). Thus, they neglect the possibility of temporary adjustments to the institutional pressures and disregard the potential for diverse responses (Dille et al., 2018; Matinheikki et al., 2019; Pemsel and Söderlund, 2020). We identified three legitimation acquisition approaches that illustrate management efforts to adapt to the new means imposed on them. To this end, the institutional fields' influence is not unidirectional, and the management responses vary in terms of how subject they are to the institutional elements' salience. Providing an event time view, see Fig. 1, we have depicted that depending on the salience of the institutional field pressure, the industry element, project organizational responses varied across time and alternated. This we label the cycles of project legitimacy process. Our findings show that the richer and more diverse the institutional project fields are, the higher the pressure the project man-

agers experience and the greater the potential for confusion and conflict among the project actors.

Yet, what does our collaborative case study report tell us compared to the dominant perspective in large-scale project research (e.g., Flyvbjerg et al., 2003; Flyvbjerg, 2014), which analyzes them from the normative ideal and classifies potential deviations from the rationally right decision as biases and errors? Based on our case studies, we argue that such views draw attention to the economic and more instrumental features of the large-scale project but neglect the importance of institutional fields elements. While the focus on the economic and technical features as a source of explanation is not wrong, it is incomplete. In practice, project managers look beyond rational choice and consider social approval, not just economic goals. In our framing, institutional fields impose institutional pressures that are equal to, if not more important than, the technical requirements in large-scale projects in the sense that they are multifaceted and enormously diverse and variable over time (cf. Scott 2012). In this regard, our case studies tell us that large-scale project arrangement and their temporary inter-organizing relies on management shifting approaches of legitimation with time, between the institutional and technical requirements in projects, in their struggle to accomplish the projects. Thus, to neglect the institutional field, the industry influence on large-scale project arrangements is to ignore considerable underlying conditions shaping the project organizing.

## 8.2. Managerial implications

Our research clearly indicates that project managers need to be aware of trends and changes in the project's institutional field, to the industry elements where the project is embedded and extends over, in order to manage it successfully. They need to actively examine the current institutional discourses on public-private collaboration, new public management, and stakeholder engagement. A comprehensive understanding of the institutional fields, the industry increases the project managers' focus beyond the micro-managing of project activities and helps them to adapt and interpret their agenda to valuable stakeholders. Timing in this is crucial as large-scale projects are self-induced shocks to their surrounding environment. Project managers can then use their projects to experiment with new forms of governance and thus influence their institutional fields. Therefore, at the conception of a new project – at the project front-end – client organizations, together with other industry actors, will have to define the organization's (project learning) ambitions collectively. At this stage, given the institutional fields' complexity, managers should focus on creating an effective collaboration, through shared workshops establishing a culture of open communication, and developing close relationships with project stakeholders. A promising endeavor in this direction is relational contracting, promoting cooperation and flexibility, which helps reduce inter-organizational conflicts and sustains normative legitimating discourses (Qiu et al., 2019). Yet, following the PPP arrangement, and having the team managing project delivery and approve project segments, was viewed as a conflict of interest, which weakened the legitimacy of the HSL projects (Report, 2017). Such conflict can be avoided by assigning a smaller approval role or by creating a separate agency to manage the delivery. Here again, limitations apply, and multiple project ownership should be addressed (Hall & Scott, 2019; Matinheikki et al., 2019).

When entering the project implementation stage, the significance of actor relations their timing norms and the project itself materializes. Project actor's normative legitimating discourses that 'outmaneuvered' the industry demands and the vast audiences at the project front-end are alone insufficient. Under these circumstances, keeping stakeholders 'on-board,' and informed, needs much more effort and project management skills. Hence, the project experiences an endogenous shift. That is, the logic of the project evaluation shifts, and so do the actor's legitimacy approaches from partial decoupling towards exploring efforts and performing approaches exhibiting technical content implementation. At this



point, technical and normative legitimacy approaches co-exist. Yet the former dominates. Such a pattern is apparent in our cases. In sum, these dynamic sequences of legitimating approaches, cause doubts about the suitability of centralized management promoted by Flyvbjerg (2014). Thus, it is necessary for the managers of inter-institutional projects of the type analyzed here to acknowledge that the temporal institutional complexity their project faces is dynamic and co-created (cf. Pemsel and Söderlund, 2020). In such a context, managers need to mainly engage in legitimation discourses by adopting a temporal response repertoire on nearly trial-and-error schemes.

### 8.3. Limitations and recommendations for future research

While we attempted to apply a relational view, through a neo-institutional perspective, to the understanding of large-scale project arrangements, we acknowledge that our paper has some limitations concerning its purpose. First, while our collaborative case studies advance a generalization of the theory, they do not establish evidence of a functional approach for all large-scale projects. Thus, further research is needed to uncover additional variants of legitimating practices and how they may vary in industry contexts versus project organizational collaborations (Oliver, 1991). Contradictions between institutional demands at the macro level are experienced as conflicting role demands at the project level, particularly for the individuals – the project managers responsible. For space reasons we were unable to address such conflict riddles. Another limitation of this paper includes the reinterpretation of the data sets, which were created over the course of more than 15 years. We tried to address this issue by going back and forth between the original data sets and the analysis (Rowley, 2002). In addition, to help us tackle this challenge, apart from concentrating on the focal organization, in this case, both public organizations (Adif and ProRail), we tried to include the view of other actors in the projects. To further test and build theory in this domain, we encourage future research to use ethnographic and process approaches, recognizing the multilayered (inter-)organizational settings, to study the influence of the institutional fields in projects over time and in practice. We believe this will help fill the current gap between theory and practice concerning projects and institutions.

### Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.ijproman.2020.11.004.

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