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Value-oriented stakeholder influence on infrastructure projects

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Abstract

Project stakeholder management deals with managing and fulfilling stakeholder expectations and has tended to focus on the viewpoint of the focal firm or the project rather than that of the project stakeholders. The stakeholders' perspective is important because they can significantly influence projects, particularly infrastructure delivery involving both public and private actors. This study focuses on the ways that stakeholders pursue influence on projects through their expectation of project value. The goal is to identify the value-oriented reasons for stakeholders to utilize specific influence strategies. A multiple case study was implemented in three transport infrastructure projects. The study argues that stakeholders' expectations of project value creation explain the stakeholder influence strategies utilized. The findings link project value with stakeholder influence strategies and reveal four influence strategies in transport infrastructure projects, differentiated according to their different value priorities. The unique value-influence combinations of public infrastructure projects are revealed and discussed.

1. Introduction

1.1. Research background

Infrastructure projects, such as the delivery of railways, roads, tunnels, subways, etc., shape their surroundings in significant ways. Infrastructure projects are large in financial terms (often considered major or even mega; Flyvbjerg et al., 2004) and the project deliverables are expected to last and deliver value for society for decades or more. Due to their size and impact on society, infrastructure projects create interest in the eyes of various stakeholders. The delivery of long-term value makes infrastructure projects excellent contexts for research concerning project value. This article investigates the influence of stakeholders on infrastructure projects, particularly in terms of their project value expectations.

The concept of project value relates to projects being considered vehicles for the delivery of value throughout their lifecycle, instead of simply the completion of goal-centric tasks (Artto et al., 2016). Previous research suggests that customer value is created through various short-term and long-term costs and benefits and that the customer's purchasing strategy and the supplier's marketing strategy will affect the value created (Ahola et al., 2008). However, in infrastructure projects there are also other stakeholders whose influence may be relevant to the creation of value. Particularly due to their public nature, additional value expectations are set on infrastructure projects by the public sector actors and the general public (i.e., public value; e.g., Koppenjan et al., 2008).

Infrastructure projects require the involvement of and create interest in the eyes of various stakeholders. Stakeholder management is a central aspect of project management, highly emphasized both in the scholarly literature and in the practitioner guidelines (Littau et al., 2010; Mok et al., 2015). With only a few exceptions (e.g., Tryggestad et al., 2013; van den Ende and van Marrewijk, 2018), the majority of the literature on stakeholder management has tended to focus on the viewpoint of the focal firm (i.e., how a project contractor or owner manages stakeholders), with less focus on the perspectives of the stakeholders (Aaltonen and Kujala, 2010; Mok et al., 2015). Due to the high number of stakeholders involved and interested in them, infrastructure projects provide a fruitful avenue for research focusing on the oft-neglected stakeholder viewpoint.

Stakeholders employ different tactics and strategies (i.e., stakeholder influence strategies; Aaltonen and Kujala, 2010) to

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influence the decisions of the focal firm either directly or indirectly. Examples of influence strategies include resource building, coalition building, and conflict escalation (Aaltonen and Kujala, 2010). However, the "whys" behind the influence strategies are insufficiently understood, particularly concerning infrastructure projects. In this article, we argue that the stakeholders' expectation of project value offers a way to understand this aspect of stakeholder influence. By connecting the stakeholders' expectations toward project value to their influence strategies we can better understand the logic behind the utilization of influence strategies. A few recent studies have demonstrated the need for such research by illustrating how ignoring the needs and expectations of the local community or the general public can generate social unrest, collective action and community resistance against infrastructure or construction projects (Liu et al., 2018; van den Ende and van Marrewijk, 2018).

1.2. Research objectives

The objective of this study is to develop new knowledge on value-oriented stakeholder influence on infrastructure projects. We seek to understand stakeholders' attempts to influence infrastructure projects and how these attempts to influence are driven by the stakeholders' expectations and demands for project value. To pursue these objectives the following research questions are formulated:

RQ 1: What kinds of influence strategies do stakeholders utilize in infrastructure projects to achieve their goals?
RQ 2: How do stakeholders' expectations and requirements for project value drive their attempts to influence?

The focus of this empirical study is on project value in infrastructure projects. The study covers the implementation phase of infrastructure projects from the investment decision to the completion of the project. Thereby, value is considered only during the project implementation phase. The study focuses on how the stakeholders' expectations, perceptions, and demands for project value drive their influence; project value will not be evaluated or assessed, per se.

The article is structured as follows. In the literature review, focal research on project value, public value and stakeholder influences is discussed. The empirical research methods are presented in the next section, followed by the results. The last two sections discuss the key findings in light of previous research and present the contributions, conclusions, and limitations of the study. Also future research avenues are proposed.

2. Literature review

2.1. Project value in infrastructure projects

Infrastructure projects are a mechanism to carry out public sector investments into capital that is locally, regionally, nationally, or even internationally useful and impacts society over the long term. We focus on the concept of project value over the lifecycle of infrastructure projects to highlight that infrastructure projects are not assessed merely in terms of their investment costs and deliverables, but their long-term-oriented benefits and costs must be understood as well (e.g., Martinsuo and Killen, 2014)

Project value can be defined as the "quotient of benefits/costs, where value is not absolute, but relative, and may be viewed differently by different parties in differing situations" (Laursen and Svejvig, 2016, p. 2). Project value is not limited to the project implementation phase; instead, it incorporates all benefits and costs over the complete lifecycle of the project, including the use of its deliverables (e.g., Ahola et al., 2008; Laursen and Svejvig, 2016). Previous research used the Sydney Opera House (Shenhar and Dvir, 2007), Heathrow Terminal 5 (Brady and Davies, 2010), and the Astoria Bridge (Eskerod and Ang, 2017) as examples of the necessity to assess value more broadly than just in terms of money spent and immediate deliverables.

Value is a multi-dimensional concept and subjective in nature (e.g., Ahola et al., 2008; Ang et al., 2016; Martinsuo and Killen, 2014). Due to subjectivity, there is a need to incorporate different stakeholders' viewpoints to understand project value well (Ang et al., 2016). Particularly when considering project value over a project lifecycle, there is a need to take into account both financial and non-financial value elements (Martinsuo and Killen, 2014), short-term and long-term value elements (Ahola et al., 2008), and contrast the accumulated benefits with the sacrifices (Ahola et al., 2008; Laursen and Svejvig, 2016). Various studies have already conceptualized and explored the different dimensions of project value (e.g., Ang et al., 2016; Eskerod and Ang, 2017; Flyvbjerg, 2014; Kivilä et al., 2017; Martinsuo and Killen, 2014) and cost and benefit components (Ahola et al., 2008). The diversity across studies indicates that different types of projects may require specific value frameworks.

Some previous studies have discussed project value in infrastructure projects. Kivilä et al. (2017) studied a road tunnel project and analyzed the use of project control in sustainable project management. They adopted the triple bottom line approach (e.g., Silvius and Schipper, 2014) to investigate sustainable value (economic, ecological, and social value), identified different control mechanisms that were used for the different dimensions of value, and drew attention to the role of an alliance contract in governing how sustainable value can be promoted. They also pointed out that some of the project controls originated outside of the alliance organization due to the public sector interest and investment in the project. Eskerod and Ang (2017) studied stakeholder value constructs concerning the Astoria Bridge, using documentation and post-project interviews about 50 years after the project's completion. They utilized existing value frameworks (Ang et al., 2016; Flyvbjerg, 2014), discovered that stakeholders experience value constructs very differently, and recommended stakeholder-specific communication strategies when promoting a project (Eskerod and Ang, 2017). Therefore, previous studies indicate that stakeholders' assessments of value are central to how they voice their interests

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and intentions. However, stakeholder influence needs to be better understood in connection to project value.

2.2. Public values in infrastructure projects

Public infrastructure has traditionally been built, owned, operated and maintained by the public sector (i.e., the national government, a city or similar). Nowadays, infrastructure projects are often delivered as common endeavors by the public sector and private sector firms. This collaboration is often organized as alliances (e.g., van Marrewijk et al., 2008; Walker and Lloyd-Walker, 2014) or public-private partnerships (PPP) (e.g., Cui et al., 2018; Hueskes et al., 2017)

A typical rationale for the public-private collaboration in infrastructure projects is the expected higher efficiency of the private sector firms, in comparison to the public sector (de Bruijn and Dicke, 2006). Despite the increased efficiency, critical voices argue that the involvement of the private sector firms can jeopardize other values (i.e., public values). Examples include sustainability (Hueskes et al., 2017) and social responsibility (Zeng et al., 2015).

Public values are particularly relevant to transport infrastructure projects that have a strong impact on people's lives (e.g., Koppenjan et al., 2008). We follow the definition of Steenhuisen and van Eeten (2008, p. 147) and define public value as "a value government decides to try to safeguard following a public demand and within the self-definition of the government role". As the definition implies, public values are such values that the public, represented by the government, considers valuable and worth protecting (safeguarding), potentially at the cost of some other values.

Traditionally, public values have been considered objective, immutable and universal (i.e., an universalistic approach; Koppenjan et al., 2008). The more recent research has questioned the sufficiency of the universalistic approach emphasized the need for more dynamic viewpoints to public values. Consequently, two more dynamic approaches have been proposed: a stakeholder approach and an institutional approach (Koppenjan et al., 2008). In this article, our focus is especially on the stakeholder approach to public values where the main argument is that public values might be universal at a very abstract level, but they are operationalized as results of dynamic stakeholder interactions (Koppenjan et al., 2008). Due to the high number of stakeholders involved in these interactions, stakeholders can perceive public values differently and this subjectivity can lead to tradeoffs and competing public values (Koppenjan et al., 2008).

Previous empirical research emphasizes the categorization of competing public values, their variance over the project lifecycle and strategies for coping with them from the perspective of the infrastructure owner. The focus of Steenhuisen and van Eeten (2008) was on the privatized Dutch railway sector. They described competing public values faced by the train operator and identified strategies for coping with the competing public values. Van Gestel et al. (2008) focused on competing public values in innovative public infrastructure projects. They emphasized the importance of the whole project lifecycle, categorized competing public values, described how some public values received more and some less attention from the stakeholders, and how the focus on different public values varied through the project lifecycle. Van Gestel et al. (2008) identified three main strategies for managing public values as well: management by culture, contracts or hierarchy.

Two main issues justify the need for additional research on this topic: the limited focus on the stakeholders' actions and the limited focus on the project implementation phase. The majority of empirical research on public values has focused on the actions and the viewpoint of the owner: either the public sector (i.e., the national government, city or similar) or the focal company (i.e., the private sector organization involved in public sector activities). However, there are numerous other stakeholders interested, involved and affected by the delivery, operation and maintenance of public infrastructure. Only a few studies have analyzed the viewpoints of these other stakeholder groups from the perspective of public values.

Regarding project lifecycle, only some public value research has studied project-based activities and only a minority of them have focused on the project implementation phase (van Gestel et al., 2008). In contrast, several prior studies have covered public values either at the project front end (e.g., project design) and in the operations phase. The inclusion, acknowledgement and potential jeopardizing of public values is highly relevant in the project implementation phase as well. Various stakeholders try to influence the project implementation phase and in this study it is argued that public values are one viewpoint for understanding these influence efforts better.

2.3. Stakeholder influence strategies in projects

A typical definition for a project stakeholder is "any group or individual who can affect or is affected by the project" (Aaltonen et al., 2008, p. 509). As the definition implies, stakeholders and stakeholder management can be studied from two perspectives: the perspective of the focal firm/the project or the perspective of the stakeholders. In this article the focus is on the perspective of the stakeholders; the viewpoint that has attracted significantly less attention in the existing literature than that of the focal firm or the project (Aaltonen and Kujala, 2010; Mok et al., 2015).

In order to pursue their interests and affect the project, stakeholders set claims for the project and the focal firm and utilize different tactics and strategies to achieve them (Frooman, 1999). In the existing literature, different labels, such as salience shaping (Aaltonen et al., 2008) and influence strategies (Aaltonen and Kujala, 2010; Frooman, 1999), have been applied to describe these tactics and strategies. In this article, the term influence strategy is used.

In his original article, Frooman (1999) built on the resource relationships between the focal firm and the stakeholders to conceptualize four types of influence strategies: indirect and direct withholding strategies and indirect and direct usage strategies. Regarding influence strategies in construction-centric delivery projects, Aaltonen et al. (2008) and Aaltonen and Kujala (2010) (building on Frooman, 1999, Hendry 2005

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and Rowley and Moldoveanu 2003), identified several additional influence strategies that stakeholders use in project contexts. These included resource building, coalition building, conflict escalation, communication and credibility building, and direct action strategies.

In addition to explicit stakeholder influence strategies, several authors have studied stakeholder influence on projects more generally. Table 1 summarizes recent empirical research on the influence of stakeholders on projects by including literature on both explicit stakeholder influence strategies and stakeholder influence more generally.

The existing empirical evidence (Table 1) motivates this study in multiple ways. First, the earlier research communicates a coherent overall message of stakeholders influencing projects throughout their lifecycles (van den Ende and van Marrewijk, 2018), suggesting that this influence needs to be understood as a means to shape the project during its lifecycle. These influences, especially the ones opposing the plans or actions of a project (Liu et al., 2018; Olander and Landin, 2005; van den Ende and van Marrewijk, 2018), can be quite strong and affect the progress and success of projects in significant ways. For example, in the study of Olander and Landin (2005), the growing opposition of residents forced a real estate developer to modify its plans significantly approximately five years after undertaking the initial planning work.

Second, earlier studies have conceptualized stakeholders differently, or they have focused on the actions of different stakeholders. The empirical evidence demonstrates how different stakeholder groups exert influence in different ways (e.g., Aaltonen and Kujala, 2010; Li et al., 2012). For example, in the project front-end phase, opportunities for secondary stakeholders to exert their influence are limited (Aaltonen and Kujala, 2010) and the different stakeholder groups emphasize and set different expectations for projects (Li et al., 2012). The evidence of different influence actions performed by different stakeholders, the variety of stakeholders involved and interested in infrastructure projects along with the different conditions in different types of projects (public infrastructure vs. private and commercial construction projects) further justify additional research on different stakeholders' influence strategies.

Finally, none of the earlier studies has explicitly combined stakeholder influence strategies and project value. Some of them identified stakeholder claims with some value linkages (e.g., Li et al., 2012; Liu et al., 2018), or demonstrated a linkage between stakeholder influence and (lack) of project value more implicitly (van den Ende and van Marrewijk, 2018). Research on the multidimensionality of stakeholders' demands has been called for (Aaltonen and Kujala, 2010) as well. However, the combination of influence strategies and value has not been studied or conceptualized. Prior literature has demonstrated how different stakeholders take different actions in different phases of the project lifecycle (Aaltonen and Kujala, 2010), but by complementing the idea of stakeholder dynamics with the viewpoint of project value explaining the stakeholders' actions, a contribution to the oft-neglected stakeholders' perspective on stakeholder management (Aaltonen and Kujala, 2010; Mok et al., 2015) can be made.

3. Research method

3.1. Research design

We followed a qualitative multiple case research design with an intent to explore and describe value-oriented stakeholder influence on infrastructure projects. The benefits of a multiple case design when compared to a single case design include improved generalizability, replication, robustness, and versatility (Saunders et al., 2009; Yin, 2009). In a single case design, the uniqueness and specific context of a case could cause distortion, which is decreased by the multiple case design (Yin, 2009).

In order to study the stakeholder influences throughout the implementation phase of the case projects we followed a process research method. Process research concerns the emergence and evolution of issues over time and patterns of events leading to outcomes (Langley, 1999). It was considered suitable for the tracking of stakeholder influences in the pursuit of their goals over time. As infrastructure projects are public and well documented, a process research method was expected to reveal different types of value-oriented stakeholder influences better than cross-sectional descriptive studies only. Process research methods emphasize the importance of time and temporality in organizations (Langley et al., 2013). This is an important viewpoint for this study because the implementation of an infrastructure project progresses over time and stakeholders sense and evaluate the past and the future and react and exert their influence accordingly.

Transport infrastructure projects were chosen as the context of this study to ensure sufficient similarity between the projects. The expected operational life of transport infrastructure is decades at the minimum. In addition to the direct transport benefits of the project deliverables themselves (e.g., a motorway or a bridge), transport infrastructures often have broader value implications (e.g., connecting regions, environmental aspects, housing benefits). The aforementioned aspects make transport infrastructure projects a fruitful avenue for studying project value. Within the same project type, different projects were selected to ensure sufficient differences between the projects. To enable the focus on project value and stakeholder influence, we set several criteria for the case projects:

1. The project should be a transport infrastructure project and alter its surroundings/affect society in various ways. The project deliverables should have a central role in the transport system.
2. The project should be significant in financial terms (i.e., large/major projects).
3. The delivered infrastructure should create long-term value. The expectation for long-term value creation should have been expressed already at the project front end.

In addition, the following two criteria were set to enable data collection and focus on the implementation phase of project lifecycle (the focus of this study):

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Table 1
Empirical research on stakeholder influence on projects.

Study	Method and context	Key findings	Motivation for this study
Aaltonen and Kujala (2010)	- A qualitative single case study - A pulp mill construction project	- A lifecycle perspective on stakeholder influence - Explicit focus on secondary stakeholders - Propositions of stakeholder behavior in project lifecycle phases	- Not focused on infrastructure projects - The likelihood of secondary stakeholders using influence strategies is high during project execution - Value considerations behind stakeholder influence strategies covered only implicitly - Expressed need for additional research on the multidimensionality of stakeholders' demands
Aaltonen et al. (2015)	- A qualitative multiple case study - Two nuclear waste repository projects	- A lifecycle perspective on stakeholder dynamics - A stakeholder salience–position matrix demonstrating the dynamics of stakeholder behavior - Interaction of stakeholders' influence behavior, stakeholder management activities, and projects' contextual conditions influencing stakeholder dynamics	- Not focused on infrastructure projects - Value considerations behind stakeholder influence strategies covered only implicitly - Expressed need for additional research on stakeholder dynamics in later project lifecycle phases (e.g., execution)
Aaltonen et al. (2008)	- A qualitative single case study - A pulp mill construction project	- Salience shaping strategies as ways for stakeholders to increase their salience in the eyes of the focal firm - Focus on the whole project lifecycle (front-end to plant startup, especially implementation)	- Not focused on infrastructure projects - Value considerations behind stakeholder influence strategies covered only implicitly
Cuppen et al. (2016)	- A qualitative single case study as "an empirical illustration" - A shale gas exploration project	- Stakeholder positions are multidimensional and cannot by mapped on a continuum from e.g., 'pro' to 'con' - Q methodology as a tool for collecting diverse stakeholder perspectives	- Focused on a single project just as an empirical illustration - Stakeholder perspectives collected later in the project lifecycle, not during project preparation or planning - The multidimensional nature of stakeholders' value perceptions implicitly discussed
Li et al. (2012)	- A quantitative survey, $n = 199$ - Public infrastructure and construction projects in Hong Kong	- Diverse and conflicting concerns expressed by stakeholders in the project front-end (the official participation process) - Different concerns and expectations emphasized by different stakeholder groups (general public, government representatives, pressure groups, and project-affected groups)	- Focus limited to project front-end - No value framework explicitly utilized, but the findings include various examples of value expectations emphasized by different stakeholder groups - The need for a multi-objective, multi-stakeholder model for stakeholder involvement expressed
Liu et al. (2018)	- Surveys and interviews, $n = 127$ - Major construction projects	- Six reasons for the public to engage in collective action against major construction projects: benefits to the public, characteristics of project performers, layout of projects, living quality of the public, perceptions of the public, and influence from the authority	- Focused on the reasons behind collective action, not the collective actions, per se - Focused on major construction projects (not just infrastructure projects) - No value framework explicitly utilized, but the findings include various examples of value expectations emphasized by the public
Olander and Landin (2005)	- A qualitative multiple case study - Two construction projects	- Power/interest matrix used for stakeholder analysis - Stakeholders influence changes while a project progresses - Stakeholders can have many (mostly negative) influences and consequences	- Focus limited to the project front-end - Only examined one infrastructure project - Value considerations behind stakeholder influence strategies covered only implicitly
van den Ende and van Marrewijk (2018)	- A qualitative, longitudinal multiple case study - Two infrastructure projects	- Different bases for legitimation for the planning and implementation of infrastructure projects - Social unrest and community resistance generated by insufficient legitimation - Institutional response actions taken by the project actors	- Focus on infrastructure projects - Implicit support for the research idea that stakeholders' value expectations/requirements can explain stakeholders' influence behavior

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Table 2
Characteristics of the case projects.

	Rail	Tunnel	Subway
Scope of the project	A new railway connection providing improved public transport connections in the capital region and a railway connection to the airport. (https://www.liikennevirasto.fi/web/en/projects/all-projects/ring-rail-line)	The building of a long road tunnel and the redirection of an existing highway to the new tunnel. (https://rantatunneli.liikennevirasto.fi/en)	A major extension of the existing subway network of the capital region. (https://www.lansimetro.fi/en/)
The role of the project in the transport system	One of the main railway lines in the capital region, offering a new public connection to the airport	One of the two main highways around the large city	A major extension to the only subway line in the capital region (and the country)
Location	Capital region (Helsinki and Vantaa, Finland)	The country's 3rd largest city (Tampere, Finland)	Capital region (Espoo and Helsinki, Finland)
Stakeholders	Internal: City 1[b] and City 2[b], contractors, government and public agencies	Internal: City 4[b], contractors, government and public agencies	Internal: City 2[b] and City 3[b], contractors, government and public agencies
	External: General public, business representatives, organizations	External: General public, business representatives, organizations	External: General public, business representatives, organizations
Duration of the implementation phase[a]	~6.5 years	~3.5 years	8 years
Project budget (at completion)	~€800 million	~€200 million	~€1.1 billion
Project performance	Completed over budget and behind schedule.	Completed slightly under budget and ahead of schedule, but with some additional work remaining.	Completed significantly over budget, significantly behind schedule, and with a major change in project design.

[a] Implementation phase ranges from the investment decision to the completion of the project.
[b] Cities 1–3 are three of the largest cities in the capital region of the country. City 4 is the city implementing the road tunnel project. City 2 was involved in both Rail and Subway, but its role in Rail was very minor.

4. The project should be recently completed or near completion.
5. There should have been an active discussion in national and/or local newspapers regarding the project, and other public data (such as plans, reports, other public project communication) available.

Following the selection of the project type and the five criteria above, three case projects were selected for investigation: a railway project (Rail), a subway project (Subway), and a road tunnel project (Tunnel). Basic characteristics of the projects are summarized in Table 2. All three case projects are relatively large, clearly value-oriented and created interest in the eyes of various stakeholders. All three projects had a central role in developing the regional transport systems. In general, these projects are good examples of large transport infrastructure projects that are commonly implemented around the world.

3.2. Data collection

Following the process research method (Langley et al., 2013), we used a document-based data collection approach to track the key events of the case projects over time. The primary research data utilized in this study were newspaper articles. Archival data such as newspaper articles are particularly suitable for studying longitudinal event chronologies over long periods of time (Langley et al., 2013). Newspaper data have been successfully used in earlier project business research as well (Kivilä et al., 2017; Ruuska et al., 2011). However, newspaper articles as research data have several limitations, especially in terms of the possible bias or partiality of the journalists writing them (see also Ruuska et al., 2011). It is also possible that the less powerful stakeholders receive less attention in the newspaper articles. To mitigate these limitations, we complemented the primary data with project documentation (if publicly available) and by utilizing the additional documentation for triangulation. No direct interaction (interviews, etc.) with the project stakeholders was utilized. In some countries, the actions of the media are limited by governmental restrictions or censure; regarding this study, the target country is ranked very high in terms of freedom of the press.

All case projects were implemented in the same country (Finland). Two of the three case projects, Rail and Subway, were implemented in the capital region of the country. For these projects, Newspaper 1 was used as the data source. Newspaper 1 (Helsingin Sanomat) is the leading newspaper both nationally and in the capital region. For Tunnel, two newspapers (Newspaper 1 and Newspaper 2) were used as data sources. Newspaper 2 (Aamulehti) is the leading newspaper for the city (City 4) and the region in which Tunnel was implemented.

The electronic web archives of the two newspapers were used for data collection. The web archives include all the articles published in the newspapers irrespective of their type (e.g., column, editorial, news article, opinion piece, etc.). The available data sets covered the entire implementation phases of all three case projects. The case projects have a distinctive

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Table 3
The reduction of the final dataset.

	Rail	Tunnel	Subway	Total
Articles in the initial dataset	242	232	819	1293
Data after excluding the irrelevant articles	114	141	491	746
Relevant articles with stakeholder influences (the final dataset)	62	32	242	336

name widely used by the media in this country, and this name and all of its inflected forms (either using an asterisk or as multiple searches) were used as search terms. The searches were targeted at the full texts of the articles, leading to a large dataset with all the relevant articles, but yielded numerous irrelevant articles as well (see Table 3).

After the initial dataset was collected, the irrelevant newspaper articles were excluded. An article was considered irrelevant if its focus was not on a case project, even if the project was mentioned in the full text. After identifying the relevant articles focusing on the case projects, a second screening process was performed to identify the articles that included content related to stakeholder influence. An article was included in the final dataset if there was mention of a stakeholder having influenced or aiming/planning to influence the project or if the behavior of a project stakeholder was described in any way. The reduction of the data set to the final relevant articles is summarized in Table 3.

Additional project-related documentation and communication materials for the case projects were collected from three main sources: the projects' own websites, the ministry of transport website, and the local cities' web archives. These additional data included such documents as project plans and project reviews. The secondary data were used to verify and validate the findings from the primary data and to describe the projects' backgrounds.

3.3. Data analysis

A qualitative event-oriented approach was followed in the data analysis. By forming chains of events, or by becoming "strong" enough to produce change or variability, events play a central role in various organizational phenomena (Morgeson et al., 2015). In this study, we conceptualized the stakeholders' influence efforts as events. The classification of the influence efforts as events enabled the influence efforts to be studied chronologically and revealed the possible interconnections between the events and the stakeholders' actions.

The events were analyzed so that all later incidences related to the initial influence effort were coded with the same event ID number. Consequently, the duration of the events varied significantly, ranging from a single day to almost a year. For example, the event Tunnel.1 included residents complaining about Tunnel and the court rejecting the appeals four months later. In addition to the newspaper articles, evidence of influence efforts was sought from the project documentation.

All the articles in the final dataset were content coded. In addition to identifying and mapping the event structure in each case systematically, the coding focused on three main aspects: the active stakeholders, the influence strategies used by the stakeholders, and the project value dimensions driving the influence strategies.

Regarding influence strategies, the earlier findings of Aaltonen and Kujala (2010) were used as a starting point for developing the preliminary coding framework. The preliminary influence strategies sought from the data included: direct and indirect withholding or usage strategy, resource building strategy, coalition building strategy, conflict escalation strategy, communication and credibility building strategy and direct action strategy. The rationale for using the work of Aaltonen and Kujala (2010) as a basis was their explicit focus on stakeholder influence strategies in projects. The framework was inductively altered when needed. Ultimately, only the "communication and credibility building" strategy of the preliminary framework was directly evident in the data and the inductively identified "complaining and resolving disputes" strategy had a close resemblance with "conflict escalation strategy" in the final framework. The other influence strategies were identified inductively, and the final framework is described in Table 4.

Potential reasons for the differences between the identified influence strategies and the strategies in the preliminary framework (Aaltonen and Kujala, 2010) include the different project context (private vs. public; mill construction vs. transport infrastructure) and the strong connection of the preliminary coding framework (Aaltonen and Kujala, 2010, building especially on Frooman, 1999) to ownership, utilization, and access to resources. A resource-viewpoint was significantly less evident in the data of this study.

Earlier literature (e.g., Ahola et al., 2008; Kivilä et al., 2017; Labuschagne and Brent, 2005) was utilized also to build a preliminary framework for analyzing project value. Based on the potential value components identified from the earlier literature, a preliminary coding framework was created with three value dimensions (environmental and social value, financial value, and benefits for people), each including several examples of more detailed value components. In the end, it turned out that environmental and social value and financial value were relevant for this study as well. The third value dimension was re-labeled from "benefits to people" to "systemic value", based on the data. With the new label we wanted to emphasize the broader nature of the benefits characteristic of large transport infrastructure projects. With systemic value we refer to the benefits and costs of the projects for their wider surroundings, not just for the nearby people (indicated by the title in the preliminary coding framework). Regarding all three value dimensions and the respective value components, value related to both the project implementation process and the use phase of the project deliverables was acknowledged. The coding approach for the value dimensions is also summarized in Table 4.

Coding took place in the original language of the newspaper articles (Finnish), which is also the native language of the authors. After the case-level coding, commonalities and differences were sought across the three projects, and the cross-case thematic analysis is reported in the results. For the purposes of this article, illustrative quotations were identified

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Table 4
The final coding framework for stakeholder influence strategies and project value dimensions.

Stakeholder influence strategy	Definition	Examples
Communicating	Stakeholders utilize media to reach a wider audience for their claims.	- Residents writing opinion pieces. - Experts, business representatives, etc. writing opinion pieces. - Journalists discussing the projects in editorials and news analyses.
Complaining and resolving disputes	Stakeholders oppose project's plans or actions formally or informally. The opposition can lead to formal appeals and legal decisions.	- Residents complaining about a project's plans or actions. - Residents lodging appeals and formal complaints. - Disputes with contractors, suppliers, etc. - Stakeholders threatening each other with legal action. - Litigation and court decisions.
Setting rules and supervising the project	Stakeholders set rules and supervise the project work or the project deliverables.	- Cities and other authorities set rules for and limitations on the project work. For example, time restrictions on performing noisy work. - Authorities supervise the project deliverables; for example, safety requirements.
Using decision-making authority	Stakeholders use their decision-making authority.	- Powerful stakeholders make independent decisions enabled by their decision-making authority - Independent decisions made by the cities. - Decisions of the cities or the transport authorities on public transport timetables, routes, etc. - Funding decisions by the government.
Project value dimension	Definition	Examples
Environmental and social value	The aspects of the project work or the project deliverables affecting the environmental or social well-being of the people.	- Beauty, comfort, and other aspects of social well-being. - Dirt and rubbish, dust, noise, and safety issues.
Financial value	The financial aspects of the project work or the project deliverables.	- Funding. - Income. - Project costs. - Sanctions and financial compensation. - Share of costs.
Systemic value	The value linkages between the project and other projects or the project's surroundings.	- The influence of the project on the existing transport infrastructure. For example, changes to bus timetables or routes. - The pressures caused by the projects to develop their surroundings. For example, housing plans for neighborhoods near new stations.

from the data and translated into English, and they are used to highlight central messages in the findings.

The last phase of the data analysis focused on identifying the connections between stakeholder influence strategies and the dimensions of project value. For each influence event in all three case projects, the combinations of value dimensions (i.e., the stakeholders' expectations or requirements for value driving the influence effort) and the most utilized stakeholder influence strategies were mapped and the dominating value dimension–influence strategy pairs were identified. A value dimension-influence strategy pair was labeled “high importance” if the respective influence strategy was evident in most of the influence efforts driven by the respective value dimension. Respectively, the label “low importance” was used if there were none or only a few instances in the data. The label “medium importance” refers to a situation between “high” and “low”. The instances of these pairs were calculated and then summarized across the cases to identify their relative importance, and the dominating connections were cross-tabulated.

4. Results

The results section is organized in three subsections. We begin by presenting the influence strategies utilized in the case projects. Next, the dimensions of project value driving the influence strategies are discussed. The results section concludes with a cross-tabulation that reveals the dominating combinations of project value and influence strategies across the three case projects.

4.1. Stakeholder influence strategies

The stakeholders of the three case projects utilized different stakeholder influence strategies to exert their influence. All four types of influence strategies appeared in all the projects, but somewhat differently. These strategies are summarized and exemplified in Table 5.

Stakeholders utilized media for communication in all three projects. In Rail and Subway especially, there were several opinion pieces discussing the need for different or modified project designs. These opinion pieces mostly claimed that incorrect project designs had been selected in the front-end phase, or that modifications to the project design should be made due to some issues in the implementation phase. For example:

> Unfortunately, the new train connection will benefit only the residents of the capital region. At the same time, a direct connection from [several larger cities of the country] to the airport should have been built. (Rail; Opinion piece, Newspaper 1)

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Table 5
Stakeholder influence strategies utilized in the case projects.

Stakeholder influence strategy	Rail	Subway	Tunnel
Communicating	- Stakeholders propose alternative project designs via media.	- Stakeholders propose alternative project designs via media. - Stakeholders use media to communicate their dissatisfaction with the project.	- Stakeholders use media to communicate their dissatisfaction with the project.
Complaining and resolving disputes	- Residents oppose the project's plan to set up a rock blasting station near a residential area. - A contractor and the project leaders dispute the share of costs of additional work. - Residents oppose the planned modifications to bus timetables.	- Stakeholders lodge appeals against the project. - Residents oppose zoning plans related to station areas. - A trade union complains about non-compliance with collective agreements by some subcontractors. - A supplier and contractors dispute with the project leaders about contractual responsibilities and compensation. - Residents oppose the planned modifications to bus timetables.	- Stakeholders lodge appeals against the project. - Residents communicate their concerns about dangers and damage caused by the tunnel work. - Residents communicate their concerns about the effects of the tunnel on air quality and the inadequacy of air filtering.
Setting rules and supervising the project	- Regulation by authorities limits the project work (e.g., hours when noisy work can take place).	- Regulation by authorities limits the project work (e.g., when noisy work can take place). - Supervision by authorities postpones the project (i.e., safety requirements for the subway).	- Regulation by authorities limits the project work (e.g., when noisy work can take place).
Using decision-making authority	- The government postpones its funding for the project. - The Regional Transport Authority evaluates whether some stations should be skipped to speed up travel. - City 1 changes the location of one station, renames another, and puts more design effort into a third station.	- Both cities demand explanations from the project and order independent reports about confusion over project costs and decision making. - The Regional Transport Authority and City 3 modify bus timetables and routes in response to project schedule information.	- Some politicians demand explanations from the project about the inadequacy of air filtering and the additional costs.

In all three projects there were some disputes between stakeholders and the project representatives. The disputes mostly took place between residents and the projects, or the suppliers, contractors, or subcontractors and the projects. Regarding residents, in both Subway and Tunnel the initiation of the implementation phase was endangered by formal appeals lodged by some critical residents. However, these appeals were rejected by the courts.

In Rail, some concerned residents opposed the project's plan to set up a rock blasting station near a residential area. The residents' opposition forced the project to shorten the hours for carrying out noisy work. However, the project was still planning to set up the blasting station in the same location, which amplified the residents' opposition. The residents joined forces and lodged a high number of formal appeals, finally forcing the project to change its plans. As the situation was described in Newspaper 1:

> "Not going to happen!," was the response from a group of potential neighbors [of the planned rock blasting station]. Over 30 formal appeals were lodged by yesterday's deadline. "It is not that much about the traffic noise; there is a nearby highway anyway. The main concern is the noise from the rock blasting," spokesman of the neighborhood explained. (Rail; News article, Newspaper 1)

Disputes between the projects and formal partners took place in Rail and Subway especially. In both projects, and even more so in Subway, the project and a partner disputed the cost of additional work, the fulfillment of contractual responsibilities, or entitlement to compensation on several occasions. The greatest dispute was between Subway and the main automation supplier. The supplier first struggled and then finally failed to deliver the automation solutions for the subway. The two parties negotiated, pushed, and threatened each other for years. As Newspaper 1 analyzed the situation afterwards:

> The project was terminated and Supplier, the transport agency of City 2, and Subway are blaming each other. According to Supplier, the buyers did not know how to buy; according to the buyers, Supplier did not know how to deliver. (Subway; News analysis, Newspaper 1)

The rules and supervision enforced by different authorities influenced the case projects as well. In all projects, the authorities (e.g., the cities or national regulators) set rules for the project work, such as setting time limits on noisy work. In addition to project work, the rules and supervision of the authorities were focused on the project deliverables as well. This was most evident in Subway, where one of the last major reasons for delays to the schedule was the project's inability to meet the safety requirements set:

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> The opening of the new subway will be delayed. The delay might even be months. The problems are related to the testing of the safety systems. 'There are risks related to the control systems,' the president of Subway Ltd. explains. (Subway; News article, Newspaper 1)

Finally, in all three projects there were powerful stakeholders with decision-making authority influencing the projects. When a powerful stakeholder made decisions affecting the projects, the projects could do little more than adapt to the situation. For example, in Rail the government decided to postpone its funding for the project:

> The commitment for government funding is still valid and the project will receive the millions of euros promised later. Some work will have to be re-scheduled to later years, however (Rail; News article, Newspaper 1)

4.2. Project value driving the stakeholder influences

Expected project value drove the stakeholders to exert their influence on infrastructure projects in somewhat different ways. Possibly due to the differences in the scope of the projects, Rail and Subway (which were more complex and crossed city boundaries) differed from Tunnel in how systemic value was experienced. The findings concerning the three project value dimensions in the case projects are summarized in Table 6.

4.2.1. Environmental and social value

Two aspects of environmental and social value were emphasized in the data: stakeholders (especially residents) requesting more value or complaining about negative value, and stakeholders (especially authorities) regulating environmental and social value.

Regarding stakeholders' requests for value, there were a few cases in all three projects where a resident or a group of residents raised their concerns. Examples included dust and noise disturbances caused by the project work and rubbish and dirt left behind by the projects. Most typically, the concerned residents utilized the media to bring their issues to the attention of the public (and possibly the project itself as well). Almost every time, the project responded quickly and tried to resolve or mitigate the problem.

On significantly fewer occasions, people demanded better consideration of the environmental and social aspects of the project deliverables. For example, in Subway some artists

Table 6
The dimensions of project value driving stakeholder influence in the three case projects.

	Rail	Subway	Tunnel
Environmental and social value	- Authorities set rules for the project work (e.g., hours when noisy work can take place). - Residents communicate their concerns about the negative effects of the project work on the environment. - Residents oppose the project's plan to set up a rock blasting station near a residential area. - City 1 puts more design effort into one station.	- Authorities set rules for the project work (e.g., hours when noisy work can take place). - Residents communicate their concerns about the negative effects of the project work on the environment. - Residents oppose zoning plans related to station areas. - Authorities' supervision postpones the project (i.e., safety requirements for the subway).	- Authorities set rules for the project work (e.g., hours when noisy work can take place). - Residents communicate their concerns about the negative effects of the project work on the environment. - Residents communicate their concerns about dangers and damage caused by the project work. - Residents communicate their concerns about the effects of the tunnel on air quality and the inadequacy of air filtering. - Some politicians demand explanations from the project about the inadequacy of air filtering.
Financial value	- A contractor and the project dispute the share of costs of additional work. - The government postpones its funding for the project.	- A supplier and contractors dispute with the project about contractual responsibilities and compensation. - Both cities demand explanations from the project and order independent reports about confusion over project costs and decision-making. - A trade union complains about non-compliance with collective agreements by some subcontractors.	- Some politicians demand explanations from the project about the need for additional funding.
Systemic value	- The Regional Transport Authority evaluates whether some stations should be skipped to speed up travel. - Residents oppose the planned modifications to bus timetables. - Stakeholders propose alternative project designs via media.	- Politicians demand explanations from the project about the capacity of the subway after the automation failure. - The Regional Transport Authority and City 3 modify bus timetables and routes in response to project schedule information. - Residents oppose the planned modifications to bus timetables. - Stakeholders propose alternative project designs via media.	- N/A

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demanded that more art be included in the design of the new subway stations. Although some art was purchased for all stations, the artistic investment did not meet the expectations of the art representatives. In Tunnel, a tempestuous discussion in the media was sparked when some residents (and politicians) became worried about the new tunnel's potentially inadequate air filtering solution. Although the media and the politicians required several responses from the project, no real changes to the project deliverables took place. As Newspaper 2 described the situation:

> "Air pollution caused by Tunnel are concerning the nearby residents. "Shouldn't the exhaust air be filtered?," the residents are asking. "The National Meteorological Institute has made numerous studies about the situation [demonstrating no need for filtering]," was the answer from the project alliance. (Tunnel; News article, Newspaper 2)

Finally, the projects had environmental and social effects on their surroundings as well, which caused resident outcry. This was most evident in Subway, where the city put considerable effort into developing neighborhoods close to the new subway. In particular, most of the areas to be developed were already residential areas, many with relatively long histories. As was analyzed in Newspaper 1:

> In City 3, the new subway will be built under an existing suburb. For transport technology and financial reasons, the subway creates urban density pressures. Compressing and centralizing environments with memories and history is never easy. (Subway; Expert analysis, Newspaper 1)

The residential development of the existing neighborhoods (more centralized housing, higher buildings) received quite a lot of opposition from people, especially the residents of those neighborhoods. Although some alterations to the plans were made — some tower blocks were lowered, for example — the general goal was not altered. As a representative of City 3 explained:

> The chief of city planning does understand some of the criticism. However, taller buildings are necessary to cover the costs of the new stations. (Subway; News article, Newspaper 1)

In contrast to Subway, Rail faced very few similar challenges. This can be quite clearly linked to the new railway being built further away from existing residential areas; because of this, it attracted less opposition from the residents.

Regarding the regulation of environmental and social aspects, several authorities set rules and limits for the projects. These rules and limits were related to time restrictions on performing noisy work or regulations for measuring the effects of the project work on air quality and nearby water sources, for example. The authorities focused on the environmental and social aspects of the project deliverables as well. In particular, one main reason for the final delays in Subway was the project's inability to meet the safety regulations set for the new subway.

4.2.2. Financial value

Two aspects of financial value were particularly dominant in the data: stakeholders (especially suppliers and contractors) defending their financial rights and project financiers (i.e., cities and the government) making financial decisions and demanding financial information.

There were a few disputes between the project owners and the contractors in all three projects. Although the origins of the disputes could often be traced to other issues, the disputes themselves, or even litigation, were almost always focused on money. For instance, both in Rail and in Subway there was a major dispute over the share of additional costs or on the liability for sanctions between the project owner and a contractor. In Rail, the two parties reached a consensus before ending up in a legal battle. In Subway, a long legal fight was still ongoing after the project implementation.

The aforementioned disputes can be seen as incidences of stakeholders defending their financial rights. A similar event took place in Subway, when a few small contractors failed to follow the regulations set in the collective agreements. A trade union utilized the media in bringing the issue to the attention of the public (and possibly to the project itself as well):

> Collective agreements are violated systematically at Subway's construction site. According to a trade union of transport workers, dozens of truck drivers receive salaries lower than defined in the collective agreements. (Subway; News article, Newspaper 1)

The funding for all three projects was provided by the cities and the government. The financier position could have enabled the cities and the government to exert their financial influence on the projects. However, there was only one significant example of this taking place. In the early implementation phase of Rail, the government was facing a relatively difficult economic situation. Consequently, the government decided to postpone part of the project funding, forcing Rail to re-schedule some of the project work. As the challenging situation was described in Newspaper 1:

> The government cuts seven million Euros from the budget preliminary allocated for Rail. Minister of Transport and Communications emphasizes that the overall funding from the government remains the same. In practice, the government "loans" some money from the upcoming year's budgets. (Rail; News article, Newspaper 1)

The cities roles as powerful financiers could have enabled them to exert influence on the projects. However, the cities' financial influence on the projects was quite limited in practice, and the cities were more often just recipients of financial information from the projects. In all three cases, the projects requested and received additional funding from the cities during the implementation phase. Although all of the extra funding needed was granted, the cities demanded explanations for the need for extra funding from the projects. This was especially evident in Subway.

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In addition to being delayed numerous times, Subway's total costs multiplied as well. In addition to the cost increases, politicians complained about the uncertainty and confusion related to the total costs and the inability of the cities to follow-up on or affect project costs. This inability was mostly due to the Subway project being managed as a limited company instead of falling under the responsibility of a particular city department. As Newspaper 1 described:

> We are still not told WHY the budget was exceeded so significantly. We had no possibilities to mitigate the growing costs (a representative of the City 2 Transport). (Subway; News article, Newspaper 1)

In addition to demanding and requesting information from the project, City 2 and City 3 did order several independent evaluations and reports as well. These all focused on the uncertainties in project costs, decision-making, and information sharing between the project and the two cities.

4.2.3. Systemic value

In all three projects, different people (residents, business representatives, experts, etc.) argued for a different project design on several occasions. These arguments were often based on the perceived user value of the infrastructure and communicated as opinion pieces in the newspapers. They often dealt with not just the project or infrastructure, as such, but its linkage to other infrastructures, other projects, and alternative project designs. Due to this interconnectedness, we labeled this value category 'systemic value.' For instance, in Rail there were several opinion pieces focusing on the benefits of a direct connection from the main national railway to the new airport railway instead of a transfer connection:

> Unfortunately, the new train connection will only benefit the residents of the capital region. At the same time, a direct connection from [several larger cities of the country] to the airport should have been built. (Rail; Opinion piece, Newspaper 1)

Common to a clear majority of the incidents such as the aforementioned was that the project design had already been decided in the front-end phase. Consequently, the opinion pieces seldom received any official response from the project and no changes to the project design were performed.

Also calling for a different project design, in Rail there were concerns about the new railway connection being too slow. This time the project responded and the Regional Transport Authority performed test runs. The goal of the test runs was to evaluate whether a few of the pre-planned stations could be skipped in order to speed up travel times (i.e., a user benefit). Skipping some of the old stations would have generated some cost savings as well. However, it turned out that no significant travel time savings could be achieved.

Of the three projects, especially Rail and Subway created a significant change to the existing transport infrastructure. When the new rail connections were implemented, the existing public transport network (i.e., bus connections) was partially altered. In both projects, and particularly in Subway, there were people who benefitted from the new subway or railway and people who suffered from the altered bus connections. Criticism of the altered bus connections started to grow when the project was nearing completion and the details of the new routes and timetables were starting to take shape. The "unlucky" people did pursue changes to the timetables by writing opinion pieces, giving direct feedback to the planning authorities, and by participating in events organized by the projects. Although some minor changes did take place, the general phenomenon of some people benefitting and some people suffering persisted. As was described shortly after the completion of the project:

> At the same time, when many residents of [a suburb in City2] are happy about the opening of the Subway, "rebellion is growing" in the neighboring area. Over 2,500 people have signed a petition demanding a direct bus connection to the city center, instead of just a route to the subway station. (Subway; News article, Newspaper 1)

The final illustrative example was the problem related to the automation of Subway. In the front-end phase of the project, it was agreed that the new subway should be automated (instead of using drivers). Consequently, enabled by the automation and affected by cost pressures, a decision was made to build the platforms of the new station shorter than the preexisting platforms. This decision limited the length of the trains, but the shorter headway enabled by the automation was supposed to secure sufficient capacity, despite the trains' shorter lengths.

When the project implementation progressed, the challenging nature of the automation project began to be revealed and the number of problems began to grow. Despite numerous negotiations, pressure, and threats between the project and the automation supplier, it started to become apparent that the automation project would fail, resulting in a subway with shorter trains manually driven by drivers.

The worried residents, experts, and politicians expressed their concerns about the new subway becoming crowded and its capacity becoming insufficient in the very near future. As two representatives of the City 2 Transport wrote in an opinion piece:

> The shorter trains and the 2.5-minute headway are only estimates, which are not based on real life experiences. Even now [before the subway extension], maintenance work does take place affecting the real headway of the subway network. (Subway; Opinion piece, Newspaper 1)

The project responded by issuing assurances that the concerns were exaggerated and that the subway's capacity would be sufficient for a long time to come.

Residents, experts, and politicians proposed several ways to solve the problem. For example, it was proposed by a few residents and experts that longer trains could be used despite the new stations' shorter platforms. It was also proposed, and even demanded by some politicians, that despite the front-end decision, the tunnels should be dug longer, thereby enabling the platforms to be lengthened as well.

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Table 7
Stakeholder influence strategies utilized for stakeholder influence efforts driven by different project value dimensions.

	Communicating	Complaining and resolving disputes	Setting rules and supervising the project	Using decision-making authority
Environmental and social value	- Issues communicated by stakeholders, especially residents, via media.		- Authorities setting rules for the project work (e.g., hours when noisy work can take place) and supervising the project deliverables (e.g., safety aspects.	
	Importance[a]: high	Importance: low	Importance: high	Importance: low
Financial value		- Contractor and supplier disputes (including some legal battles) with the projects about the share of costs, compensation, etc.		- Powerful financiers (i.e., the central government) adjusting their project funding. - Powerful stakeholders (i.e., cities) demanding explanations of project costs.
	Importance: low	Importance: high	Importance: low	Importance: high
Systemic value	- Stakeholders communicating aspects frequently via media. - Numerous events, but little influence exerted on the projects → only medium importance.			- Stakeholders (e.g., cities and transport authorities) performing some evaluations and modifications. - Politicians demanding explanations from the projects. - A medium number of events, but little influence exerted on the projects → only medium importance.
	Importance: medium	Importance: low	Importance: low	Importance: medium

[a] Importance refers to the relative dominance of the influence strategies for influence efforts driven by the specific value dimensions. For example, the "Importance: high" in the top left cell of the table means that communication was a dominant influence strategy for influence efforts driven by environmental and social value. The importance (low, medium or high) was evaluated based on the frequency of each value dimension-influence strategy pair in the data.

4.3. Value-oriented stakeholder influence strategies

Based on the case-specific analyses and cross-case comparison, we mapped the primary value expectations concerning each influence strategy and cross-tabulated the dominant pairs of influence strategy and value in Table 7. The table illustrates how different stakeholder influence strategies were mainly utilized for stakeholder influence efforts driven by different project value dimensions.

Although the three case projects were different in several ways, the general logic of utilizing different influence strategies (Table 7) was very similar in all three projects. The findings of the three projects varied more on the general activity of the stakeholders and the criticality of the stakeholder influence efforts. Tunnel and Subway appeared as two opposite ends of the spectrum, potentially reflecting the degree of complexity and success of the projects. In Tunnel, the alliance contract simplified the project setting, the project progressed in line with the plan, and the stakeholder influence efforts were mainly focused on the environmental and social aspects of the project work and the project deliverables. In Subway, in turn, the contractual setting was highly complex, the project faced numerous problematic events, and the stakeholders' influence efforts were driven by all three dimensions of project value. The most critical influence efforts in Subway were driven by financial value and systemic value. Despite the numerous critical voices of the stakeholders, their claims were not particularly influential.

Regarding environmental and social value, communication and rules and supervision were the most utilized influence strategies in the case projects. The residents communicated their concerns via media and the authorities set rules for and limitations on the projects. These influence efforts quite often led to implementation as well, especially if they were targeted at the project work instead of the project deliverables.

Regarding financial value, the two most utilized influence strategies were complaints and disputes and decision-making authority. When decision-making authority was used, there were a few instances when a powerful stakeholder made a financial decision and the respective project owner had very little to say. Concerning complaints and disputes, especially in Rail and Subway, several disputes focused on money. These disputes were among the most visible influence events in the projects and resulted in the realization of stakeholder influence.

Finally, with regard to systemic value, the two most utilized influence strategies were communication and decision-making authority. However, this value dimension was significantly less evident in Tunnel, which is understandable considering its single-city context when compared to the two other projects. In Rail, and especially in Subway, there were quite a few influence efforts driven by systemic value, but rather little influence realized on the projects. This could be due to these influence efforts being targeted mostly at the project

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deliverables. The projects' key personnel are more reluctant to change the project deliverables than the project work practices.

5. Discussion

The goal of this study was to develop new knowledge on value-oriented stakeholder influences on infrastructure projects. The results have revealed stakeholder influences and value profiles that deviate from previous research and offer unique information concerning transport infrastructure projects. They clearly communicate the special character of stakeholder influence on public infrastructure projects in contrast to the commercial, private construction projects that have been studied previously.

5.1. Types of stakeholder influence strategies

In project stakeholder management literature, the focus has been on the viewpoint of the focal firm or the project (Aaltonen and Kujala, 2010; Mok et al., 2015). In this study, we sought contribution by focusing on the viewpoint of the stakeholders themselves. The few earlier studies following this viewpoint have focused on identifying different influence strategies utilized by the stakeholders (e.g., Aaltonen et al., 2008; Aaltonen and Kujala, 2010). In order to participate in this discussion, the first research question of this study asked: What kinds of influence strategies do stakeholders utilize in infrastructure projects to achieve their goals?

As an overall contribution to the first research question, this study has identified four influence strategies that apply specifically within the context of public transport infrastructure projects pursuing long-term value: communicating, complaining and resolving disputes, setting rules and supervising the project, and using decision-making authority. Of the four influence strategies, the first two are highly evident in the prior literature as well (e.g., Aaltonen et al., 2008; Aaltonen and Kujala, 2010). Our study demonstrates the existence of those influence strategies in the context of public infrastructure projects, thereby complementing previous findings on private-sector construction projects. The "setting rules and supervising the project" and "using decision-making authority" influence strategies have received less emphasis in the prior literature, proposing them as influence strategies specific to public infrastructure projects. In addition, from a stakeholder salience perspective (Aaltonen et al., 2008; Mitchell et al., 1997), it appears that stakeholder claims following the two novel influence strategies are often considered highly legitimate by the project owner in the context of public infrastructure projects.

In this study, we have contributed by demonstrating how different stakeholder groups have access to and primarily utilize different influence strategies. Regarding the few existing studies with explicit focus on stakeholder influence strategies, the focus has been mostly (Aaltonen et al., 2008) or completely (Aaltonen and Kujala, 2010) on only one (mostly opposing) stakeholder group. However, additional research on the diversity of stakeholder influence actions have been called for (Aaltonen and Kujala, 2010). Similarly, in a few recent studies with more general approaches to stakeholder influence, evidence on the diversity of stakeholders' expectations or influence actions have been provided (e.g., Cuppen et al., 2016; Li et al., 2012; Liu et al., 2018). This finding emphasizes the contingency viewpoint to stakeholder management, implying that stakeholders that have access to specific influence strategies due to their network position require also specific response strategies from the project.

The results of this study touch upon the role of secondary stakeholders in infrastructure projects. Earlier, Aaltonen and Kujala (2010) studied a pulp mill construction project and found that the influence possibilities of secondary stakeholders in the project implementation phase were fairly limited. In this study, apart from the environmental and social aspects of the project work, the influence exerted by the secondary stakeholders was fairly limited as well. These findings draw attention to the unequal power distribution in infrastructure project networks, and the need for projects to configure their response strategies for different stakeholder groups.

Finally, a few studies have emphasized the project lifecycle viewpoint to stakeholder influences (e.g., Aaltonen and Kujala, 2010; van den Ende and van Marrewijk, 2018). In our study, the focus was limited to the implementation phase of the infrastructure projects. However, following an event-based process research design (Langley, 1999; Langley et al., 2013), we have highlighted the potentially interconnected and escalating nature of stakeholders' influence efforts over the progress of the project. This idea of escalating influence efforts, possibly combined with the lifecycle viewpoint to stakeholder influences, calls for additional research.

5.2. Project value driving the stakeholder influence strategies

Neither the studies focusing explicitly on influence strategies, nor the literature discussing stakeholder influences on projects more generally (Table 1) have explicitly explained *why* a stakeholder exerts influence on a project in a specific way. Justified by some implicit support in recent literature (Liu et al., 2018; van den Ende and van Marrewijk, 2018), we propose that the concept of project value is a means to justify and adopt certain stakeholder influence strategies. To contribute to this area, the second research question inquired: How do stakeholders' expectations and requirements for project value drive their attempts to influence?

A few recent studies have demonstrated how neglecting the stakeholders' expectations or requirements in large infrastructure or construction projects can generate stakeholder actions against the project (Liu et al., 2018; van den Ende and van Marrewijk, 2018). In this study, we have built on this idea further and provided a more nuanced framework of project value dimensions explaining the utilization of different stakeholder influence strategies (Table 7). As prior literature on stakeholder influence has not provided frameworks like this, a key contribution in this study reveals that stakeholders differentiate their influence strategies based on value dimensions.

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Regarding project value dimensions, environmental and social value (e.g., Kivilä et al., 2017; Labuschagne and Brent, 2005) and financial value (e.g., Ahola et al., 2008; Kivilä et al., 2017) have been widely discussed in the literature and analyzed in different project contexts. Our findings offer evidence on how they appeared in transport infrastructure projects specifically. As a novel dimension, the results highlighted the prevalence of "systemic value" that has not been covered in prior studies, especially in the context of public infrastructure projects.

Systemic value deals with the linkages between the project with other projects, other infrastructures and the broader surroundings. Where much of infrastructure project research centers on single project deliveries, this finding portrays the transport projects in tight connection with the broader pursuit of public infrastructure development, potentially as a portfolio of projects or other development ideas or initiatives. In previous research, Martinsuo and Killen (2014) have discussed the learning value between projects in project portfolios and Engwall (2003) has emphasized the need to link projects with their history and context. In our study, we revealed more explicitly the value emerging from the systemic interconnections between multiple projects and between a project and its surroundings, which are highly relevant and typical in large, complex infrastructure projects.

With focus on public transport infrastructure projects, the concept of public value (e.g., Koppenjan et al., 2008) is relevant as well. This study contributes to this discussion in two main ways: by emphasizing the role of different stakeholders and by explicating their competing value claims during the project implementation phase. In the earlier literature, more focus has been on safeguarding performed by the public sector and to lesser extent by the private firms themselves (de Bruijn and Dicke, 2006; Reynaers, 2014). The findings in this study highlight the complex (i.e., vertical and networked) nature of safeguarding performed by multiple stakeholders, including the residents and the general public, for example. Regarding project lifecycle, the majority of the earlier studies have focused on the nature of public values at the project front end (i.e., procurement; e.g., Furneaux et al., 2008; Hueskes et al., 2017) or in the operations phase of a privatized facility or industry (e.g., Steenhuisen and van Eeten, 2008). The results of this study demonstrate how the stakeholders of public transport infrastructure projects do not just follow the implementation of the project, but instead they proactively safeguard public values as the project proceeds. It is expected that the proactive influence during project implementation could be less evident in a different context, such as in private commercial construction projects.

6. Conclusions

6.1. Theoretical contributions

The literature on stakeholder management in projects has tended to focus more on the viewpoints of the focal firm or the project owner than the perspective of the stakeholders (Aaltonen and Kujala, 2010; Mok et al., 2015). This article's contribution has been to reveal the stakeholder influence strategies that are often neglected and identify the values underlying the stakeholder influences.

This study has identified four stakeholder influence strategies: communication, complaints and disputes, decision-making authority, and rules and supervision. Of the four influence strategies, the authority and rule-oriented strategies in particular supplement existing knowledge by emphasizing the importance of the influence exerted by powerful external stakeholders. The prior literature has identified several stakeholder influence strategies (e.g., Aaltonen et al., 2008; Aaltonen and Kujala, 2010; Frooman, 1999) but primarily in connection with private sector construction projects. We revealed significant cross-case similarities in transport infrastructure projects in the stakeholder influence strategies and therefore suggest that project stakeholder influences may be specific to a certain project type.

In this study, we have also argued that the concept of project value provides a way to understand the reasons behind the utilization of stakeholder influence strategies. The results of the study demonstrate how three project value dimensions — environmental and social value, financial value, and systemic value — drive the stakeholders' efforts to influence and how the influence efforts driven by different value dimensions were pursued using different influence strategies. Due to the public nature of infrastructure projects, the viewpoint of public values is relevant as well. Our findings illustrate actions of the public sector and the general public in protecting and safeguarding public values. Further research is needed to explore this contingency view to stakeholder influence.

6.2. Managerial implications

The findings have implications for project management practitioners, particularly those working in the infrastructure delivery sector. The influence events examined in the three projects, the successful alliance setting in Tunnel, and uncertainties (especially in Rail and in Subway) emphasize the importance of clear and unambiguous project contracts. The same applies for additional work. The case projects featured several occasions on which the project owners and their partners were disputing or even fighting in court, partly due to ambiguous contracts or agreements.

In Subway, the representatives of the two cities requested and demanded better and more transparent project information numerous times. These examples highlight a potential challenge when infrastructure projects are not organized as public sector projects, but instead as limited companies, following the requirements of private firms. In all three projects, but especially in Rail and Subway, the projects required additional funding due to either a budgeting failure, surprises in the project work, or additional work. These all highlight the challenging nature of planning and budgeting for large, public sector projects.

Finally, the findings about stakeholder influence strategies provide knowledge for project managers in general. In

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particular, the findings demonstrate the different influence strategies utilized by stakeholders and the different project value dimensions driving those influence efforts. Both of these aspects are important when project managers plan their stakeholder management activities.

6.3. Limitations and ideas for future research

There are a few limitations related to the empirical setting which thereby affect the validity of this study. The focus on three transport infrastructure projects strengthens the generalizability of the findings when compared to a single case study design. However, the limitation to a certain project type and context limits the generalizability of the findings to this specific context.

The utilization of publicly available data (i.e., the newspaper articles) has enabled us to discuss the findings openly. It will enable other scholars to evaluate the findings critically and replicate the study. However, the potential bias of the newspaper articles places limitations on the study's validity. For example, not all (minor) influence efforts are discussed by the media and the focus of the media might be biased toward the larger and more powerful stakeholders. We tried to mitigate these validity issues by triangulating the data with official project documentation whenever possible.

Finally, the coding framework utilized can create validity issues. In particular, it is possible that the utilization of existing literature as a basis for the preliminary coding framework has affected the categorization of the results. By building a different preliminary coding framework, or by following a pure inductive coding approach, the categorization might have been different. However, the richness of the data and first doing the coding case by case and then across cases gave the researchers confidence that the best possible framework for this particular data set was used.

Regarding avenues for future research, the findings of this study should be tested in different contexts, including both different types of infrastructure projects and different types of projects in general. Both the stakeholder influence strategies and the relevant dimensions of project value in particular can turn out to be different in different contexts, which we have referred to above as the contingency view to stakeholder influence on infrastructure project networks. The results of the study indicate a difference between project value of the project implementation and the project deliverables. This phenomenon could be studied further in future research. In addition, complementing or replacing the documentary archival data with direct interaction with the stakeholders (i.e., in the form of interviews) could reveal different types of influence efforts and the tacit priorities underlying their influence. The same applies to conducting a study based on real-time observations instead of analyzing historical data.

Conflict of interest

There is no conflict of interest. The editor-in-chief has handled the paper.

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