

Temporary and permanent aspects of project organizing – operation and maintenance of road infrastructure

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Abstract

Purpose – The purpose of this paper is to explore the interdependencies between temporary and permanent aspects of project organizing and how they affect the management of public infrastructure operation and maintenance (O&M) activities.

Design/methodology/approach – The paper applies a case study approach and uses Lundin and Söderholm's (1995) framework of the temporary organization (with the themes of time, task, team and transition) to distinguish between temporary and permanent aspects of organizing two infrastructure O&M projects.

Findings – This paper adds to the literature on temporary organizations by recognizing a mixture of temporary and permanent aspects of project organizing in an empirical project-level example. In line with previous research, the themes of time, task, team and transition were shown to be interdependent. Furthermore, the paper broadens the theory of temporary organizations by presenting a project organization with significant permanent aspects.

Practical implications – Project managers of public sector projects need to be aware of the possible mixture of temporary and permanent aspects of project organizing. Management of projects that are found to have a mixture of temporary and permanent aspects should combine the perspectives and management practices of both temporary and permanent organizing. Not acknowledging permanent aspects could lead to management that is not adapted to the prerequisites of project organizing in this context.

Originality/value – The findings further develop the literature on temporary organizations by recognizing that there is not only a mixture of temporary and permanent aspects between the temporary organization and its permanent environment but there is also a mixture of temporary and permanent aspects of organizing within project organizations.

Keywords Project management, Temporary organizations, Innovation, Operation and maintenance, Public procurement

Paper type Research paper



1. Introduction

Many researchers have discussed increased projectification and its consequences for organizations and societies (e.g. Packendorff and Lindgren, 2014; Schoper *et al.*, 2018). The increased use of project organizing in what were traditionally perceived as permanent organizational settings has been seen in a wide range of contexts, and both in private and public sectors (Fred, 2015). The effects of projectification are examined in a recent article by Spanuth *et al.* (2020), who concluded that temporary forms of organizing reduced the bureaucratic effects in the organization. According to Sjöblom *et al.* (2013), the projectification of public sector activities is a result of the reforms that the public sector has undergone in the last decades, where the aim has been to increase flexibility and efficiency by moving away from traditional bureaucracy.

The projectification of the public sector has created tensions between temporary and more permanent aspects of organizing public administration, such as preserving stable organizational structures, with extensive documentation, monitoring and evaluation and at the same time organizing in a more temporary and “fluid” manner (Fred, 2015). By acknowledging that “*No project is an island*” (Engwall, 2003), researchers exploring tensions between temporary and permanent aspects of organizing have emphasized the importance of studying project organizations in the light of their more permanent organizational settings (e.g. Sahlin-Andersson and Söderholm, 2002; Nesheim, 2020; Sergeeva, 2020). This wider perspective has spurred project studies to move from focusing on the “*lonely project*” (Bakker, 2010, p. 479) toward an increasingly contextual perspective. While not diminishing the importance of a contextual perspective in project studies, we wish to problematize the fact that this perspective could cause project organizations to be viewed as entirely temporary, thereby missing or neglecting permanent aspects of project organizing and possible tensions between permanent and temporary aspects of organizing. The projectification of the public sector has created a need for better theoretical understanding of the interdependencies between temporary and permanent aspects of organizing (Godenhjelm *et al.*, 2015). In our study of the public infrastructure sector, we argue that this mix of temporary and permanent aspects of organizing exists not only in the interface between project organizations and their surrounding (permanent) organizational contexts but also within single project organizations.

In 1995, Lundin and Söderholm published an influential article with a theoretical framework of the temporary organization in which they proposed four demarcations between the temporary and permanent organization: time, task, team and transition. These four interdependent themes enabled a separation between the temporary organization (e.g. the project) and its permanent environment (Lundin and Söderholm, 1995). We suggest that the projectification of public sector activities has created projects in which there are both temporary and permanent aspects of organizing to such an extent that these projects are borderline of falling outside Lundin and Söderholm’s (1995) definition of a temporary organization.

The increased use of project organizing in public infrastructure sector activities affects not only the typical project-oriented and temporary activities, such as investments in new public infrastructure, but also the repetitive operation and maintenance (O&M) activities. One such example is road infrastructure O&M activities, which in Sweden have traditionally been conducted as repetitive activities in ongoing process-like work by permanent organizations using the in-house resources of public authorities. However, starting in the 1990s, these activities were outsourced in O&M contracts, which were opened for competition and organized as projects. Hence, these activities have a history of being conducted through processes in permanent organizations but are now carried out by project organizations that are affected by both the legacy of the permanent organization and the expectations of project organizing.

Moreover, previous project management research on public infrastructure has mostly focused on the management of building new, large infrastructure facilities (e.g. [Eriksson et al., 2017](#); [Nguyen et al., 2019](#)), while the long-term and expensive O&M activities of such facilities have largely been neglected ([Larsson and Larsson, 2020](#)). These activities are also complex since they often involve activities pertaining to busy roads or other infrastructure, which disrupt the everyday lives of many people and stakeholders throughout the facilities' extensive lifecycles ([Schoenmaker and de Bruijn, 2016](#)). O&M of infrastructure spans from the completion of the newly-built facility to its termination, which generally encompasses a period of approximately 80–120 years. Due to the longevity of the infrastructure lifecycle, O&M activities face permanent aspects that need to be considered along with the temporary aspects of the O&M activities that are arranged in time-limited contracts.

The purpose of this paper is to explore the interdependencies between temporary and permanent aspects of project organizing and how they affect the management of public infrastructure O&M activities. We do this by taking a project-level perspective, exploring the existence of both temporary and permanent aspects within two road O&M projects initiated and managed by the largest public infrastructure client in Sweden, the Swedish Transport Administration (STA). We apply [Lundin and Söderholm's \(1995\)](#) framework to distinguish between temporary and permanent aspects of project organizing in public infrastructure O&M activities.

2. Theoretical framework: demarcations for the temporary organization

In 1995, Lundin and Söderholm presented their framework with four key themes (time, task, team and transition) for the temporary organization to theorize the empirical phenomenon of projects and differentiate between temporary and permanent organizations. In the same special issue, [Packendorff \(1995\)](#) clarifies that projects are not to be understood as tools but as temporary organizations, involving “*a collective course of action aimed at evoking a non-routine process and/or completing a non-routine product*” (p. 327). In a later development of the framework, [Jacobsson et al. \(2013\)](#) suggest that the theories of the temporary and permanent organizations should be interlinked. Similarly, [Artto \(2013\)](#) emphasizes the need to include dimensions outside the temporary organization and argues that the boundaries between that which is permanent and that which is temporary cannot be easily distinguished. Furthermore, [Burke and Morley \(2016\)](#) show that there are multiple configurations labeled “temporary” organizations, and that there are tensions between temporary and permanent organizations relating to, for example, autonomy/integration, exploration/exploitation and measuring performance/managing creativity. We continue and contribute to the discussion on tensions and interdependencies between temporary and permanent aspects of project organizing by expanding the discussion on temporary organizing that encounters permanent aspects within public sector projects.

That many projects do not fit into the traditional project themes of time, task, team and transition is acknowledged by [Karrbom Gustavsson and Hallin \(2015\)](#) in their discussion on goal-seeking and goal-oriented projects. An example of this is projects that apply an agile methodology in which projects are managed without an original plan, pre-defined tasks or a fixed deadline ([Cohen et al., 2004](#)). We argue that O&M projects that are procured and managed by public infrastructure clients are another such example, where permanent and temporary aspects of organizing are highly mixed and interdependent. Our theoretical framework is based on [Lundin and Söderholm's \(1995\)](#) four themes, but we also include the developments of their framework that, over the years, has been discussed in, for example, *International Journal of Managing Projects in Business*. We also include other research about time, task, team and transition within project organizations and permanent organizations.

2.1 Time

Time is often described as the most prominent and important theme of a temporary organization (Lundin and Söderholm, 1995; Bakker, 2010; Artto, 2013), for which reason Lundin and Söderholm initially put time at the center in their model of the interdependencies between their four themes. Bakker (2010) describes a discussion in the literature on temporary organizations concerning whether or not organizational systems of longer duration (Bakker gives examples of systems lasting from five to twelve years) should be called temporary, where the majority of the research seems to think that they should. Therefore, the duration of a temporary organization does not need to be short, but it must be limited (Lundin and Söderholm, 1995; Bakker, 2010; Bakker *et al.*, 2016). The view that the temporary aspect should not be equated with short duration is supported by Winch (2014), who argues that no organizations are truly permanent, and that the distinction is the temporary organization's determinate period of time; the pre-defined termination date creates a final deadline for the project that does not exist within indeterminate organizations. Because the time in a permanent organization is undetermined, it is perceived as infinite and without a time horizon (Lundin and Söderholm, 1995; Bakker *et al.*, 2016).

At a more detailed level, time has traditionally been perceived as linear, with distinct phases between the temporary organization's "birth" and "death", while a permanent organization has the notion of infinite time, creating a focus on survival in the long run (Lundin and Söderholm, 1995). Furthermore, instead of distinct phases and deadlines, the permanent organization is formed around seasons and periods in the calendar (Arvidsson, 2009), which are repeated year after year.

Recent research on temporary organizations suggests that time-boundedness, in terms of an ex ante built-in termination date, encounters limitations (Sydow and Braun, 2018). Studies on agile projects, for example, suggest that a project termination date may not be pre-defined but will depend on when the tasks comprising the project are finished (Cohen *et al.*, 2004). Although time is not pre-determined, as suggested by Lundin and Söderholm (1995), it is not infinite and unlimited as it is within a permanent organization. As such, the time limit may be tied to the finishing of the task, instead of a certain pre-defined date. This is also typical for large and complex construction projects, which often get delayed and may be ongoing for many years, with an aim to finish the tasks ordered by the client (Zidane and Andersen, 2018).

2.2 Task

According to Lundin and Söderholm (1995, p. 438), the task of the temporary organization is the reason for its existence, and the organization is "*dependent on one, or a very limited number of, defined tasks*". The task of a temporary organization is seen as something that should be completed within a limited time (Lundin and Söderholm, 1995; Burke and Morley, 2016), in contrast to the ongoing processes of a permanent organization. The focus on the execution of tasks in a temporary organization creates a focus on action, while in a permanent organization, the focus lies on goals driving decision-making (Lundin and Söderholm, 1995). However, projects indisputably also have goals, and Engwall (2002, p. 263) states that "*the goal is the core element of every project's existence*". According to Sahlin-Andersson and Söderholm (2002), the overall goals of the permanent organization are to maintain stability and core values, and to drive long-term development. The distinction between goals from a temporary vs permanent perspective thus seems to be that the goals of a temporary organization have a focus on action and are to be achieved within a limited time, making them relatively short-term, while the goals of a permanent organization can have a more long-term strategic character.

In their article, Lundin and Söderholm (1995) presented two different types of temporary organizations: the unique temporary organization and the repetitive temporary organization.

While the purpose of the unique temporary organization is to deal with a unique task, the repetitive temporary organization will deal with the same task again in the future (Lundin and Söderholm, 1995). However, the general view in the literature seems to be that the tasks of a temporary organization are more unique than in a permanent organization, and that the repetitiveness comes from the fact that temporary organizations may undertake similar projects again (Brady and Davies, 2004). Hanisch and Wald (2014) state that the degree of task uniqueness of temporary organizations varies between low and high, but that they are always “to some extent unique as they result in a new product or technology” (Hanisch and Wald, 2014, pp. 198–199). In the construction industry, projects have traditionally been characterized as unique and complex in terms of their preconditions, delivery and products (Eriksson *et al.*, 2017; Nguyen *et al.*, 2019). However, in recent decades, there has been a shift toward more lean and industrialized processes and more permanent organizations, in which traditionally unique tasks have become more repetitive (Höök and Stehn, 2008; Larsson *et al.*, 2014).

2.3 Team

The team within a temporary organization depends on the individuals who are put together to perform a task (Lundin and Söderholm, 1995). A project team is most often cross-functional (Zwikael and Unger-Aviram, 2010) and consists of individuals “*who are unfamiliar with one another’s skills*” (Bechky, 2006, p. 3). However, when tasks are performed by temporary organizations with long-term interorganizational relationships, teams may span several projects or be reactivated in future projects, creating stability and continuity (Sydow and Braun, 2018), as in a permanent organization.

Because of the time limitations of the temporary organization, the participation of the individuals within the team is also time-limited, which means that the individuals have other “homes” (Lundin and Söderholm, 1995, p. 442). The notion that the participants have other “homes” is supported by Ekstedt (2002), who states that in the Swedish construction industry the workers are employed by construction companies and thus are not employed for a particular project setting. In a permanent organization, the corresponding concept is the “*working*” organization (Lundin and Söderholm, 1995, p. 439), which might be seen as “*just any group of people*” (Lundin and Söderholm, 1995, p. 442). Arvidsson (2009) states that the permanent organization creates teams based on areas of competence, while for a temporary organization, the team is put together to perform a specific task over a limited time.

2.4 Transition

Transition is the aim of the temporary organization, and the success of the temporary organization relies on this transition (Lundin and Söderholm, 1995). According to Lundin and Söderholm (1995, p. 439), “*there is an expectation that there should be a qualitative difference in the temporary organization ‘before’ and ‘after’*”, which should make it possible to measure the progress of the temporary organization. Within permanent organizations, temporary organizations are created when there is a need for change because the focus of the permanent organization itself is on stable production and continual development (Lundin and Söderholm, 1995).

While Lundin and Söderholm (1995) had time as the central theme for the temporary organization, Jacobsson *et al.* (2013) place transition in the center and suggest that transition is the foundation for demarcations between the temporary and the permanent. Jacobsson *et al.* (2013) view the temporary organization as a transitory unit in which transition affects the three other themes. Lundin and Söderholm (2013) responded to this by acknowledging the importance of transition and by introducing the concept of end states, which they argue better, captures the uncertainties and changes in the environment of temporary organizing.

The notion of end states, which is a concept from military peace-supporting operations, acknowledges that uncertainties make it impossible to design a complete plan and to follow such a plan in detail. There are conceptions as to where to end up, but activities must be adjusted over time in relation to what happens in the context. Thus, the conception of end states changes over time (Lundin and Söderholm, 2013).

In addition, Lundin and Söderholm (2013) acknowledge in their response to the discussion on the theory of the temporary organization that a theory is always a “*child of its time*” (p. 588), and that there is room for other types of theories and theory developments than the one proposed in their original article. “*Essentially, the idea of what a project is differs in various contexts*” (Lundin and Söderholm, 2013, p. 592). They end their response by placing the classical engineering-type of project with clear specifications on task, resources and time on one side of a project continuum, and the family business with its focus on succession on the other side of the same continuum, “*for the simple reason that it is not described as a project*” (p. 593). This way, they acknowledge that what is understood as a project varies and that there is a need for more theoretical work on the temporary organization. However, according to Karrbom Gustavsson and Hallin (2015), end states are problematic, and instead they suggest that temporary organizations constantly change across time and space between goal-seeking and goal-oriented modes because of a shift in the trajectory of the project. This way, they acknowledge the agile methodology in which tasks develop incrementally and iteratively without fixed deadlines and suggest trajectory as an alternative to transition (Karrbom Gustavsson and Hallin, 2015).

Transition seems to be an especially central theme in the construction industry as new buildings involve changes not only in relation to the built environment but in relation to many aspects of the client organization. Accordingly, Boyd and Chinyio (2008) argue that buildings are not about building but rather about changing and developing the client organization. This is because investment activities are a result of the client’s desire to change or satisfy a need (van den Ende and van Marrewijk, 2014).

2.5 Summary of demarcations between temporary and permanent organizations

Based on previous literature on temporary organizations, with Lundin and Söderholm (1995) as the foundation, we suggest some clear demarcations between the temporary organization and the permanent organization, which are briefly summarized in Table 1. The presented demarcations are used in the analysis of our findings, to distinguish between temporary and permanent aspects in the two road O&M projects that are subjects of this study.

3. Methodology

3.1 Case selection and case description

A case study involving road O&M activities organized as two road O&M projects initiated and managed by the Swedish Transport Administration (STA) has been conducted to investigate the contemporary and interdependent existence of permanent and temporary aspects of project organizing. Road O&M activities were historically repetitive and conducted through process-like work by permanent organizations with in-house resources (from the STA). Since the 1990s, these activities have been outsourced as time-limited contracts open for competition and organized as projects including both client and contractor representatives. As such, these O&M activities have been subject to public sector projectification and are therefore well-suited for the aim of the study. The Swedish public road system is divided into 109 geographical areas, each with an external supplier (henceforth contractor) performing operation and maintenance of the roads. The contracts are four to six years long and include, for example, snowplowing during winter, maintenance of paved and unpaved roads, and exchanging damaged road equipment.

	Temporary organization	Permanent organization
Time	Time is limited and pre-defined which create deadlines (Lundin and Söderholm, 1995; Bakker, 2010; Bakker <i>et al.</i> , 2016; Winch, 2014) Time is perceived as linear, with distinct phases between “birth” and “death” (Lundin and Söderholm, 1995) Time does not have to be limited but is dependent on the finishing of the task (Cohen <i>et al.</i> , 2004)	Time is infinite (Lundin and Söderholm, 1995; Bakker <i>et al.</i> , 2016) Time is formed around the calendar year (Arvidsson, 2009) Focus on long-term survival, not limited time (Lundin and Söderholm, 1995)
Task	One, or a limited number of, defined tasks, which can be unique or repetitive (Lundin and Söderholm, 1995) Repetitive tasks are unique to some extent (Brady and Davies, 2004; Hanisch and Wald, 2014) The task comprises time-limited goals that focus on action (Lundin and Söderholm, 1995) The task should be completed during project duration (Burke and Morley, 2016)	Tasks are repetitive and continuous for an infinite period of time. Long-term goals drive decision-making (Lundin and Söderholm, 1995) Overall goals concern stability, core values and long-term development (Sahlin-Andersson and Söderholm, 2002)
Team	Cross-functional team formed around the task (Zwikael and Unger-Aviram, 2010) Time-limited participation where participants have other permanent “homes” (Lundin and Söderholm, 1995; Ekstedt, 2002) and are unfamiliar with one another’s skills (Bechky, 2006)	Any group of people, must not be formed around the task (Lundin and Söderholm, 1995) Based on competences (Arvidsson, 2009) and continuous participation, enhancing participants’ familiarity. Defined as “working organization” rather than team (Lundin and Söderholm, 1995)
Transition	The project work in itself or the outcome concern progression, achievement or accomplishment (Lundin and Söderholm, 1995) The temporary organization is a transitory unit (Jacobsson <i>et al.</i> , 2013) Possible to measure progress and accomplishment based on transition (Lundin and Söderholm, 1995)	Stable production processes and continual development (Lundin and Söderholm, 1995)

Table 1.
Demarcations between temporary and permanent organizations

The STA is the largest public infrastructure client in Sweden, and as a government agency, it receives its missions from the Swedish government. The regulation in which the government specifies its instructions for the STA states: “*The Swedish Transport Administration shall especially work to increase the productivity, innovation, and efficiency on the market for investments, operation, and maintenance*” (Riksdagen, 2010). Based on this, STA initiated two innovation pilot projects (in two different geographical areas) for their procurement of road O&M activities in 2018. The two pilot projects, hereafter called project A and project B, have similar prerequisites in terms of procurement strategy and contract. Both aim to facilitate innovation and development through an explicit collaboration model, an innovation bonus and a reward system based on the combination of fixed price and cost reimbursement with a painshare/gainshare arrangement connected to a target cost. The aim to facilitate innovation in the pilot projects represents an explicit difference compared to traditional O&M activities, where the focus lies on upholding a certain quality and function of the road using traditional methods and processes. Due to the pilot projects’ innovation focus, the two selected cases can be viewed as favorable critical cases (Flyvbjerg, 2006). If there is no transition in terms of higher productivity, innovation or efficiency perceived or achieved in these innovation pilot

projects, the STA will arguably find it even more difficult to achieve such improvements in traditional O&M projects. However, there are some differences between the two studied projects in terms of prerequisites: project A is an inland and rural project with alpine roads, whereas project B includes a coastal and more urban area.

3.2 Data collection

In total, 25 interviews were conducted with respondents from both client (10) and contractor (15) organizations (see Table 2). The contractor respondents included bid managers, contract managers, site managers, project engineers, supervisors, an economist and a blue-collar worker, while the respondents from the client included the procurement manager, department managers, project managers, project engineers and a maintenance engineer.

The O&M projects started at the contract award, which was followed by an establishment phase during which the data collection began. The first round of interviews was conducted using an interview guide with the primary aim of understanding project specific characteristics and content. The initial interview guide included subjects such as general information about the project organizations, participants' initial expectations of the innovation pilots, procurement strategy, collaboration (model) and innovation. The second round of interviews was performed approximately one year later (e.g. one year into the contracts) and consisted of more in-depth interviews with those performing key roles in the project organizations. These interviews aimed to investigate how the project organizations had performed so far in terms of innovation, economy, quality and time but also to further investigate and verify the temporary and permanent aspects that had been identified through the first round of interviews and through the observations and document studies. All interviews were semi-structured, allowing the respondents to elaborate.

Actor	Project	Role	Length 1st round [min]	Length 2nd round [min]
Client	A and B	Former department manager	30	–
Client	A and B	Department manager	–	79
Client	A and B	Procurement manager	72	–
Client	A	Project manager	51	–
Client	A	Project manager (new)	–	73
Client	A	Project engineer	15	–
Contractor	A	Contract manager (responsible bid manager)	56	126
Contractor	A	Site manager	30	63
Contractor	A	Project engineer	16	–
Contractor	A	Supervisor	28	–
Contractor	A	Supervisor	20	–
Client	B	Project manager	32	82
Client	B	Project engineer	31	–
Client	B	Maintenance engineer	29	–
Contractor	B	Bid manager	46	–
Contractor	B	Contract manager	–	61
Contractor	B	Site manager	43	–
Contractor	B	Site manager (new)	21	54
Contractor	B	Economist	22	–
Contractor	B	Supervisor	19	–
Contractor	B	Blue-collar worker	26	–

Table 2.
Summary of
interviewees

The observations that complement the interviews were performed at collaboration meetings and site meetings. In total, ten meetings were observed through nonparticipant observation. Field notes were taken during the observations, noting as much as possible. Through observations, it was possible to better understand the communication and collaboration taking place between the client and the contractor. A general understanding of the two project organizations was gained through these observations, including special issues that they faced in regular daily activities, how the project team discussed these issues and what the team dynamics looked like. A special focus was given to dilemmas and subjects that could fit in to the four themes of the chosen framework (e.g. time, task, team and transition) for demarcations between temporary and permanent aspects. Documents relating to the project organizations (e.g. specifications and contracts) were also included in the data collection to increase understanding of the contractual and formal arrangement.

Gathering data from multiple sources (interviews, observations and document studies) enabled triangulation (Yin, 2013). The observations were performed before, during and after the two interview rounds, which made it possible to shape the interview guides based on what had been observed during the meetings. In this way, it was possible to verify findings from the observations through the interviews. The document study was performed continuously throughout the study to verify findings from both the interviews and observations.

3.3 Data analysis

The analysis of the interviews followed a deductive approach using the method of framework analysis, as described by Gale *et al.* (2013), with the stages of transcription, familiarization, applying the analytical framework, charting data into the framework matrix and interpreting the data. After the interviews had been transcribed, they were stored in NVivo for organization, familiarization and coding. The analytical framework was applied using the themes time, task, team and transition to code the data. The data were then charted into the framework matrix (Table 1) by dividing the coded data into temporary and permanent aspects.

Analysis of the field notes taken during observations began during the meetings in question, by interpreting and analyzing the interactions taking place between the project actors. After the meetings ended, the field notes were typed up and a more thorough analysis was performed using the theoretical framework. The results of this analysis were used to verify and deepen the understanding of the interviews. While the interviews provided the separate views of the respondents, the results of the observations provided knowledge about how different subjects were viewed and handled by the team.

4. Empirical findings

4.1 Temporary and permanent aspects of time

The road O&M contract periods are four years as a basis and two additional years as optional. Both studied pilot projects were awarded in January/February 2018, and their establishment phase stretched until September, when the O&M activities officially began. During the establishment phase, the client and the contractor for each pilot project had establishment meetings, and the contractors renewed their contracts with their subcontractors. The contract award represents the initiation of the projects, and the projects terminate when the contracts end. The final phase of the projects will include final inspections of the roads and structures within the given geographical area. Between the project initiation and the termination of the projects, there are seasonal changes, where the tasks differ between summer and winter, but between the establishment phase and the end of the project, there are no other phases – except what could be considered as the “operational

phase". As such, O&M activities are performed according to different but recurring calendar periods rather than occasional project phases. A major difference between summer and winter seasons was expressed in an interview with a contractor respondent in project A: "*It is winter now; it will be a totally different contract once the summer comes.*"

A few respondents from the contractors (from both projects A and B) expressed a will to increase the length of the O&M contracts to better suit the large investments that the contractor and the subcontractors need to conduct. A contractor respondent in project B said: "*I think that the length of the contracts should be changed because the depreciation time of investments is often longer than the contract. If you are unlucky and get four years [i.e. the client does not exercise the option] and the depreciation is eight years long, what do you do when you lose the job?*"

Comparing these results with our demarcations between temporary and permanent organizations in Table 1, a temporary aspect of the O&M projects is their time limitation. Another aspect that is in line with the demarcations of "time" for a temporary organization is the fact that the projects start and end with phases. However, the lack of distinct project phases between the projects' initiation and their termination is more in line with a permanent organization. The time in the projects is formed around the calendar year, which is also a permanent aspect. The task of operating and maintaining the roads does not have a final deadline but is continuous throughout the long infrastructure lifecycle. The time in the O&M projects is therefore not dependent on the completion of the task, which further supports the permanent nature of the project organizations.

4.2 Temporary and permanent aspects of task

When asked to describe the tasks of the O&M projects, both the client and the contractor representatives said that the tasks are routinized and that they are performed in the same way in all road O&M projects, regardless of geographical area. What specific tasks the O&M projects include are specified in a document called "Standard Description for Road Maintenance", which is standardized and included in the tendering documents for each geographical area. During wintertime, most of the tasks consist of snowplowing and anti-icing operations. These winter tasks are performed continuously, and the contractor performs them without seeking any approvals from the client. The summer season, on the other hand, contains more varied O&M tasks, of which some are more repetitive, for example fixing of potholes. Beside these repetitive tasks, the client's project manager also orders different additional tasks to be conducted. These tasks are often larger in terms of time and costs and can thus be considered as small projects taking place within the O&M projects.

When comparing road O&M projects with construction investment projects (e.g. investing in new infrastructure facilities), a client respondent explained that the differences lie in the fact that the tasks of an investment project need to be defined to fit the unique situation, but the tasks of an O&M project are not unique. This is also expressed by a client respondent involved in both project A and project B: "*. . . these maintenance contracts, what else is there to define except the tasks that are already defined today? There should be snowplowing, anti-icing, and other tasks. They are already defined.*" Thus, the tasks of O&M project organizations are more standardized, repeated from project to project and possible to define in advance compared to tasks included in investment projects. There should be no (or an insignificant) change in the tasks performed between subsequent projects, or between O&M projects in different geographical areas.

When initiating the innovation pilot projects, the public client aimed to increase productivity, innovation and efficiency of the supplier market. When asked to describe the expectations of the innovation pilot projects, the respondents expressed an anticipation concerning the future of O&M activities (in general). For example, a contractor respondent in

project B said: “Above all else, to make the maintenance sector more attractive.” The same respondent described increased difficulties in obtaining staff for the contractor, their subcontractors and client and said that the main goal of the innovation pilot projects was to increase interest from younger people to secure resources for future demand. These statements show that, in addition to the task of maintaining the roads, the participants had more long-term expectations of the innovation pilot projects and strived to be part of the development of the O&M supply market in the infrastructure sector.

Comparing these results with Table 1, we find that the routinized and continual tasks of operation and maintenance are permanent aspects of the project organizations. The task of operating and maintaining the roads cannot be completed, and the activities performed by the project organizations therefore bear more resemblance to those of a permanent organization. The long-term expectations, expressed by both client and contractors, are in line with the “task” of a permanent organization. However, there are examples of small investment projects *within* the O&M projects, which could be considered to give the O&M project organizations more of a temporary character since these investment projects are ordered as “one-off projects” by the client.

4.3 Temporary and permanent aspects of team

The O&M project organizations consist of project teams from both the client and the contractor side. The client teams will be the same for succeeding projects within the same geographical area (e.g. consistent over several contract periods, if nobody leaves their employment). Even though the client representatives have permanent participation, they all have other affiliations or organizational “homes” since they are all involved in multiple project organizations in parallel (e.g. they are responsible for more than one geographical area). This is also the case for some of the contractor representatives but not all. The contract managers, for example, are responsible for multiple projects, while the other contractor representatives work in one O&M project at a time, thereby considering the project to be their organizational “home”. However, these representatives can be involved in other “side activities” (e.g. investment projects) that the contractor has in and around the same geographical area.

In both pilot projects, the contractors are the same as in the preceding project (and accordingly, the previous contract). The regularity of contractors keeping their areas was also evident from the interviews, where the respondents gave reasons such as the current contractor’s superior knowledge of the specifics of the facilities and need for O&M activities within the given geographical area, which helps them price a contract in a way that increases their chance of winning it. Because it is common that the current contractor is awarded subsequent projects for a geographical area, the staff involved in the project organization, from the client and the contractor, develop relationships and become familiar with each other’s skills. The document study showed that for the last eight years of road O&M procurement (2012–2019), 56.5% of the O&M projects in Sweden were awarded to the same contractor that had the preceding project. For more rural areas, it also appeared that it was common that at least some of the contractor’s representatives stayed in position, even if a new contractor won the next procurement; hence the same staff continue to perform the same activities, but for another employer. A client respondent in project A illustrated this: “*In such a small [geographical] area as this one, it is common that if a new contractor takes over, they often take over at least some of the staff who worked on the previous contract.*” The projects located near larger cities, such as project B, did not seem to witness the same effect since the new contractor would most likely already be established within the geographical area and thus already have their own staff.

Comparing these results with Table 1, we find that the teams in the O&M project organizations are cross-functional with complementary competences, which is a temporary aspect of “team”. The client’s representatives and some of the contractor staff are not located full time at the site offices and hence have other “homes”; this is also in line with the characteristics of a temporary organization. However, part of the contractor staff does not have other organizational “homes” and are working full time at the site office, resembling the conditions of a permanent organization. The fact that project teams can be consistent over several contract periods, and in turn enhancing the team’s familiarity with each other, is also a permanent aspect.

4.4 Temporary and permanent aspects of transition

When describing the purpose of the O&M project, a contractor respondent in project B said: *“To preserve the mediocre road network that exists but still satisfy the customer’s demands – the road-user. That is really the main purpose and task of these contracts, that the roads should be passable.”* During an early collaboration meeting, a client respondent involved in both project A and project B described the purpose of O&M projects as follows: *“The roads will become worse and worse. The purpose of these contracts is to preserve the declining curve. If you want to restore the roads, it will become an investment project.”* This highlights one of the core aspects that largely separate O&M projects from investment projects: when the O&M project is finished, there should not be any significant change in the status of the roads (i.e. the facility) – in fact, the condition of the roads is even expected to have become a little worse due to aging. The aim of not having any transition in the facility between subsequent projects for the road network within the geographical areas is also important in order to keep the national road network homogeneous and standardized. A client respondent in project A stated that: *“You should not be able to see any differences when you drive between different O&M areas.”* Hence, the nonuniqueness of the facility in O&M projects may deter transition in terms of new methods, processes or practices, and may favor homogeneity and repetition in terms of ways of working and pursuing the task.

When the respondents were asked to describe what they hoped to achieve with the specific focus on transition in terms of higher efficiency, productivity or innovation within these two pilot projects, they saw an opportunity to test new technologies, techniques and procedures, e.g. changing practices and process. Because of the nonuniqueness of the facility, both when it comes to different geographical areas and between subsequent projects within the same area, transitions related to practices and process in the pilot projects could possibly be incorporated in other O&M projects in Sweden. The respondents could see a potential to spread transitions to future O&M activities on a nationwide level.

Comparing these results with Table 1, we find that the most prominent permanent aspect of the O&M projects is the lack of transition in the road network between the start and finish of the project. To not have any aim of transition in the facility between subsequent projects is consistent with the aspect of “transition” in a permanent organization. However, the pilot project organizations aimed for transition to increase productivity, innovation and efficiency, which could characterize them as “transitory units” – in line with “transition” of a temporary organization. The pilot projects thus have more temporary characteristics of transition than standard O&M projects.

5. Discussion

The findings show that a mix of interdependent temporary and permanent aspects of project organizing was prevalent in the studied pilot projects. Below, we discuss the most important interdependencies we found among the four themes of our framework.

5.1 Permanent aspects of task create permanent aspects of transition

Perhaps the most prominent interdependence found in the study was the one between “task” and “transition”. Prior research has concluded that routine tasks may emerge when permanent organizations undertake similar projects (Brady and Davies, 2004), but that the tasks of temporary organizations are always unique to some extent (Hanisch and Wald, 2014). Our findings indicate that the tasks of the O&M projects were more repetitive and routinized than prior research has indicated or compared to what can be expected in investment projects. The traditional view in the literature that the task of a temporary organization is something that can be completed and (Lundin and Söderholm, 1995; Burke and Morley, 2016) did not match the condition of the task in the studied projects since the O&M activities were repetitive and more of an ongoing process that was not to be completed by the end of the projects. This is connected to “transition”: the studied project organizations did not set out to accomplish any transformation of the facility (i.e. the road), which could be expected by the temporary organization based on the original work by Lundin and Söderholm (1995). However, in their own response to the debate on the theory of the temporary organization, Lundin and Söderholm (2013) acknowledge that what is understood as a project may vary, and there are projects based on the classical engineering-type and ideas of rigorous planning and control, just as there are projects based on the ideas of continuation and standardized repetition.

The findings here have shown that there was no expectation of change in the function or design of the facility (i.e. the roads) during the time of the contract, except for a slight decrease in quality due to aging. Hence, the task of the project organization was to maintain the road network, not to improve or renew it. The defined task of the O&M projects – to maintain the roads in a specified geographical area – implies that there is no need for or expectation of transition in the facility. Rather, there is the expectation to change as little as possible. This process-like task, repetitive between seasons, creates a permanent aspect of “transition”.

However, the STA’s overall and explicit aim of the innovation pilot projects was to increase productivity, innovation and efficiency in these specific projects and in the road O&M market. This can be considered a temporary aspect of “transition” because, unlike the standard tasks of O&M projects, this implies an expectation of change. The empirical findings indicate that the innovation pilot projects may not only facilitate innovation and development in these contracts but might also support long-term continual development of road operation and maintenance on a nationwide level. According to Lundin and Söderholm (1995), the focus of a permanent organization lies on continual development rather than on transition, and the expectation to spread potential innovations to other O&M projects is therefore considered a permanent aspect of “transition”. In a more classical construction project, such as an investment project, the diffusion of innovations could be hampered by the fact that the tasks of projects are “to some extent unique” (Hanisch and Wald, 2014, p. 198). However, uniqueness also triggers creativity and innovation to adapt technical solutions to the current project (Eriksson *et al.*, 2017). Because of the seasonal repetition of tasks, any new innovations in one calendar year can readily be reused and repeated in the next calendar year. The diffusion of innovations between road O&M projects is facilitated by the urge to standardize the facility between different geographical areas. Arguably, innovations developed in O&M projects may therefore be easier to reuse within the project and to diffuse to other projects than is the case in investment projects.

5.2 Permanent aspects of task and transition despite temporary aspects of time

The pilot projects (and contracts) were time-limited to four to six years, an obvious temporary aspect of “time”. Time limits create a final deadline for a project (Winch, 2014), which indicates that a task is to be accomplished by a specified date. However, in the studied O&M

projects, the time limit did not imply a final deadline for the tasks but rather marked the end of the contract period during which the contractor was paid to be responsible for performing the O&M tasks in the geographical area. Accordingly, the temporary notion of time did not result in a temporary notion of the tasks because the tasks will be the same in subsequent projects (the next contract period) as the work performed in the O&M projects is process-like and repetitive, and no transition in the facility is expected. Because of the nonuniqueness of the projects, the O&M tasks are performed in the same way in subsequent projects for the same geographical area and in projects for different geographical areas. This means that the repetitiveness of the tasks will continue for the staff of the contractor, even if they lose a geographical area and are relocated to another area or employer.

The repetitiveness that is experienced by the contractor staff has caused them not to view the O&M projects as projects. This can be observed in the empirical findings: the respondents never called their undertaking a project but instead used the term “contract”. Thus, they view each project as another contract including, more or less, the same task, the same facility, the same process and the same organization. This does not mean, however, that they cannot be understood and studied as projects (cf. [Lundin and Söderholm, 2013](#)). Interesting to note is that, as a result of the projectification of STA’s organization, the client’s site representative has the title “project manager”, and both client and contractors have “project engineers”. Consequently, their job titles do not match the respondents’ view of their undertaking, which discloses a conflict between top-down strategies for the O&M activities and the actual practice. Distinct from an investment project when a new facility is being built, the term “contract” not only comprises the legal document set up between the client and the contractor in these O&M projects but is used as a term to describe the entire task of maintaining and operating the facility. The respondents in this study viewed their participation in an O&M project as being a part of a permanent team in a time-limited contract. When that contract reached its ending, the individuals moved on to another contract (which could be in the same or a different geographical area). This resembles in many ways the work in other production settings, where the task is the same, the product is the same, the process is the same and the team is the same, but the customer varies. The fact that the respondents did not view the O&M projects as projects further illustrates the permanent aspects of “task” and “transition”.

The connections between “time” and “transition” seem to be complex, and arguments put forward by some contractor respondents indicate that more permanent aspects of “time” could in fact facilitate more temporary aspects of “transition”. The time limit of four years for the basic contract is simply too short to provide contractors with incentives to innovate. Longer (more permanent) contract periods would result in a longer pay-off time for innovation investments. Hence, to facilitate transition in these projects, the client could prolong the contractors’ contract periods, making more strategic innovation efforts possible.

5.3 Permanent aspects of team create permanent aspects of task and transition

The time limit of the O&M projects should suggest that the team participation is also time-limited. However, our empirical findings suggest that this is not the case for most O&M projects. It was common that the current contractor of a contract in a geographical area was also awarded the subsequent contract, which creates a situation where the team can be consistent over multiple contracts. For rural projects, the continuity of the project team seems to be even greater since it is common that a new contractor recruits at least part of the team from the old contract (employed by the former contractor). This continuity of the team was also present for the client where the team was consistent over multiple projects (contract periods), except when a participant changed employment. This creates a situation where the team often has long experience of working together in maintaining the roads of a certain geographical area.

When discussing the theme of “task”, [Lundin and Söderholm \(1995\)](#) stated that a permanent organization has a greater focus on long-term goals instead of immediate tasks. When initiating the two innovation pilots, the STA aimed for transition in terms of increasing productivity, innovation and efficiency in the projects and in the O&M market. Our empirical findings show that contractor respondents also had long-term expectations and goals for the innovation pilots: they had a will to contribute to the long-term development of the O&M market. These expectations and goals are more in line with a permanent organization’s long-term goals, driving continual development ([Lundin and Söderholm, 1995](#)), than with the more short-term goal of the classical construction project to complete its task and accomplish transition within the project ([Engwall, 2002](#)). Our belief is that these expectations, goals and prioritizations of the permanent surrounding, rather than the project, arise from the project teams’ deep commitment to the long-term prosperity of the geographical area. Accordingly, permanent project teams prioritize continual development of their geographical area rather than transitional innovations within the project.

6. Conclusions

6.1 Theoretical contribution

We have shown that O&M project organizations within a projectified public infrastructure sector include a mixture of interdependent temporary and permanent aspects. The purpose of this paper was to explore the interdependencies between temporary and permanent aspects of project organizing and how they affect management of public infrastructure O&M activities. We have done this by applying a framework that was originally meant to define demarcations between the temporary and permanent organization ([Lundin and Söderholm, 1995](#)), and which has been revised and further developed by many researchers, of which [Lundin and Söderholm \(2013\)](#) are the most prominent. Instead of using the four themes of time, task, team and transition to separate temporary and permanent organizations, we have used the themes to distinguish temporary and permanent aspects of project organizing in order to discuss O&M projects within the infrastructure sector.

Our first theoretical contribution to the literature on temporary organizations is based on our project-level perspective when exploring the mixture of temporary and permanent aspects. The mixture has, in previous literature, been recognized as existing between a temporary organization and its more permanent environment. However, there has been a lack of research focusing on the existence of permanent aspects within the project organization itself. Earlier research has recognized that the boundaries between temporary and permanent organizations are not easily distinguished ([Artto, 2013](#)) and has even suggested that the theories of temporary and permanent organizations should be interlinked ([Jacobsson *et al.*, 2013](#)). We have contributed to this line of argument by presenting an empirical project-level example in which there is a mixture of temporary and permanent aspects of project organizing.

Our second theoretical contribution is based on our analysis of the interdependencies between the four themes of time, task, team and transition. [Lundin and Söderholm \(1995\)](#) suggested that all four themes were connected, but that time was the most central one, whereas [Jacobsson *et al.* \(2013\)](#) highlighted transition as the most central. Our findings indeed indicate that transition has a central role to play. However, the initial aim of the innovation pilot projects – to initiate transition in terms of increasing productivity, innovation and efficiency in the projects and in the O&M market – was, to a large extent, not achieved. Our findings suggest that the interdependencies with the other three themes strongly influence the possibilities of achieving transition. As such, our study offers relevant examples of how the mixture of permanent and temporary aspects of all four themes influences project management in O&M projects. We have shown that *permanent aspects of task create*

permanent aspects of transition and, by doing so, recognize that innovations developed in O&M projects are presumably easier to reuse and diffuse than innovations developed in investment projects. Furthermore, we found *permanent aspects of task and transition despite temporary aspects of time*. The permanence of task and transition in the O&M projects affects the discourse used to describe them – in the empirical findings the projects were not referred to as “projects”. This interdependence also indicated that an even more permanent character of “time” could create a more temporary aspect of “transition” – promoting innovations. Lastly, we have shown that *permanent aspects of team create permanent aspects of task and transition*, which should be recognized in order to understand the possibilities for continual development through the O&M projects.

Our third theoretical contribution is a broadening of the theory of a temporary organization and presenting an example of a type of project organization that has significant permanent aspects. In their original framework, [Lundin and Söderholm \(1995\)](#) argued that something needed to be transformed as a result of the temporary organization. Even though [Lundin and Söderholm \(1995\)](#) stated that the task of the temporary organization could be repetitive, the general view in the literature on projects seems to be that the temporary organization is to some extent always unique ([Hanisch and Wald, 2014](#)) and that some repetitiveness can be noted when temporary organizations recurrently undertake similar projects ([Brady and Davies, 2004](#)). The project organizations we have studied are temporary in the sense that the contracts are time-limited, but the facility shall not be transformed, and the tasks are repetitive. In addition, the teams are rather permanent. Hence, the studied projects do not resemble what [Lundin and Söderholm \(2013\)](#) call classical engineering-type projects. We believe that in our empirical setting, the permanent aspects are a legacy from a time when the O&M activities were not organized as projects delivered by external contractors but were carried out internally by the permanent organization as ongoing processes using in-house resources. The projectification of public sector activities has created a need for a better theoretical understanding of the interdependencies between temporary and permanent aspects of organizing ([Godenhjelm et al., 2015](#)). We have contributed to this theoretical understanding, which has implications for project management of public sector projects.

6.2 Practical implications

Our main practical contribution concerns project management. Project managers of public sector projects that are subject to projectification should be aware of the possible mixture of temporary and permanent aspects. Not acknowledging permanent aspects in these projects could lead to a management that is not adapted to the prerequisites of the project. This concerns not only project managers but also their organizations. We suggest that public sector agencies should not treat their projectified activities as completely temporary. The management of projects that are found to have a mixture of temporary and permanent aspects should combine the perspectives and management practices of both temporary and permanent organizing.

The client should recognize the opportunity for continual development that is made possible through the repetitive tasks in the O&M projects. The innovations that the client aimed for and implied it wanted by introducing the innovation pilot projects should focus on developing and improving the repetitive tasks that are needed to fulfill the mission. Viewing the mission from an industrialized perspective, the repetitive tasks (or processes) that are conducted within O&M projects could facilitate continuous improvement, similar to what industrialized construction has tried to emphasize during the past decades ([Larsson et al., 2014](#)).

A resource that is unexploited at organization level within the client (although recognized and utilized to a varying degree by its project managers) is the contractors' knowledge about

the road network. The permanent aspects of the O&M projects enhance learning in the contractor's team regarding the road network within their assigned geographical area. As our findings show, the client team can also be consistent over several contract periods for a geographical area, which enables them to have continuous access to the contractor's knowledge. Knowledge that would be of use for the client is primarily related to the local conditions of the specific geographical area. Local prerequisites are continuously discussed between contractor and client in relation to the performance of tasks in the O&M projects. To capture this knowledge and share it among higher levels in the client organization would be of use, especially for the procurement department, by enabling improvement in the contractual documents, e.g. minimizing contractual errors, and incorporating more local adjustments in the documents. This would also make it possible to maintain the knowledge within the client organization, reducing the knowledge gap if there is a shift in contractors.

A third opportunity that should be recognized by clients handling projects with permanent aspects is the relationship between the individuals in the project team. The favorable prerequisites for long relationships between client and contractor (especially the one between the client's project manager and the contractor's staff located full time at the site office) creates opportunities for strong and favorable collaboration. The client organization should emphasize the implementation of formal collaboration models in the O&M projects. Collaboration models are most often developed to fit investment projects (Eriksson *et al.*, 2017), and the client would need to adjust the models to fit the O&M projects and their more permanent aspects of "time", "task", "team" and "transition". To highlight and support the interorganizational collaboration could possibly lead to minimizing disputes and creating a favorable work environment within the projects.

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