

Management of project portfolios: Relationships of project portfolios with their contexts

Miia Martinsuo

Tampere University, Department of Industrial Engineering and Management
email: miia.martinsuo@tuni.fi

Joana Geraldi

Copenhagen Business School, Department of Organization
email: jge.ioa@cbs.dk

Paper accepted for publication in International Journal of Project Management

Final published version: **Martinsuo, M. and Geraldi, J.** (2020) The management of project portfolios: Relationships of project portfolios with their contexts. *International Journal of Project Management* 38 (7) 441-453. <https://doi.org/10.1016/j.ijproman.2020.02.002>

Abstract

Firms create and manage project portfolios to implement and renew their strategies. With the dominant contingency theory view, studies have primarily focused on project portfolios and their internal management whilst acknowledging that different practices are needed in different contexts. A strategic view of managing project portfolios, however, requires adopting a stronger external orientation, both within and outside of the firm. In this paper, we call for research on the management of project portfolios. We investigate the relationship between project portfolios and their context based on four theoretical alternatives: institutional theory, stakeholder theory, resource dependence theory, and sensemaking theory. The results offer explanations to the mechanisms connecting project portfolios with their context, call for a reformulation of portfolio success, and propose a new research agenda to revitalize the study of managing project portfolios in their contexts.

Keywords: Project portfolio; Project portfolio management; Strategy; External context; Theory

1. Introduction

With the projectification and programmification of firms, project portfolios have proliferated in organisations. The literature on project portfolio and program management has bloomed, exploring topics such as the allocation of resources (Elonen and Arto, 2003; Engwall and Jerbrant, 2003), interdependencies between projects (Killen, 2017; Killen and Kjaer, 2012; Turkulainen et al., 2015; Vuorinen and Martinsuo, 2018), formal governance to guide the choice and control of projects (Korhonen et al., 2014; Teller et al., 2012), and decision-making (Kester et al., 2009, 2011; Kock and Gemünden, 2016). The majority of the literature has looked *within* the project portfolio, potentially acknowledging turbulence generally in the portfolio's context. However, managing the project portfolio cannot be limited to managing only its projects, because of strategic goals in the parent organisation (such as value maximisation or strategy implementation, e.g. Cooper, 2001) and the portfolio's relationship with the firm's internal and external context.

This paper concerns the relations of project portfolios with their contexts. By context we mean the “unique conditions in which the project portfolio is being managed” (Martinsuo, 2013), including the firm's internal context (other portfolios and departments, strategy), and external context (customers, stakeholders, other institutions). The context is essential for the successful management of project portfolios at least for three reasons. First, project portfolios exist to make an impact in their context (e.g. implement the firm's strategy or achieve high market acceptance for products), but the context evolves over time (Martinsuo, 2013). Sensitivity and adaptation to contextual uncertainty is crucial to achieve impact in the context (Martinsuo et al., 2014; Petit 2012, Petit & Hobbs, 2010). Second, project portfolio success depends on what kind of impact stakeholders want to achieve (e.g. how they prioritise different goals, assess the projects, or adopt the firm's products). Hence, defining criteria for portfolio success requires understanding of the context (Korhonen et al., 2014). Third, examining the project portfolio in context enables its strategic management, focuses on effectiveness over efficiency, and requires specific capabilities (Petit, 2012).

Few studies have thus far advanced our understanding of the relationship between project portfolios and their contexts. Some studies suggest project portfolio management (PPM) as a dynamic capability, that is, as a way to achieve competitive advantage by keeping the firm in tune with its external context (Killen and Hunt, 2010; Killen et al., 2012). Researchers have investigated the mechanisms through which the portfolio embraces uncertainties and changes

from the context (Petit, 2012; Petit and Hobbs, 2010; Martinsuo et al., 2014). However, researchers have looked at how portfolios respond to the external changes, but not at the mechanisms of relating project portfolios with contexts, including their mutual influence.

The rationale for this paper stems from the need to understand better how project portfolios can be managed strategically, which depends on the portfolio's sensitivity to the context (both internal and external). Our objective is to propose and develop an outward and strategic view on managing project portfolios. Analogous to the move in project research from project management to the management of projects proposed by Morris (1997), we propose the move from PPM to the management of project portfolios, which positions the project portfolio as the unit of analysis and calls for studies on the vertical and horizontal relationships with their contexts.

To respond to the need for more context-sensitive research on project portfolios and their management (e.g. Martinsuo, 2013; Petit, 2012; Beringer et al., 2013; Ang and Biesenthal, 2017), we ask: *how do project portfolios relate to their internal and external contexts?* For this purpose, we explore alternative organisation theoretical lenses to guide and explain the relationship between portfolios and their context, identify the empirical research that potentially supports the theoretical lenses, and propose a research agenda grounded on these theoretical lenses to investigate the relationship between portfolios and their contexts.

This study builds on previous PPM research, dominantly focused on various development projects. Thus, the scope is delimited to such a context. This choice implies that projects are the firm's investments for the future, and these investments take place under uncertainty in terms of velocity, turbulence, growth and instability (Florice and Ibanescu, 2008). The projects usually also take place within one firm (but collaboration with suppliers may take place). This study is conceptual, and no new empirical research is reported.

The paper is structured as follows. A literature review summarises the relevance of context to PPM, the choice of viewing project portfolios as organisations, and dominant approach to theorising about the context in PPM literature. We then argue for the need of supplementary theories and justify and describe the chosen four theories: institutional theory, stakeholder theory, resource dependence and sensemaking. We then analyse the theories in terms of the context and applicability for project portfolios and report current studies in project portfolios in connection with the theories. In the discussion, we explain the concept of *the management of project portfolios* based on the engagement with the theories and propose avenues for future research.

2. Literature review

2.1. Relevance of context to project portfolio management

Firms set up project portfolios to implement and renew their strategy, and to coordinate projects. As a starting point, we define a portfolio as “a collection of projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives” (PMI, 2017 p. 3). PPM deals with the firm’s strategic choices (Clegg et al., 2018; Cooper et al., 1999) and consequently can bring significant changes to the firm. PPM means the coordination and control of the group of multiple projects where managers prioritise amongst projects, allocate resources to achieve strategic benefits (Cooper et al., 1997), and terminate low value adding projects (Unger et al., 2012). A firm may choose to organise their projects in multiple project portfolios and manage them separately.

PPM research has largely focused on intra-organisational management: how the project portfolio is managed, in line with a given strategy (Clegg et al., 2018; Martinsuo, 2013). PPM is a parent organisation’s vehicle for assessing, prioritising, selecting and monitoring projects (Cooper et al., 1999; Dye and Pennypacker, 1999), based on the parent organisation’s governance approaches (Derakshan et al., 2019). This viewpoint has emphasised that project portfolios are collections of more or less independent projects, the portfolio is *given* (i.e., exists on purpose to fulfil a certain, known strategy), and its value could be aggregated as the sum of the projects. A significant proportion of recent empirical research does not explicate what the expected value or pursued strategy is and what contexts the projects deal with.

However, portfolio success requires an outward management orientation, too. New product and service development entails a firm’s investment in future market offerings, and a mechanism for competition. As PPM typically concerns product and service development projects (Cooper et al., 1999; Killen and Hunt, 2010), portfolio success is central in the firm’s positioning and market presence, and hence, the firm’s relationship with its context (Lampel et al., 2013). In addition, information system development and organisation change projects are often managed in project portfolios (de Reyck et al., 2005; Elonen and Artto, 2003). Such portfolios offer methods for improving the firm’s capabilities to compete and succeed in the future context (Santhanam and Hartono, 2003) and they evolve with the firm and its processes (Bredillet et al., 2018).

Previous research reveals the importance of the internal context to portfolios’ success, the related challenges, and the necessity to seek new understanding on how portfolios are connected

internally. Project portfolio success draws on what the firm, its shareholders and its customers value, but the perception of value may differ depending on the internal stakeholders' priorities and access to relevant knowledge. Stakeholders across different levels of the firm hold different and sometimes conflicting values (Ang and Biesenthal, 2017) and, hence, have different understandings of success (also Korhonen et al., 2014; Perks, 2007). It is not, yet, clear how the engagement of internal stakeholders with different values are considered as part of project portfolio success. The counter-intuitive results of Beringer et al. (2013) show that the engagement of internal stakeholders such as steering committees and senior management in project portfolios is not necessarily positive and can even be negative. Likewise, Mosavi's (2012) case study suggests that normative literature is not sufficient to explain the roles of internal stakeholders in a project portfolio. In particular, he showed that portfolio committees as one type of internal stakeholder play the role of decision makers, as expected in the normative literature, but also take on negotiation and communication (also Christiansen & Varnes, 2008; Martinsuo, 2013).

External stakeholders are also relevant for the success of the project portfolio. For example, Voss (2012) and Voss and Kock (2013) argued and demonstrated a strong and significant relationship between the firm's customers and portfolio success. Some researchers point out other external stakeholders as relevant to PPM, including third parties (Petit, 2012), and partners as complementary resources (Martinsuo, 2013). An outward orientation in the management of project portfolios can acknowledge these different stakeholders' perceptions of value, when specifying what is considered as successful. The firm's process and structural renewal may depend on the portfolio's ability to align with contextual demands.

Portfolios are susceptible to the uncertainties stemming from the parent organisation, the broader context, and even single projects in it (Martinsuo et al., 2014; Petit, 2012). Empirical studies have revealed that not all projects in the portfolio follow the mandated management routines, because of individuals' different interests and organisational politics (Blichfeldt and Eskerod, 2008; Teller et al., 2012, Globocnik and Salomo, 2015), and the need to adapt to situation-specific issues (Jerbrant and Karrbom Gustavsson, 2013). Other studies have mapped the uncertainties and turbulence affecting portfolios, and considered how uncertainty can be taken into account in the work of portfolio managers (Korhonen et al., 2014; Martinsuo et al., 2014; Petit, 2012). These and other studies suggested that project portfolios are managed in turbulent conditions that vary significantly across firms, and these uncertain conditions should be considered when developing PPM.

Adaptation to the context is not only relevant in a reactive sense, but one of the core purposes of managing project portfolios. Even the financial foundations of PPM imply that managing the portfolio of options is much more a strategic issue of facing uncertainty in the context (Luehrman, 1998), than just an inward-looking issue. Although research suggests that certain generic practices of PPM could improve the performance of the portfolio (Ghasemzadeh and Archer, 2000; Unger et al., 2012; Teller et al., 2012; Voss and Kock, 2013), PPM has been shown to be highly context-sensitive (Martinsuo, 2013).

Ultimately, the link between projects and strategy as a key objective of PPM remains a current problem in most firms (Economist Intelligence Unit, 2017). The problem does not necessarily lie in the PPM system itself, but in the relationship between the portfolio and its contexts. This research problem guides our study.

2.2. Project portfolio as an organisation

To explore the relationship between project portfolios and their contexts, we have chosen to conceptualise project portfolios as organisations. We draw on the intellectual leap of studying projects not as tasks but as temporary organisations (Lundin and Söderholm, 1995). The move was important because it explicitly framed projects within and through organisation theory and organisation studies (Packendorff, 1995). Likewise, PPM has predominately received a technocratic framing, when viewed as “the coordinated management of one or more portfolios to achieve organisational strategies and objectives. It includes interrelated organisational processes by which an organisation evaluates, selects, prioritizes, and allocates its limited internal resources to best accomplish organisational strategies consistent with its vision, mission, and values” (PMI, 2017). Instead of seeking generic *how-to* guidance, the organisational lens will enable alternative research inquiries, potentially explaining why PPM functions as it does.

We argue that project portfolios can benefit from being framed as organisations. Turner and Müller (2003, p. 7) already proposed that “A portfolio of projects is an organisation, (temporary or permanent) in which a group of projects are managed together to coordinate interfaces and prioritise resources between them and thereby reduce uncertainty.” We extend their framing and argue that project portfolios can be seen as organisations hosting temporary organisations (projects and programs).

By evoking the concept of organisation, we open the field of PPM to alternative perspectives of how project portfolios are organised, how they behave and evolve, why they exist, and what are their boundaries. Each organisation theory features a specific understanding

of organisations, possibly in their context. For example, Mintzberg (1979, p. 3) stresses the role of coordination mechanisms as “the glue that holds organisations together”, whereas Weick (1979, p. 3) suggests organising as “a consensually validated grammar for reducing equivocality by means of sensible interlocked behaviours”. While both understand the role of coordination, their understanding of what organisations are and how to organise is inherently different.

Despite avoiding definitions and fixed perspectives of organisations, we appreciate the need for conceptual development concerning organisations in their context. We pencil in a transitory concept of project portfolios as organisations based on the classic idea of an organisation as an (evolving and social) entity, with semi-permeable boundaries to its context (Schreyögg, 2008). Portfolios as organisations tame the fluctuations and fragmentation caused by the temporality of projects (Brown and Eisenhardt, 1998), while also connecting the projects with their contexts within and outside the firm, thereby promoting their strategic importance. Yet, following the organisation studies tradition (Tsoukas and Chia, 2002), we emphasise the need for a context-specific understanding of managing project portfolios and their success.

Figure 1 shows project portfolios as organisations in their contexts. For illustrative purposes, the figure highlights one portfolio (in grey), and its relationship with the parent organisation, its other departments, other portfolios and the strategic direction of the firm. The firm and the portfolio might be engaged in different external contexts, including social, technical and environmental contexts, or different industries or markets. This variety is illustrated by two external contexts, X and Y.

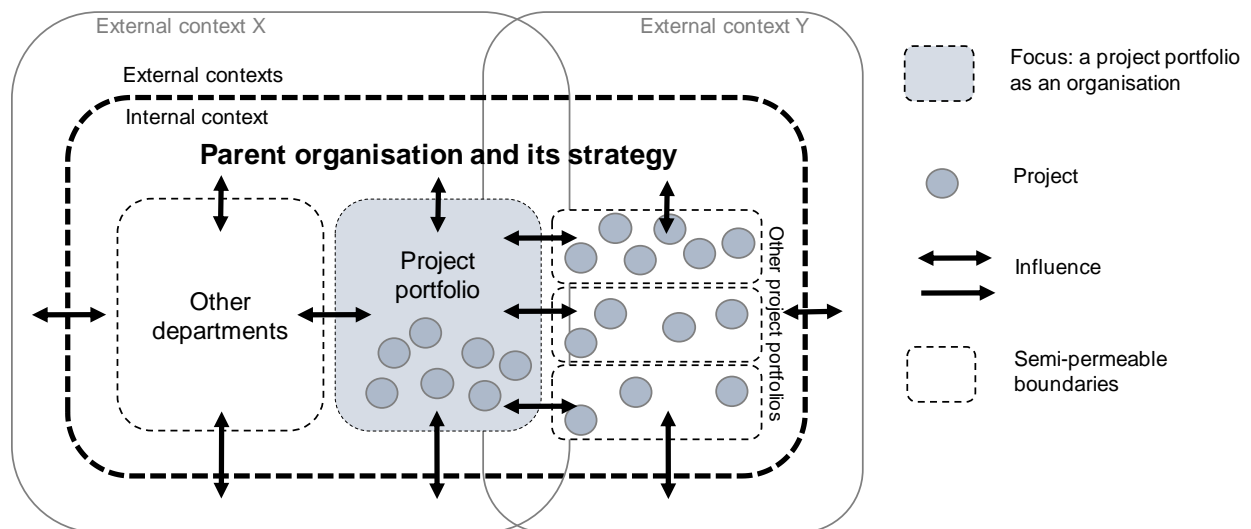


Figure 1. Project portfolios as organisations in their context.

Portfolios have a nested structure: they are organisations within organisations and include organisations in themselves (in line with Turner & Müller, 2003). They are neither permanent nor temporary (Turner & Müller, 2003), and could instead be conceptualised as semi-temporary organisations, with a limited budget and continuity over time, and functioning as a bridge between permanent and temporary forms of organising. As a consequence of these properties, portfolios are complex as they are composed of unique, temporary and uncertain components.

This organisational view of portfolios also contains and welcomes the view of portfolios as organising processes that host, guide or are the deliberate social interactions occurring between people working together to accomplish a certain, inter-subjectively determined task (i.e., the integrated management of a portfolio of projects). Thus, portfolios as organisations do not deny the processes involved in the portfolio but, rather, enable the adoption of a process lens and viewing organisations in a constant flux (Langley, 1999; Tsoukas and Chia, 2002). What it does, is enable tapping the wide range of perspectives from organisation theories.

The diversity of theoretical backgrounds in PPM research might accentuate fragmentation in the study of project portfolios in particular, and project studies in general (Söderlund, 2011). Yet, the current state of PPM research suggests a rather paradigmatic development which lacks alternative perspectives. Thereby, adding theoretical variety will assist in developing the research field. Moreover, pluralism does not necessarily lead to fragmentation, if authors are reflexive about their theoretical background and position it in relation to others in the field by contrasting or integrating existing work (Knudsen, 2003).

2.3. Contingency view and its limitations

Attempts at theorising the external connections of project portfolios have been limited, and mainly inspired by contingency theory. Other theories have been considered as relevant for project business (see e.g., Biesenthal and Wilden, 2014; Derakshan et al., 2019), but not yet covered purposely for project portfolios in their context. Contingency view of project portfolios has suggested that different project portfolios need to be managed in different ways, and empirical studies have tested the effect of environmental contingency variables on the link between certain management aspects and project portfolio performance (Kock and Gemünden, 2016; Kopmann et al., 2017; Müller et al., 2008; Voss and Kock, 2013). However, contingency theory has several limitations concerning the research on project portfolios:

- **Reductionism:** it blinds research to the complexities involved in the daily practices as it reduces the problem to a very limited set of variables, usually examining only a pair of context and structure.
- **Determinism:** it expects that a certain combination of variables in similar kinds of contexts will lead to higher levels of performance. In reality, however, management in similar contexts may still have different outcomes.
- **Measurement of success:** it assumes the possibility of measuring project portfolio success in similar ways. In reality, however, project portfolios with different strategies will have different criteria for success.
- **Temporality:** typical models assess management and contingency factors at the same time as they assess performance, without real consideration of the time lag between them. In reality, however, performance at a given time is not the result of the portfolio at the same time, but the one in the past.

Therefore, the links between context and portfolio are not sufficiently accounted for through contingency theory only. Other theoretical explanations are needed to understand better the links between the project portfolio (as a semi-temporary organisation), its broader context, and its strategic direction. There is a need to understand how the relationships develop over time, what mechanisms and practices maintain and alter the relationships, and what are the consequences of managing.

3. Methodology

As indicated in the literature review, we assume the open systems view of project portfolios (Scott, 1998) and contingency theory as the dominant theory, thus far, in studying portfolios in their contexts. We looked for supplementary theories connecting organisations with their contexts (both internal and external), and due to exploring project portfolios as organisations, we focused on organisation theories. The choice of theories was guided by three criteria: potential of the theory to explain a project portfolio's relationship with its context, diversity in theoretical approaches, and novelty to project portfolio research.

We originally focused only on organisation theories that had a specific focus on the relationship between the organisation and its context. To ensure diversity and enable the development of supplementary knowledge, we followed Hatch's (2006) three avenues for theorising about organisations in their contexts: modern, symbolic and postmodern theories.

They are widely accepted and resemble other classifications (Tsoukas and Knudsen, 2003). Unlike other similar handbooks (Clegg et al., 1996; Tsoukas and Knudsen 2003), Hatch suggests organisational theories that explicitly consider the relationship between organisations and contexts. We then researched the extant literature on project business in general and PPM in particular, considered the applicability of the theories for project business, decided not to cover such theories that are already well covered in PPM specifically, and decided to focus on theories that were applicable to project business and have the potential to explain the project portfolio's relationship with its context but have not been covered for project portfolios. Table 1 shows our choices and justifications.

Table 1. Choice of organisational theories for the analysis.

| Avenues for theorising | Hatch's suggestions | Decision | Justification |
|---|----------------------------|-----------------|--|
| Modern: context influences firms, firms diagnose and solve problems to succeed, and theories explain how they do so | Contingency theory | Excluded | Main theoretical frame in current research in PPM; already well researched |
| | Resource dependence theory | Included | Focus can be on organisations and their relationships; noticed as relevant also for project business (Biesenthal & Wilden, 2014; Derakshan et al., 2019) |
| | Population ecology | Excluded | Focus is on industry rather than single organisations |
| Symbolic: subjectivity and interpretation affect behaviour and, thereby, change reality | Institutional theory | Included | Focus can be on organisations within their contexts; noticed as relevant also for project business (Söderlund and Sydow, 2019) |
| | Sensemaking theory | Included | Focus can be on organisations within their context; noticed as relevant also for project business (Stingl & Gernaldi, 2017) |
| Postmodern: critical view promoting radical change via deconstruction and giving the actors the responsibility of how they construct their realities | Stakeholder theory | Included | Focus can be on organisations and their relationships; noticed as relevant also for project business (Biesenthal & Wilden, 2014; Derakshan et al., 2019) |

This screening led us to consider four theories: institutional theory, stakeholder theory, resource dependence theory, and sensemaking theory. We kept the focus on organisations' context connections, feasibility of analysis, and complementarity compared to previous research. We also wanted to respect alternative research philosophical orientations, ranging between

positivism and interpretivism. We purposely excluded the resource-based view, the dynamic capabilities view, and absorptive capacity, as they have been reviewed in connection with project portfolios previously (Killen et al., 2012). We excluded agency theory, transaction cost economics and theories of inter-organisational networks, as they consider interactions between specific firms, instead of the firm and its context generally. We abandoned evolutionary theory, as its empirical applications have been extremely limited, also in general management. For each theory, we examined the following:

- What is the theory about an organisation in its context, for example, what is the main issue, what problem is addressed, what are the main assumptions, and what are the boundaries of the theory?
- What is known about the organisation's context, and the relationship between an organisation and its context?
- What would be the portfolio (as an organisation), and its management from this perspective? What does the theory offer regarding the relationship between the portfolio and the context?
- Which portfolio-related research is (even remotely) connected with this theory, offering evidence for this perspective, and how?
- Which theoretical possibilities derived from this theory have not yet been covered for project portfolios?

We compare the theoretical perspectives in terms of the organisation in its context; interpretation for the project portfolio; connections of the project portfolio with the context and the parent organisation; and implications for success, to identify the joint achievements and future potential research.

4. Alternative theoretical viewpoints for project portfolios in context

4.1. Portfolios in the institutional field

Overview. Institutional theory is a bundle of theories interested in why and how institutions function and regulate behaviour. As North (1994, p. 361) stated, "if institutions are the rules of the game, organisations and their entrepreneurs are the players." Scott (1995) provided a summary of this body of research, and suggested that three institutional pillars explain how these rules create stability and meaning: Actors will comply with rules and prescriptions because they are rewarded or punished for doing so (regulative), because they understand it as their moral

obligation to do so (normative), or because they believe they are doing what is reasonable and others would do in comparable situation (cultural-cognitive).

Neo-institutionalism also attempted to comprehend why these forms of organising and “rules” were proliferating (DiMaggio and Powell, 1991). Powell and DiMaggio suggested that institutions provide “templates for organising” (Powell and DiMaggio, 1991, p. 27), that is, forms of organising that are used across organisations due to political pressures, processes of standardisation of responses to contextual challenges and professionalisation pressures (Powell and DiMaggio, 1983). The reuse of the organisational templates confers legitimacy (Suchman, 1995) to organisational practices and structures. Therefore, conforming to the institutionalisation pressures helps organisations deal with their uncertainties and survive, not because they offer better products or services, but because they follow accepted conventions and thus, gain political power and institutional legitimacy.

The neo-institutional view can be criticised for a top-down approach in which institutions regulate behaviour (Meyer and Scott, 1983; Scott, 1981) and automatic conformity is assumed. Bottom-up initiatives and purposeful adaptations have been emphasised in the latest developments of institutional theory. According to Giddens (1986), institutions shape action but also actions shape the institutions. As actors choose to comply or not with ‘the rules’ of institutional context, they “choose” how to interact with their institutional surrounding, and thus, shift the focus from structure to agency (Davis et al., 2005; DiMaggio, 1988; Maguire et al., 2004; Oliver, 1991; Rao et al., 2003). This shift in the literature proposes concepts such as institutional work or institutional entrepreneurship as forms for understanding how actors enact institutions as opposed to how institutions reinforce patterns of behaviour.

Whilst acknowledging the relevance of agents in the shaping of institutions, for the purpose of this article, we interpret institutional theory as a socially constructed collection of rules or templates of organising. Organisations and actors relate, co-create, proliferate, and adapt such rules and templates.

Applying institutional theory to the management of project portfolios. For project portfolios (as organisations), this theoretical lens explores how organisations relate to their institutional context. The role of institutions and projects has been studied to some extent, as demonstrated in a recent Special Issue (Söderlund and Sydow, 2019). However, the research using institutional lenses at the level of project portfolios is limited. For example, there is a proliferation of templates for managing portfolios across industries, such as process models and project management offices (PMOs). Miterov et al. (2017) explored the mechanisms of

isomorphism in project-based organisations (PBOs) in an in-depth case study. Their work suggested that PBOs choose to organise as projects or portfolios not because such organisational forms were adequate and fit for purpose, but instead, because they are copying one another's structures.

Although project portfolios and PMOs function very differently (Hobbs and Aubry, 2007), isomorphism takes place also when organising project portfolios. PMOs and PPM are both subject to high levels of mimetic and normative isomorphism driven by the strong professional institutions around project management, and a tendency to take standard organisational solutions in face of uncertainty (in line with Powell and DiMaggio, 1983). Thus, this perspective calls attention to how the processes of organising portfolios are highly influenced by the organisation's institutional contexts, and the templates offered and accepted from the context.

As project portfolio practices are still relatively new, and templates are only now starting to be established, we extend Söderlund and Sydow's (2019) call for a study on the recursiveness of the structure between projects and institutions to the one between project portfolios and their institutions. The evolution and rejection of organisational templates are of particular interest, as they deal with the autonomy, power, and dynamics in managing the project portfolio. Such a phenomenon has been touched upon in megaproject literature (van den Ende and van Marrewijk, 2019) and portfolio-level adoption of agile (Stettina and Hörz, 2015), and can be observed in the day-to-day practice of successful firms, but to our knowledge, it has not been explored in the multi-project context. Understanding the survival and success of project portfolios in their institutional context would require understanding of how the organisational templates evolve, and become legitimised or rejected, and the mechanisms of their development.

This lens could also provide explanations for some of the deviant behaviour and improvisation taking place in PPM (Blichfeldt and Eskerod, 2008; Teller et al., 2012, Globocnik and Salomo, 2015; Jerbrant and Karrbom Gustavsson, 2013). For example, bootlegging and improvisation can be seen as a way of recreating templates of organising, and thus, for organisational innovations. Micro-level institutional theory (as well as structuration theory) may offer explanations for the possibilities for portfolios to transform their institutionalised routines and structures, ways for actors and structures to co-develop, and thus, influence what is considered legitimate within and across organisations. In this line, there is a need to understand the tensions between the micro-level practices of legitimising or deviating from institutional rules, and the macro-analysis of how these rules gain shape (Brunet, 2019).

4.2. Stakeholder management for portfolios

Overview. Stakeholder theory assumes that a business has stakeholders, i.e., “groups or individuals that have a stake in the success or failure of a business” (Freeman et al., 2010, p. xv). Stakeholders have been defined in various ways, and organisations may approach the identification of stakeholders in a very narrow or a broad sense, which naturally affects stakeholder management (e.g. Mitchell et al., 1997, pp. 857–858). Stakeholder theory draws attention to the fact that organisations are not solely governed through the interests and influence of owners (often shareholders), but also other stakeholders can affect and be impacted by the organisation. Some of the stakeholders are primary (with high mutual dependence), and some are secondary (with low mutual dependence); stakeholder management requires sensitivity to the needs and influence of the different types of stakeholders. Organisations exist to create and exchange various forms of value with and for the stakeholders, not just economical value (Freeman et al., 2010). The theory therefore calls for a stronger focus on the firm and its external stakeholders, and supplements the firms’ financial aspirations with the pursuit of ethicality in business. It argues that firms have social responsibility within their business context (Freeman et al., 2010).

Studies that use stakeholder theory are concerned with who the stakeholders are, what their interests are, how stakeholders can influence the decision-making of a firm, and how the firm can influence them (Frooman, 1999). Concerning stakeholder identification, various listings and categorisations have been created, to assist firms in assessing the centrality, or salience, of different stakeholder groups. For example, Mitchell et al.’s (1997) typology of power, legitimacy, and urgency is broadly used (modified and expanded examples are offered by Friedman and Miles, 2002; Miles, 2017). The categorisations attempt to guide firms to understand the stakeholders’ interests and influence, and develop suitable tactics for managing the stakeholders. The stakeholders’ interests and the dependence between the firm and its stakeholders are seen as factors underlying the stakeholders’ strategies to influence the firm’s decision-making (Frooman, 1999). Stakeholder theory draws attention to the relationships between a firm and its stakeholders (Friedman and Miles, 2002), and this field continues to be contested, due to the versatile meanings given to stakeholders (Miles, 2017).

Applying stakeholder theory to the management of project portfolios. Stakeholder theory challenges the inward-oriented owner-centric approach to the management of project portfolios (as organisations). This theoretical stream points out the need to identify primary and secondary

stakeholders of portfolios more broadly and explicitly, analyse their interests, and influence strategies, and consider the mutual dependence between the portfolio and the stakeholders, to select appropriate management tactics. It is evident that the parent organisation is a salient stakeholder for the portfolio, but the parent organisation is by no means the only one. For example, innovation projects may have external stakeholders, such as financiers, partners, and subcontractors that may become central for certain project types, calling for specific management approaches (Artto et al., 2008b). Similarly, owners may be crucial for public sector investment projects, but the decision-making on such projects may involve competition or synergy with other projects, require a portfolio view, and demand support from financiers, the public, and contractors (Martinsuo, Vuorinen & Killen, 2019; Vuorinen and Martinsuo, 2019). There is a need to understand the interests and the influence of these stakeholders on the portfolio, and acknowledge the two-directional links between the portfolio and stakeholders.

Stakeholder theory complements the rational decision-making view that centres on economic value by bringing in ethics and social responsibility, that is, other types of values. Although value management is of central concern in project management research (Martinsuo et al., 2017, 2019), it has been covered very weakly for portfolios thus far. Martinsuo and Killen (2014) have suggested that the non-commercial dimensions of strategic value should be taken into account in PPM frameworks, and that different stakeholders' viewpoints on value should be covered. Some empirical research already covered the anticipation and co-creation of value outcomes in multi-project programs (Liu et al., 2019), and multiple projects within the same firm at the project level (Fuentes and Smyth, 2019), but the researchers did not consider the issue from the perspective of PPM. There is a need to explicate the value expected of a portfolio, and acknowledge various types of value created with and for stakeholders through the portfolio.

Stakeholder theory takes the perspective of a firm as the focal organisation. Biesenthal and Wilden (2014) and Derakshan et al. (2019) explicitly mentioned stakeholder theory as a relevant lens for governance of projects at the organisation level, and Derakshan et al. (2019) also linked stakeholder theory to the single-project level. They stated, "At this [portfolio] level there is no direct contact with external stakeholders" (Derakshan et al., 2019, p. 107), but the influence comes from the parent organisation, as well as single projects. If we view project portfolios as organisations, and in particular, if the portfolio is in the hands of a specific organisational unit (e.g., R&D or project office), however, it is very possible that the project portfolio has its own strategy, and would need its own stakeholder analyses and stakeholder management tactics.

The diverse stakeholder landscape has different stakes, and therefore, questions a hegemonic view on the success and value that portfolios are expected to generate. When firms have multiple different portfolios, the firms' specific stakeholder landscapes challenge portfolio managers to negotiate portfolio strategies and priorities in novel ways. Project portfolios even within a single parent organisation may be serving completely different stakeholders' interests.

4.3. Resource dependence in portfolios

Overview. Resource dependence theory, developed and published in the *External Control of Organisations* by Pfeffer and Salancik in 1978, builds on the assumption that organisations are affected and constrained by their contexts, and can also respond to these requirements and constraints. Understanding the activities of the organisation requires understanding and acknowledging its context. Organisations are not at the mercy of the context, but they can take action to interpret, negotiate with, and control the context (Pfeffer and Salancik, 2003). Another major assumption in resource dependence theory is the focus on organisational effectiveness, that is, the organisation's "ability to create acceptable outcomes and actions" (Pfeffer and Salancik, 2003, p. 11). With this focus, the attention is drawn to how the organisation contributes (delivers beneficial outcomes) within its context, and a clear distinction is made compared to efficiency that deals with intra-organisational issues. Whilst managing project portfolios has been said to deal with doing the right things (e.g. Elonen and Arto, 2003), that is, organisational effectiveness, current research does not fully acknowledge the possibilities of this idea.

Research following the ideas of resource dependence draws attention to organisation-level power (not just rationality or efficiency, and not just individual-level power): who the key interest groups are for the organisation's resources and how power is distributed across organisations. Acknowledging power is important for understanding what the organisations do internally and externally (Davis and Cobb, 2010; Pfeffer and Salancik, 2003). Through power, different kinds of interdependencies and connections emerge between organisations (Pfeffer and Salancik, 2003), and organisations need to take action to resolve issues regarding power imbalance and mutual independence (Casciaro and Piskorski, 2005; Pfeffer and Salancik, 2003). Researchers have, for instance, investigated the strategies and actions organisations can use to enhance their autonomy and pursue their interests in the context, whilst meeting the demands from the context (Davis and Cobb, 2010; Pfeffer and Salancik, 2003). Typical research concerning resource dependence has dealt with various corporate arrangements, such as mergers, acquisitions, alliances, and board links, but despite the powerfulness of the theory, empirical

research has remained surprisingly limited (Casciaro and Piskorski, 2005; Pfeffer and Salancik, 2003; Theeke et al., 2018).

Applying resource dependence theory to the management of project portfolios. Resource dependence theory challenges us to open up the organisational boundaries of project portfolios to the context, and consider more critically *what is right* in their context. Moving the focus from efficiency to organisational effectiveness implies that there is a need to consider the success of the project portfolio more explicitly in terms of how the needs of the context are met or resolved—for example, what kind of a market or societal impact is pursued or achieved through the portfolio. Some researchers have considered projects in their context and their external relations, and independence, as a relevant factor in project strategy (Artto et al., 2008a, 2008b), but this idea has not been considered at the level of project portfolios. Artto and colleagues proposed that the criteria for survival and success should be specified, based on the power relations and dependencies of the projects (Artto et al., 2008a), and showed examples from innovation project contexts (Artto et al., 2008b). As project portfolios are very often defined according to project types (Artto and Dietrich, 2007), their resource dependencies may be central to defining portfolio-level strategies and assessing their success.

Resource dependence theory invites the explicit consideration of owners, partners, and markets as key external interest groups, and their power, influence, requirements, and constraints towards project portfolios. Whilst the generally used portfolio goals and success criteria of value maximisation, balance, and strategic alignment (Cooper et al., 1999) may reflect the owners' interests, such criteria fail to take into account the unique character of value and strategy in a specific context. In addition, partners' and market requirements are rarely accounted for in PPM studies. Some PPM research included customer-related and subcontracting and partnering issues (Voss and Kock, 2013), but primarily in connection with intra-organisational efficiency-oriented measures of portfolio success, or generic measures that do not differentiate between different values or strategies. In addition, some studies have dealt with managers' power at the individual or group level (Christiansen and Varnes, 2008; Kester et al., 2011), or merely conceptually (Clegg et al., 2018; Martinsuo, 2013), whereas the cross-organisational power relations have not been covered at the level of portfolios.

The broader parent organisation must also be considered, as part of the external context of the portfolio. Resource dependence theory treats portfolios in the context of competing investment options (including other portfolios), and other kinds of activities, such as other business processes and pre-project and post-project operations. Biesenthal and Wilden's (2014)

review of project governance explicated the PMO as a relevant level of analysis between projects and the parent organisation, and it included project portfolios and programs. They proposed resource dependence theory as a valuable theoretical option for studying the alignment of projects with organisational objectives, and invited further research to acknowledge the multiple levels. Some studies concerning the governance of projects pointed out the context-dependence of links between projects and the parent organisation in value generation (Riis et al., 2019). The resource competition has been discussed within portfolios (Elonen and Artto, 2003; Engwall and Jerbrant, 2003), and concerning projects and other activities, such as services (Momeni and Martinsuo, 2018), but not really between portfolios. The studies on project overload in multi-project settings indicated that the resource competition between projects, and even between portfolios (Karrbom Gustavsson, 2016; Zika-Viktorsson et al., 2006), causes a challenge to managing portfolios successfully.

4.4. Portfolios enacting the context

Overview. Sensemaking is about how meaning is collectively constructed, and can be seen as a way of organising people. Sensemaking is defined as “the ongoing retrospective development of plausible images that rationalise what people are doing” (Weick et al., 2005, p. 409). Thus, “the basic idea of sensemaking is that reality is an ongoing accomplishment that emerges from efforts to create order and make retrospective sense of what occurs” (Weick, 1995, p. 635). Thus, organisational actors’ perception of their context is fundamental to how they justify and legitimise their actions (Grint, 2005).

The sensemaking process starts with enaction, that is, the recognition of a lack of a legitimate and collective sense, followed by selection, which includes the social processes involved in identifying, shaping, and evaluating alternative stories to make new sense of the context, and build a new collective paradigm. Finally, in retention, individuals integrate the newly acquired sense in their set of rules and action (Weick, 1979).

Individuals enact their context through dialogues and narratives. As Weick (1995) poignantly asked, “How can I know what I think until I see what I say?” (p. 18). Conversations and narratives help individuals understand what they think, organise their experiences, and convey meaning to events. Through these social processes, individuals decide collectively what are the plausible stories to be preserved, retained, or shared. This process favours plausibility over accuracy. Sensemaking is also a process of self-reflection: When people experience themselves in their context, they observe the consequences of their actions and learn about who

they are in their context. Therefore, the concepts of identity and identification are central in the process of sensemaking and will shape what people perceive as relevant.

Furthermore, sensemaking relates to individuals' engagement with cues, that is, information used in sensemaking. Cues provide points of reference for linking ideas to broader networks of meaning. The goal is to have a clearer and more nuanced sense of the external context to inform actions, and help ensure they fit the current circumstances, increasing reliability and mindfulness (Weick and Sutcliffe, 2001). Whilst most management models and tools offer possibilities for simplifying the contexts, Weick and Sutcliffe (2001) suggest instead "a rich awareness of discriminatory detail", and hence a "reluctance to simplify".

Applying sensemaking theory to the management of project portfolios. Sensemaking theory sheds light on the social facet of the relationship between project portfolios and their context. Sensemaking theory can provide a vocabulary to examine the processes of capturing information from the context, developing interpretations, and reacting to change also in managing the project portfolio, which are particularly central for portfolio negotiations and decision-making processes. The role of information systems, and in particular, information dashboards and other graphical displays of information are central in the process of sensemaking in portfolios (Killen et al., 2012; Geraldi and Arlt. 2015), and of increasing interest, as information systems and analytics are developed in organisations.

Sensemaking processes shed a new light on portfolio's image of rationality through quantifications and visualisations, as it suggests a more complex and political nature of portfolio decision processes. It calls attention to the managers, their interests, attention, and contacts. Sensemaking could explain potential misunderstandings in the translation between portfolio contexts and the mismatch of strategic priorities, as people will be embedded in different social contexts and attribute meaning to issues differently (Stingl and Geraldi, 2017). As the management of the project portfolio crosses different functional and hierarchical levels and is prone to misunderstandings, there is a need to manage and converge narratives and understand the social aspects of information use in project portfolios.

Sensemaking connects with what managers do and how they communicate, and thus, studies on sensemaking can respond to the call for a practice-based approach to the study of project portfolios (Clegg et al., 2018). In addition, sensemaking provides an interpretation of organisational learning processes, and some studies explored the role of sensemaking in learning at the single-project level (Ahern et al., 2014). Such arguments are echoed in interpretation of projects as dynamic capabilities (Killen et al., 2012; Killen and Hunt, 2010), which contributed

to the understanding of the social processes of knowledge construction and sensemaking. In addition, the choice of not learning and what is not comfortable is relevant, as it indicates potential barriers to renewal (Love et al, 2019). Thus, these studies point to the relevance of sensemaking in portfolio contexts.

Furthermore, sensemaking has become particularly crucial in the context of crises and uncertainty management, as suggested in previous research on sensemaking (e.g. Alderman et al., 2007; Gacasan and Wiggins, 2017; Musca et al., 2014) and mindfulness (Denyer et al., 2011) in project contexts. The social mechanisms involved in making sense of the context appear to be highly relevant for project portfolios, due to their sensitivity to uncertainty (Martinsuo et al., 2014; Petit, 2012). The study and engagement of change might also be more nuanced for portfolios, and changes can be creeping, rather than abrupt (Geraldi et al., 2010). Capturing changes in such a non-turbulent context could also be a relevant line of research, where one could explore mindfulness processes at the portfolio level, and even consider the concept of a high reliability portfolio.

5. Discussion

5.1. Comparison of alternative theoretical views

We have portrayed the project portfolio as an organisation and explored its relationship with its context through four supplementary organisational theories, each with their specific assumptions concerning organisations and contexts. Following Knudsen (2003), a field benefits from a balance between pluralism (i.e. accepting the myriad facets of organisations and, thereby, alternative theories) and a healthy degree of paradigmatic research (i.e., building on each other's works and progressing understanding based on a dominant theory). Project portfolio has leaned on a paradigmatic progress, where scholars advance understanding of similar research problems following similar ontological and epistemological stances, and fitting theories and methodological approaches (Kuhn, 1960). In the field of project portfolios, contingency theory and related questions and problems have dominated, with attention to merely how portfolios adapt to external conditions. We purposely wanted to supplement this view by focusing on theories that would acknowledge both internal and external contexts, explain how and why portfolios can influence their contexts, and potentially offer pathways to modify extant assumptions on portfolio's contextuality.

The four theoretical streams in this paper lead way towards pluralism. Theoretical pluralism enriches and challenges the dominant contingency-theory focused discourse, offers novel explanations for the problems faced in project portfolios, and opens up new pathways for research. As Ashby’s law of variety (1965) postulates, we need as many variables to explain a system as there is variation in the system. The diversity and contradictions emerging from the plurality of perspectives help explain the complexities of project portfolios. In this regard, this paper cherishes pluralism and does not seek integration between pluralistic views. Due to the different epistemological and ontological stances in the chosen theories, complete integration is not possible or even desirable. To benefit from pluralism in forthcoming research, we examine the contrasts and boundaries between theories, and their unique possibilities concerning project portfolios as organisations in their contexts.

Table 2 summarises a comparative analysis of the four theoretical lenses in connection with project portfolios. The review generated novel ideas concerning the relationship of project portfolios, their contexts and strategy, and contextualised explanations for project portfolio success.

Table 2. Comparison of four theoretical possibilities concerning the portfolios’ context relations.

| Theory | Basic idea of the organisation in its context | Interpretation for project portfolios | Relationship between project portfolio and its internal and external context | Implication for success |
|----------------------|---|---|---|---|
| Institutional theory | Rules of the game or organisational templates | Proliferation and change of templates for the organisation of portfolios | Portfolios follow the institutionalised ‘rules of the game’, and sometimes question them; relevance of non-related industries and standards in the forms of organising portfolios | Questioning isomorphic templates and innovate organisational structures |
| Stakeholder theory | Stakeholders include owners and other organisations with an interest in the organisation’s actions. Organisations create and exchange value with stakeholders | Need to identify key stakeholders, and consider their interests concerning value outcomes, to define value and select actions | Multiple competing interests and value expectations amongst stakeholders; multiple ways of influence; portfolios fulfilling multiple competing strategies of the different stakeholders, including strategic decision-making between portfolios | Competing and dynamic criteria for success, due to the various stakeholder values |

| Theory | Basic idea of the organisation in its context | Interpretation for project portfolios | Relationship between project portfolio and its internal and external context | Implication for success |
|----------------------------|--|---|---|---|
| Resource dependence theory | Organisations are affected and constrained by their contexts, and can respond to these requirements and constraints, to create acceptable outcomes and actions | External resource dependence of portfolios; focus from (internal) efficiency to (external) effectiveness | Power and interests of parent organisation and external resources to be considered; explication of the interests in terms of strategy content, to derive accurate measures of effectiveness | Differentiation of effectiveness measures for different strategies (of different resources) |
| Sensemaking theory | Relationship with the context is a social process of construction of meaning | Management of narratives and artefacts to guide the enactment process, including identification of cues, convergence of meaning across diverse stakeholder groups, and learning | Social processes of meaning conversion across hierarchical levels about what the context is, and why it matters | Convergence of complex mental models to account for the context |

The table and its underlying analysis show a continuum of different explanations for the management of project portfolios in their context, clearly deviating from the dominant rational orientation in PPM research. On the one hand, project portfolios are shown as mechanisms for adhering to or deviating from extant rules of the game in the institutional field (institutional theory) and battlefields of stakeholders' competing interests (stakeholder theory). On the other hand, they are portrayed as powerful and proactive devices for managing external resources (resource dependence) and constructing shared meaning across stakeholders (sensemaking).

The analysis also revealed novel viewpoints on project portfolio success. As a contrast to traditional efficiency-centric measures that do not explicate portfolio-specific strategies, the four novel theoretical alternatives draw attention to context-sensitive, strategy-specific assessment of success specifically in terms of effectiveness, in light of the stakeholders' actual expectations. The theories also acknowledge the possible differences in stakeholders' ideas of value, and thus, even competing simultaneous criteria for success that may evolve over time. Consequently, this finding challenges the static measures of project portfolio success that do not differentiate between different stakeholders' expectations and strategies.

5.2. Towards a novel theory for the management of project portfolios

We propose to extract project portfolios from the shadows of the parent organisation and its single projects, and consider them in their specific contexts. As Engwall (2003) argued for the embeddedness of projects in context, so do we argue for the embeddedness of project portfolios in their broader contexts. The analysis of the four alternative organisational theories revealed a possibility to view project portfolios not just as servants to a parent organisation and its strategy (cf. Artto et al., 2008a, 2008b), but in a more dynamic interplay with the context.

Appreciating the move in project research from project management to the management of projects as proposed by Morris (1997), we advocate the move from PPM to the management of project portfolios. Morris claimed that project management is a predominantly technical – that is, operational and delivery oriented – function. The key concern is how to deliver projects efficiently: on time, in budget, to scope (Morris and Geraldi, 2013). Similarly, PPM has attempted to link projects to strategy based on the operational, inward-oriented reorganisation of projects and their relationships. With the management of projects, Morris (1997) encouraged the projects to be managed at the strategic level, as organisational entities, including their front-end development, protecting the technical core from environmental turbulence, and embracing a strong concern for value and effectiveness. Similarly, we shift attention from PPM to the management of project portfolios, where project portfolios should be considered holistically as organisations nested in the parent organisation and external context. Besides an inward-oriented focus on value maximisation, balance and strategy implementation through projects, portfolio research needs to acknowledge an outward-oriented focus of creating the conditions for successful project portfolios, creating value for multiple stakeholders, and achieving impacts in the context. This novel orientation has clear implications on the organisational conditions of portfolios, consideration of strategy, external context, and success.

Portfolio and organisational diversity. Project portfolios are exposed to not just one institutional template (such as the management system, governance principles and contracts of the parent organisation in general), but multiple templates depending on their specific nature and context, and they differ from each other due to the combination of influential institutional templates. For example, one company's development project portfolios may face totally different institutional interests and requirements due to their specific resource markets (differing in terms of skill requirement, speed of development, educational maturity, etc.), and product markets (differing in terms of industry, geographical location, maturity and scope, and standardisation,

etc.). Personnel will make sense of these requirements in different ways and negotiate their priorities. Therefore, the current assumptions concerning the domination of the parent organisation's institutional template are ultimately wrong or restrictive. There is a need to accept variety in the guidance and steering of project portfolios, even within the same parent organisation. This finding offers a more nuanced way to assess and model organisational diversity as a source of uncertainty in PPM in comparison to previous research (Korhonen et al., 2014; Martinsuo et al., 2014), and encourages to treat this diversity as part of the interpretation and negotiation processes during decision making (Blichfeldt and Eskerod, 2008; Christiansen and Varnes, 2008; Jerbrant and Karrbom Gustavsson, 2013; Loch, 2000).

Portfolios and strategy. In the immediate context of the parent organisation, the project portfolio faces the organisation's guiding strategy, boundaries, resource restrictions, and resource competition. However, portfolios are not necessarily obedient servants of the parent organisation (following Artto et al., 2008a), but they may be more renewal oriented and anticipate the future outside of the given strategy (Kock and Gemünden, 2016; Kopmann et al., 2017; Rank et al., 2015) and serve multiple stakeholders. Partly following from the different institutional templates and pressures, project portfolios as organisations ultimately face different interests and requirements of various stakeholders and resources. These stakeholders and resources may have completely different priorities, implying that the portfolios serve not merely one but multiple strategies. In addition, these resources and stakeholders take action to influence the portfolio. Our findings challenge the dominating view that portfolios should just implement a certain strategy and reveal the variety of stakeholders' interests that need to be acknowledged, when managing the project portfolio.

Portfolio and the external context. The project portfolio will face the broader external context of the parent organisation, through the external interfaces of single projects and the firm's projection of a future. Research has pointed to a necessity for project portfolios to adapt to uncertainties (Korhonen et al., 2014; Martinsuo, 2013; Martinsuo et al., 2014; Petit, 2012; Petit and Hobbs, 2010). Contextual turbulence, including market and technological turbulence, is well acknowledged as a potential moderator in models concerning PPM and success (Kock and Gemünden, 2016; Kopmann et al., 2017; Voss and Kock, 2013). In addition, portfolios will face external connections and dependencies through supplier and customer collaboration (Voss and Kock, 2013), and risk management (Teller and Kock, 2013). Our findings show project portfolios as organisations in a proactive light: They can and will enact their context through processes of social construction. The portfolios tend to have their own resources, routines, and

management practices through which they filter incoming and outgoing information, and justify their decisions. The portfolios, even within the same parent organisation, may use different resources and routines. The context is affected not only by the outputs from the project portfolios, but also the actions taken when managing the portfolios, through the processes of sensemaking, negotiation, resource use, and steering. Whilst PPM has primarily been shown as intra-organisational activity, the viewpoint of enactment reflects the possibility of portfolios to modify and renew the context on purpose. It also brings attention to the cognitive and behavioural tasks of management as part of project portfolio value creation.

Portfolio success in context. Despite the need for context-sensitivity, a dominant trend in PPM research assumes that portfolio success can be measured as value maximisation, strategic alignment, and portfolio balance and synergies (Cooper et al., 1997; also later studies by Jonas et al., 2013; Teller et al., 2012; Teller and Kock, 2013; Unger et al., 2012), without defining what the strategy for each firm specifically is. Whilst enabling cross-company comparisons, this assumption prohibits the analysis of portfolio practice in light of companies' unique and different strategies and contextual demands. For example, the success criteria for portfolios pursuing growth strategies should be different from portfolios pursuing cost efficiency. Research also shows that firms may have different ideas of what is strategically valuable and important for the parent organisation (Martinsuo and Killen, 2014), indicating that value, alignment, and balance may mean very different things for different firms. To appreciate the embeddedness of project portfolios, we need to know what the stakeholders' expectations of value are and carry out comparisons only when the specific strategy type is acknowledged. On the basis of an increased context-awareness of portfolios, we argue that the specific strategies pursued in a portfolio must be accounted for, in developing accurate success criteria. As competitive advantage implies the ability of the firm to differentiate itself, a generalised measurement of success is likely to misrepresent the actual organisational success, questioning much of the cross-company comparisons.

5.3. Pathways for future research

Our intent was to propose a research agenda concerning the management of project portfolios, based on the review of the four context-connected theoretical lenses. Table 3 summarises some possible viewpoints to be considered in the future, divided into three main themes discussed below.

Table 3. Summary of future research ideas.

| Themes | Project portfolios, strategy, and success | Project portfolios in complex stakeholder contexts | Managing the project portfolio |
|---------------------------|--|---|--|
| Theoretical perspectives | | | |
| Institutional field | Processes of how organisational templates become acceptable or rejected within industries Dynamics of evolving organisational templates (including agile) | Isomorphic pressures on portfolios Deviant behaviours in managing project portfolios | Portfolio responses to isomorphic pressures Processes for legitimising and maintaining portfolio decision-making |
| Stakeholder management | Portfolio strategies, related stakeholder analyses, and value priorities Portfolio-level considerations of value and value management (acknowledging different stakeholders' views) | Stakeholder landscapes for different types of portfolios (e.g., product development, investment, and delivery) Portfolio stakeholders and project competition (for funding), e.g., in public infrastructure development | Managing the two-directional links between the portfolio and stakeholders (potentially specific to certain project types) Managing the links between levels of analysis (project, portfolio, parent organisation, business network) |
| Resource dependence | Resource-specific consideration of portfolio value Real organisational effectiveness as the success measure—differentiated success measures based on specific strategies (e.g., growth, survival, cost-efficiency, differentiation) | External actors with power: Who has power over the portfolio? What are the interdependencies or power relations? Resource dependence caused by the different activity types in the same organisation (e.g., projects vs. services vs. sales) | Interplay between the portfolios of a certain parent organisation, including conflicts and strategic decisions between portfolios Portfolio governance (the level between the project and the parent organisation) |
| Enactment and sensemaking | Visualisation, to connect project portfolios with competing strategies Strategic learning and capabilities for managing project portfolios | Crises, and turbulence and its effects at the level of the project portfolio Social mechanisms for making sense of the context Narratives and stories in the construction and negotiation of meaning across stakeholders | Sensemaking and behavioural decision-making in project portfolios Practice-based view on managing project portfolios |

Project portfolios, strategy, and success. This review has pointed out that project portfolios cannot be seen merely as serving one strategy by the parent organisation. Such a view is limiting, oversimplifies the problem, and may explain the persistence of the gap between strategy design and execution. Extending project portfolio thinking and practice to its context shows how they are affected by multiple value priorities already within the parent organisation, and from the external and institutional contexts. We have also shown that there is a need to explicate the strategies guiding the portfolios, to develop appropriate success criteria and measures, so that different project portfolios with different strategies can be compared credibly. Future research is needed to enlighten and help manage the complexity underlying portfolios' strategies, to develop novel approaches to assessing PPM success in terms of effectiveness (instead of efficiency only), and to reveal the dynamics and micro-level processes in accepting and rejecting institutional and organisational templates.

Project portfolios in complex stakeholder contexts. Whilst stakeholders and inter-organisational dependencies are largely covered at the level of the single project, this theoretical reflection shows that it is necessary to take the complexity of the context into account in project portfolio studies. Following Weick, simplified views of the context will not suffice. Managers and researchers alike require more elaborate mental models to make sense of this complexity. There is a need to understand the pressures that project portfolios face from the context, and the competition and power battles that occur between different stakeholders with interests in the portfolio. We have also pointed out the relevance of inter-portfolio issues within the parent organisation as a source of additional complexity. Further research is needed to tackle all possible issues concerning cross-portfolio interplay: isomorphic forces, competition for resources, turbulence and crises, and social mechanisms of sensemaking.

Managing the project portfolio. Throughout this review, we have emphasised that project portfolios need to be treated as organisations and units of analysis, implying a stronger attention to the project portfolio's relations with the context. This viewpoint opens up new possibilities, when project portfolios are considered at and across different levels of analysis. Managing project portfolios could be considered at the level of certain institutions or fields (i.e. not just compared with each other, but aggregated), in terms of how differently and how successfully they respond to similar kinds of pressures or deviate from them. Similarly, portfolio studies at the level of the parent organisation (e.g., investments across portfolios) or at the level of single projects (e.g., sensemaking of portfolio decisions in single projects) would offer a novel angle that can complement the "pure" portfolio-level studies. Furthermore, some studies could build

understanding across the different levels of analysis, to treat management of the project portfolio more holistically.

There are further possibilities stemming from an in-depth consideration of cross-theoretical links. For example, future research could respond to Miterev et al.'s (2017) call, and explore the isomorphic pressures, portfolio responses to these pressures, and the institutional processes used to legitimise and maintain portfolio-related decision-making. When considered in tandem with stakeholder theory, this invites criticism of the dominant pursuit for the maximisation of value to shareholders, and calls for alternative ways in which project portfolios can gain greater legitimacy, as well as opening up space for the role of different stakeholders in enacting institutional settings, what Lieftink et al. (2019) named relational institutional work. Furthermore, sensemaking can well be connected with the other theoretical lenses, thus providing a unique ontological spin through a focus on the social construction of reality. For example, Aaltonen (2011) connected the concepts of stakeholder management and enactment, and studied how project managers made sense of their external stakeholders. Walker et al. (2017) discussed unexpected events in the context of collaboration and contracts, and the role of ambiguity. Such studies could be extended to project portfolios and the processes of sensemaking with relevant stakeholders not only within the firm, but also across organisational borders.

Viewing portfolios as organisations invites theoretical lenses beyond those explored in this paper. We opted for established classical theories and rejected some others, based on certain explicit justifications. The choices generate limitations, both in terms of the danger of fragmentation (Söderlund, 2011) and negligence of important alternatives. As the field of organisation studies evolves and offers new perspectives continuously, further research is needed to particularly explore the process and temporal aspects of managing project portfolios.

6. Conclusion

Motivated by a predominantly inward orientation of the literature on project portfolios and the limited theoretical reflection on the link between project portfolios and context, we explored the embeddedness of project portfolios in their contexts. We asked: *how do project portfolios relate to their internal and external contexts?* To address this question, we adopted an organisational view on project portfolios, took inspiration from Morris (1997), and proposed a move from PPM to the management of project portfolios where project portfolios are treated in a strategic way

and in direct, influential relation with their internal and external contexts. Accordingly, we positioned the project portfolio as a unit of analysis and an open system, in a dynamic interaction with its contexts.

Whilst contingency theory has been the primary theoretical lens used to explore portfolios in context, previous empirical PPM studies rarely addressed the specificities of each firm's strategy and success criteria and explained the two-directional processes and mechanisms behind the relationship between portfolios and contexts. We sought additional theoretical options, and proposed four theory alternatives that together provide a solid foundation to further study of project portfolios in context. In line with arguments for pluralism and integration of theories in the development of knowledge (Knudsen, 2003; Söderlund, 2011), our results point to eclectic avenues for research, as well as potential forms of cross-fertilisation of the selected theoretical angles, as summarised in the discussion section. Thus, the study offers a more nuanced understanding of the relationship between project portfolios and their contexts, and how portfolios influence parent organisations' strategies and strategy work.

The study offers three main contributions to research. First, we extracted project portfolios out of the shadows of the permanent organisations in which they are embedded, and connected them directly with the external context, through project type-specific embeddedness, portfolio-specific responses to uncertainty, and purposeful renewal, as part of managing the project portfolio. The results showed that each project portfolio may have its unique institutional templates, stakeholder relationships, resource dependencies, and ways to make sense of the context. This bold move towards portfolios as organisations portrays project portfolio managers as active agents who need to take the context into account, and who can drive and restrain the portfolio's autonomy and success within its context. Researchers are encouraged to explore the context connections of portfolios further, also through other theoretical lenses.

Second, the findings drew attention to the two-way influence between the portfolio and its contexts. Where previous research has already acknowledged uncertainty and turbulence as factors influencing the ways in which project portfolios should be managed and witnessed how these are perceived and even constructed, we have emphasised the variety of stakeholders within the parent organisation and externally, and the two-way influences between the portfolio and the stakeholders. When portfolio managers make sense and decide to act on the context, they continually construct and modify the context, as part of managing the project portfolio. The open connection of portfolios with their complex stakeholder context within, as well as outside, the boundaries of the parent organisation implies a need to revisit the currently used structures and

management frameworks for project portfolios. For example, the role of external stakeholders in managing project portfolios is underexplored: Contracts with them, their coordination within the portfolio, and the portfolio's dependencies on such external stakeholders need to be considered.

Third, the findings promote a situation-specific understanding of strategy and portfolio success, as part of research on managing project portfolios. The covered theoretical viewpoints challenge the use of generic portfolio goals as comparable success criteria and encourage researchers to explicate the stakeholder-specific expectations for value and effectiveness. This view offers a stark contrast to current PPM research that tends to anonymise the firms' strategies, average them into generic terms of strategy alignment, value maximisation and balance, and consequently, compare "apples with oranges". As project portfolios can be viewed as mechanisms for both implementing and renewing strategy, the organisational perspective to portfolios can assist in bridging the gap between strategy design and execution and, thereby, offer novel possibilities for strategy research, too. For research to guide practice credibly, there is a need to understand which project portfolio routines and practices are useful for certain strategies and value priorities (not just any strategies and values). Researchers should be more selective in what types of portfolios are studied and why, and in the sampling procedures, to enable proper comparisons of portfolios with similar kinds of strategies and comparable success criteria.

This paper offers two implications for practice. First, each of the four theoretical perspectives offers portfolio managers new aspects to consider when organising the portfolios. For example, they need to pay attention to a wider range of stakeholders, their potential resource dependencies, competing narratives and stories about the portfolio, and ways to follow or modify the templates of the institutional context. Second, the paper calls for a more strategic view on the portfolio, bringing portfolio managers to the centre of strategic renewal, and offering them a more active role in the development and deployment of strategy. Practitioners will benefit from a more open-ended strategic viewpoint, with stronger emphasis on the impact of their actions on the wider context of the firm.

References

Aaltonen, K., 2011. Project stakeholder analysis as an environmental interpretation process. *International Journal of Project Management*, 29, 165–183.

- Ahern, T., Leavy, B., Byrne, P.J., 2014. Knowledge formation and learning in the management of projects: a problem solving perspective. *International Journal of Project Management*, 32, 1423–1431.
- Alderman, N., Ivory, C., McLoughlin, I., Vaughan, R., 2005. Sense-making as a process within complex service-led projects. *International Journal of Project Management*, 23, 380–385.
- Ang, K., Biesenthal, C., 2017. Multilevel value creation in projects, program, and portfolios, in: Sankaran, S., Müller, R., Drouin, N. (Eds.), *Cambridge Handbook of Organizational Project Management*, pp. 295-310. Cambridge University Press, Cambridge, U.K.
- Archer, N., Ghasemzadeh, F., 2007. Project portfolio selection and management, in: Morris, P.W.G., Pinto, J.K., Eds., *The Wiley Guide to Project, Program & Portfolio Management*. Wiley & Sons, pp. 94-112.
- Artto, K., Dietrich, P., 2007. Strategic business management through multiple projects, in: Morris, P.W.G., Pinto, J.K., Eds., *The Wiley Guide to Project, Program, and Portfolio Management*. Wiley & Sons, pp. 1–33.
- Artto, K., Kujala, J., Dietrich, P., Martinsuo, M., 2008a. What is project strategy? *International Journal of Project Management*, 26, 4–12.
- Artto, K., Martinsuo, M., Dietrich, P., Kujala, J., 2008b. Project strategy—strategy types and their contents in innovation projects. *International Journal of Managing Projects in Business*, 1, 1, 49–70.
- Ashby, W. R., 1965. *An introduction to cybernetics*. Methuen, London, U.K.
- Beringer, C., Jonas, D., Kock, A., 2013. Behavior of internal stakeholders in project portfolio management and its impact on success. *International Journal of Project Management*, 31, 6, 830-846.
- Biesenthal, C., Wilden, R., 2014. Multi-level project governance: trends and opportunities. *International Journal of Project Management*, 32, 1291–1308.
- Blichfeldt, B.S., Eskerod, P., 2008. Project portfolio management—there’s more to it than what management enacts. *International Journal of Project Management*, 26, 357–365.
- Bredillet, C., Tywoniak, S., Tootoonchy, M., 2018. Exploring the dynamics of project management office and portfolio management co-evolution: A routine lens. *International Journal of Project Management*, 36, 1, 27-42.
- Brunet, M., 2019. Governance-as-practice for major public infrastructure projects: a case of multilevel project governing. *International Journal of Project Management*, 37, 283–296.
- Casciaro, T., Piskorski, M.J., 2005. Power imbalance, mutual dependence, and constraint absorption: a closer look at resource dependence theory. *Administrative Science Quarterly*, 50, 2, 167–199.
- Christiansen, J.K., Varnes, C., 2008. From models to practice: decision making at portfolio meetings. *International Journal of Quality and Reliability Management*, 25, 1, 87–101.
- Clegg, S., Killen, C.P., Biesenthal, C., Shankaran, S., 2018. Practices, projects and portfolios: current research trends and new directions. *International Journal of Project Management*, 36, 762–772.
- Cooper, R.G., Edgett, S.J., Kleinschmidt, E.J., 1997. Portfolio management in new product development: lessons from the leaders-I. *Research Technology Management*, 40, 5, 16–19.

- Cooper, R.G., Edgett, S.J., Kleinschmidt, E.J., 1999. New product portfolio management: practices and performance. *Journal of Product Innovation Management*, 16, 333–351.
- Davis, G.F., Cobb, J.A., 2010. Resource dependence theory: past and future. *Research in the Sociology of Organizations*, 28, 21–42.
- Davis, F., McAdam, D., Scott, W., Zald, M., Eds., 2005. *Social Movements and Organization Theory*. Cambridge, Cambridge University Press.
- Denyer, D., Kutsch, E., Lee-Kelley, E., Hall, M., 2011. Exploring reliability in information systems programmes. *International Journal of Project Management*, 29, 442–454.
- Derakhshan, R., Turner, R., Mancini, M., 2019. Project governance and stakeholders: a literature review. *International Journal of Project Management*, 37, 98–116.
- de Reyck, B., Grushka-Cockayne, Y., Lockett, M., Calderini, S.R., Moura, M., Sloper, A., 2005. The impact of project portfolio management on information technology projects. *International Journal of Project Management*, 23, 524–537.
- DiMaggio, P., 1988. Interest and agency in institutional theory. In L. Zucker, Ed., *Institutional patterns and organizations: Culture and environment*, Ballinger Publishing, Cambridge, MA, pp. 3-21.
- DiMaggio, P. J., Powell, W. W., 1983. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48, 2, 147-160.
- DiMaggio, P. J., Powell, W. W., 1991. Introduction. In Powell, W.W., DiMaggio, P.J., Eds., *The New Institutionalism in Organizational Analysis.*, University of Chicago Press, Chicago, IL, pp. 1-38.
- DiMaggio, P.J., Powell, W.W., 1991. The iron cage revisited: institutional isomorphism and collective rationality in organizational fields, in: Powell, W.W., DiMaggio, P.J. (Eds.), *The New Institutionalism in Organizational Analysis*. The University of Chicago Press, Chicago, pp. 63-82.
- Dye, L., Pennypacker, J., Eds., 1999. *Project portfolio management. Selecting and prioritizing projects for competitive advantage*. Center for Business Practices.
- Economist Intelligence Unit, 2017. Closing the gap: designing and delivering a strategy that works. <https://www.brightline.org/resources/eiu-report/> (accessed on 25 May 2019).
- Elonen, S., Artto, K., 2003. Problems in managing internal development projects in multi-project environments. *International Journal of Project Management*, 21, 395–402.
- Engwall, M., 2003. No project is an island: linking projects to history and context. *Research Policy*, 32, 5, 789–808.
- Engwall, M., Jerbrant, A., 2003. The resource allocation syndrome: the prime challenge of multi-project management? *International Journal of Project Management*, 21, 403–409.
- Florice, S., Ibanescu, M., 2008. Using R&D portfolio management to deal with dynamic risk. *R&D Management*, 38, 5, 452-467.
- Freeman, R.E., Harrison, J.S., Wicks, A.C., Parmar, B.L., De Colle, S., 2010. *Stakeholder Theory. The State of the Art*. Cambridge University Press.

- Friedman, A.L., Miles, S., 2002. Developing stakeholder theory. *Journal of Management Studies*, 39, 1, 1–21.
- Frooman, J., 1999. Stakeholder influence strategies. *Academy of Management Review*, 24, 2, 191–205.
- Fuentes, M., Smyth, H., 2019. Co-creation of value outcomes: a client perspective on service provision in projects. *International Journal of Project Management* 37, 696-715.
- Gacasan, E.M.P., Wiggins, M.W., 2017. Sensemaking through cue utilisation in disaster recovery project management. *International Journal of Project Management*, 35, 818–826.
- Geraldi, J., Arlt, M., 2015. Visuals Matter! Designing and using effective visual representations to support project and portfolio decisions. Project Management Institute.
- Geraldi, J.G., Lee-Kelley, L., Kutsch, E., 2010. The Titanic sunk, so what? Project manager response to unexpected events. *International Journal of Project Management*, 28, 547–558.
- Ghasemzadeh, F., Archer, N.P., 2000. Project portfolio selection through decision support. *Decision Support Systems*, 29, 1, 73–88.
- Giddens, A., 1986. *The constitution of society: Outline of the theory of structuration* (Vol. 349). University of California Press.
- Globocnik, D., Salomo, S., 2015. Do formal management practices impact the emergence of bootlegging behavior? *Journal of Product Innovation Management*, 32, 4, 505–521.
- Grint, K., 2005. Problems, problems, problems: the social construction of “leadership.” *Human Relations*, 58, 11, 1467–1494.
- Hatch, M.J., 2006. *Organization theory. Modern, symbolic and postmodern perspectives*, second ed. Oxford University Press.
- Hobbs, B., Aubry, M. 2007. A multi-phase research program investigating project management offices (PMOS): The results of phase 1. *Project Management Journal*, 38, 1, 74–86.
- Jerbrant, A., Karrbom Gustavsson, T., 2013. Managing project portfolios: balancing flexibility and structure by improvising. *International Journal of Managing Projects in Business*, 6, 1, 152–172.
- Jonas, D., Kock, A., Gemünden, H.G., 2013. Predicting project portfolio success by measuring management quality—a longitudinal study. *IEEE Transactions on Engineering Management*, 60, 2, 215-226.
- Karrbom Gustavsson, T., 2016. Organizing to avoid project overload: the use and risks of narrowing strategies in multi-project practice. *International Journal of Project Management* 34, 94–101.
- Kester, L., Griffin, A., Hultink, E.J., Lauche, K., 2011. Exploring portfolio decision-making processes. *Journal of Product Innovation Management*, 28, 5, 641–661.
- Kester, L., Hultink, E.J., Lauche, K., 2009. Portfolio decision-making genres: a case study. *Journal of Engineering and Technology Management*, 26, 4, 327–341.
- Killen, C.P., 2017. Managing portfolio interdependencies: the effects of visual data representations on project portfolio decision making. *International Journal of Managing Projects in Business*, 10, 4, 856–879.

- Killen, C.P., Hunt, R.A., 2010. Dynamic capability through project portfolio management in service and manufacturing industries. *International Journal of Managing Projects in Business*, 3, 1, 157–169.
- Killen, C.P., Jugdev, K., Drouin, N., Petit, Y., 2012. Advancing project and portfolio management research: applying strategic management theories. *International Journal of Project Management* 30, 525–538.
- Killen, C.P., Kjaer, C., 2012. Understanding project interdependencies: the role of visual representation, culture and process. *International Journal of Project Management*, 30, 554–566.
- Knudsen, C., 2003. Pluralism, scientific progress, and the structure of organization theory, in: Knudsen, C., Tsoukas, H., Eds., *The Oxford Handbook of Organization Theory: Meta-Theoretical Perspectives*. Oxford University Press, pp. 262–286.
- Kock, A., Gemünden, H.G., 2016. Antecedents to decision-making quality and agility in innovation portfolio management. *Journal of Product Innovation Management*, 33, 6, 670–686.
- Kopmann, J., Kock, A., Killen, C.P., Gemünden, H.G., 2017. The role of project portfolio management in fostering both deliberate and emergent strategy. *International Journal of Project Management*, 35, 557-570.
- Korhonen, T., Laine, T., Martinsuo, M., 2014. Management control of project portfolio uncertainty: a managerial role perspective. *Project Management Journal*, 45, 1, 21–37.
- Kuhn, T. S., 1996. *The Structure of Scientific Revolutions*. 3rd ed. University of Chicago Press.
- Lampel, J., Mintzberg, H., Quinn, J.B., Ghoshal, S., 2013. *The Strategy Process. Concepts, Contexts, Cases*, fifth ed. Pearson.
- Langley, A., 1999. Strategies for theorizing from process data. *Academy of Management Review*, 24, 4, 691-710.
- Lieftink, B., Smits, A., Lauche, K., 2019. Dual dynamics: project-based institutional work and subfield differences in the Dutch construction industry. *International Journal of Project Management*, 37, 269–282.
- Liu, Y., van Marrewijk, A., Houwing, E.-J., Hertogh, M., 2019. The co-creation of values-in-use at the front end of infrastructure development programs. *International Journal of Project Management*, 37, 684-695.
- Loch, C., 2000. Tailoring product development to strategy: case of a European technology manufacturer. *European Management Journal*, 18, 3, 246–258.
- Love, P.E.D., Smith, J., Ackermann, F., Irani, Z., 2019. Making sense of rework and its unintended consequence in projects: the emergence of uncomfortable knowledge. *International Journal of Project Management*, 37, 501–516.
- Luehrman, T.A., 1998. Strategy as a portfolio of real options. *Harvard Business Review*, 76, 5, 89–99.
- Lundin, R. A., Söderholm, A., 1995. A theory of the temporary organization. *Scandinavian Journal of Management*, 11, 4, 437-455.
- Martinsuo, M., 2013. Project portfolio management in practice and in context. *International Journal of Project Management*, 31, 794–803.

- Martinsuo, M., Killen, C.P., 2014. Value management in project portfolios: identifying and assessing strategic value. *Project Management Journal*, 45, 5, 56–70.
- Martinsuo, M., Klakegg, O.J., van Marrewijk, A., 2017. Call for papers: Delivering value in projects and project-based business. *International Journal of Project Management*, 35, 1655-1657.
- Martinsuo, M., Klakegg, O.J., van Marrewijk, A., 2019. Editorial: Delivering value in projects and project-based business. *International Journal of Project Management*, 37, 631– 635.
- Martinsuo, M., Korhonen, T., Laine, T., 2014. Identifying, framing and managing uncertainties in project portfolios. *International Journal of Project Management*, 32, 732–746.
- Martinsuo, M., Vuorinen, L., Killen, C., 2019. Lifecycle-oriented framing of value at the front end of infrastructure projects. *International Journal of Managing Projects in Business*, 12, 3, 617-643
- Meyer, J. W., Scott, W. R., 1983. *Organizational environments: Ritual and rationality*. Sage Publications.
- Midler, C., 2013. Implementing a low-end disruption strategy through multiproject lineage management: the Logan case. *Project Management Journal*, 44, 5, 24–35.
- Miles, S., 2017. Stakeholder theory classification: a theoretical and empirical evaluation of definitions. *Journal of Business Ethics*, 142, 3, 437–459.
- Mintzberg, H. (1979). *The structuring of organizations*. Prentice Hall.
- Mitchell, R.K., Agle, B.R., Wood, D.J., 1997. Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts. *Academy of Management Review*, 22, 4, 853–886.
- Miterev, M., Engwall, M., Jerbrant, A., 2017. Mechanisms of isomorphism in project-based organizations. *Project Management Journal*, 48, 5, 9–24.
- Momeni, K., Martinsuo, M., 2018. Allocating human resources to projects and services in dynamic project environments. *International Journal of Managing Projects in Business*, 11, 2, 486–506.
- Müller, R., Martinsuo, M., Blomquist, T., 2008. Project portfolio control and portfolio management performance in different contexts. *Project Management Journal*, 39, 3, 28-42.
- Musca, G.N., Mellet, C., Simoni, G., Sitri, F., de Vogüé, S., 2014. “Drop your boat!”: The discursive co-construction of project renewal. The case of the Darwin mountaineering expedition in Patagonia. *International Journal of Project Management*, 32, 1157–1169.
- Morris, P.W.G., 1997. *The Management of Projects*. Telford.
- North, D. C., 1994. Economic performance through time. *The American Economic Review*, 84, 3, 359-368.
- Papadimitriou, K., Pellegrin, C., 2007. Dynamics of a project through Intermediary Objects of Design (IODs): A sensemaking perspective. *International Journal of Project Management*, 25, 437–445.
- Petit, Y., 2012. Project portfolios in dynamic environments: organizing for uncertainty. *International Journal of Project Management*, 30, 539–553.

- Petit, Y., Hobbs, B., 2010. Project portfolios in dynamic environments: sources of uncertainty and sensing mechanisms. *Project Management Journal*, 41, 4, 46–58.
- Pfeffer, J., Salancik, G.R., 2003. *The External Control of Organizations. A Resource Dependence Perspective*. Stanford University Press, Stanford, CA.
- Rank, J., Unger, B.N., Gemünden, H.G., 2015. Preparedness for the future in project portfolio management: the roles of proactiveness, riskiness and willingness to cannibalize. *International Journal of Project Management*, 33, 1730–1743.
- Riis, E., Wikström, K., Hellström, M., 2019. Governance of projects: Generating value by linking projects with their permanent organization. *International Journal of Project Management*, 37, 652-667.
- Santhanam, R., Hartono, E., 2003. Issues in linking information technology capability to firm performance. *MIS Quarterly*, 27, 1, 125–153.
- Scott, W. R., 1981. Developments in organization theory, 1960-1980. *American Behavioral Scientist*, 24, 3, 407-422.
- Scott, W. R., 1995. *Institutions and organizations. Foundations for organizational science*. Sage Publications, London, U.K.
- Scott, R. W., 1998. *Organizations: Rational, Natural, and Open System (Fourth Edition ed.)*. Prentice-Hall, Upper Saddle River, NJ.
- Schreyögg, G. (2008). *Organisation: Grundlagen moderner Organisationsgestaltung. Mit Fallstudien*. Springer Gabler.
- Stettina, C.J., Hörz, J., 2015. Agile portfolio management: an empirical perspective on the practice in use. *International Journal of Project Management*, 33, 140–152.
- Stingl, V., Geraldi, J., 2017. Errors, lies and misunderstandings: Systematic review on behavioural decision making in projects. *International Journal of Project Management*, 35, 121-135.
- Söderlund, J., 2011. Pluralism in project management: navigating the crossroads of specialization and fragmentation. *International Journal of Management Reviews*, 13, 153–176.
- Söderlund, J., Sydow, J., 2019. Projects and institutions: towards understanding their mutual constitution and dynamics. *International Journal of Project Management*, 37, 259–268.
- Suchman, M. C., 1995. Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20, 3, 571-610.
- Teller, J., Kock, A., 2013. An empirical investigation on how portfolio risk management influences project portfolio success. *International Journal of Project Management*, 31, 817–829.
- Teller, J., Unger, B.N., Kock, A., Gemünden, H.G., 2012. Formalization of project portfolio management: the moderating role of portfolio complexity. *International Journal of Project Management*, 30, 596–607.
- Theeke, M., Polidoro, F.Jr., Fredrickson, J.W., 2018. Path-dependent routines in the evaluation of novelty: The effects of innovators' new knowledge use on brokerage firms' coverage. *Administrative Science Quarterly*, 63, 4, 910–942.

- Tsoukas, H., Chia, R., 2002. On organizational becoming: Rethinking organizational change. *Organization science*, 13, 5, 567-582.
- Turkulainen, V., Ruuska, I., Brady, T., Artto, K., 2015. Managing project-to-project and project-to-organization interfaces in programs: organizational integration in a global operations expansion program. *International Journal of Project Management* 33, 816–827.
- Turner, J.R., Müller, R., 2003. On the nature of the project as a temporary organization. *International Journal of Project Management*, 21, 1–8.
- Unger, B.N., Gemünden, H.G., Aubry, M., 2012. The three roles of a project portfolio management office: their impact on portfolio management execution and success. *International Journal of Project Management*, 30, 608–620.
- Van den Ende, L., van Marrewijk, A., 2019. Teargas, taboo and transformation: a neo-institutional study of community resistance and the struggle to legitimize subway projects in Amsterdam 1960-2018. *International Journal of Project Management*, 37, 329–343.
- Voss, M., Kock, A., 2013. Impact of relationship value on project portfolio success—investigating the moderating effects of portfolio characteristics and external turbulence. *International Journal of Project Management*, 31, 847–861.
- Vuorinen, L., Martinsuo, M., 2018. Program integration in multi-project change programs: agency in integration practice. *International Journal of Project Management*, 36, 583–599.
- Vuorinen, L., Martinsuo, M., 2019. Value-oriented stakeholder influence on infrastructure projects. *International Journal of Project Management*, 37, 750-766.
- Walker, D. H., Davis, P. R., & Stevenson, A., 2017. Coping with uncertainty and ambiguity through team collaboration in infrastructure projects. *International Journal of Project Management*, 5(2), 180-190.
- Weick, K.E., 1979. *The Social Psychology of Organizing*. McGraw-Hill, New York.
- Weick, K. E., 1995. *Sensemaking in Organizations*. Sage Publications. Thousand Oaks, CA.
- Weick, K. E., Sutcliffe, K. M., Obstfeld, D., 2005. Organizing and the process of sensemaking. *Organization science*, 16, 4, 409-421.
- Weick, K. E., Sutcliffe, K. M., 2001. *Managing the unexpected (Vol. 9)*. Jossey-Bass, San Francisco, CA.
- Zika-Viktorsson, A., Sundström, P., Engwall, M., 2006. Project overload: an exploratory study of work and management in multi-project settings. *International Journal of Project Management*, 24, 385–394.