The Temporal Emergence of Social Relations

An Event-based Perspective of Organising

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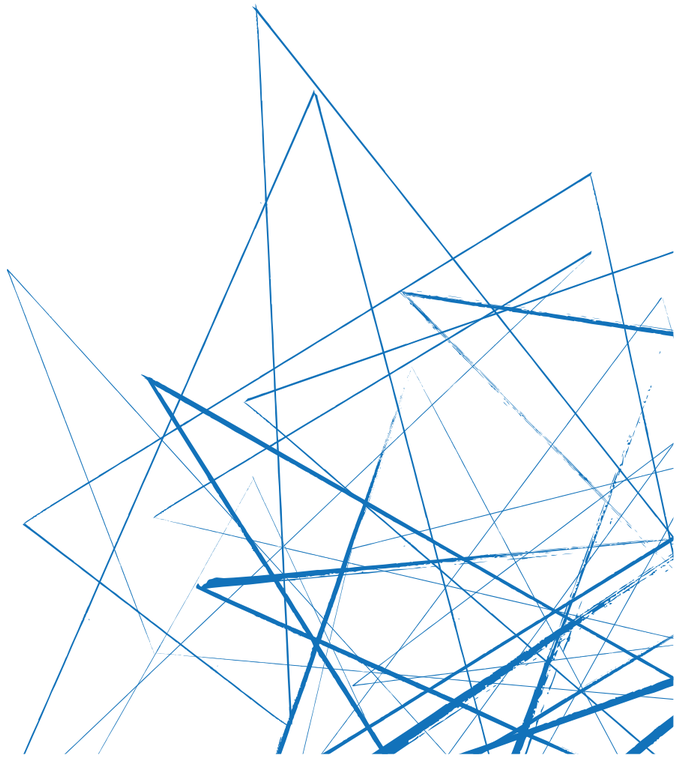

THE TEMPORAL EMERGENCE OF SOCIAL RELATIONS: AN EVENT-BASED PERSPECTIVE OF ORGANISING

PhD Series 32.2020

Jonathan Feddersen

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HANDELSHØJSKOLEN

The temporal emergence of social relations:

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1 INTRODUCTION

This dissertation investigates the emergence of social relations in the flow of time. Whereas scholars have long considered 'time' to be a disregarded dimension of organisation and management studies (e.g., Ancona et al., 2001; Clark, 1985), a growing body of work has recently begun to address this shortcoming (see, e.g., Holt & Johnsen, 2019; Kunisch et al., 2017; Reinecke & Ansari, 2016). For instance, studies have shown how social actors hold different temporal perspectives or assumptions (Reinecke & Ansari, 2015), how organisations develop idiosyncratic temporalities (Orlikowski & Yates, 2002), and how actors seek to transform these temporalities through temporal work (Granqvist & Gustafsson, 2016; Kaplan & Orlikowski, 2013). However, existing work almost exclusively foregrounds the social construction of time, treating time as something that actors can act upon and organise. As Holt and Johnsen (2019) put it, by focusing on what *actors do to time*, scholars tend to overlook what *time does to actors*, as well as the interplay between them.

To investigate how both of these dynamics—what actors do to time and what time does to actors—affect the emergence of social relations, I adopt a view of social actors as embedded, or situated, in the ongoing, inescapable flow of time (e.g., Emirbayer & Mische, 1998; Hernes, 2014). Adopting a temporally embedded view means considering time as endogenous to each actor's coping with the flow of time, rather than exogenous and uniformly experienced. This view draws attention to a central, yet often disregarded implication of the flow of time, namely that social actors, such as human beings and organisations (but also material artefacts, as shown by Hernes et al., 2020 and further developed in study 1 of this dissertation), inevitably develop their 'own time', or 'temporality', based on their respective movement through time. This realisation is particularly consequential for an understanding of social relations, for how do actors form relations if they each live in their 'own time'?

The flow of time may play not only a hindering, but also a facilitating role in the emergence of social relations, as the empirical studies of this dissertation reveal. On the one hand, the flow of time potentially makes it difficult to form social relations by giving rise to the temporality of social actors, which emerges from the ways in which actors in the ongoing present reinterpret, and recombine their past experiences and connect them with their imagined future aspirations. On the other hand, the flow of time may drive actors into each other's arms, bringing about both anticipated and unanticipated encounters. During such encounters, actors may become aware of each other's past, present, and future and identify possible connections between them. Such encounters may serve as starting points for forming social relations, and are thus a focal empirical interest of this dissertation.

In contrast to inferring social relations based on the mere frequency of interaction between two actors over time, as is common in studies drawing on social network analysis, for instance (see Borgatti & Halgin, 2014), adopting a temporally embedded view involves asking whether and how actors actually establish connections between their various encounters. In this view, a social relation emerges if an encounter between two or more actors comes to connect to other encounters over time. It is this relating between encounters that bring social relations into temporal existence, as shown, for instance, in studies on interorganisational relations (e.g., Ligthart et al., 2016; Stjerne & Svejenova, 2016). Although these studies show how social relations develop their own temporality, which is associated with, yet not reducible to, the temporalities of the involved actors, they leave several questions unanswered: How does such a shared temporality emerge? How does the shared temporality influence actors' respective temporalities in turn? How does this relation between temporalities change over time?

The associated-yet-separate nature of involved actors' temporalities and the temporalities of their social relations are fundamental elements of this dissertation. Relating to other actors is an inherent part of the situated activity of every social actor in the flow of time, encompassing

various forms of encounters such as spontaneous chats, family dinners, romantic dates, and planned meetings as much as dedicated networking events. Over time, multiple encounters with the same actor(s) connect and attain their own temporality, apparent not only in the frequency of encounters, but also in the ways actors refer back to past encounters and anticipate future encounters. At the same time, these encounters remain part of the respective temporalities of the involved actors, along with the other activities they engage in. The ways in which the connected encounters forming the social relation feature within the overall temporality of each of the interacting actors, constituted by their situated activities in the flow of time, may influence the temporality of their relation, and vice versa.

To investigate both the associated-yet-separate nature of involved actors' temporalities and the temporalities of their social relations, I draw on the concept of 'events'. In empirical investigations in organisation studies, scholars frequently draw on the notion of events to denote experiences or occurrences that the observed actors or analysts deem significant in explaining a given phenomenon. However, scholars have paid less attention to the analytical and theoretical potential of the concept of events, as noted by Hernes (2014): 'Curiously few attempts seem to have been made in the organizational literature to explicitly make the notion of event an analytical element of theory building' (p. 89). Likewise, Morgeson et al. (2015) asserted that 'scholars have largely failed to offer a comprehensive account of the central role events play in understanding organizational phenomena' (p. 515). In this dissertation, I pursue an event-based perspective of organising to investigate actors' temporalities and the temporalities of their relations, as well as their interplay.

Several process organisation scholars adopting a 'becoming' ontology have advanced an event-based perspective of organising as a way to conceptualise how the flow of time affects organisational phenomena (e.g., Cobb, 2007; Hernes, 2014; Hernes & Schultz, 2020; Hussenot & Missonier, 2016; Lord et al., 2015; Lorino, 2018; Nayak & Chia, 2011; Shotter, 2006; Tsoukas,

2019). An event-based perspective conceptualises organising as the connecting of events, attending to how actors act in the present through engagement with remembered past events and anticipated future events (e.g., Cobb, 2007; Hernes, 2014; Hussenot & Missonier, 2016). Above all, this perspective builds on the process philosophy of Whitehead (1920, 1929) and Mead (1932, 1934), who drew on the notion of 'events' to conceptualise the temporality of experience. Other influences include Heidegger (1927), Schütz (1967), and Deleuze (1995), among others. In *A process theory of organisation*, Hernes (2014) further developed an event-based perspective into a comprehensive theoretical framework, which provided an important starting point for this dissertation.

From an event-based perspective, individuals and organisations are conceived of as temporal 'event clusterings' (Nayak & Chia, 2011, p. 283) or 'trajectories' (Hernes, 2014, 2016; Hernes & Schultz, 2020; Hussenot & Missonier, 2016; Lord et al., 2015; Reinecke & Ansari, 2016; Tavory & Eliasoph, 2013; Tsoukas & Chia, 2002). Following these works, I adopt a temporal conceptualisation of organisations as trajectories of remembered past, ongoing present, and projected future events. In the first empirical study of this dissertation, I argue how this conceptualisation may be extended to materiality, conceiving of the 'material temporality' (Hernes et al., 2020) of a building as a trajectory of events.

Correspondingly, I propose to conceptualise temporalities of social relations as trajectories of shared events, or shared trajectories. According to this conceptualisation, social relations do not emerge from the relating of actors, but from the connecting of events within these actors' trajectories. More precisely, it draws attention to two different types of connections between events: (a) the connections actors establish between their respective trajectories during emergent present events *in time*, and (b) the connections actors establish to other shared past and future events, thereby fostering the emergence of a social relation *over time*. Put differently, a social relation emerges (only) when several intersections between actors' trajectories *in time* come to

connect *over time* into a shared trajectory that is associated with, yet separate from their respective trajectories. Expressed differently, the flow of time demands that encounters are connected to in subsequent events; otherwise, the ongoing flow of time renders them inherently ephemeral.

In contrast to the burgeoning theoretical literature on the concept of events, empirical investigations adopting an event-based perspective of organising remain scarce, and few tailored methodological approaches exist (Hernes, 2014; Langley & Tsoukas, 2016a). Although an increasing number of empirical investigations in process organisation studies are based on a 'becoming' ontology (Langley & Tsoukas, 2016a), I am aware of only one empirical study in which scholars explicitly adopted an event-based perspective (Hussenot & Missonier, 2016). In this dissertation, I address the dearth of methodological approaches and empirical studies. First, by developing what I term *temporal process analysis (TPA)* I translate an event-based theoretical understanding of organising into an event-based analytical approach for empirical investigation of the temporality of organisational phenomena. Second, I advance a temporal understanding of the emergence of social relations through two event-based empirical studies drawing on TPA.

The two empirical studies investigate the emergence of social relations in the context of the BLOX building in Copenhagen, inaugurated in May 2018. Financed by Danish philanthropy Realdania, and designed by renowned Dutch architectural firm Office for Metropolitan Architecture (OMA), a main purpose of this new building is to contribute to sustainable urbanisation by initiating new collaborations between actors across the private, public, and non-profit sectors to develop innovative urban solutions. The theoretical interest in investigating how the flow of time affects the emergence of social relations resonates with the problems faced by practitioners in this empirical setting, whom I found to be focally concerned with facilitating social relations. In the first empirical study, I examine the interplay of the material temporality (Hernes et al., 2020) of the BLOX building with multiple organisational trajectories. In the second empirical study, I analyse collaborative innovation processes unfolding before and after a

collaborative innovation session hosted by BLOXHUB, a coworking and innovation community located in the BLOX building.

The empirical setting of BLOX also reflects the broader societal and practical relevance of the examined theoretical problems. I suggest that understanding how the flow of time affects the establishment of social relations is of particular importance when aiming to facilitate collaborations between different types of societal actors hailing from different fields of society. While combining heterogeneous knowledge and capabilities is important for innovation in general (e.g., Garud et al., 2013; Hargadon, 2014), scholars have more recently emphasised the need to bring together novel constellations of actors across the private, public, and non-profit sectors to collaboratively develop solutions to societal grand challenges (e.g., Ferraro et al., 2015; George et al., 2016; Howard-Grenville et al., 2014). Both BLOX and BLOXHUB aim to facilitate such collaborations in order to contribute to UN Sustainable Development Goal 11, to 'make cities and human settlements inclusive, safe, resilient and sustainable' (United Nations General Assembly, 2015, p. 14).

A temporal understanding of the emergence of social relations may be helpful in initiating and sustaining collaborations of heterogeneous actors directed at solving sustainability challenges for two main reasons. On the one hand, heterogeneous actors hailing from different societal fields are likely to operate according to different temporalities and time horizons (Reinecke & Ansari, 2015; Schultz & Hernes, 2020), which may hinder their collaboration. How do actors collaborate despite their different temporalities? Do actors' different temporalities represent barriers to or potentialities for collaboration? On the other hand, scholars consistently emphasise that addressing societal grand challenges, such as climate change and sustainability more broadly, demands adopting a long-term time horizon, which conflicts with the short-term time horizon of most businesses (e.g., Lê, 2013; Slawinski & Bansal, 2012, 2015; Wright & Nyberg, 2017). Yet, even when organisations adopt a long-term horizon, they may be normalised by the short-term

concerns of ongoing operations (Wright & Nyberg, 2017), raising the question of how it may be possible to sustain a long-term time horizon over time. I return to these questions when discussing the practice implications of the cumulative findings of this dissertation. In the sections that follow, I introduce the three papers of the dissertation before providing an overview of the dissertation's structure.

1.1 The three studies comprising this dissertation

This dissertation comprises three studies. The first two studies are empirical studies. In the third study, I elaborate a novel analytical approach (for an overview, see Table 1.1). I introduce the main arguments of each study below.

Table 1.1 Overview of the three studies comprising this dissertation

Element	Study 1 (empirical)	Study 2 (empirical)	Study 3 (methods)
Title	Becoming a 'contemporary landmark' for sustainable urban development: Advancing an understanding of material temporality	Configuring a shared trajectory: The temporal embeddedness of collaborative innovation	Temporal process analysis (TPA): Combining qualitative process studies 'over time' and 'in time'
Research question	How does the material trajectory of a building come to intersect with multiple organisational trajectories?	How do the respective trajectories of collaborating organisations (i.e., their respective pasts and futures) affect the emergence of a shared trajectory?	How can researchers investigate the mutual influences of the temporal embeddedness of actors in emerging events 'in time' and the pattern of events 'over time'?[1]
Research context	The development and first year of operations of the BLOX building in Copenhagen	Collaborative innovation processes unfolding in the context of a collaborative innovation session	Draws on research context of study 2 for illustrative purposes
Theoretical background	• Event-based perspective of organisations as temporal trajectories (e.g., Hernes, 2014; Hussenot & Missonier, 2016) • Material temporality (Hernes et al., 2020), processual view of materiality (Leonardi, 2016)	• Event-based perspective of organisations as temporal trajectories (e.g., Hernes, 2014; Hussenot & Missonier, 2016) • Role of future projections in collaborative innovation (e.g., Dattée et al., 2018; Deken et al., 2018) • Temporal embeddedness of interorganisational relations (e.g., Ligthart et al., 2016) and innovation (e.g., Garud et al., 2011; Obstfeld, 2012)	• Event-based perspective of organisations as temporal trajectories (e.g., Hernes, 2014; Hussenot & Missonier, 2016) • Recent literature on methodologies for qualitative process studies (e.g., Garud et al., 2017; Jarzabkowski et al., 2016; Langley et al., 2013)

Element	Study 1 (empirical)	Study 2 (empirical)	Study 3 (methods)
Data types	• Ethnographic field study • Interviews • Archival data	• Ethnographic field study • Interviews • Archival data	Draws on data from study 2 for illustrative purposes
Data analysis	• Compilation of event database • Coding of events • Plotting and visual analysis of event graphs	• Compilation of event database • Coding of events • Plotting and visual analysis of event graphs and social network graphs	• Compilation of event database • Coding of events • Plotting and visual analysis of event graphs
Main findings	• Shows how four different material-organisational concepts of the BLOX building emerged from intersections between organisational trajectories and the material trajectory of the building 'in time' • Examines the effects of these intersections on organisational trajectories and the material trajectory of the building 'over time'	• Shows how actors engaged in five different modes of connecting their respective presents, pasts, and futures for a shared, collaborative trajectory to emerge • Develops a model of 'temporal abduction', showing how actors iteratively move back and forth between the past and the future	• Proposes temporal process analysis (TPA) as a methodological and analytical approach to combine process studies 'in time' and 'over time' • Indicates possible applications of TPA in different fields of organisational research

[1]This question is not explicitly stated in the paper, yet underlies the paper's main purpose.

The first empirical study, 'Becoming a "contemporary landmark" for sustainable urban development: Advancing an understanding of material temporality', follows the development of the BLOX building and the first year after its inauguration. In the study, I draw on and extend the concept of 'material temporality' (Hernes et al., 2020). Arguing for the compatibility of material temporality with an event-based perspective of organisations as trajectories of events, I conceptualise the building's temporality as a material trajectory. The analysis explores how the material trajectory of the BLOX building comes to intersect with multiple organisational trajectories 'in time', for the building to emerge 'over time' from connections between these intersections. The findings reveal how four different concepts of the building emerged from intersections between organisational trajectories and the material trajectory of the building. I also examine the effects of these intersections on organisational trajectories and the material trajectory of the building 'over time'. The findings suggest that the longevity of material temporality may act as a catalyst for the emergence of social relations between heterogeneous actors.

The title of the second empirical study is ‘Configuring a shared trajectory: The temporal embeddedness of collaborative innovation’. Pursuing an event-based perspective of organisations as temporal trajectories, the study follows collaborative innovation processes unfolding in the context of a collaborative innovation session. By analysing data collected through an ethnographic field study, interviews with the actors involved in the innovation process, and supplementary archival data, I examine how the respective trajectories of the collaborating organisations (i.e., their respective pasts and futures) influenced the emergence of a shared trajectory. The findings reveal how actors engaged in five different modes of connecting their respective presents, pasts, and futures to enable a shared collaborative trajectory to emerge. Building on these findings, I develop a model of ‘temporal abduction’ that shows how actors iteratively move back and forth between the past and the future. By offering a bidirectional view of time, the study extends prior work showing the role of future projections in collaborative innovation (e.g., Dattée et al., 2018; Deken et al., 2018), and contributes to literature on the temporal embeddedness of interorganisational relations (e.g., Ligthart et al., 2016; Manning, 2019) and innovation (e.g., Garud et al., 2011; Obstfeld, 2012).

In the third study, ‘Temporal process analysis (TPA): Combining qualitative process studies ‘over time’ and ‘in time’, I further develop the methodological implications of the two empirical studies into an event-based analytical approach, drawing on recent literature on methodologies for qualitative process studies (e.g., Garud et al., 2017; Jarzabkowski et al., 2016; Langley et al., 2013). In the extant methodological literature, scholars contrast a ‘becoming’ and a ‘being’ ontology as mutually exclusive (e.g., Langley et al., 2013; Sandberg et al., 2015). In contrast, I follow process scholars who suggest that seeing these ontologies as complementary illuminates how the flow of time affects organising (e.g., Cobb, 2007; Hernes, 2014; Hussenot & Missonier, 2016; Lorino, 2018; Shotter, 2006). To highlight their implied temporal understandings, I refer to a ‘becoming’ ontology as an ‘in time’ view and to a ‘being’ ontology as an ‘over time’ view. TPA

provides a way to investigate the mutual influences of the temporal embeddedness of actors in emerging events 'in time' and the pattern of events 'over time'. I explain the basic approach of TPA, provide several illustrations based on data from the second study, and indicate possible applications in different fields of organisational research.

1.2 Structure of the dissertation

The remainder of this dissertation is structured as follows.

In Chapter 2, I provide the theoretical background for this dissertation in the field of process organisation studies. Initially, I turn to the distinction between a 'being' ontology and a 'becoming' ontology, which is widely used to articulate the analytical gain of the 'process turn' in organisation studies. Instead of framing the 'being' and a 'becoming' ontologies as opposites, I suggest that a 'being' view is integral to an understanding of a 'becoming' view. To redirect attention from these ontological questions towards the temporal implications of 'being' and 'becoming', which are the focal concern of my dissertation, I instead propose the labels 'over time' and 'in time'. I argue that following how actors shift between an 'in time' and an 'over time' view may enable a better understanding of how the flow of time affects the emergence of social relations. However, because extant methodological approaches have mirrored the distinction between the 'being' and 'becoming' ontologies, there is a lack of methodological approaches suited to this analytical task. I suggest that the concept of 'events' and the event-based perspective of organising advanced by several process scholars enable researchers to follow how actors' enactment of emergent events 'in time' connects into a pattern of events 'over time', and vice versa. In study 2, for instance, I show how an unanticipated encounter of two individuals during a pitching session ('in time') connects with subsequent events for a collaborative innovation process to emerge ('over time'). In the third study of this dissertation, I further develop this conceptual idea into an analytical approach.

In Chapter 3, I introduce the empirical setting for this dissertation by describing the BLOX building and its main tenants. I describe one of the tenants, the BLOXHUB coworking and innovation community, in more detail, as it served as the empirical context for my second empirical paper. I highlight some of the problems and challenges faced by actors in this empirical setting, thereby showcasing the practical relevance of the dissertation.

In Chapter 4, I provide an overview of the research process across the three papers. First, I describe my data collection and analysis methods, thereby offering a sense of how the three papers are connected and how the papers emerged from preliminary observations during my fieldwork. Second, I give an account of the development of TPA, explaining how I developed the analytical approach through an abductive process involving iteration among data analysis, theory, methodological inspirations and technological possibilities. I do not include a dedicated data analysis section because the third study on TPA covers the general analytical considerations underlying this dissertation in detail, and I describe in each empirical study how I adjusted this approach to the respective analytical needs. In Chapters 5 to 7, I present the three studies comprising this dissertation.

In Chapter 8, I discuss the cumulative contributions of the dissertation across the three studies. First, I discuss the main theoretical contribution to process organisation studies, including similarities and differences between my two empirical studies as to how the flow of time affects the establishment of social relations. Subsequently, I discuss additional contributions to the literatures on interorganisational relations, collaborative innovation, and materiality. Second, I discuss the methodological contributions of the dissertation, above all how TPA may advance investigations of time and temporality in qualitative process studies. Third, I discuss implications for practice. Specifically, I focus on how the findings may be helpful for practitioners seeking to facilitate collaborations between heterogeneous societal actors over a long-term time horizon.

In Chapter 9, I highlight three avenues for future research emerging from this dissertation. First, this dissertation may provide a starting point for the development of a formal approach to analysing organisational temporality, for instance through the development of graph theoretical measures inspired by those commonly used in social network analysis. Moreover, this dissertation highlights opportunities for additional work on a temporal understanding of social networks, and advancing a processual understanding of organisational space. I offer some concluding thoughts in Chapter 10.

Finally, I want to make two practical notes. First, to facilitate navigation in the document, I numbered the figures, tables, and appendices with the chapter number followed by a consecutive number. Second, I placed the appendices for the three studies (Chapter 5–7) at the end of each chapter. All references appear at the end of the dissertation.

2 THEORETICAL BACKGROUND

In this chapter, I present the theoretical background for my dissertation in process organisation studies. First, I sketch the emergence of process organisation studies as a research stream and highlight the distinction between a 'becoming' and a 'being' ontology. Second, I argue that framing the 'becoming' and 'being' ontologies as opposites limits an understanding of how the flow of time affects organising. From a 'becoming' perspective, both 'becoming' and 'being' are constitutive of temporal experience. 'Becoming' reflects an 'in time' view of temporal experience, while 'being' reflects an 'over time' view. I suggest the interplay between 'in time' and 'over time' to be especially relevant for a temporal understanding of the emergence of social relations. Fourth, I map extant approaches to qualitative process studies, and find that there is a lack of analytical and methodological approaches that could guide simultaneous investigation of the 'in time' and 'over time' dimensions. Fifth, I argue that the notion of 'events', in the way that it is used by scholars advancing an event-based perspective of organising, allows attending to both the 'in time' and 'over time' dimension of temporal experience. Finally, I introduce the event-based analytical approach that guided my theoretical reasoning and empirical investigations.

2.1 Process organisation studies: 'Becoming' and 'being'

In recent years, 'process organisation studies' has consolidated itself as a research field in its own right, as indicated by the publication of the first handbooks on the topic (Helin et al., 2014; Langley & Tsoukas, 2016b). To be sure, process studies are not entirely new to organisational research, as the approach has been well-established in qualitative organisational studies at least since the late 1970s. Examples include studies on sensemaking (Weick, 1979), entrepreneurship (Burgelman, 1983), organisational change (Pettigrew, 1985), and innovation (Van de Ven & Poole, 1990). Inspired by pragmatism (e.g., Pierce, James, Dewey, Mead), process philosophy (e.g., Whitehead, Bergson) and phenomenology (e.g., Husserl, Schütz, Heidegger), scholars have

contributed to the process turn by reconsidering fundamental ontological and epistemological assumptions underpinning the concept of process itself, which had hitherto remained largely unquestioned. The ambition of these efforts was and is to draw on philosophical concepts as tools to advance organisational research. The *Handbook of Process Philosophy & Organization Studies* (Helin et al., 2014) exemplifies this ambition, showing how the work of selected philosophers may contribute to a processual understanding of organisations.

To articulate the theoretical novelty of process organisation studies, scholars have described it as a move from a 'weak' to a 'strong' process view (e.g., Chia & Langley, 2004; Hernes, 2008) or from a 'being' to a 'becoming' ontology (e.g., Langley et al., 2013; Tsoukas & Chia, 2002). A 'being' ontology assumes the existence of stable substances or entities (human actors, organisations, material artefacts). It assumes that 'substances exist independently of other substances, and their underlying nature does not change although their qualities may change' (Langley et al., 2013, p. 5). From this view, studying processes means following changes in these entities 'over time', assuming time as discrete and exogenous to the process. This view corresponds to seeing process from the outside (Shotter, 2006). In contrast, a 'becoming' ontology considers substances or entities as relationally constituted, preliminary stabilisations of ongoing processes. From this view, studying processes demands following how entities become stabilised 'in time', assuming time as ongoing and endogenous to the process. This view corresponds to seeing process from within (Shotter, 2006).

Scholars have frequently used the distinction between a 'becoming' and a 'being' ontology or a 'strong' and a 'weak' process view (e.g., Langley et al., 2013; Sandberg et al., 2015) to categorise the heterogeneous theoretical perspectives and analytical approaches comprising the field of process organisation studies (for an overview, see Langley & Tsoukas, 2016b). Ordering approaches to process studies on a continuum between these two poles, however, may suggest that they are mutually exclusive or diametric opposites, which runs counter to fundamental

assumptions of a 'becoming' ontology. Process theorists adopting a 'becoming' ontology 'do not dismiss the discreteness of the world we inhabit. On the contrary, they note that segmenting experiences into discrete items is necessary for humans as active beings, on purely pragmatic grounds (Langley & Tsoukas, 2016a, p. 5). In other words, actors themselves abstract from the ongoing processual flow. This observation is of particular relevance for a processual understanding of time and temporality.

2.2 Temporal process studies: 'In time' and 'over time'

Scholars focusing on time and temporality (e.g., Chia & King, 1998; Hernes, 2014; Holt & Johnsen, 2019; Shotter, 2006; Tsoukas, 2019) suggest that framing the 'becoming' and 'being' ontologies as opposites may limit one of the major analytical benefits of adopting a 'becoming' view, i.e., enabling researchers to consider how the flow of time affects organising. This argument reflects the standpoint of Whitehead (1929), who pointedly expressed the inherent interrelation between 'becoming' and 'being', arguing that 'how an entity *becomes* constitutes what that actual entity *is*; so that the two descriptions of an actual entity are not interdependent. Its 'being' is constituted by its 'becoming'. This is the principle of process' (p. 28, emphasis in original). In contrast to Whitehead's philosophy, which was relatively devoid of (human) actors, process organisations scholars focus on how social actors come to terms with their becoming into being, and how they organise in the midst of the incessant flow of time.

Rather than conceiving of 'becoming' and 'being' as ontological perspectives, these scholars conceptualise them as part of actors' temporal experiences in the flow of time. Therefore, in this dissertation, I use the label 'over time' instead of 'being' and 'in time' instead of 'becoming' to highlight their respective implications for an understanding of time and temporality. Drawing on the philosophy of Mead, Whitehead, and Schütz, among others, temporal process scholars (e.g., Hernes, 2014; Shotter, 2006) argue that actors themselves cope with being

embedded in the ongoing flow of time by shifting attention between the 'in time' and 'over time' views. As a result, process studies interested in the effects of time and temporality on organising should focus on the interplay between these two views as enacted by the actors involved in organisational phenomena, rather than limiting their analyses to either of these views.

In the findings of the first empirical study of this dissertation, for instance, I report how the Danish Ministry of Business seized a moment 'in time' in which the philanthropy Realdania was reconsidering its future strategic direction 'over time' to propose a joint strategic initiative. From an 'in time' view, one might interpret the initiation of the collaboration as a mere coincidence, whereas from an 'over time' view, one may attribute it to foresightful strategic planning. However, my empirical findings suggest how the Ministry seized the moment 'in time' by offering an alternative shared future projection that anticipated the ongoing reorientation of the philanthropy 'over time'. By following how actors shifted between an 'in time' and 'over time' view, I show how the moment *became* timely and thus seize-able, rather than being inherently timely.

On the one hand, an 'in time' view directs attention to the ways in which the mere passing of time affects the organising efforts of actors. Actors are assumed to be situated in the ongoing flow of time or 'temporally embedded' (Emirbayer & Mische, 1998). The ongoing nature of time endows it with agentic qualities and spurs organising efforts: 'A basic tenet of a temporal process view is that the passing of time forces actors to carve out their own temporal existence' (Hernes, 2014, p. 48). By carving out their temporal existence from the flow of time, human actors and organisations—as well as materials, as shown by Hernes et al. (2020)—acquire their 'own time' or 'temporality' entailing their remembered pasts, present experiences, and anticipated futures (Hernes, 2014). As a concept, temporality 'signals that the time in question belongs exclusively to the entity; it is a measure endogenous to the entity's or substance's movement through time,

rather than being imposed exogenously' (Hernes et al., 2020, p. 4). Put differently, the temporal experience of an actor constitutes that actor's temporality.

On the other hand, precisely because actors are inescapably embedded in the flow of time, they need to abstract from their temporal embeddedness to an 'over time' view to gain a sense of where they are in time and where they are going. Shotter (2006) described this abstraction as a shift from experiencing the ongoing process 'from within' versus looking upon the process 'from the outside'. When actors engage in such temporal abstraction, they move from an 'in time' to an 'over time' view, such as by looking back on their past to identify changes at different points in time. Hernes and Schultz (2020) termed this move 'temporal distancing', which requires reflection, rather than reflexivity. They argued that temporally embedded actors may gradually alter their temporality through reflexivity 'in time', as shown, for instance, by studies on temporality based on practice theory (e.g., Buch & Stjerne, 2018) or routines (e.g., Geiger et al., 2020; Kremser & Blagoev, 2020). However, if actors want to transform or redirect their temporality, they need to reach beyond and reflect upon it (Hernes & Schultz, 2020; see also Mische, 2009; Schütz, 1967). Through reflection, actors obtain a sense of where they currently are on their courses of action, where they are coming from, and where they are going to 'over time', which in turn guides their situated organising efforts 'in time'.

2.2.1 The temporality of social relations

A main argument of the thesis is that the interplay between 'in time' and 'over time' is especially relevant for a temporal understanding of the emergence of social relations. Let us consider the case of a relation between two actors. From an 'in time' view, each of these actors has its own temporality, emerging from the way it carves out its existence from the flow of time (Hernes, 2014). The temporality is 'endogenous to the entity's … movement through time' (Hernes et al., 2020, p. 4), which means that the two actors cannot infer each other's movement through time. In

other words, the actors may only encounter each other randomly in the ongoing present. Arguably, however, this encounter is not likely to provide the starting point for an enduring social relation.

Several scholars argue that, for a relation to emerge, actors need to shift attention from an 'in time' to an 'over time' view, selectively articulating their respective past memories and future aspirations to explore potential reasons to meet again (e.g., Hernes, 2014; Mead, 1932; Schütz, 1967; Shotter, 2006; Tavory & Eliasoph, 2013). As actors are each 'caught' in their respective journeys through time, they must 'imagine themselves as occupying the same temporality' (Tavory & Eliasoph, 2013, p. 918). Schütz (1967, p. 116) argued how actors make their respective temporalities accessible to one another through 'expressive acts' that project an 'in-order-to motive'. These articulations provide the basis for a relation to emerge, because they give actors encountering each other 'in time' a sense of where they respectively are heading 'over time'. Drawing on Schütz (1967), Hernes (2014) referred to this shifting of attention from an 'in time' to an 'over time' view through which actors become mutually aware of each other as 'the making of "we-ness" through temporal connecting of experiences' (p. 58). Put differently, actors imagine a shared temporality which is a projection of a possible relation 'over time', which may then provide the foundation for repeated encounters 'in time'. If actors draw connections between these repeated encounters during subsequent events, the encounters 'in time' may come to form an actual relation 'over time'.

Process theorists have offered different theoretical concepts to capture how actors relate, even though their temporalities are only indirectly accessible to one another. Schütz (1967) referred to the experience of 'simultaneity' with other 'streams of consciousness': 'The simultaneity involved here is not that of physical time, which is quantifiable, divisible, and spatial. … the simultaneity of two durations or streams of consciousness is simply this: the phenomenon of *growing older together*' (p. 103, emphasis in original). The two empirical studies of this dissertation investigate this phenomenon. Polanyi's (1967; see also Hernes & Irgens, 2013)

concept of ‘subsidiary awareness’ may offer an explanation for how such a sense of simultaneity evolves, suggesting that, while actors are focally engaged in their own courses of action, they may maintain ‘subsidiary awareness’ of other simultaneous happenings. Drawing on several pragmatist philosophers, Lorino (2018, pp. 124–157) emphasised that the emergent ‘sharedness’ of a relation does not predispose a shared understanding, as actors may attribute divergent meanings to the relation. Put differently, a shared temporality does not imply a shared meaning. In fact, due to their different respective temporalities one should expect that actors ascribe differing meanings to their relation. In summary, these different works suggest that a temporal investigation of social relations should attend to the ways in which actors ‘in time’ imagine and attempt to articulate a shared temporality ‘over time’, and how this shared temporality affects their respective temporalities in turn.

Despite its inherently process-relational character, a view of interorganisational relations as ‘becoming’ is only beginning to take hold (Berends & Sydow, 2019). Further developing a ‘becoming’ perspective of social relations promises insights into how organisations may successfully form interorganisational relations even though each organisation is embedded in its ‘own time’. Extant research on the temporal embeddedness of interorganisational collaboration shows how organisations develop a shared temporal embeddedness, which emerges from, yet is not reducible to their respective pasts and futures. These studies show how this temporal embeddedness enables their continuity over time (e.g., Ligthart et al., 2016; Poppo et al., 2008) or repeated collaboration (e.g., Manning, 2019; Manning & Sydow, 2011; Stjerne & Svejenova, 2016), yet fail to explain how this temporal embeddedness emerges in the first place, or affects the respective temporalities of the involved organisations in turn. As indicated by Lumineau and Oliveira’s (2017) recent review, research on interorganisational relations almost exclusively adopts a linear conceptualisation of time, leading them to point to the temporal dimension as a ‘major blind spot’.

In summary, as argued by a number of scholars (e.g., Cobb, 2007; Hernes, 2014; Shotter, 2006; Tsoukas, 2019), the 'becoming' and 'being' ontologies are mutually constitutive of actors' temporal experiences 'in time' and 'over time', not just different onto-epistemological views of processual organisational phenomena. Thus, if we are to understand how the flow of time affects actors in their individual and collective organising efforts, including the establishment of social relations, we should follow actors in how they themselves cope with the flow of time by shifting attention between an 'in time' and an 'over time' view. The resulting methodological ambition is captured by Hernes's (2014) suggestion that studying process 'is about stepping into the stream of experience and stepping out of it, just as organizational actors do' (p. 180). Stepping into and out of the stream of experience involves paying analytical attention both to actors' emergent temporal experiences in the ongoing present ('in time'), and to the ways those experiences are affected, guided, facilitated and redirected by their reinterpretations of the past and projections of the future ('over time'). Unfortunately, there is a lack of analytical and methodological approaches that could guide simultaneous investigation of the 'in time' and 'over time' dimensions of temporal experience in empirical process studies.

2.3 Analytical and methodological approaches to empirical process studies

Even though a bourgeoning literature has started to consider the analytical and methodological implications of the process turn for empirical studies, extant methodologies focus on either an 'in time' or 'over time' view, rather than attending to their interplay.

Whereas early process theoretical work in organisation studies was mostly conceptual (Chia & Langley, 2004), scholars have begun to advance a processual understanding of a wide range of organisational phenomena through empirical studies (for an overview, see Langley & Tsoukas, 2016b). Translating the theoretical sensibilities gained from process philosophy into analytical

and methodological approaches suited for empirical analysis poses considerable challenges and thus calls for methodological innovations, as argued by Langley and Tsoukas (2016a, p. 21):

> Process philosophers-cum-theorists provide a sophisticated … process vocabulary but do not tell us how to empirically research and theorize process in organizations. Inventing research designs that capture reality in the making, and finding ways of analyzing and theorizing process data will … require the empirical researchers among us to stretch and adapt our methodological toolkits.

Several scholars have begun to adapt research methods to the specific intricacies of process research (e.g., Berends & Deken, 2019; Dawson, 2014b; Feldman, 2016; Garud et al., 2017; Jarzabkowski et al., 2016; Langley, 1999; Langley et al., 2013; Langley & Tsoukas, 2016a; Poole et al., 2016; Sandberg et al., 2015; van Hulst et al., 2016). Despite such progress in methodological innovation, reviews of existing analytical and methodological approaches to process studies (Garud et al., 2017; Jarzabkowski et al., 2016; Sandberg et al., 2015) consistently show that the majority of empirical studies adopt either an 'in time' or an 'over time' view, but do not show how they are related. For instance, Jarzabkowski et al. (2016) indicated such a tendency, finding that empirical process studies have been able to either explain change over time or specific instantiations of processes in time, but have been 'less able to explain the connection between the two' (p. 246). In a similar vein, Garud et al. (2017) pointed to the promise of 'hybrid' approaches that enable researchers to 'embrac[e] a paradox inherent in organizing—namely, [that] organizational phenomena are substances and processes at the same time' (p. 228).

Two related explanations may have led scholars to emphasise the distinction between 'over time' and 'in time' approaches, rather than attending to how they are related. First, scholars seem to have mirrored the distinction between a being and a becoming ontology in their categorisations of analytical and methodological approaches, associating a being ontology with an 'over time' view and a becoming ontology with an 'in time' view. Because the strong and weak process views

represent different ontological perspectives, ‘in time’ and ‘over time’ may be framed as mutually exclusive anchor points (Sandberg et al., 2015), rather than two inherently related concepts (Hernes, 2014; Shotter, 2006). Second, although scholars are aware of the inherent relatedness of ‘over time’ and ‘in time’, they might not consider it feasible to credibly consider both views in a single empirical study that adheres to a standard publication format.

Approaching this two-sidedness has been and continues to be one of the foremost challenges in my own attempts to simultaneously consider both views. An analytical and methodological difficulty when trying to combine two viewpoints in the same empirical study is identifying a consistent way of shifting attention between them. In the next section, I suggest that framing temporal experiences and interactions as ‘events’ may provide a way to study how actors shift attention between the ‘in time’ and ‘over time’ views.

2.4 Investigating shifts between ‘in time’ and ‘over time’ through ‘events’

Several process scholars have advanced an event-based perspective of organising (Cobb, 2007; Hernes, 2014, 2016; Hernes & Schultz, 2020; Hussenot & Missonier, 2016; Lord et al., 2015), which serves as a theoretical background for all three studies comprising this dissertation. An event-based perspective of organising builds on the works of several process philosophers, most importantly Whitehead (1920, 1929) and Mead (1932, 1934). Analytically, I focus on the concept of ‘events’, and outline how it can contribute to a better understanding of how the flow of time affects the emergence of social relations. In each empirical study (Studies 1 and 2), I explain how I adapted this analytical intuition to the specific purpose of the investigation. In Study 3, I further develop this intuition into a methodological approach that I term ‘temporal process analysis’.

‘Events’ embody both the ‘in time’ and ‘over time’ dimension of temporal experience. Whitehead drew on the notion of ‘events’ to conceptualise the experience of the flow of time, what he called the ‘passage of nature’ (Whitehead, 1920, p. 54). Building on Whitehead, ‘an

event-based scheme of analysis would assume events *as* time rather than as events *in* time. Rather than seeing events residing in time, time would be seen as residing in events' (Hernes, 2016, p. 605; see also Clark, 1985). On the one hand, events are 'what we become aware of in perception' (Stengers, 2011, p. 44). This view of events—what Whitehead referred to as 'pure experience'—is what I operationalise as an emergent, 'in time' view of events. From this view, events are internally connected or mutually constitutive, what Whitehead termed the 'immanence' of past and future events in present events (see, e.g., Hernes, 2014, 2020; Hussenot & Missonier, 2016). Thus, an 'in time' view refers to the continuity of temporal experience. On the other hand, each event relates to other events in a wider structure of events or 'event formation' (Hernes, 2014), from which it derives its meaning. From this perspective, past, present, and future events are not entangled with one another, but separated by time, what I refer to as an 'over time' view of events. This view of events is an abstraction from the situated experience of the flow of time, through which actors may reflect on their own temporalities (Hernes & Schultz, 2020). Thus, an 'over time' view refers to the discontinuities of temporal experience.

The 'event' concept thus provides a way to analyse actors' shifting of attention between an 'in time' and an 'over time' view, and thereby tease out how actors embedded 'in time' deal with the flow of time. This shifting attention in the temporal experience touches upon a fundamental difference in the process philosophy of Whitehead and Mead, who differed as to whether temporal experience moved from continuity ('in time') to discontinuity ('over time'), or vice versa. As discussed by Hernes (2020), whereas Whitehead assumed that time is experienced as discontinuous, for continuity to be constructed from these discontinuities, Mead held the opposite view; that time is experienced continuously, for discontinuities to be abstracted from this continuity. Arguably, my proposed analytical approach allows following either of these standpoints.

Hernes (2014) translated Whitehead's event-based process philosophy into a more accessible theoretical and analytical framework for process organisation studies, supplemented by references to other philosophers and process theorists. In contrast to Whitehead's (1920, 1929) abstract conceptualisation of 'events', Hernes suggested a need to 'work from a narrower and more clearly defined notion of events' (Hernes, 2016, p. 605), as I do in this dissertation. For Hernes (2014), 'an event is a generic description for any occurrence of duration and is not to be confounded with staged events, marker events, or epochal events, although some events may take on such proportions' (p. 189). In contrast to Whitehead's process philosophy, which is largely devoid of actors, Hernes has drawn on the work of Mead (1932, 1934) to adopt a more social view, conceptualising events as spatio-temporal sites where social actors encounter each other and establish relations.

Several scholars (Hernes, 2016; Hernes & Schultz, 2020; Hussenot & Missonier, 2016; Lord et al., 2015; Tavory & Eliasoph, 2013) have used the notion of a 'trajectory' to highlight how the connecting of specific events within the wider event formation accounts for the 'being in becoming' (Hernes, 2016) of actors. During present events, actors remember past events and imagine future events that inform their courses of action as they connect them to their own, ongoing, situated activities (Hernes et al., 2020). To describe these references to other events, scholars have drawn on Whitehead's notion of 'prehension' (e.g., Cobb, 2007; Hernes, 2014; Tsoukas, 2019). Prehension designates 'the way in which what was there-then, becomes here-now' (Cobb, 2007, p. 570). Events situated 'in time' connect into an 'over time' trajectory through prehension of past and future events during present events 'in time'.

In the two empirical studies of my dissertation, I extend the concept of a trajectory from social actors to provide a consistent conceptualisation of the temporalities of social relations and materiality as trajectories of events. The conceptualisation of social relations as a trajectory of events builds on research on the temporal embeddedness of interorganisational relations, which

shows how interorganisational relations may develop their own temporalities, which emerge from, yet are not reducible to the temporalities of the interacting organisations (e.g., Ligthart et al., 2016; Stjerne & Svejenova, 2016). The conceptualisation of material temporality as a trajectory of events responds to calls to analyse material and social processes as separate in order to investigate their encounters (Hernes et al., 2020; Leonardi, 2016), rather than assuming them to be inherently entangled and mutually constitutive, as is common among those who adopt a sociomaterial lens (e.g., Orlikowski & Scott, 2008). The consistent conceptualisation of social actors, social relations, and materiality as trajectories of events enables them to be integrated into an inherently temporal, event-based analytical framework, which takes its starting point in an undifferentiated totality of empirically observed events.

To denote the totality of events, Hernes (2014) suggested the concept of 'event formation', defined as 'provisional relational outcomes of connecting between events' (p. 95). The concept is inspired by Whitehead's (1920) suggestion to see events as connected in a four-dimensional 'manifold'. According to Hernes (2014), the concept of a 'manifold' emphasises that events are not to be conceived of as a linear succession of past, present, and future events, but rather as precedents, contemporaries, and antecedents that 'are woven together in a continuum that has no endpoints, but rather like planes that intersect and self-intersect' (p. 95). Such a weaving together or connecting of events 'is about experienced relatedness of events and the feeling of creating continuity' (p. 96). The 'experienced relatedness of events' is important for analytical purposes. While event formations have no boundaries per se, attending to how actors experience and enact relations between events by following their focal awareness (Hernes & Irgens, 2013; Polanyi, 1967) may be helpful in delineating empirical objects of study, as I suggest in Study 3.

An event-based perspective enables to investigate how the flow of time affects the associated-yet-separateness of these different trajectories. Starting with the empirical observation of events and temporal relations between events ('prehensions'), closer investigation reveals the

contributions of different social actors to the enactment of each event as well as the connections between events. This investigation of empirically observed events carves out the different trajectories and reveals their intersections during shared events.

To investigate the associated-yet-separateness of the different trajectories, I draw on event graphs that plot events and their relations chronologically. On the one hand, event graphs can help an analyst 'relive' the temporalities of different actors and switch between their different vantage points at different points in time. Reliving an actor's temporality involves considering each past event as if it was in the present, including how the actor anticipated the event during previous events, and how the actor referred back to the event during subsequent events. This reveals not only how the flow of time affected actors' respective trajectories, but also how drawing connections to the trajectories of other actors appeared meaningful and timely at certain points in time. In this way, event graphs reveal intersections between trajectories 'in time'. On the other hand, event graphs help reveal how multiple events during which trajectories intersected lead to the emergence of social relations 'over time'. In short, this analytical approach intends to investigate the temporality of each actor, as well as the emergence of a shared temporality among multiple actors. Figure 2.1 provides a schematic visualisation of the approach.

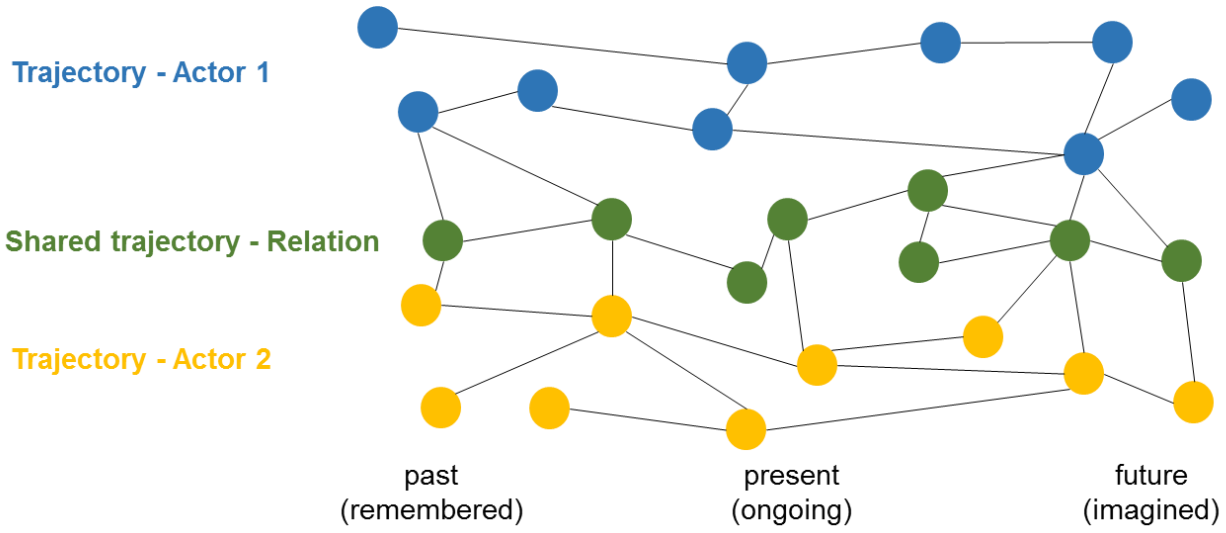

Figure 2.1 Schematic visualisation of my analytical approach

The figure represents an ‘event formation’ (Hernes, 2014). Each dot represents a past, present, or future event. The lines between events signify connections actors made during present events to past and future events (prehensions). Two sets of events designate the trajectories of actor 1 (blue) and actor 2 (yellow). Extending the conceptualisation of social actors as trajectories of events, I conceptualise their relations as intersections between their trajectories (green). From an event-based perspective of organising, each actor and relation forms a trajectory of events, meaning a set of temporally related past, present, and future events ‘over time’. However, how this trajectory emerged only becomes intelligible from an ‘in time’ view of events that delves into the ways in which actors involved in specific events drew connections to other past and future events. Analysing the set of events from the vantage point of one specific event and its connections (‘prehensions’) reflects an ‘in time’ view, whereas the pattern as a whole reflects an ‘over time’ view.

In each of the two empirical studies (Chapters 5 and 6), I detail the specific application of this approach, whereas in Chapter 7, I develop the basic intuition into a more general methodological approach that I term ‘temporal process analysis’.

3 EMPIRICAL SETTING

The BLOX building in Copenhagen, as well as BLOXHUB, a non-profit association and innovation hub located in the BLOX building, provided the empirical setting for my dissertational research. In this section, I provide information about the empirical setting which is supplemented by the case descriptions offered in the two empirical studies. Although I have sought to eliminate redundancy across the dissertation as much as possible, some is unavoidable.

3.1 BLOX

BLOX is a new landmark building on Copenhagen's harbourfront inaugurated in May 2018, financed by Danish philanthropy Realdania and designed by the Office for Metropolitan Architecture (OMA), a Dutch architecture firm co-founded by renowned architect Rem Koolhaas. The building derives its name from its physical shape, which resembles blocks staggered on top of each other like Lego bricks (for additional images and background information, see BLOX, 2019; Realdania, 2018). Aesthetically, the sleek blocks of glass and steel stand in sharp contrast to the adjacent historic buildings. In fact, Ellen van Loon, OMA's partner in charge of the project, admitted that the building was an 'intentional critique of Danish urbanism' which she considered 'too calm and beautified' (Wainwright, 2018). Predictably, the international and Danish press expressed mixed reactions to the building, with an influential Danish critic calling the building a 'monster' (Ifversen, 2018).

Architecturally, BLOX is a mixed-use building that combines office space, exhibition space, meeting and conference facilities, apartments, a café, a restaurant, a fitness centre, and an underground carpark. These different functions are interwoven to generate encounters between the different tenants of the building. The open plans that dominate the interior spaces reflect an approach that lead architect Ellen van Loon termed 'contaminating architecture' (Louisiana Channel, 2018). The building also has several noteworthy architectural features in that it spans

one of the busiest roads in Copenhagen and is cantilevered over the water. A substantial part of the built volume is below ground and sea level to adjust the building's scale to the surrounding historic buildings. Likewise, the building's entrance is below ground, and is accessed via an underground passage that extends from the square in front of the building to the waterfront.

From an urban development perspective, the completion of BLOX was one of the last components of the City of Copenhagen's transformation of the harbourfront from industrial activity into an accessible urban space. The intention was for the building to connect the inner city with the harbourfront, an ambition underlined by the addition of a bridge for pedestrians and cyclists. Located only few hundred metres from Copenhagen City Hall, the Danish Parliament, and the National Museum of Denmark, BLOX occupies the site of a former brewhouse, which had seen many failed development attempts prior to Realdania's acquisition of the plot in 2006. Post-acquisition, planning and construction of the building took 12 years. Initially designated as a new exhibition building for the Danish Architecture Center (DAC) and a new headquarters for Realdania, the building's concept changed multiple times prior to its inauguration in May 2018. I investigate these different concepts in more detail in Chapter 5.

Realdania claims that BLOX is 'more than a building' (Realdania, 2018). In the words of Realdania's former Chief Philanthropy Officer, BLOX is 'a contemporary landmark, not only for Copenhagen but for sustainable urban development' (Skovbro & Weiss, 2018, p. 147). In addition to providing a workspace for more than 800 employees from over 80 private, public, and non-profit organisations, the building was designed to host activities and events that connect 'architecture, design, construction and tech with global decision makers, scientists and citizens to explore and develop new sustainable urban solutions' (BLOX, 2019). To undergird the ambition of connecting actors across societal sectors, Realdania struck long-term collaborations with the Danish Ministry of Business and the City of Copenhagen, which respectively agreed to locate the

Design Society and Copenhagen Solutions Lab in the BLOX building, and became a co-founders of the newly established BLOXHUB innovation hub.

At the time of my dissertation research, the BLOX building had three main tenants. The Danish Architecture Center (DAC) organised exhibitions on architecture and urban development, as well as events directed at professional and broader cultural audiences. Design Society was a foundation funded by the Ministry of Business that served as an umbrella for three member organisations promoting Danish design and fashion: the Danish Design Centre (DDC), the INDEX Project, and Global Fashion Agenda. Finally, BLOXHUB was a (non-profit) association with over 280 member organisations across societal sectors (roughly 70% private, 20% public, and 10% non-profit) that supported sustainable urban innovation. BLOXHUB occupied one-and-a-half floors of BLOX as well as Fæstningens Materialgaard, an adjacent ensemble of historic buildings, in which it operated a coworking space with over 800 employees from 80 resident-member organisations, several prototyping and media labs, as well as event and meeting facilities.

In summary, BLOX combined three main functions. First, BLOX served as a cultural venue and exhibition space. From this angle, BLOX was a semi-public building, which in 2019 attracted 200.000 visits from citizens and tourists. Second, BLOX was the headquarters for three non-profit organisations that promoted design (Design Society), architecture and urban development (DAC), and sustainable urban innovation (BLOXHUB) via a broad spectrum of events and activities which attracted a steady flow of professional visitors from Denmark and abroad. Third, BLOX provided a workspace for over 800 people employed by a diverse set of organisations across sectors.

Of the three main tenants, I only introduce BLOXHUB and the BLOXHUB Match & Create program in more detail, because they provided the empirical context for my second empirical study. Moreover, Realdania established BLOXHUB as a way to organise and coordinate the collaborative ambitions associated with BLOX; thus, the organisation reflects the intentions

behind the building. Appendix 5.1 in Chapter 5 provides additional details on the tenants of BLOX and associated stakeholders.

3.2 BLOXHUB

BLOXHUB is a non-profit association founded in June 2016 by Realdania, the Danish Ministry of Business, and the City of Copenhagen, which aims 'to contribute to sustainable urbanization—on a global scale—through the development of innovative solutions encompassing architecture, design, construction and urban development' (BLOXHUB, 2019). At the time of writing this dissertation, the association had more than 280 member organisations, of which roughly 70% were private, 20% were public, and 10% were non-profit. BLOXHUB only admits organisations that operate within 'the fields of architecture, design, construction, urban development and digitalization, or whose enterprise is of strategic value to the Association' (BLOXHUB, 2019). The association is run by the BLOXHUB secretariat, which during the time of my empirical work grew from two to 15 full-time employees. Member organisations pay an annual membership fee of 4.000–20.000 DKK, depending on the number of employees.

BLOXHUB engages in two main activities. The association operates a coworking space and organises a variety of innovation events and programs. The coworking space is located in the BLOX building and a neighbouring ensemble of historic buildings, and provides workspace to roughly 800 employees, meeting facilities, different kinds of labs, and a start-up campus. Approximately 80 member organisations are so-called 'resident members' that rent desks in the coworking space for some or all of their employees. Innovation activities and events are open to all members and include keynote speeches and debates, collaborative innovation sessions, and innovation competitions. In addition, BLOXHUB was part of the team involved in operating the start-up accelerator program Urbantech, and the BLOXHUB Science Forum, an event series facilitating debate and collaboration among academics and practitioners around topics related to

sustainable urban development. My empirical work focused on the BLOXHUB Match & Create program, a series of collaborative innovation sessions, which was the first offering to be operational when I started my PhD studies in early 2017.

BLOXHUB claims that developing innovative urban solutions 'require[s] a new collaborative approach', which it promises to facilitate: 'We match you with the right people. We help mature ideas, explore opportunities and create new solutions' (BLOXHUB, 2018). The BLOXHUB team referred to this approach as 'matchmaking', which it considered their most important competence. In an interview, BLOXHUB's director told me about a conversation he had with a renowned Danish architect who had said that BLOXHUB would only become a success if the BLOXHUB team managed to connect people which otherwise may not have considered each other valuable, only to be surprised by the potential for collaboration. Whereas most activities that BLOXHUB facilitated supported this ambition, BLOXHUB's director considered the BLOXHUB Match & Create program 'core to this ambition' (Hub Director, BLOXHUB). To investigate how BLOXHUB affected the emergence of social relations, I therefore focused my empirical investigations on the Match & Create program. I also chose the Match & Create program for practical reasons, because it was the only fully operational program when I began my dissertation research in the spring of 2017.

3.2.1 BLOXHUB Match & Create

The BLOXHUB Match & Create program offered collaborative innovation sessions that gathered employees from 10–15 organisations to explore collaborations around a given problem or innovation topic over the course of two-day workshops. BLOXHUB member organisations could initiate a Match & Create session if they were facing a problem or wanted to explore a topic and needed support from collaboration partners. Smith Innovation, a Copenhagen-based innovation consultancy focused on the built environment, facilitated the Match & Create sessions on behalf of BLOXHUB. The Smith Innovation consultants would meet with the staff of the initiating

organisation, discuss the problems faced or topics to explore, and agree on the set of organisations that may be helpful in tackling the issue at hand. Workshop participants were recruited among the BLOXHUB members, as well as from the initiating member organisation and the consultancy's wider network.

The two workshop days of each Match & Create session typically followed a similar pattern, first opening up a solution space and then closing it down through several cycles of iteration. The aim of the first workshop day was to introduce the problem and open up the solution and innovation space. Throughout the day, participants would introduce their experiences, capabilities, and initial ideas regarding the problem at hand through short presentations. A brainstorming session concerning potential solutions followed, during which invited external experts would often provide additional inspiration through keynote presentations. After the first day, the facilitating consultants would cluster overlapping results of the brainstorming session, thereby providing the starting point for the second day.

At the beginning of the second workshop day, the consultants asked participants to indicate which idea cluster they would be interested in developing further throughout the course of the day, which resulted in three to five groups. Depending on the topic, the consultants provided each group with a template, such as a business model canvas or a similar model, to structure their work. At the end of the second day, the groups presented their concepts or solutions. Before heading home, the consultants asked each participant to indicate their interest in continuing to work with each solution, ranging from 'owner' to 'observer'. If the Match & Create session yielded concrete innovation ideas, the consultants sometimes offered an additional half-day workshop to participants who were interested in further developing the idea. In most cases, however, it was up to the participants to pursue their potential collaborations.

4 RESEARCH PROCESS

In this chapter, I introduce the research process of this dissertation. While I specify the details of data collection and analysis in each study, here I explain my overall research process throughout the dissertation period to highlight links and mutual influences among the analyses underlying the three papers. My research unfolded as an abductive process that involved iterating between data collection, analysis, and emerging theoretical concepts (Alvesson & Kärreman, 2007; Locke et al., 2008; Mantere & Ketokivi, 2013; Timmermans & Tavory, 2012). I employed two methodological strategies proposed by Timmermans and Tavory (2012)—namely, revisiting the phenomena and alternative theoretical casing. The theoretical focus on how the flow of time affects the emergence of social relations evolved from a struggle to classify the observed empirical phenomena and subsequent attempts to delimit my research focus within my research setting.

I was employed at the Danish Architecture Center (DAC) for the duration of my dissertation research, co-financed by the Innovation Fund Denmark under its Industrial PhD program (for a description of the program, see Danish Agency for Science and Higher Education, 2012). During the time of my research, the DAC became one of the three main tenants of the BLOX building, which provided me with access to the other prospective BLOX tenants and organisations that were or became affiliated with BLOX.

In the sections that follow, I describe how my empirical research began with a broad exploration of BLOXHUB's innovation activities, which I eventually narrowed to the BLOXHUB Match & Create program. Apart from providing the empirical data for the second empirical study of my dissertation (Chapter 6), investigating these collaborative innovation sessions yielded several preliminary empirical findings which were crucial in specifying the empirical and theoretical focus on the temporal emergence of social relations. This empirical and theoretical focus gave rise to a set of methodological challenges in response to which I developed the event-

based methodological approach that became foundational for this dissertation. Second, I recount how I discovered that the emergence of social relations in the context of the BLOXHUB Match & Create program bore similarities with the emergence of social relations in the context of the BLOX building. This observation provided the impulse for the first empirical study (Chapter 5). Third, I detail the development of temporal process analysis at the intersection of event-based theoretical understandings of organisations and different existing methodological approaches (Chapter 7). I report my research process chronologically, which also clarifies that the three papers emerged in a different sequential order than what is presented in this dissertation.

4.1 From relations between actors to relations between events (Study 2)

I began my research in the spring of 2017 by engaging in exploratory ethnographic fieldwork at BLOXHUB's pilot hub in a historic ensemble of buildings adjacent to the construction site of the BLOX building, where one of DAC's departments was located as a kind of vanguard. In addition to participating in the growing number of events and activities held on the premises leading up to the opening of the BLOX building in May 2018, I conducted a few exploratory interviews with the staff of the pilot hub's tenant organisations.

The exploratory interviews with the BLOXHUB team drew my attention to a duality between social relations and collaborative innovation processes, which provided the starting point for the research that culminated in the second study of this dissertation (Chapter 6). The team members articulated an explicit intention to connect actors which otherwise may not have collaborated or even met, and to facilitate collaboration around topics which either actor otherwise would not have been able to pursue alone or would not have prioritised. Facilitating the emergence of new social relations appeared to be the explicit raison d'être of the BLOXHUB association, an ambition which BLOXHUB team members justified with popular science references to network theory.

In fact, the literature on social networks and innovation clearly supported the rationale behind BLOXHUB's matchmaking efforts, consistently emphasising the positive effects of heterogeneous social relations on innovation outcomes by providing access to new ideas and knowledge, as well as complementary capabilities and resources (Powell & Grodal, 2006). Researchers have focused on how a focal organisation may build and maintain an effective interorganisational network (e.g., Capaldo, 2007; Dhanaraj & Parkhe, 2006; Kale & Singh, 2007; Ozcan & Eisenhardt, 2009), for instance, by engaging in 'network orchestration' which involves 'deliberate, purposeful actions … to create value … and extract value … from the network' (Dhanaraj & Parkhe, 2006, p. 659). The success of network orchestration partially depends on an organisation's initial network position, which may be problematic for small-and medium-sized firms or start-ups that typically lack the substantial resources necessary to build and maintain large, heterogeneous networks (e.g., Hallen, 2008; Hallen & Eisenhardt, 2012).

Literature on innovation intermediaries or brokers suggests that organisations with limited network access may rely on commercial network orchestrators that match organisations with complementary knowledge and capabilities (Gassmann et al., 2011; Hargadon & Sutton, 1997; Howells, 2006). In contrast to these commercial intermediaries, the activities of BLOXHUB, being a non-profit association, rather resembled the type of network orchestration investigated by Paquin and Howard-Grenville (2013) in the context of a government-funded industrial symbiosis program. Their study revealed how the network orchestrator shifted between two approaches to orchestration, encouraging serendipitous encounters between network members ('blind dates'), and purposive matchmaking and facilitation of interactions between network members ('arranged marriages'). BLOXHUB's portfolio of activities reflected this distinction, as it included activities open to all members ('blind dates'), such as debates with subsequent networking opportunities, as well as activities with selected participants ('arranged marriages'), like the BLOXHUB Match & Create program.

Inspired by the literature on social networks and innovation, these considerations gave rise to the following preliminary research question, which guided my first round of data collection and analysis: *Does BLOXHUB connect otherwise unconnected actors, and, if so, through which mechanism, i.e., 'blind dates' or 'arranged marriages'?* To answer this question, I set out to investigate how BLOXHUB's various innovation activities during its pilot phase affected the network of interorganisational relations directed at collaborative innovation. I began to build two different databases, which I intended to analyse drawing on affiliation networks (Borgatti & Halgin, 2014). The first database included all ongoing collaborative innovation initiatives and alliances in Denmark in the industries that the BLOXHUB staff considered related to 'sustainable urban development'(e.g., architecture, engineering, construction, urban planning, and smart city technologies). I recorded all organizations associated with each initiative or alliance. I built the second database by engaging in participant observation of all events and activities organised by BLOXHUB, documenting participants, and classifying them according to their primary network orchestration mechanism ('blind date' or 'arranged marriage'). My idea was that comparing the affiliation networks yielded by these two databases would enable me to identify new connections added through BLOXHUB's activities.

I abandoned this approach for two main reasons. First, I realised that the establishment of BLOXHUB did not mean that BLOXHUB member organisations henceforth only collaborated with each other. All organisations simultaneously engaged in numerous self-organised collaborations, and non-BLOXHUB innovation initiatives and alliances that I had mapped continued to evolve. The second reason pertained to the inability of this approach to cast light on whether and how the emergence of social relations related to innovation processes. Did the emergence of social relations through matchmaking trigger innovation processes, or did existing innovation processes demand the emergence of (additional) social relations through

matchmaking? As a result, it was unclear as to whether I should focus my analysis on processes of matchmaking or processes of innovation, and how these two processes related to each another.

To uncover how the emergence of social relations in the context of BLOXHUB's matchmaking efforts related to innovation processes, I decided to focus on the Match & Create program, and thus limit my analysis to the 'arranged marriage' logic of network orchestration. On the one hand, this choice was based on the BLOXHUB team's conviction that the program best reflected their organisational purpose. On the other hand, my choice was motivated by practical considerations, because the BLOXHUB Match & Create program was the first innovation program to become operational when I began my PhD research in the spring of 2017. In addition, the BLOXHUB team expected that their physical coworking space, more than the innovation activities they organised, would play a major role in facilitating serendipitous encounters following a 'blind date' logic. However, because the coworking space did not open until May 2018 (roughly halfway through my PhD project), an investigation of the 'blind date' logic would not be viable.

Between May 2017 and November 2018, I observed 10 BLOXHUB Match & Create sessions (see Table 4.1 for an overview). Initially, my intention was to conduct a comparative analysis of how the different collaborative innovation sessions affected the target innovation processes, and consequently identify success factors for these sessions. Even though the sessions followed a similar structure, which in principle should have made them suited to a comparative research design, I soon realised that it was not meaningful to focus on how these collaborative innovation sessions affected subsequent innovation processes.

Table 4.1 Overview of the observed BLOXHUB Match & Create sessions

Workshop title (date)	Details
Shared green courtyards (May/June 2017)	• Problem: How to develop a viable business model for courtyard refurbishments that makes the planning and construction process more inclusive and effective • Problem owner: Altan.dk, a company specialised in the retrofitting of balconies to apartment buildings
Construction 4.0 (August 2017)	• Problem: How to improve the sequential and simultaenous activities of multiple suppliers on large construction sites through the use of digital and especially sensor technologies • Problem owner: BLOXHUB/Smith Innovation
Short-circuiting the value chain of the construction industry (October 2017)	• Problem: How second- and third-tier suppliers in the construction industry can create business cases that attract the attention of architects and developers and thereby 'short-circuit' the traditional value chain • Problem owner: The Danish Construction Association
Participative construction processes (December 2017)	• Problem: How to involve childcare facilities and schools in the construction process to reduce frustration caused by temporary relocation, and induce a sense of ownership and participation before move-in • Problem owner: TRUST, a consortium covering the entire value chain of the architecture, engineering, and construction industry, which won the contract to be the prime contractor for the City of Copenhagen for the renovation and new construction of all childcare facilities and schools over the course of four years
Bridges, railroads, roads—improvement of service and maintenance through new technologies (January 2018)	• Problem: How to improve the quality and/or reduce the service and maintenance costs of bridges, railroads, and roads by identifying concrete applications of new (digital) technologies, including sensors, drones, machine learning, etc. • Problem owner: Sund & Bælt Holding, a state-owned enterprise responsible for maintaining bridges, railroads, and roads across Denmark
On top and on the outside—densification of (historic) city centres (February / March 2018)	• Problem: How to develop new spaces in (historic) city centres through densification by adding new building elements on the roofs and exteriors of existing buildings • Problem owner: Erik Architects, an architecture firm specialised in renovations of historic and listed buildings
Why waste a recycling centre? (April 2018)	• Problem: How to develop recycling centres that are more local, i.e., in physical proximity to citizens and integrated into the urban fabric, and how to transform recycling centres into hubs for the circular economy • Problem owner: Amager Ressource Center, a publicly-owned operator of recycling stations in the greater Copenhagen area
Anti-terror architecture (May 2018)	• Problem: How to integrate increased and evolving security demands into urban spaces without negatively affecting quality of life • Problem owner: Schønherr, one of the largest Danish landscape architecture firms
Rat control (June 2018)	• Problem: How to make rat control more effective through information gathering and exchange, public awareness, and use of new technologies • Problem owner: City of Copenhagen, Technical and Environmental Administration
Indoor climate (November 2018)	• Problem: How to improve the indoor climate of existing childcare facilities and schools through cost-efficient solutions • Problem owner: City of Copenhagen, Property and Procurement, the administrative unit that manages the municipality-owned real estate

Uncovering the role of the Match & Create sessions demanded investigation of the entire innovation process. From the participants' perspective, these collaborative innovation sessions comprised merely one activity among many associated with their innovation processes. While the

Match & Create sessions focused on supporting the establishment of social relations through matchmaking, they did so to support the innovation processes of the participating organisations. For the participants, the need to form new social relations emerged from their innovation processes and was not an end in itself. The BLOXHUB staff would typically initiate the Match & Create sessions when member organisations brought forward immature innovation ideas and problems. Thus, the innovation processes were already in existence prior to the matchmaking sessions and continued after the matchmaking sessions. To uncover the role of the BLOXHUB Match & Create sessions within these processes, I shifted my analytical focus from BLOXHUB's matchmaking efforts to participants' innovation processes.

Another preliminary finding was that participants in the Match & Create sessions were focally concerned with how to advance their future-oriented innovative ambitions, and rarely directly referred to their social networks or activities aimed at forming new social relations, further supporting my shift in analytical focus from the social network to the innovation process. This finding contradicted social network studies on brokerage and innovation (e.g., Obstfeld et al., 2014, 2020; Ozcan & Eisenhardt, 2009) which imply that actors show a certain level of awareness of the social networks within which they are embedded. This awareness enables actors to strategically influence the emergence of social relations in order to attain a favourable structural position, which in turn yields superior innovation outcomes. In contrast, my preliminary findings suggested that social relations were merely a by-product. Actors initiating Match & Create sessions primarily focused on gaining access to knowledge and capabilities through other actors who would help them pursue their innovation activities.

Two additional preliminary discoveries drew my attention to the role of the flow of time, and guided me towards the event-based approach that became foundational for my analyses. First, I noticed how actors' attempts to gain access to knowledge and capabilities through other actors involved repeated references to the future and the past. This discovery resonated with two

different strands of literature. On the one hand, it was consistent with studies on the temporal embeddedness of innovation (e.g., Garud et al., 2011; Obstfeld, 2012). Whereas prior studies focused on how actors combined references to the past and future in single organisations, participants in the Match & Create sessions articulated their respective pasts and projected futures to identify potential complementarities. On the other hand, these observations resonated with literature revealing the coordinative role of shared future projections in collaborative innovation processes (Dattée et al., 2018; Deken et al., 2018). Whereas my preliminary findings confirmed that actors worked towards mutually agreeable future projections, I also found that actors differently connected and alternated between past and future references as time moved on, which I argue in the second empirical study constitutes a shift from a unidirectional to a bidirectional view of time.

Second, I realised that, even though the initiation of the Match & Create session focally related to the innovation processes of one organisation, I was not studying a single innovation process, but multiple innovation processes in search of common ground. Irrespective of the collaborative innovation session, the different participants were each involved in their own innovation activities, with different contents, levels of maturity, time horizons, and levels of urgency. Even though the innovation process of one organisation provided the framing for each Match & Create session, interactions among participants did not only revolve around contributing to this innovation process. What emerged from the interactions was a new, collaborative innovation process that differently related to and combined participants' past experiences and future ambitions. This preliminary finding resonated with the literature on the temporal embeddedness of interorganisational relations. Although studies have shown that interorganisational relations develop their own, shared temporality (e.g., Ligthart et al., 2016), they have not revealed how this shared temporality emerges from and relates to the respective temporalities of the interacting organisations.

The resonance of my preliminary findings in the context of the BLOXHUB Match & Create sessions with prior studies on innovation, temporality, and collaboration in other empirical contexts prompted me to treat the collaborative innovation sessions as an opportune empirical site for investigating the temporal emergence of social relations more generally, rather than foregrounding network orchestration as a phenomenon. The sessions provided a suitable empirical starting point for an investigation of the emergence of social relations because they fostered explorations of possible social relations that otherwise may have unfolded over much longer time frames; moreover, the sessions took what would have been dispersed spatial encounters and situated them within condensed temporal and spatial frames, similar to hackathons (Lifshitz-Assaf et al., 2020). Through the sessions, I could then trace innovation processes and the intertwined emergence of social relations backwards and forwards in time. In her work on investigating the role of the future, Mische (2014, p. 447) coined such settings 'sites of hyperprojectivity':

> Given that projected futures are often hard to see amidst the routine practice of day-to-day life, I propose that one promising research approach is to look for settings in which reflective thought about the future is particularly salient and encouraged. Such "sites of hyperprojectivity" are communicative settings, somewhat removed from the flow of day-to-day activity, in which the explicit purpose of talk is to locate problems, visualize alternative pathways, and consider their consequences and desirability.

My findings suggest that the collaborative innovation sessions were not only sites of hyperprojectivity but also fostered what one may correspondingly term 'hyper-retrospectivity', meaning intensive reflection about past events, both alone and in combination, and emphatic attempts at drawing new connections between past and future.

In summary, these preliminary findings helped me narrow down the empirical and theoretical framing of my research. Specifically, I shifted my focus from networks and network orchestration to a temporal process perspective. Theoretically, I turned to process organisation

studies and an event-based perspective of organising. The narrowed empirical and theoretical framing revealed the methodological challenges I faced—namely, attending to (a) the duality of the innovation process and social relations, and (b) the associated-yet-separate nature of the collaborative innovation process and other organisational and innovation processes. In response to these methodological challenges, I began to develop temporal process analysis, the event-based approach that became foundational for my dissertation.

It was late in my empirical research process, in the fall of 2018, when I first realised the parallels between the emergence of social relations in the context of the BLOXHUB Match & Create sessions and the ways in which the BLOX building had affected the emergence of social relations, as I detail in the following section.

4.2 Building BLOX: The story behind the building (Study 1)

In parallel to my empirical focus on the BLOXHUB Match & Create program, I had continued to follow and participate in other activities and events organised by BLOXHUB and other BLOX tenants, both in the lead up to and after the inauguration of the BLOX building. However, this ongoing fieldwork remained in search of an analytical focus. A question that continued to haunt me was why all the activities hosted at the building were taking place. Interestingly, different tenants and stakeholders seemed to hold different conceptualisations of the building. Related questions I asked myself were why Realdania had initially decided to erect this landmark building, how the current constellation of tenants, associated stakeholders and uses had emerged, and how the building had become dedicated to collaboration and sustainable urban development. What was BLOX a case of, and if it indeed was ‘more than a building’ (Realdania, 2018), which type of organisational phenomenon did it represent?

With its focus on sustainable urban development, BLOX seemed like an exemplary case to empirically investigate a collaborative space addressing societal grand challenges. Recently,

several studies have pointed to dedicated collaborative spaces as a way to facilitate interactions among heterogeneous actors across the private, public, and non-profit sectors to address societal grand challenges, a pressing problem for organisational researchers and practitioners alike (e.g., Ferraro et al., 2015; George et al., 2016; Grodal & O'Mahony, 2017; Reinecke et al., 2018). For instance, Ferraro et al. (2015) introduced the concept of 'participatory architectures', denoting 'a structure and rules of engagement that allow diverse and heterogeneous actors to interact constructively over prolonged timespans' (p. 373–374). The activities hosted at BLOX seemed to mirror Ferraro et al.'s (2015) assertion that, 'given the long-term horizon that grand challenges require, participatory architectures must facilitate the engagement of diverse stakeholders in a series of temporally and spatially interconnected events, thereby setting in motion an ongoing process' (p. 374).

This line of argumentation implies that a dedicated collaborative space affects the temporalities of the interacting actors. It is a known problem that the short-term concerns of organisations often undermine the long-term perspective required to address societal challenges (e.g., Bansal & DesJardine, 2014; Slawinski & Bansal, 2015; Wright & Nyberg, 2017). Scholars seem to suggest that dedicated collaborative spaces provide a way to overcome this problem by fostering and sustaining a long-term perspective over time. For instance, Ferraro et al. (2015) drew on the spatial notion of 'architecture' (likewise, George et al., 2016 referred to 'coordinating architectures'), and argued that participatory architectures 'create a space where actors can meaningfully engage with counterparts, even when relations between them are publicly adversarial' (p. 374). However, the notion of space, and particularly its material dimension, remain underspecified.

In contrast, in the case of the BLOX building, the material space appeared crucial for initiating and sustaining collaboration. To further explore the material aspect, I consulted three other strands of organisational literature in which scholars have investigated the spatial aspects of

collaboration. First, scholars have explored how spatial arrangements allow heterogeneous actors to come together within or across institutional fields to innovate novel practices or resolve the demands of conflicting institutional logics, for instance, in discursive (Hardy & Maguire, 2010), interstitial (Furnari, 2014) or experimental spaces (Cartel et al., 2019). However, this literature focuses on the social dimension of these spaces, which also tends to foster temporary, rather than ongoing engagement. Second, an emerging literature on collaborative and coworking spaces (e.g., Blagoev et al., 2019; Bohas et al., 2016; Cnossen & Bencherki, 2019; de Vaujany et al., 2019) has drawn attention to the role of space in facilitating collaboration between individual workers leading to the emergence of new forms of organising. Whereas these scholars have given some attention to the role of materiality (e.g., Cnossen & Bencherki, 2019), they have not fully considered the role of the material buildings that host interactions.

The role of material buildings has received more attention in a third strand of literature on organisational spaces (for recent reviews, see Beyes & Holt, 2020; Stephenson et al., 2020; Weinfurtner & Seidl, 2019). For instance, scholars have shown how 'generative' (Kornberger & Clegg, 2004) or 'collaborative' (Irving et al., 2019) buildings have an inscribed ambition to facilitate interactions. Other research shows how buildings may attain a central role for the identity and legitimacy of organisations (de Vaujany & Vaast, 2014; Wasserman & Frenkel, 2011) and may become integral to organisational remembering (Decker, 2014; Petani & Mengis, 2016) as well as the projection of organisational futures (van Marrewijk, 2009). Although scholars have focused almost exclusively on the interactions between a material building and a single organisation, Giovannoni and Quattrone's (2018) study of the Siena cathedral stands out, as it shows how a material building may become associated with and accommodate the divergent future ambitions of multiple organisations.

In addition, Giovannoni and Quattrone's (2018) study reveals how material buildings not only become associated with organisational past and futures, but may attain their own

temporalities. Specifically, the findings reveal how the building never fully represented diverging future-oriented organisational intentions, which resonates with recent studies advancing a processual, temporal understanding of materiality (Hernes et al., 2020; Leonardi, 2016). These scholars emphasise the importance of analysing the social and material separately in order to shed light on how exactly they come to affect each other, instead of taking an analytical starting point in an already entangled and mutually constitutive sociomateriality that may preclude such insights. According to this view, materiality and organisations stand in a similar assocaited-yet-separate relationship to one another as I had observed in the context of the BLOXHUB Match & Create sessions for the relationship between the emerging collaborative innovation process and participating organizations' ongoing innovation processes.

A presentation by Ellen van Loon, the OMA partner in charge of the BLOX project, helped me recognise these conceptual and analytical parallels, thereby providing the inspiration for what became the first study of this dissertation. Describing her collaboration with structural engineers, van Loon highlighted the centrality of superimposition drawings as boundary objects (Carlile, 2002). In her words, these overlays of semi-transparent floor plans revealed 'opportunities for structure' in the architectural design of a building, which become visible as darker areas where structural elements on different floors intersect (see Figure 4.1 for a superimposition sketch of the BLOX building). Structural engineers could take these intersections as a starting point for exploring how to turn architectural designs into a structurally viable building. Collaboration around the superimposition drawings reminded me of the ways in which participants in the Match & Create sessions had searched for possible intersections between their respective innovation activities in the future while building on past intersections.

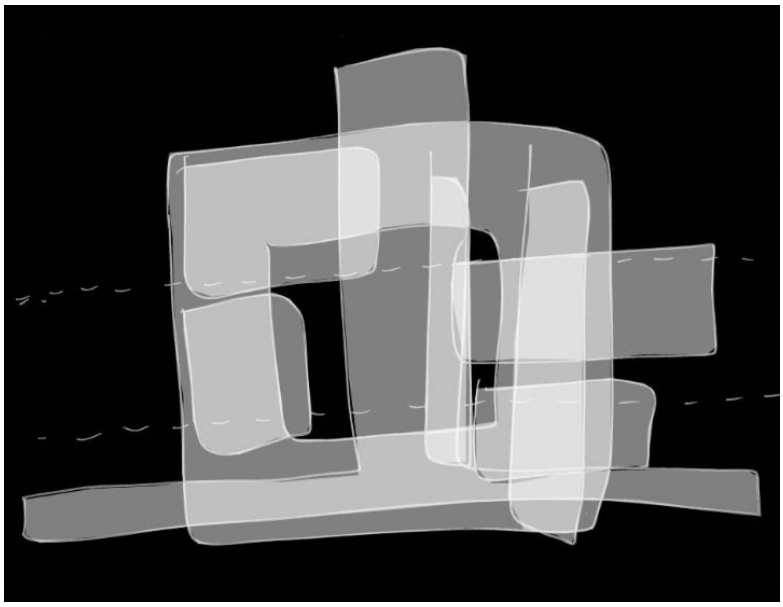

Figure 4.1 Superimposition sketch of the BLOX building (OMA, 2019)

Inspired by the superimposition diagram, I returned to my ethnographic data to realise that there had been a struggle to find a viable organisational concept for the building, similar to the search for a viable physical structure. The planning and construction of the material building was accompanied by a simultaneous process of building a set of social relations among the main tenants of the building and their stakeholders. In contrast to the static intersections in superimposition diagrams, however, social relations had their starting point in encounters at different points in time, which provided a potential explanation for my initial observation that the main tenants and stakeholders held different perspectives of the building's purpose. Based on these initial theoretical and empirical hunches, I began to analyse how the material building had coevolved over time with the associated constellation of interorganisational relations, drawing on the same event-based analytical approach I was already in the process of developing.

4.3 The development of temporal process analysis (Study 3)

In the development of temporal process analysis, I sought to translate the temporal sensitivity and analytical potential of an event-based theoretical understanding of organisations (e.g., Cobb, 2007; Hernes, 2014; Hussenot & Missonier, 2016) by drawing on a number of methodological antecedents, three of which I highlight in sections that follow. Technically, I used Qualitative-Social Process Analysis (Q-SoPrA) software developed by Spekkink (2018) to combine my theoretical and methodological intuitions. My methodological work evolved in parallel with my empirical work in response to arising analytical needs.

4.3.1 Conceptual ideas

I took my starting point in the imagery evoked by the concepts that scholars had used to convey an event-based perspective of organisations. To denote the totality of events, scholars had, for instance, used the concepts of a 'manifold' (Whitehead, 1920) or 'event formation' (Hernes, 2014). To denote an event-based perspective of social actors within the totality of events, scholars had used the concepts of 'event clusterings' (Nayak & Chia, 2011, p. 283) or 'trajectories' (e.g., Hernes, 2014, 2016; Hussenot & Missonier, 2016; Tavory & Eliasoph, 2013). In my mind, I visualised the totality of events as an 'event cloud' (my metaphor) wherein actors (and their relations) represented subsets of events. The connections between events in the event cloud emerged from the ways in which actors in present events referred to other past and future events—what scholars had theorised using Whitehead's concept of 'prehensions' (e.g., Cobb, 2007; Hernes, 2014). A main motivation for developing an analytical approach that would enable the visualisation of events as connected within an event cloud was the sheer complexity that arose from recording actors' references to past and future events during present events, even if only considering the potential connections between small numbers of events. Along with others (e.g.,

Poole et al., 2016), I sensed that accounting for this complexity demanded more formal approaches to complement extant qualitative process methods.

4.3.2 Methodological inspirations

In identifying a suitable approach for the analysis of organisational processes from an event-based perspective, I drew inspiration from several existing methodological approaches drawing on the concept of events. I highlight the three most important ones here.

A first inspiration was the use of event graphs in the pioneering Minnesota studies (Van de Ven et al., 1989), which had a strong influence on subsequent process studies of innovation (Garud et al., 2013). The event graphs used in the Minnesota studies revealed that innovation processes were non-linear, multi-stranded processes that converged and diverged over time. The Minnesota studies just like similar event-based methods developed in historical sociology around the same time (Abbott, 1992; Abell, 1984; Heise, 1989), assume a unidirectional, sequential view of time, where past events cause future events. While such a view favours the use of quantitative sequence analysis methods (see Cornwell, 2015; Poole et al., 2016), it disregards the temporal experiences of the actors involved in organisational processes.

I found a second inspiration in the use of narrative networks in historical sociology, a strand of research inspired by earlier advances in sequence analysis, yet adopting a more interpretive approach (Bearman et al., 1999; Bearman & Stovel, 2000; Franzosi, 2010; Padgett, 2018; Sewell, 1996). Narrative network approaches differ from the aforementioned event-based process methods in that they follow the references actors draw between events, which also became central to my development of temporal process analysis. In contrast to these approaches though, temporal process analysis considers the references made at each present event in turn, so that the ordering of events emerges from the bottom-up, rather than from the sequence of retrospectively narrated accounts. More recently, Pentland and others have adapted narrative networks for the analysis of organisational routines (see Pentland et al., 2017 for a recent application; Pentland & Feldman,

2007; Pentland & Liu, 2017), and developed the ThreadNet tool (Pentland, 2016) for the analysis of larger data sets. However, similar to social sequence analysis, the primary purpose of ThreadNet is to perform a comparative analysis of repeated occurrences of the same sequence of events.

A third inspiration was the use of affiliation networks (Borgatti & Halgin, 2014a; Wasserman & Faust, 1994). Whereas event-based process studies and narrative networks focus on how to map social processes as event graphs, the use of affiliation data in social network analysis suggests that events shared by multiple actors may also indicate underlying social relations. Put differently, a social relation can be conceptualised as multiple events over time during which two or more actors interacted. However, when abstracting affiliation networks from events, researchers typically just consider the frequency of interaction events, not whether or how they are temporally linked (Borgatti & Halgin, 2014). That said, scholars recently have begun to explore the potential of events to advance a temporal understanding of social networks (e.g., Balian & Bearman, 2018; Broccatelli et al., 2016; Erikson, 2018a, 2018b; Moody, 2009; Moody et al., 2005), as I discuss in more detail in Chapter 9, where I suggest avenues for future research.

In summary, these methodological inspirations demonstrated the usefulness of event graphs in analysing social processes over time (event-based process methods, narrative networks), how links between events may be inductively derived by following the references made by actors, rather than inferred by the analyst (narrative networks), and that social relations may be abstracted from shared events (affiliation networks). At the same time, however, these methodological inspirations differed from an event-based perspective of organising in several ways. First, they all worked from an 'over time' view, disregarding the situated, 'in time' experiences of the observed actors. Second, the 'event cloud' I was seeking to visualise was not limited to retrospective analysis of past events, but included projected, imagined future events. Finally, an event-based

perspective works from a bidirectional view of time—not causal links from antecedent events to subsequent events, but outgoing links from present events to past and future events.

4.3.3 Connecting conceptual ideas and methodological inspirations

In search of ways to combine the methodological inspirations and my conceptual ideas derived from an event-based perspective of organising, I came across the Ph.D. thesis of Prof. Wouter Spekkink (2016), who had been grappling with similar methodological problems with regard to showing how interorganisational relations formed over time in his research on industrial symbiosis. Even though the dissertation did not focus on time and temporality, it offered practical advice in the compilation of event graphs, as well as technical tools. Among other things, Spekkink had developed a Microsoft Access application for the compilation of event databases, as well as an event graph layout (Spekkink, 2014/2016) based on the popular ForceAtlas2 social network algorithm (Jacomy et al., 2014) for the social network analysis software Gephi (Bastian et al., 2009). Spekkink's groundwork provided a valuable starting point without which the realisation of my methodological aspirations may not have been viable.

Adapting Spekkink's approach to my analytical needs, I built my own event data structure in NVivo, a qualitative data analysis software, because I soon realised that the Microsoft Access application did not suit my purposes. From NVivo, I exported the event database as .csv files and transformed the data in R and Excel to prepare the dataset for the plotting of social network and event graphs in Gephi. Although this procedure eventually enabled me to plot the intended process and network visualisations, it had several drawbacks. The visualisations were disconnected from the underlying raw data, requiring constant iteration back and forth between tools. In addition, I had to generate the process and network visualisations based on separate event datasets, which complicated the visual analysis. Whenever new analytical insights led me to adapt either visualisation, I had to modify the underlying NVivo data set accordingly and repeat the entire data export and transformation procedure.

When I contacted Wouter Spekkink in the spring of 2018 to discuss possibilities of simplifying and improving my analytical procedure, I learned that he was working on Qualitative-Social Process Analysis (Q-SoPrA), a standalone software application, in an attempt to address several of the problems I had encountered. Even though the software was still under development, he invited me to become a beta user, introduced me to the basic functionalities, and asked me to report any functionality issues as well as suggestions for improvement on GitHub, a software development platform and repository. To discuss the particularities of my dataset and envisioned analyses, Prof. Spekkink and Prof. Frank Boons invited me for a research visit at The University of Manchester's Sustainable Consumption Institute in May 2018. During the visit, I conducted an initial prototype analysis for the second empirical study, supported by Spekkink's generous assistance, who even amended and added features to make Q-SoPrA better suited to the types of temporal analyses I was pursuing. For instance, whereas Q-SoPrA previously only allowed for sequential links from any given event to chronologically subsequent events, Spekkink added the possibility to include links to chronologically preceding events, without which the plotting of the temporal event graphs that became central to my analytical approach would not have been possible.

In Chapter 7, I describe my methodological considerations, and my desire to make the temporal sensitivity and analytical potential of an event-based theoretical understanding of organisations (e.g., Cobb, 2007; Hernes, 2014; Hussenot & Missonier, 2016) amenable to the empirical analysis of organisational processes. Spekkink's contemporaneous development of Q-SoPrA while I was performing my doctoral research enabled the technical implementation of my conceptual ideas and methodological aspirations. I am grateful for the inspiring conversations about process analysis as well as the generous practical support I received along the way.

5 STUDY 1 | BECOMING A 'CONTEMPORARY LANDMARK' FOR SUSTAINABLE URBAN DEVELOPMENT: ADVANCING AN UNDERSTANDING OF MATERIAL TEMPORALITY

Abstract

Adopting a 'becoming' perspective of organising, I conceptualise material and organisational temporality as distinct trajectories of events. I examine the interplay between organisational and material trajectories by combining ethnographic and historical data in a qualitative, event-based process study of a landmark building dedicated to sustainable urban development. The findings reveal how the building emerged *over time* from intersections between the building's material trajectory and multiple organisational trajectories *in time*. The study augments understandings of material temporality by demonstrating the interplay between organisational and material temporalities in contexts involving durable (rather than perishable) materials; and by revealing the dynamics between material temporality and the temporalities of multiple organisations, rather than a single organisation. I discuss implications for practitioners aiming to initiate and sustain collaboration between heterogeneous actors across the private, public, and non-profit sectors to address societal grand challenges, which requires a long-term time horizon.

Keywords: Material temporality, materiality, trajectory, process, events, building

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5.1 Introduction

BLOX, a new landmark building on Copenhagen's harbourfront was inaugurated in May 2018 after 12 years of planning and development. To date, it is the largest investment made by Realdania, a Danish philanthropic association established in 2000 and dedicated to improving quality of life through the built environment. Designed by Rem Koolhaas' Office for Metropolitan Architecture (OMA), the building's name reflects its appearance of stacked blocks. Proclaimed 'more than a building' (Realdania, 2018), BLOX provides workspaces for over 80 private, public, and non-profit organisations, and hosts activities and events that connect 'architecture, design, construction and tech with global decision makers, scientists and citizens to explore and develop new sustainable urban solutions' (BLOX, 2019).

Alongside its strategic importance for Realdania, the building's trajectory has been influenced by and has lastingly influenced the trajectories of several other organisations. It has supported, among others, the City of Copenhagen's harbourfront regeneration efforts, the Danish Architecture Center's (DAC's) world-leading ambitions, and the Ministry of Business's implementation of a new industry and innovation policy in Denmark. Intersections between BLOX's trajectory and the trajectories of various organisations associated with the building also led to the establishment of BLOXHUB, a non-profit association that brings together an innovation community and provides a coworking space. Over time, these multiple future aspirations temporarily stabilised in different building concepts. My investigation of the emergence of these concepts in time and their eventual coexistence after BLOX's inauguration provides insights into interactions between the temporality of the building and the temporalities of organisations over time.

Recently, there has been substantial progress in developing a temporal view of a variety of organisational phenomena rooted in a 'becoming' ontology (Langley & Tsoukas, 2016a).

However, scholars struggle to transfer this temporal sensitivity to the study of materiality (Carlile et al., 2013; de Vaujany et al., 2014; Hernes et al., 2020; Leonardi, 2016): 'Because material artefacts are taken to be substantial, rather than processual, they often fail to figure centrally in the organizing process themselves' (Leonardi, 2016, p. 529). Even though studies of sociomateriality have advanced a more processual understanding (see Orlikowski & Scott, 2008), their social constructionist approach tends to treat materials as subordinate to social processes (Bansal & Knox-Hayes, 2013; Leonardi, 2013, 2016). In contrast, a more fully processual approach would show how 'materiality is always in a state of becoming', which demands investigating materiality as 'a process independent of other social processes' (Leonardi, 2016, p. 540), rather than assuming these two processes as inherently entangled.

Pursuing a temporal view of organising as a trajectory of events (e.g., Chia & King, 1998; Hernes, 2014; Hussenot & Missonier, 2016; Lord et al., 2015), I conceptualise material and organisational temporalities as distinct trajectories of events, which enables me to investigate how they came to intersect and preliminarily stabilise into organisational-material concepts for the BLOX building. To theorise the temporality of the material building as a trajectory on par with organisational trajectories, I engage with the concept of 'material temporality' (Hernes et al., 2020). In their study of perishable food products, Hernes et al. (2020) showed how organizational actors experience materials not only as an ongoing process in the present, but also imagine them differently at other points in time in the past or future, representing the 'epochal' dimension of material temporality. Based on this, I pose the following research question to advance a temporal understanding of the role of materiality in organising: *How did the material trajectory of the BLOX building come to intersect with organisational trajectories?*

To address this question, I draw on a combined historical and ethnographic case study that shows how BLOX emerged over time from different intersections between the building's material trajectory and multiple organisational trajectories in time. My ethnographic field study during the

opening phase of the BLOX building revealed the coexistence of four alternative building concepts which had emerged during different periods, yet continued to coexist in the building. Second, I gathered historical data, including interviews with key decision makers, to understand how these different concepts had emerged in the past as actors anticipated the material building to be potentially consequential for their organisational futures. I aggregated the data in an event database entailing all events that my informants considered meaningful in relation to the BLOX project, and coded for the temporal relations between events that informants had indicated. Based on the event database, I plotted event graphs, which visually revealed intersections between the various organisational trajectories and the material trajectory of the BLOX building.

The rest of this chapter proceeds as follows. First, I provide the theoretical foundation for this study which connects an event-based perspective of organising with 'material temporality' (Hernes et al., 2020). Second, I provide an overview of research context and process, detailing how I collected and analysed the data. Third, I present the study's findings, outlining the revealed material-organisational intersections from which preliminarily stable concepts of the BLOX building emerged, and the effects of the material building on organisational trajectories after its inauguration. I conclude with implications for an understanding of the interplay between material and organisational temporalities.

5.2 Theoretical background

In this section, I first introduce an event-based perspective of organisations as temporal trajectories, highlighting the interrelation between the 'over time' and 'in time' views. Second, drawing on the concept of 'material temporality' (Hernes et al., 2020), I argue for its consistency with an event-based perspective of organising, and suggest a temporal conceptualisation of the building as a 'material trajectory'.

5.2.1 An event-based perspective of organisations as temporal trajectories

To conceptualise organising from a 'becoming' perspective (Tsoukas & Chia, 2002), scholars have advanced an event-based perspective of organising as trajectories of events (Chia & King, 1998; Hernes, 2014, 2016; Hernes & Schultz, 2020; Hussenot & Missonier, 2016; Lord et al., 2015; Reinecke & Ansari, 2016; Tavory & Eliasoph, 2013). Seen as a trajectory, an organisation is 'a pattern, or patterning, of events that stretches back into time and extends into the future' (Hernes, 2016, p. 603). Thus, an organisational trajectory entails not only remembered past events, but also projected or imagined future events (Tavory & Eliasoph, 2013). Importantly, this view assumes neither past nor future events as closed and having a settled meaning, but rather as open to redefinition through the ways actors evoke past and future events in the present (Hussenot & Missonier, 2016). Organising therefore refers to connecting attempts, which provisionally stabilise configurations of heterogeneous elements and events (Hernes, 2014; Lorino, 2018).

Analytically, an event-based perspective of organising as a temporal trajectory distinguishes between an 'in time' and an 'over time' view. An 'in time' view focuses on the situatedness of actors in the temporal flow of time (Emirbayer & Mische, 1998), what scholars have referred to as the 'ongoing present' (e.g., Hussenot & Missonier, 2016). This perspective attends to the emergence of present events, focusing on how the 'contingencies of the present' (Schultz & Hernes, 2013) render possible and meaningful certain attempts at connecting heterogeneous elements, including 'human, material, or abstract entities, such as concepts or institutions' (Hernes, 2014, p. 60). To capture the 'in time' dimension in this study, I focus my analysis of emergent events on the role of key decision makers and the organisations they represent, concepts and ideas they draw on, as well as the material BLOX building.

On the other hand, an 'over time' view of events attends to preliminarily stabilised patterns or trajectories that emerge from multiple past, present, and future events. Actors rely on such sequential, chronologically structured abstractions from the flow of time to reflect on where they

are going ‘in time’ and redirect their trajectories (Hernes, 2014; Hussenot & Missonier, 2016; Tsoukas, 2019). Moving from an ‘in time’ to an ‘over time’ view involves ‘temporal distancing’ (Hernes & Schultz, 2020): abstracting from and reflecting on ongoing past-present-future trajectories to explore possibilities for reorientation. Importantly, the ‘over time’ view draws attention to the fact that organisations are not bounded by their own trajectory, but related to other trajectories. Together, they form what Hernes (2014) termed an ‘event formation’, within which past, present, and future events of one organisational trajectory may acquire relevance for another organisational trajectory, thereby affecting its pattern and direction.

Emerging events ‘in time’ connect into patterns of events ‘over time’ through actors’ attempts to connect events. What sets human actors apart from other heterogeneous elements involved in event creation, including materiality, is their ability to draw connections beyond emerging present events to other remembered past events and envisioned future events. To describe these connecting attempts, scholars have drawn on Whitehead’s notion of ‘prehension’ (e.g., Cobb, 2007; Hernes, 2014; Tsoukas, 2019), which denotes ‘the way in which what was there-then, becomes here-now’ (Cobb, 2007, p. 570). Prehension of other past and future events during the emergence of events ‘in time’ is how multiple events connect into an organisational trajectory ‘over time’, as well as how separate trajectories may come to intersect, so that situated organising efforts ‘in time’ and the becoming pattern of organising ‘over time’ come to mutually define each other.

5.2.2 The building as a material trajectory

Corresponding to the conceptualisation of organisational temporality as a trajectory, I propose that the material temporality of a building can be conceptualised as a trajectory of events. Conceiving of materials as trajectories of events similar to organisations accentuates that materiality is not readily available to organising, but a process in itself (Hernes et al., 2020; Leonardi, 2013, 2016). My conceptualisation of a material trajectory builds on the recently

proposed concept of ‘material temporality’ (Hernes et al., 2020), and involves theorising the temporality of materiality from a ‘becoming’ perspective. Hernes et al. distinguished between a ‘processual’ and an ‘epochal’ dimension which, I argue, are largely congruent with the ‘in time’ and ‘over time’ view of an event-based perspective of organising.

‘Processual temporality’ designates the processual, flow-like character of materials in the ongoing present. On the one hand, this dimension may designate processual temporality independent of human actors. Whereas this dimension is central in the case of perishable food products as considered by Hernes et al. (2020), it is less prominent in the case of a building, where it may refer to the ongoing weathering of building materials, for instance. On the other hand, this dimension also captures the ways in which human actors may directly interact with, investigate, use, and transform materials, forming a ‘human-substance present’ (Hernes, 2014). When considering the material becoming of a physical building, the processual dimension of material temporality encompasses, for instance, the interaction of architects with physical models (see Comi & Whyte, 2018), the actual construction activity on the building site, and how human actors use and inhabit a building after its completion (see Brand, 1994). This dimension is consistent with an ‘in time’ view of events.

‘Epochal temporality’ denotes the ways in which actors imagine materiality at other points in time: ‘It is labelled “epochal” because it assumes that a state of affairs imagined in the past or future persists for a certain amount of time’ (Hernes et al., 2020, p. 4). Because material objects do not have a consciousness, their epochal temporality emerges from the ways in which human actors imagine materiality by remembering past or projecting future materialities (Hernes et al., 2020). In the case of the BLOX building, this dimension captures how different actors anticipate the future material building to be consequential for their organisational trajectories. For instance, the epochal dimension refers to the ways in which Realdania’s management envisioned the transformation of a plot of land from a ‘wasteland’, denoting its past state, to a ‘landmark

building', denoting its future state. The epochal dimension of material temporality is consistent with an 'over time' view of events.

Given the consistency of the two dimensions of material temporality with the 'in time' and 'over time' views underlying an event-based perspective of organising, I conceptualise the material temporality of the BLOX building as a trajectory of events. Although they were specifically concerned with architectural practice and not materiality and temporality, Latour and Yaneva (2008) argued for the analytical usefulness of conceptualising buildings as trajectories to capture how a material building comes to relate to the organising efforts of various actors over time. Yaneva's (2009) study of the Whitney museum illustrated empirically how a physical building gave rise to different 'collective attribution[s] of meaning' (p. 109), similar to the preliminarily stable concepts for the BLOX building.

5.3 Research process

Below, I present my research process. First, I introduce the research context and organisational actors in my analysis. Second, I outline the methods for data collection, such as ethnographic field study, interviews, and documents. Third, I describe how I analysed the resultant data set, initially collating raw data into an event database and then drawing on event graphs as a visual tool for analysis. Last, I explain how I identified and further analysed the different organisational-material concepts for the BLOX building to provide a better understanding of material temporality.

5.3.1 Research context

5.3.1.1 BLOX

My research focuses on BLOX, a new landmark building on Copenhagen's harbourfront financed by Danish philanthropy Realdania. At the time of the study, the building had three main tenants (excluding the underground carpark, restaurant, and fitness centre): the Danish Architecture Center (DAC), 'the meeting place for architecture, design and urban culture in Denmark' (Danish

Architecture Center, 2020) and organiser of exhibitions and events directed at professional and broader cultural audiences; the Design Society, a foundation that 'coordinates publicly funded efforts for growth in the Danish design and fashion industries' (Design Society, 2020) through its three member organisations; and BLOXHUB, a non-profit association that supports sustainable urban innovation with over 280 member organisations across societal sectors (roughly 70% private, 20% public, and 10% non-profit). BLOXHUB occupied one-and-a-half floors of BLOX and some adjacent historic buildings. It operated a coworking space with over 80 resident-member organisations. Figure 5.1 below depicts main funding and co-founding relationships between the main tenant organisations and those backing them financially (for a description of these organisations, see Appendix 5.1).

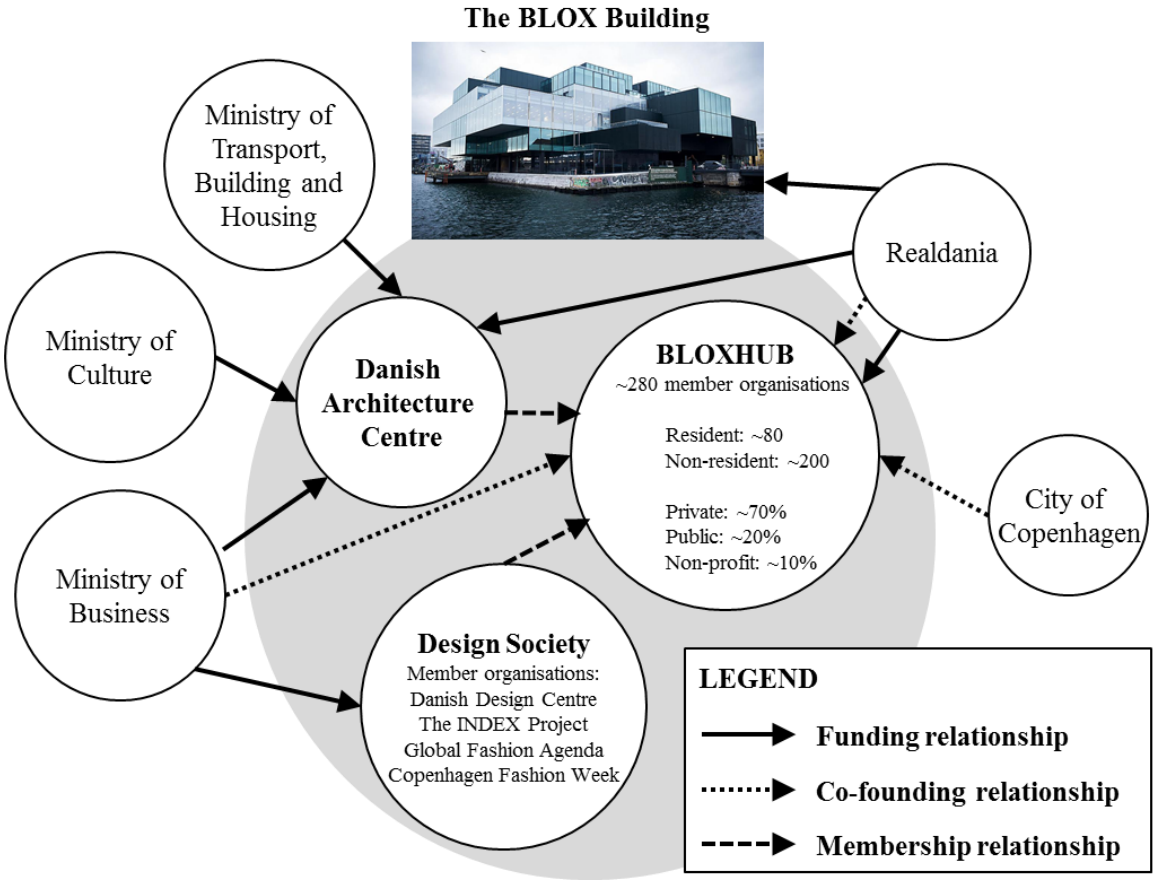


Figure 5.1 Funding and co-founding relationships for the BLOX building's three main tenants

In summary, BLOX combines three main functions. First, through DAC's cultural activities, BLOX serves as a cultural venue and exhibition space, a semi-public building welcoming citizens and tourists (in 2019, it attracted 200.000 visitors). Second, it serves as headquarters for three non-profit organisations, respectively promoting and facilitating interactions around design (Design Society), architecture and urban development (DAC), and sustainable urban innovation (BLOXHUB). Through activities and events hosted by these organisations, the building attracts a steady flow of external professional visitors from Denmark and abroad. Third, through BLOXHUB's coworking space, BLOX provides workspaces for over 800 people from a diverse set of organisations across sectors.

5.3.1.2 The Brewhouse site

BLOX was built on the 'Brewhouse site', a harbourfront plot in central Copenhagen named after a brewery that had burned down in the 1960s. Since then, it had served as a parking lot and provisional playground. My sources described the site among others as a 'windswept car park', an 'unattractive dead end' or a 'wasteland', which was surprising, considering its central location, only few hundred metres from Copenhagen City Hall, the Danish Parliament, and the National Museum of Denmark. Since 1941, 75 architectural proposals had been developed for the site, none realised: 'No other building site in Copenhagen has been the topic of so many competition proposals' (Thau, 2018, p. 111). The site was difficult to develop because a 'ring road cuts the site into two plots, each plot too small to build an efficient building on' (van Loon & Weiss, 2018, p. 59). In addition, the site's adjacency to historical buildings made it subject to extensive building codes and regulations. Most recently, renowned Danish architect Henning Larsen had won an architecture competition for a concert hall on the site in 1994, with a proposed design that traversed the ring road. At the award ceremony, to the surprise of those present, he advised the city not to execute his proposal, because in his view, the plot was ill suited and too small for the

project. While the concert hall remained unbuilt, zoning laws continued to require a building with a cultural function.

5.3.2 Data collection

I collected data from an ethnographic field study, interviews, and archival documents (for details, see Appendix 5.2). I stored and structured the gathered data in the qualitative data analysis software application NVivo. I performed the study in two parts. First, I engaged in a longitudinal ethnographic field study which enabled me to immerse myself in BLOX's present environment and explore its extant conceptualisations. Second, I performed a historical study of the building's becoming in the past based on retrospective interviews and archival data, which enabled me to access and explore previously established intersections between the building and affiliated organizations.

I conducted a 36-month ethnographic field study from October 2016 to October 2019, a period that covered the opening phase and first full year of BLOX's operations. From October 2016 to May 2018, my fieldwork focused on the pilot hub in the historic buildings on the BLOX campus, with occasional visits to DAC's previous premises. From May 2018 to October 2019, I continued my fieldwork in the newly opened BLOX building.

Throughout my fieldwork, I observed interactions in BLOXHUB's coworking space, engaged in informal conversations with actors who frequented the spaces, and participated in weekly team meetings at DAC. I also occasionally participated in BLOXHUB team meetings and conducted BLOXHUB's annual member survey in 2017–2019. Apart from regular meetings, I participated in over 100 events (e.g., innovation workshops, keynotes, start-up pitches, conferences, and panel debates) organised by various tenant organisations of BLOX. I documented my field observations through field notes and audio recordings. In addition, I conducted eight interviews with employees of BLOXHUB resident-member organisations about their experiences with and expectations towards working at BLOX.

For the historical part of my study, I conducted 20 interviews with 18 primary decision makers directly involved in planning the building's concept and development who were affiliated with the main tenant and funding organisations. The majority of informants were executives or board members of their organisations, and the rest were project managers involved in establishing BLOX. Capturing the temporal dimension requires treating past events as if they are in the present 'to display actions as unfolding, even as these actions are accomplishing a particular pattern that is now known' (Jarzabkowski et al., 2016, p. 237). Therefore, I asked informants go back in time and describe their perceptions and experiences of past events as they happened, and then guided them forward through time (Eisenhardt, 1989).

In addition, I gathered both internal and publicly available documents. I compiled a database of more than 500 (mostly Danish) newspaper articles related to BLOX, Realdania, DAC, Design Society, BLOXHUB, the City of Copenhagen, and Denmark's Ministry of Business. Through my affiliation with DAC and BLOXHUB, I had access to BLOX-related strategy documents compiled by these organisations. As a philanthropic association, Realdania's management was obligated to maintain a high level of transparency; thus, all important decisions and agreements were documented in press releases, annual reports, strategy evaluations, and general assembly protocols. Finally, to trace the involvement of the Ministry of Business and the City of Copenhagen over time, I drew on a number of publicly available policy and strategy documents, as well as additional press releases. Overall, archival documents played a critical role, enabling me to understand events prior to my field study and to prepare for the retrospective interviews. All informants understood that our conversations, interviews, as well as shared internal documents would be used for academic purposes only. I did not encounter any restrictions regarding data collection and analysis from any of the involved organisations and individuals.

5.3.3 Data analysis

I began by analysing my preliminary observations during the ethnographic field study. Leading up to the inauguration of BLOX, I observed tensions between the main tenant organisations regarding resources, competencies, and who would take the lead on activities and programs. As I cautiously began discussing my observations with informants, on several occasions they emphasised that it was important for me to 'understand the history' of BLOX. However, I noticed that informants provided me with different accounts depending on which organisation they represented, hinting at markedly different purposes of the building. Gradually, I realised that these distinct concepts of BLOX continued to coexist in the present. This preliminary understanding of the different concepts guided the subsequent historical analysis. Taking my informants' advice seriously, I systematically inquired into how the building's history was shaping its present form, gathering additional archival and interview data, as described above.

Based on the historical data, I sought to understand how different concepts for the building had emerged in the past based on how actors anticipated the construction of the material building to be potentially consequential for their organisational futures. Initially, I transformed the historical data into an event database. I coded all occurrences in the raw data in some way related to the planning, development, and conceptualisation of the BLOX building or related to organisational courses of action linked to their involvement in the project. Similar to the construction of a 'composite narrative' (e.g., Jarzabkowski et al., 2014; Sonenshein, 2010), I only retained recorded occurrences in the event database that had been mentioned by at least two sources. For each event, I gathered a brief description and the (approximate) time of occurrence, along with the raw data describing the event (excerpts from my ethnographic data, interviews, or archival data). Preserving the raw data was important to reflect the multiplicity of the emergent event 'in time'. The resulting database included 107 events stretching over a period of 126 years

from 1893 to 2019. I transferred this event database from NVivo to Q-SoPrA (Spekkink, 2018), a qualitative process analysis tool.

In the next step, I coded the events in the event database, intending to identify the different organisational trajectories as well as the material trajectory of the building. First, I coded for the organisations involved in the enactment of each event. I operationalised the concept of 'organisational trajectory' as encompassing all events relating to a specific organisation. Second, I coded for those events that directly affected the Brewhouse site and the planning, development, and conceptualisation of the BLOX building. These events reflected the building's material trajectory. Third, I noted that actors occasionally referred to events or trends that had not been part of their focal courses of action, but provided their organisational trajectories with meaning or direction (e.g., the adoption of the Sustainable Development Goals). I coded such events based on their overall topic (e.g., 'sustainability' in the case of the Sustainable Development Goals). Events coded for multiple organisations and/or the material building indicated an intersection of trajectories.

Finally, I coded for temporal relations between events by attending to references to past and future events that had informed informants' courses of action. I distinguished between 'relations to past events' and 'relations to future events', thereby operationalising the notion of 'prehension' (e.g., Cobb, 2007; Hernes, 2014) as the link between an 'in time' and an 'over time' view of events. Based on the relational event database, I plotted an event graph, which visualises relations between events from an 'over time' view (see Appendix 5.3).

Visual analysis of the event graph revealed three event clusters, from which four different concepts for the BLOX building emerged. Figure 5.2 provides an example of a sub-event graph for concept I. The graph shows how Realdania's decision to acquire the Brewhouse site [event 44] and the projected future concept of a mixed-use cultural building [96] emerged from

intersections between three organisational trajectories (Realdania, DAC, City of Copenhagen) and the material trajectory of the Brewhouse site.

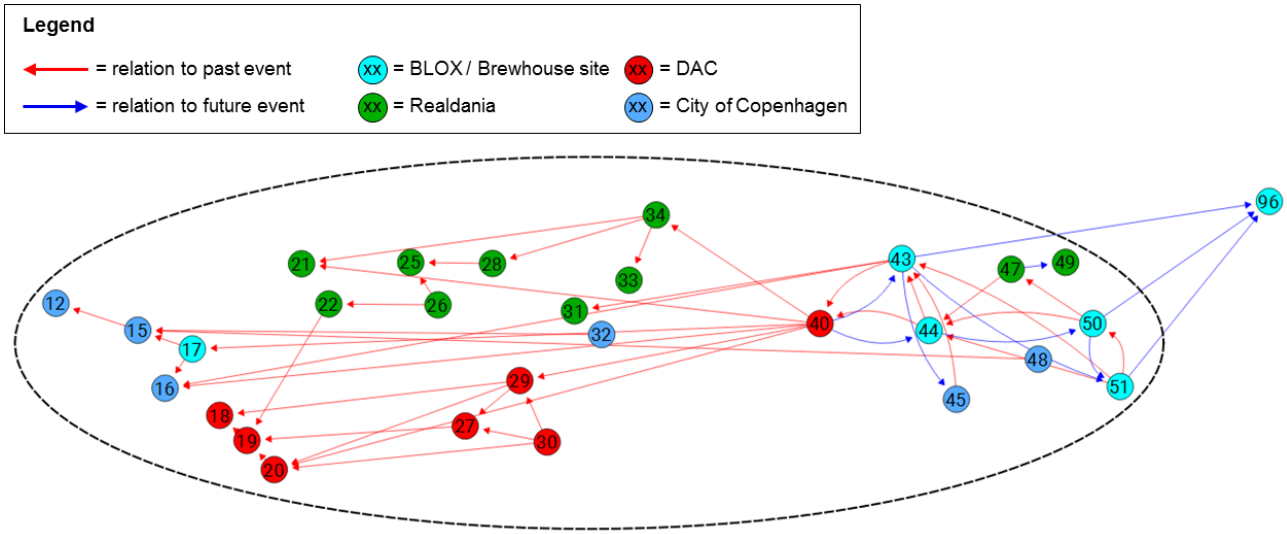


Figure 5.2 Sub-event graph for concept I

The aim of this analysis was to uncover the 'in time' view from the vantage point of the different organisational trajectories. At the time, how did the different organisational trajectories with their respective future aspirations and BLOX's material trajectory come to intersect? How did these intersections affect the conceptualisation of the building? For each concept, I summarised the perceived past, present, and future of the interacting organisational trajectories in tables, which I report in the findings section. In my analytical narratives, I follow the process from these different perspectives to show how they intersected.

Finally, I returned to my ethnographic data to perform a deeper analysis of the coexistence of the different concepts and its effects on organisational and material trajectories. Obtaining an understanding of how and why the different organisational trajectories had initially become associated with the building enabled me to compare the initial future projections with each organisation's current situation. On the one hand, I analysed the consequences of the coexistence

of the different concepts. On the other hand, I analysed how actors responded to the coexistence of the concepts. This enabled me to understand why I had observed tensions between the main tenant organisations of BLOX at the beginning of the data collection process.

5.4 Findings

I present my findings as follows. First, I report how four concepts (I-IV) emerged in the past from actors' projections of the planned building's role in their organisational trajectories. For each concept, I show how each organisation's past, present, and future interacted with those of the other organisations to form a new concept for the planned building. Second, I reveal how BLOX in the present embodied elements from these four concepts, connecting with multiple purposes and aspirations. I show how these coexisting concepts triggered two different responses from the main organisations linked to BLOX. Figure 5.3 provides an overview of these findings. I present the concepts in their chronological emergence for clarity, even though, as indicated in section 5.3, I conducted the analysis starting from the present and going backwards, before returning to the present (as indicated by the arrows in Figure 5.3).

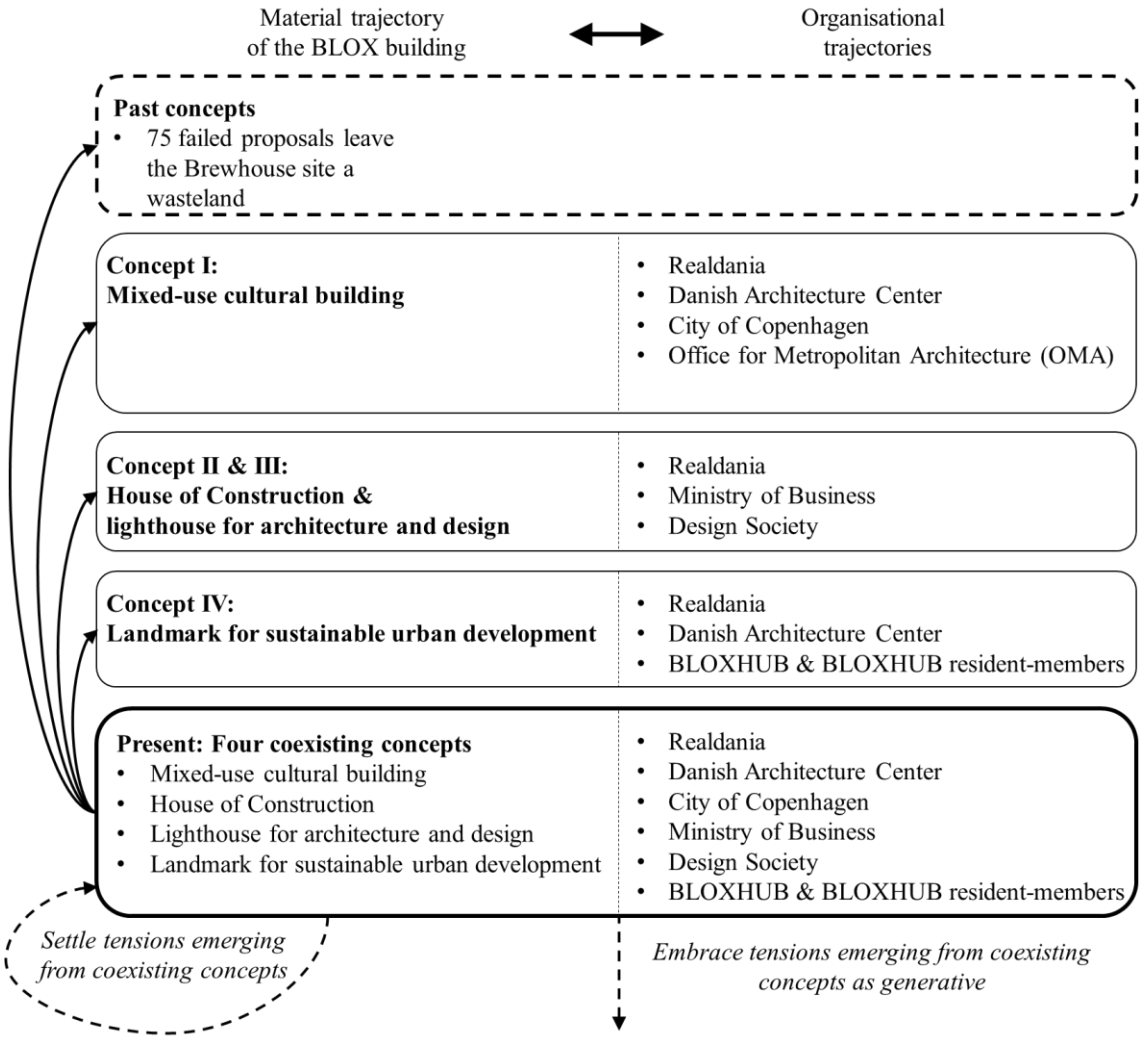


Figure 5.3 Overview of findings from Study 1

5.4.1 Concept I: Mixed-use cultural building

This section reports how actors jointly envisioned transforming the Brewhouse site's 'wasteland' into a mixed-use cultural building, with DAC at its heart.

5.4.1.1 Organisational trajectories

The organisational constellation from which this concept emerged involved Realdania, DAC, the City of Copenhagen, and the architectural firm OMA. Table 5.1 provides an overview of their respective organisational past, present, and future concerns of relevance for the transformation of the Brewhouse site.

Table 5.1 Overview of organisational constellation for concept I

Organisation	Past	Present	Future
Realdania	• Application-based grant making • Ongoing professionalisation and strategy development since philanthropy's establishment in 2000	• Strategic approach to philanthropy, focussed on the 'impact of buildings' (inspired by U.S. philanthropies) • DAC perceived as a 'natural partner institution' • Endowment at an all-time high	• 'Flagship buildings' improve the built environment through their transformative potential • New Realdania office space
Danish Architecture Center	• 1996: Bankruptcy • 2002: Partnership between Realdania and three ministries strengthens DAC's funding base • Early 2000s: Exploration of merger with other cultural institutions	• Ambition to raise DAC's profile and reputation • Exhibition facilities in old warehouse identified as a key constraint to future ambitions	• New physical premises viewed as a stepping stone to become a 'world-leading architectural centre'
City of Copenhagen	• Since 1990s: Ongoing transformation of industrial harbour • 2003: Opening of Islands Brygge harbour bath as an icon of the transformation	• Two harbourfront plots remaining	• Completed transformation of the harbourfront • Connection between inner city and harbourfront • Affordable housing
Office for Metropolitan Architecture	• Timmerhuis in Rotterdam as a 'horizontal relative' of the new building (Thau, 2018) • 'City in a building' vision by Rem Koolhaas (Koolhaas, 1994; see also Kornberger & Clegg, 2004)	• Invited by Realdania to participate in architectural competition for the Brewhouse site • Copenhagen city block as inspiration	• 'Urban connector': Building should connect inner city and harbourfront and guide traffic flows through the building • 'Contaminating architecture': Interweaving of different functions

Throughout the 1990s, the City of Copenhagen had facilitated an ongoing urban transformation of the former industrial harbour into a 'blue urban space' (see Katz & Noring, 2017), with only few harbourfront plots remaining in the early 2000s. Despite previous setbacks, it remained eager to develop the Brewhouse site, as one of the last opportunities to connect city centre and harbour, and complete the transformation.

Realdania's offices were located opposite the Brewhouse site on the other side of the harbour, its view irking Realdania's management: 'every single day, we looked at that shabby site and thought that we should do something about it' (Manager, Realdania). Informants described how unsuccessful past attempts to develop the plot increased Realdania's temptation to 'do something about it':

> They [the City of Copenhagen] had this piece of land on the books and nobody showed interest in building on that area because it was damn difficult. Neighbours, complexity, and historical heritage all around … you could say an area like this can only be successfully developed with an owner like us. (Manager, Realdania)

The manager explained that it was difficult for a private developer to build a commercially viable building, considering the site restrictions, while the municipality did not have the financial means. However, from his perspective, as a philanthropy, Realdania had the financial means, did not need to worry about commercial viability as a non-profit, and operated on a long-term time horizon.

In addition, Realdania's shifting philanthropic strategy influenced their decision to develop the plot. In its early years, Realdania awarded most grants by evaluating unsolicited applications. To gain inspiration for their strategy, in 2003 and 2005, Realdania's management team travelled to meet with managers of U.S. philanthropies, which were 'light-years ahead of Europe' (Manager, Realdania). U.S. philanthropies pursued their own strategic priorities, for instance, through major investments in cultural buildings. Several informants referred to 'the Guggenheim museum's opening a few years earlier [in 1997] … so there was a feeling that landmark buildings … can raise [the profile of] a town moving forward' (Board member, Realdania). In their strategy, Realdania referred to 'prominent, visible and often capital-intensive projects, which set the course and point the way for others, and which ideally lead to further changes in the context of their realisation' (Møller, 2009, p. 199, own translation from Danish). Endowed with financial means due to strong financial markets, Realdania supported the construction of several major cultural buildings across Denmark.

DAC (founded in 1986), a cultural institution that Realdania had been supporting and considered a 'natural partner institution … had it not been already there, we would have had to invent it' (Manager, Realdania), had continuously struggled to secure its future through a solid funding base. Yet, its management was determined to raise its profile and convert it into 'one of

the greatest architecture centres in the world' (Manager, DAC). In 2002, a partnership between Realdania and two Danish ministries eventually stabilised DAC's funding base. Ina addition, the management of Realdania and DAC agreed that DAC's 19th century warehouse's exhibition facilities were 'not optimal, at least not for exhibitions of a certain ambition level' (Manager, Realdania), and decided to pursue the construction of a new building for DAC.

Concurrently, Realdania's management was considering a move from their 'completely anonymous … non-interesting and non-branded' office space (Board member, Realdania) and decided to integrate its own headquarters into the new building for DAC. Realdania's search for a plot soon led to the Brewhouse site: 'we were left with only one site in the central part of Copenhagen' (Manager, Realdania). In March 2006, Realdania launched an architecture competition, acquiring the plot in October 2006, conditional on obtaining a building permit. In December 2007, at the peak of the financial boom, Realdania's board approved the project:

> A little more than nine months before the big crash in September 2008 … we decided to spend a hell of a lot of money, 2.5 billion DKK … If we hadn't done that before the financial crisis, we would never have done it. ... This way, we had already taken the money out of our books. (Board member, Realdania)

Thus, Realdania, DAC, and the City of Copenhagen had entangled their future ambitions with the Brewhouse site.

5.4.1.2 Material trajectory of the building

The architecture competition brief envisioned a mixed-use cultural building to house DAC's exhibition space and offices, Realdania's offices, commercial lease offices, a restaurant and a café, underground parking, and apartments (as housing was a key concern of Copenhagen's mayor at the time). The project had three main intentions. First, to provide improved facilities for DAC, thereby raising its profile, and cross-finance these by remaining office space lease. Second, to link city and harbourfront, completing the pedestrian walkway along the harbourfront, as per the City

of Copenhagen's ambitions. Third, in line with Realdania's 'landmark building' strategy, to find a 'highly qualified and internationally renowned architect' to design a 'world class' building with positive ripple effects.

In April 2008, Realdania announced OMA, a Dutch architectural firm of international renown, as the winner of the architecture competition. OMA had proposed to embrace the building's envisioned connecting function by leading traffic flows through the building as an ''Urban Connector' … almost an inhabited highway intersection embracing city movement' (van Loon & Weiss, 2018, p. 56). By traversing the ring road, OMA's design mimicked Henning Larsen's proposal 14 years earlier. The design also intermingled the building's different functions, much like an 'octopus' (Louisiana Channel, 2018) with DAC at its centre, as explained by OMA's lead architect Ellen van Loon, who termed this concept 'contaminating architecture':

> The institution could architecturally contaminate the surrounding functions. … The different building functions would no longer only coexist next to each other, but would constantly react to and be influenced by each other, thus turning the complete building into an architectural centre. (van Loon & Weiss, 2018, p. 55)

DAC's CEO, who was deeply involved in the dialogue with the architects, claimed that this proposal reflected long-held ideas of OMA's co-founder, Rem Koolhaas:

> In Realdania, OMA for the first time encounters a client that is willing to allow the firm to realize the ideas about the building as city that were articulated in Rem Koolhaas's book *Delirious New York* (1978) ... That is crucial for understanding why BLOX looks the way it does, but even more importantly, how the building is programmatically organized as a mix of functions that collide and interact. (Martinussen & Weiss, 2018, p. 159)

In summary, this episode shows how Realdania's proposed concept of a mixed-use cultural building connected and balanced a multiplicity of concerns with the Brewhouse site in a way that unsuccessful prior proposals had failed to achieve. The material space provoked and afforded

crystallisation and temporal alignment of different organisational future ambitions into a concrete building project.

5.4.2 Concepts II + III: 'House of construction' and 'lighthouse for architecture and design'

This section traces the parallel emergence of two different concepts for the future building. In the wake of the financial crisis, Realdania reconsidered its strategic plan and developed the 'house of construction' concept, seeking to gather organisations across the value chain of the construction industry in the new building. Concurrently, a task force commissioned by the Danish Ministry of Business proposed relocating Design Society-affiliated organizations to the building, thereby transforming it into a 'lighthouse for architecture and design'.

5.4.2.1 Organisational trajectories

The organisational constellation in this period involved Realdania, the Ministry of Business and the Design Society. The repercussions of the financial crisis and a gradual shift from traditional to venture philanthropy characterised Realdania's trajectory. Having adopted a new industrial and innovation policy, the Ministry of Business established a growth team for the creative and design industries which suggested getting involved in Realdania's Brewhouse project. The Design Society was affected by the changing understanding of design, which eventually resulted in a strategic repositioning and relocation to the new building. Table 5.2 summarises these trajectories.

Table 5.2 Overview of organisational constellation for concepts II and III

Organisation	Past	Present	Future
Realdania	• Substantial financial losses due to financial crisis • 2005–2008: 'Innovation of Construction' programme	• Shifting approach to philantropy triggers rethinking of the building's concept • Emerging focus on innovation in the construction industry	• Locate companies across the value chain of the construction industry in the new building • Impact through innovation

Organisation	Past	Present	Future
Ministry of Business	• 1970s onward: Level playing-field approach to economic policy • 2010: Dutch government launches its TOP sector initiative • 2011: New government takes office in Denmark, Ministry of Business starts to rethink policy approach	• Ministry of Business starts to identify and promote selected industries • Ministry establishes a growth team for the creative industries	• 'Design' as a policy tool to facilitate innovation and growth in other industries, rather than only an industry in itself • Brewhouse project as a 'lighthouse for architecture and design' • Relocation of the Design Society to Realdania's new building
Design Society	• Since establishment: Focus on promoting and exhibiting Danish design • 2000: DDC moves to new building with enlarged exhibition facilities • 2013: Design Society organisations move to DDC's building	• Ongoing consolidation of design institutions in 'Design Society' • Pressure to reduce excessive property costs • Ongoing shift from 'design as product' to 'design as process' makes exhibition space redundant	• Plan to sell the current building and relocate Design Society to Realdania's new building • Repositioning of DDC towards design education and advisory makes exhibition facilities redundant

Shortly after announcing the selection of OMA's proposal, Realdania ceased all project-related activities in light of the ensuing financial crisis. Realdania's equity decreased by half, which also resulted in a sharp drop in annual grants in subsequent years (see Appendix 5.4). The altered financial situation changed Realdania board members' view of the Brewhouse project and 'for a period there was a discussion about whether we could get rid of the area' (Board member). Thus, for a while, it seemed as if the planned building had no future.

An ongoing shift in Realdania's philanthropic approach cast further doubt on the Brewhouse project. Realdania's management had become acquainted with the concepts of 'collective impact' (Kania & Kramer, 2011) and 'venture philanthropy' (see Mair & Hehenberger, 2014). Whereas Realdania had previously sought to improve the built environment through direct investments in physical buildings and public spaces, there was a growing conviction that more could be achieved by funding innovation activities (Møller, 2009). For the Brewhouse project to move forward, the board demanded a rethinking of the building's concept because 'it's absolutely essential if you build such a monstrous building that there is content that reflects the purpose of Realdania' (Board

member). Specifically, the building should no longer become Realdania's new headquarters, and the office space for commercial rent demanded reconsideration. One board member acknowledged:

> We never got into reality before the financial crisis … We could no longer justify such an enormous investment and then risk that lawyers, accountants and consulting companies would be in that building. ... That was also a bit of a mindset shift in the board ... you can plaster Danish society with a lot of brick and mortar. But, so what? (Board member, Realdania).

The board tasked the management team with developing a new concept for the building. In an effort to prolong recent activities to stimulate innovation and efficiency in the construction sector, Realdania's management proposed turning the building into a 'house of construction' that would host

> all the disciplines from the construction industry—including … the developers, the contractors, the urban planners, the building designers, the engineers, … all the advisers that work with the built environment—these are the people that we wanted to have inside this … huge space that we were creating. (Manager, Realdania)

This nascent idea allowed the board to approve the project's continuation in fall 2010, along with an additional budget to develop the idea further.

Parallel to the 'house of construction' concept, an alternative concept for the building emerged under the aegis of Denmark's Ministry of Business, which was adopting a new approach to industrial and innovation policy. The Ministry identified priority industries, and in 2012 formed 'growth teams' of managers and academics to come up with recommendations. One team focused on 'creative industries and design' and in their final report presented in February 2013 suggested that 'design' should not merely be perceived as an industry in itself, but as a 'driver of entrepreneurship and innovation' (Senior civil servant, Ministry of Business) in other industries.

Aware of Realdania's difficulties with the Brewhouse project and increasing focus on innovation, the growth team proposed to move the design-related institutions of the Design Society to the new building, envisioning a 'lighthouse for Danish architecture and design':

> We are missing a place in Denmark where international tourists, companies, and business delegations can see the best of Danish architecture and design. … The Brewhouse has the potential to become an international lighthouse that showcases Danish solutions and competencies in urban development, architecture, and design, and which provides a meeting place for leading entrepreneurs, companies, research institutions, etc. in this field. (Growth team report, February 2013, own translation from Danish)

Initially, Realdania's management considered it 'ridiculous that the government would interfere in what our new building was going to be used for. That was our first reaction. Then we thought a little deeper about it' (Manager, Realdania). Realdania's management realised that involvement of the Ministry of Business was in line with the newly adopted collective impact approach and struck an agreement to move Design Society to the new building. As one informant admitted with a smile, 'the building got slightly hijacked by politics' (Senior civil servant, Ministry of Business).

Although the rationale for relocating the Design Society organisations to the new building seemed evident to the Ministry of Business, the link between design and architecture was not yet meaningful to Realdania and DAC. Realdania's management tasked DAC with exploring a joint vision for DAC and Design Society. The responsible project manager at DAC recalled how the report by the growth team 'was kind of the strange event that sparked everything'. The project manager went on to explain that 'everything' refers to the broadening of the building's scope from architecture and construction to design: 'Can we merge those two focuses? … I mean, today it makes sense … [but] back then, it did not seem that meaningful.' Thus, it remained unclear how to reconcile the two alternative concepts of the new building.

5.4.2.2 Material trajectory of the building

The repercussions of the financial crisis and Realdania's shifting strategic priorities cast doubt on whether the Brewhouse site could be transformed into a 'world class' building. First, the project's financial viability came under scrutiny. That Realdania had already written off the project budget safeguarded the project's continuation. Moreover, a Realdania manager recalled repeatedly negotiating extensions of their sell-back clause with the municipality: 'any private investor would just have sold the land back, but we have a more long-term perspective'. Aware of past difficulties in developing the site, the municipality willingly granted these extensions, thereby preserving the possibility for the new building.

Second, Realdania's board called for a fundamental reconsideration of the building's concept. Amidst shifting strategic priorities, the impact of the mixed-use cultural building itself seemed insufficient. They decided that relocating Realdania's headquarters to the new building and leasing out the rest of the office space was inadequate, which effectively stripped two-thirds of the planned office space of its designated future purpose. What Realdania's management and the board had deliberately conceptualised as a landmark building suddenly seemed 'monstrous' to them due to this excess space in search of a new purpose. For the building to have a future, Realdania's board demanded a new concept.

The suggestion of Realdania's management to turn the office space into a 'house of construction' opened the building's concept to tenants other than DAC. At the same time, it expanded the building's purpose from an urban regeneration project and a cultural building dedicated to architecture to include a more commercial focus on innovation in the construction industry. The Ministry of Business tapped into this period of reconceptualization. Their proposal to make the building a 'lighthouse for architecture and design' resonated with Realdania's emerging focus on innovation and growth, also adding 'design' as a purpose and the Design

Society as a future tenant. For the time being, whether and how to reconcile these concepts remained unresolved.

Finally, even after Realdania resumed the project in 2010, the building permit remained pending for another three years. A series of disputes emanated from the public consultation process concerning the spatial relationship between the new building and the surrounding historical buildings. As OMA's Ellen van Loon put it, the main question was how to position the building vis-à-vis 'the real monuments … people … considered this building far too modern and far too massive … so we had to … [rethink the building's] interaction with heritage to see how we can make the building lighter on that side' (Louisiana Channel, 2018). After several design modifications, Realdania eventually obtained a building permit and ground was broken in May 2013, over seven years after Realdania had acquired the Brewhouse site.

In summary, this episode showed the parallel emergence of two alternative future concepts for the building. Although Realdania's management had struck an agreement with the Ministry of Business to move the Design Society to the new building, thereby adding 'design' as a purpose, the compatibility of the concepts remained unresolved.

5.4.3 Concept IV: A landmark for sustainable urban development

In this section, I describe how Realdania and DAC explored a potential vision for combining the 'house of construction' and 'lighthouse for architecture and design' concepts in an 'innovation and growth hub'. After considering several options, Realdania eventually decided to create BLOXHUB, an independent association. Finally, in light of increasing societal importance of sustainability, BLOXHUB adopted 'sustainable urban development' as its main pursuit, which was later elevated to the purpose of the entire building.

5.4.3.1 Organisational trajectories

This episode involved Realdania, the DAC, and BLOXHUB, and follows the increasing prominence of sustainability in the building's conceptualisation as well as the emergence of

BLOXHUB's novel organisational trajectory. Table 5.3 summarises the trajectories of the involved organisations.

Table 5.3 Overview of organisational constellation for concept IV

Organisation	Past	Present	Future
Realdania	• Increasing focus on sustainability (e.g., partnerships with UN Global Compact and C40)	• Realdania establishes a task force led by DAC to develop a proposal for an 'innovation and growth hub' that would combine the 'house of construction' and the 'lighthouse for architeture and design' concepts • In parallel to the task force, Realdania searches for a suitable organisational form for the new entity	• 'BLOXHUB' established as a separate organisational entity, in the form of an association • 'Sustainability' as an overarching theme for the BLOX building
DAC	• The addition of Design Society as a tenant and new concepts for the building challenge DAC's role as the central actor, thereby requiring repositioning	• DAC leads a task force charged with developing a proposal for an 'innovation and growth hub' • Fall 2014: Establishment of a 'pilot hub' in old buildings adjacent to the building site	• 'Innovation and growth hub' as a new branch of DAC
BLOXHUB	• 'Innovation and growth hub' concept	• February 2016: Realdania hires hub director • Addition of 'coworking space' and 'sustainability' as additional elements • June 2016: Realdania establishes BLOXHUB as an association, with the Ministry of Business and the City of Copenhagen as co-founders	• Innovation community, open not only to tenant organisations, but to organisations beyond the building • Coworking space • Facilitate the development of sustainable urban solutions

The vision DAC compiled on behalf of Realdania transformed the 'house of construction' into what was subsequently labelled an 'innovation and growth hub', incorporating recommendations of the Ministry of Business's growth team. As DAC's project manager summarised, the concept entailed three main elements: 'export promotion, close relationships between research and business, and public engagement'. Despite growing societal focus on sustainability at the time, the hub's primary purpose was facilitating innovation and growth: 'The vision back then was not

to make a difference in the world; it was not to promote sustainable development worldwide. … It was promoting Danish business … or promoting innovation/efficiency within the building sector' (Project manager, DAC).

Meanwhile, Realdania's management kept exploring how to organise the hub. In the fall of 2014, they established a task force with representatives from DAC, the City of Copenhagen, and the Ministry of Business to identify the optimal organisational setup. The task force mapped international reference cases and visited innovation hubs in London for inspiration, which introduced several new concepts into the process that were relatively unknown in Denmark at the time. The Realdania project manager recalled: 'back then, I couldn't use the term "hub" in a Danish context. People would say, do you mean "jump"? Because "hop" [which sounds like "hub"] is "jump" in Danish'. Likewise, DAC's project manager acknowledged how 'coworking space' or 'ecosystem' were entirely new concepts to them. Thus, several concepts that later became integral components of BLOX were first being conceived at this point.

In the fall of 2015, Realdania's management established the hub as a separate entity, choosing the legal form of an association as a governance structure for the organisations affiliated with and physically sharing the building. First, Realdania's management convinced the Ministry of Business and the City of Copenhagen to become co-founders of the association, binding them even closer to the building and placing the project on broader footing, in line with the collective impact approach. Second, both DAC and the Design Society would become members of BLOXHUB, signalling their equal importance. Third, BLOXHUB opened the possibility for organisations not physically located in the building to become associated with BLOX.

In early 2016, Realdania hired a hub director to build the new association, who soon after suggested the name 'BLOXHUB'. The hub director modified the 'innovation and growth hub' concept in two important ways. First, he embraced the emerging 'coworking space' concept, intending for BLOXHUB to become an open community of organisations, rather than

handpicking tenants. Second, he turned 'innovation and growth' from an end in itself into a means to develop sustainable urban solutions:

> The theme acts as an occasion. … The reason why [BLOXHUB] is not merely a … plain coworking space is because we are part of something greater. … The story that is greater is obviously sustainability. The theme allows me to answer all the stakeholders' questions: Why engage? (Hub director, BLOXHUB).

When Realdania, the City of Copenhagen, and the Ministry of Business officially established the BLOXHUB association in June 2016, the Articles of Association reflected this newfound purpose: 'to contribute to sustainable urbanization—on a global scale—through the development of innovative solutions encompassing architecture, design, construction and urban development'.

BLOXHUB's purpose mirrored an ongoing shift in Realdania's strategic focus. As a board member acknowledged, Realdania was 'a little late in terms of making sustainability a clear foundation of our values and our strategies'. However, following a change in the philanthropy's executive management in 2013, sustainability had increasingly become a central focus. In line with this shift, Realdania's management elevated contributing to sustainable urban development to the purpose of the entire building: 'not only is BLOXHUB speaking exactly to that agenda … the whole building is speaking exactly to that agenda' (Manager, Realdania).

5.4.3.2 Material trajectory of the building

In August 2015, the building attained its name, 'BLOX'. According to Realdania's press release, 'The name BLOX matches the form and function of the distinctive building: architecturally, because the structure is built up as a number of blocks, staggered on top of each other; content wise, because BLOX will house many different functions, which, like blocks, build upon and support each other' (Realdania, 2015, own translation from Danish). However, as the difficulties in identifying a shared purpose revealed, the ways in which the space's 'many different functions … build upon and support each other' remained far from obvious.

Struggles with conceptualising the building in light of a growing number of tenants and purposes eventually resulted in the establishment of the BLOXHUB association as a new organisation that provided a governance structure to the different tenants and a way for non-resident organisations to become associated with the building. While encompassing the building's purposes stated in previous concepts, including 'architecture', 'construction', 'design', and 'innovation and growth', BLOXHUB subsumed them under 'contributing to sustainable urban development' as it overarching purpose.

When Realdania reframed the building's principle purpose as contributing to sustainable urban development, BLOX became 'more than a building' (Realdania, 2018), or, in the words of Realdania's Chief Philanthropy Officer, 'a contemporary landmark, not only for Copenhagen but for sustainable urban development' (Skovbro & Weiss, 2018, p. 147). From its inception in 2006, BLOX was aesthetically always intended to become a landmark building, yet it was only in 2016, two years before its opening, that the involved actors settled on what it was going to be a landmark for—that is, its symbolic meaning. Claiming BLOX was a landmark for sustainable urban development was possible because Copenhagen as a city had itself become an icon of sustainable urban development during the years of the building's development and construction. Thus, BLOX both supported and benefitted from the city's successful urban regeneration, having its symbolic meaning legitimated.

5.4.4 Present: Four coexisting concepts

This section reports findings from my ethnographic study concerning the copresence of four concepts for the BLOX building (I-IV) after the building's inauguration, and organisational responses to tensions emerging from their copresence. Table 5.4 provides an overview of the elements comprising the four concepts for the BLOX building.

Table 5.4 The four coexisting concepts for the BLOX building

Element	Concept I: Multi-use cultural building	Concept II: House of construction	Concept III: Lighthouse for architecture and design	Concept IV: Landmark for sustainable urban development
Aspirations	• Better exhibition facilities for DAC • Representative headquarters for Realdania • Cross-finance the building by commercially leasing office space • Complete urban regeneration of the harbourfront • 'Landmark building' with positive externalities for its surroundings	• Facilitate innovation and growth by gathering companies across the value chain of the construction industry	• Facilitate innovation and growth by (a) educating and advising organisations in the use of design methods and (b) showcasing Danish urban and design solutions to an international audience • Office space for the organisations affiliated with Design Society	• BLOXHUB association: 'Innovation and growth hub' that contributes to sustainable urban development • Facilitate interactions between actors across societal sectors that support the development of sustainable urban solutions
Purposes	• Urban transformation • Architecture	• Urban transformation • Architecture • Innovation and growth • Construction	• Urban transformation • Architecture • Innovation and growth • Design	• Urban transformation • Architecture • Innovation and growth • Construction • Design • Sustainability
Main tenants	• DAC • Realdania • Commercial office space	• DAC • Companies across the value chain of the construction industry	• DAC • Design Society	• DAC • Design Society • BLOXHUB & BLOXHUB resident-members

The different concepts for the building that had emerged 'in time' connected, rather than displaced each other, in the becoming of BLOX 'over time' which gave rise to two kinds of tensions. First, organisations saw themselves confronted with aspirations, purposes and tenants that had not been part of the future concept for the building at the time they had decided to join the project. For example, while initial plans designated DAC to become the new building's main tenant, it had become one among others. Rather than being a means for DAC to become a 'world leading' architecture centre (concept I), the building and its multiple purposes had become more prominent than DAC itself. In consequence, DAC struggled not to be overshadowed by the

activities of other tenants. The struggle became physically manifest when, a few months after the building opened, DAC's management lobbied Realdania for permission to mount a 'DAC' logo on the façade and install a huge screen facing the square in front of BLOX to create awareness for its exhibitions and events.

Second, the future aspirations of organisations had evolved over time and present aspirations differed from those that had motivated organisations to become involved with the BLOX project in the past. For example, shortly before BLOX opened, Realdania's CEO made the following statement in an interview with a major Danish newspaper: 'Would we have done it today? Hardly. Will we do something of this size again? Not in my time, not even if I was 20 years younger' (cited in Benner, 2018, own translation from Danish). At the time, this statement left me puzzled. Why would the CEO denounce the biggest investment Realdania had ever made before BLOX had even opened its doors to the public? As my historical analysis later revealed, the decision to build a landmark building had resulted from fundamentally different strategic premises than those Realdania had come to adopt over time, however the philanthropy remained bound by previously made commitments.

These tensions indicate how the connecting of intersections between multiple organisational temporalities and the material temporality of the building 'in time', not only led to the emergence of the BLOX building 'over time', but also deflected and redirected the temporal trajectories of the involved organisations. Through the material building, previously unrelated organisations now had to account for each other in their respective activities in the present, as well as in their future-oriented strategies. I observed two divergent responses to this situation. Actors considered the multiplicity of aspirations and purposes associated with the building either as a problem they needed to solve by coordinating their activities in a shared trajectory, or as desirable and productive.

On the one hand, actors expressed a desire to settle the tensions emerging from the coexisting concepts and define which of the main tenant organisations would engage in which kind of tasks and activities. This view comes to the fore in the following statement:

> Now, of course both Realdania and the government … say: So what is it actually that we have here? Now comes the next step, how can we optimise, tune that? … my hope is that they understand that it's kind of a big ship that they have created together. It's not so important who … is on board, but how the machinery is working on that ship. What does it offer society? (Manager, DAC)

Roughly a year after the building's inauguration, Realdania compiled a list of all activities and programmes run by BLOX's main tenants. Likewise, representatives from DAC, Design Society, and BLOXHUB met for regular strategy and coordination meetings, and launched several joint activities. These constituted attempts to create a closed, defined future that consolidated the coexisting concepts and assigned clearly circumscribed roles to the different tenant organisations as part of a shared trajectory.

On the other hand, actors suggested that the ambiguity emerging from the multiplicity of aspirations and purposes was necessary for the functioning of BLOX: 'You can never say … "Ok, now we can celebrate and it's over." It has to be an evolving ecosystem all the time' (Manager, Design Society). This stance came to the fore in the unabated launch of new programmes and initiatives after the opening of the building. For example, already in September 2018, BLOXHUB partnered with DDC and Innovation Fund Denmark, a public funding agency, to establish a start-up campus. In June 2019, the Ministry of Business, Realdania, and two industry associations established the 'Creative Industries Initiative', a secretariat aimed at promoting Danish creative industries internationally. Rather than consolidating the coexisting concepts, these examples show how actors continued to attach new aspirations and purposes to BLOX.

This ongoing search for the 'next' also came to the fore in the indication of several informants that sustainability, as the core of the building's proclaimed concept, was becoming 'mainstream' and was increasingly considered a 'hygiene factor rather than a strategic differentiator'. For example, a BLOXHUB board member expressed this view:

> We really had some interesting discussions about sustainability on the BLOXHUB board. … is it the core purpose or is it the current standard … I think we ended up putting it in the right place rather than making it, 'We are here for sustainability'. It became a broader purpose, focusing on 'city development'. And of course, it has to be sustainable, and it has to be digital, and in three years' time it has to be something else.

This statement suggests the need for an open view of the future which affords an ongoing reconceptualization of BLOX, for the building and its hosted organisations to stay relevant and contemporary.

5.5 Discussion and conclusion

Conceptualising organisations and materiality as separate temporal trajectories directed the focus of my investigation to the ways in which these trajectories intersected 'in time', and how such intersections 'in time' connected 'over time'. As a result of my analysis, I identified three episodes from which four different organisational-material concepts of the building emerged. I showed how the coexistence of different concepts redirected organisational and material trajectories in unanticipated ways, leading to two different responses: actors either attempted to settle the coexistence of concepts or embraced it and considered it productive. In the following, I first discuss the implications of these findings for an understanding of material temporality (Hernes et al., 2020) and its interplay with organisational trajectories. Second, I discuss methodological implications of this study, and close with some practical implications.

5.5.1 Intersections between organisational trajectories and processual materiality

To explain how this study extends an understanding of material temporality (Hernes et al., 2020), I explore: (a) how the organisational trajectories intersected differently 'in time' with the material trajectory's processual (vs. epochal) dimension; and (b) how the interplay between material and organisational trajectories unfolded 'over time'.

In contrast to perishable materials, where the uncertainty inherent to the processual dimension elicits ongoing organising efforts (Hernes et al., 2020), in the case of a durable material building, actors can assume the processual dimension to remain reasonably stable in time. During the design phase, architects can evoke the future processual materiality of the building through the materiality of models and computer-aided design tools in the present, because they can be relatively certain about the processual qualities of the different building materials and the possibility of integrating them into a building in the future. The anticipated future stability of the processual dimension facilitates negotiations of the building's future physical shape, a process coined in a recent study as 'future making' (Comi & Whyte, 2018; see also Wenzel et al., 2020).

My findings suggest that the emerging material trajectory of the BLOX building intersected with multiple organisational trajectories already in the design phase. Realdania outlined its vision in the brief for the architectural competition, specifying the building's functions and the aspiration to construct a landmark building that would increase the attractiveness of its surroundings. OMA brought its portfolio of finished and unfinished projects, architectural convictions, and long-standing ambitions to realise its co-founder's vision of a 'city in a building' to bear on the design of the building. The City of Copenhagen's ongoing urban transformation and resulting location of the Brewhouse site in the materiality of the city's fabric suggested that the building would connect the inner city and the harbourfront. Interest groups mobilised the existing materiality of the surrounding historical buildings in legal proceedings, requiring adjustments to BLOX's design. These disparate concerns affected the material design of the building.

Once actors settled on the building's material design and began transforming it into actual processual temporality by excavating, pouring concrete, and welding steel beams, its processual materiality became increasingly difficult to change. From the vantage point of OMA, the concept of a mixed-use cultural building stabilised the moment the design was approved by Realdania, providing the blueprint for transforming the building into processual materiality until its inauguration. Quite literally, this first concept was 'cast in stone,' which also explains why OMA's lead architect continued to refer to the initial mixed-use cultural building concept with DAC at its centre when explaining the building's rationale, ignoring subsequent alternative concepts that emerged. The building's inherently flexible design aided this unresponsiveness, making it less important who would come to occupy the space from the architect's point of view.

After the financial crisis, Realdania's management began to reconsider elements of the initial concept (i.e., using the office space for their own headquarters and leasing out the rest of the space), but the future processual materiality of the building was no longer as malleable as it had been during the design phase. Aware of the resources already committed to multiple iterations of the design, Realdania's management decided to stick to the current design. The irrevocable nature of the future processual materiality resulted in potentially vacant square metres in the future building. Put differently, whereas excess space signified the processual dimension of the building, an unclear purpose signified its epochal dimension. For informants at Realdania, this mismatch made the material building appear 'monstrous' or 'huge', yet it 'created the fantasy to do much of what we have now' (Board member, Design Society) on the part of the organisations whose trajectories subsequently came to intersect with the building's material trajectory.

5.5.2 Intersections between organisational trajectories and epochal materiality

Whereas actors settled the future processual materiality of the building early on, its epochal dimension remained open to shifting conceptualisations. The stabilisation of the building's impending processual materiality opened the epochal dimension of the material trajectory to

intersections with the trajectories of different organisations which imagined interactions with the materiality of the building as future tenants, or more generally, the potential role of the building for their respective organisational trajectories. Unlike the processual dimension, the epochal dimension did not allow direct interaction with the material trajectory of the building. Instead, actors had to imagine the epochal material future and their organisational futures together to infer their potential effects on one another, which presupposed 'temporal distancing' (Hernes et al., 2020; Hernes & Schultz, 2020), moving from an 'in time' to an 'over time' view.

The findings show how the ways in which actors drew on emerging ideas, concepts, and labels facilitated intersections between multiple organisational trajectories and the epochal materiality of the building in three interrelated ways. First, new ideas and concepts helped actors stake out alternative futures of their organisational trajectories. They provided actors with ways to explicate and legitimise their future aspirations, thereby giving direction and momentum to their organisational trajectories. Actors actively searched for and selected new concepts, which they deemed meaningful in relation to their organisational trajectories. For example, Realdania's adoption of the venture philanthropy concept reoriented the organisation's temporal trajectory.

Second, these concepts not only affected individual organisational trajectories directly, but also gave other organisations a sense of each other's future aspirations and resulting possibilities for intersections between organisational trajectories by observing how other actors used concepts. In this way, actors were able to experience their own organisational trajectories as 'simultaneous' with other organisational trajectories, as described by Schütz (1967, p. 103): 'The simultaneity involved here is not that of physical time, which is quantifiable, divisible, and spatial. … the simultaneity of two durations or streams of consciousness is simply this: the phenomenon of *growing older together*'. In other words, the mutual observation of how each other's trajectories were affected or deflected through new conceptualisations equipped actors with a collective sense of what was timely, and enabled them to anticipate what may be mutually conceivable as

meaningful or legitimate. For example, in suggesting the 'lighthouse for architecture and design' concept, the Ministry of Business's growth team was aware of and tapped into Realdania's ongoing strategic reorientation, which included a growing attention to facilitating innovation as a potential mutual interest.

Third, ideas, labels and concepts helped actors express how their respective and joint future aspirations related to or could be realised through the material building. They enabled actors in the present to envision potential implications of the future material building for their organisational trajectories. Importantly, such imagination was not limited to single organisational trajectories; actors also developed concepts to negotiate how multiple organisational trajectories and the material trajectory of the building might meaningfully interact in the future, for instance, through the notion of a 'coworking space'. The four concepts for the building identified through my analysis represent shared future projections of how a certain use of the building with a specific set of organisations as prospective tenants might benefit each of their organisational trajectories. In other words, the concepts were attempts to anticipate how the different organisational trajectories might interact if physically placed under one roof. The labels actors developed to designate these concepts concealed their ambiguity, even if the concepts continued to connote different meanings for the involved organisations.

5.5.3 Interplay between organisational and material trajectories

In this section, I describe how the intersections between organisational trajectories and the processual and epochal dimensions of the building's material trajectory 'in time' affected the interplay between these trajectories 'over time'. In the case of perishable food materials, Hernes et al. (2020) showed how organisations worked towards an imagined future epochal materiality through ongoing experimentation with uncertain processual materiality in the present. Thus, both dimensions of material temporality were closely connected, and subject to iterative mutual adjustment. In contrast, my findings reveal how actors settled intersections between organisational

trajectories and the processual dimension of the durable material building, while the epochal dimension remained open to new intersections, indicating a more uncoupled development.

The uncoupled development of the processual and epochal dimensions may explain why the different concepts came to coexist in the finished building, instead of displacing each other over time. As long as the material building remained in the planning and construction phases, the different concepts emerging in time at the intersection of organisational trajectories and the epochal dimension of the material trajectory did not have to withstand the test of the processual dimension. Using the terms provided by Cobb (2007, p. 570), 'here-now' actors could prehend the imagined building and its imagined potentialities in relation to their 'there-then' organisational trajectories with relatively few constraints. The potentiality inherent to the impending materiality of the building facilitated intersections between organisational trajectories that otherwise would have been unlikely, such as bringing DAC and Design Society under one roof, an action which had repeatedly failed in previous years.

However, after the building's inauguration, actors found themselves confronted with the actual processual materiality of the building and the future aspirations of fellow tenants for the first time, which may clarify why their organisational trajectories bent in unexpected ways. Moreover, the different concepts for the building had emerged during specific periods in the past. Thus, they represented what actors in the past had anticipated to consider meaningful in the future, akin to what Koselleck (2004) termed 'futures past'. Since then, time had moved on, and with it the future aspirations guiding organisational trajectories. Even though the initially anticipated future had arrived, the initial reasons to engage with the material trajectory of the building were no longer aligned with present ambitions. This temporal dynamic became apparent in the statement of Realdania's CEO that he would not build the building if he were to decide today.

The organisational-material conceptualisations of the building emerging 'in time' from the intersections between organisational trajectories and the material trajectory of the building not

only enabled unlikely or unanticipated turns of the organisational trajectories, but also stabilised the emerging material trajectory of the building 'over time' before it was physically able to stand itself, thereby functioning as a kind of social scaffolding. In fact, the preliminary stabilisation of each concept coincided with major milestones in the planning and construction process, such as acquiring the plot (concept I) or breaking ground (concepts II+III). Each concept broadened, intensified, and renewed organisational commitments to the building, and provided legitimacy for the project to move forward.

In summary, this study advances understandings of material temporality (Hernes et al., 2020) in two main ways. First, whereas Hernes et al. (2020) studied perishable food materials, I have examined and shown how the interplay between material temporality and organisational temporality played out differently in the case of a durable material building. Second, whereas Hernes et al. (2020) studied dynamics between material temporality and single organisations, I attended to the dynamics between multiple organisations and the materiality of the building.

5.5.4 Methodological implications

Methodologically, this study introduces a novel way to empirically investigate material temporality alongside organisational temporality. Thereby, this study responds to recent calls to analyse materiality as separate from, rather than as already entangled with organising processes in both studies on sociomateriality (Leonardi, 2013, 2016) and process organisation studies (Langley & Tsoukas, 2016a). I have shown that the concept of 'material temporality' (Hernes et al., 2020) is consistent with an event-based perspective of organisations as temporal trajectories (Chia & King, 1998; Hernes, 2014, 2016; Hernes & Schultz, 2020; Hussenot & Missonier, 2016; Lord et al., 2015), facilitating a temporal conceptualisation of materiality as a material trajectory. My findings demonstrate how the consistent, event-based conceptualisation of material and organisational temporalities as distinct trajectories of events reveals novel perspectives on how they come to intersect. In the future, researchers may draw on the analytical approach developed

in this study to investigate the temporal dimension of interactions between organisations and materials in other empirical contexts.

5.5.5 Practical implications

With regard to practice, my findings reveal how a material building may serve as a strategic tool for philanthropic and political actors in addressing societal problems in need of solutions that cut across societal sectors. Recently, scholars have indicated the importance of collaborative spaces in addressing so-called grand challenges (e.g., Ferraro et al., 2015; George et al., 2016), yet have not attended to the material dimension of these spaces. My findings reveal the role of the building in the emergence and stabilisation of a novel constellation of actors across societal sectors. In a way, the building lured different societal actors into a cross-sectorial constellation that likely would not have emerged otherwise. Sharing the building forced these actors to search for common ground and purpose, thereby creating the potential for BLOX to provide a platform for collaboration among heterogeneous actors around sustainable urban development with a long-term future perspective. Scholars have shown a more long-term future perspective to be crucial in addressing societal challenges (e.g., Lê, 2013; Slawinski et al., 2017; Slawinski & Bansal, 2015). However, time will tell whether this potential materialises.

5.5.6 Conclusion

In conclusion, this study has enabled a better understanding of material temporality by showing how a durable material building emerged ‘over time’ from intersections between the material trajectory of the building and multiple organisational trajectories ‘in time’. The findings reveal how new concepts and ideas aided the preliminary stabilisation of the organisation-material intersections into four organisational-material concepts for the building. These concepts continued to coexist in the building, creating potentialities and constraints for its main tenants and their main funding organisations.

Based on these findings, I have discussed how the interplay between, respectively, the processual and epochal dimensions of material temporality and the temporality of organisations unfolded differently in the case of a durable material building, compared to perishable materials investigated in prior work (Hernes et al., 2020). Methodologically, the adopted event-based conceptualisation of materials and organisations as trajectories may inform future studies on the interplay between materiality and organisations. From a practice perspective, my findings show how a material building may serve as a strategic tool for philanthropic and political actors in addressing societal problems that demand solutions requiring engagement across multiple societal sectors and a long-term future perspective.

5.6 Appendices

Appendix 5.1 Overview of main tenant organisations and their primary funding mechanisms

Organisation	Description	Activities	Established	Main funding
Realdania Website: https://www.realdania.org/	• Realdania is a philanthropy focused on improving quality of life for all through the built environment. • The philanthropy was founded based on the proceeds of a merger between a mortgage credit association and a bank.	• Philanthropic investments in new building and renovation projects in the built environment (towns, cities, villages, urban spaces, parks, buildings, and built heritage). • Philanthropic investment in knowledge creation, research, and innovation related to the built environment.	2000	• Endowment: At the end of 2018, Realdania's total equity amounted to 22 billion DKK, making it Denmark's sixth-largest foundation by endowment.
Danish Architecture Centre (DAC) Website: https://dac.dk/en/	• DAC is 'the meeting place for architecture, design and urban culture in Denmark' with the goal 'to create broad interest in architecture … and to show how architecture creates cultural and economic assets for people, industry and society' (Danish Architecture Center, 2020).	• Cultural activities directed towards a broad cultural audience, including exhibitions, talks, and guided tours. • Activities for professionals in the fields of architecture, urban planning, and construction, such as conferences, seminars, workshops, and study tours.	1986	Since 2002, DAC has received basic funding from a partnership between Realdania and three Danish ministries: • Ministry of Business • Ministry of Transport, Building and Housing • Ministry of Culture
Design Society Website: http://designsociety.dk/english	• Design Society is a foundation that 'coordinates publicly funded efforts for growth in the Danish design and fashion industries' (Design Society, 2020) through its three member organisations: the Danish Design Centre (DDC), the INDEX Project, and the Global Fashion Agenda (GFA). • The Ministry of Business initiated the establishment of the Design Society to	• DDC: 'Promote the use of design … to help professionalise the design industry and to document, promote and brand Danish design in Denmark and abroad' (Danish Design Centre, 2020). Runs programs and activities that teach public and private organisations how to use design as a method and process to develop innovative products and services. • GFA: Spin-off of Copenhagen Fashion Week; GFA organises the Copenhagen Fashion	• Design Society: 2013 (official establishment as a foundation in 2015) • DDC: 1978 • INDEX: 2002 • GFA: 2009	• Ministry of Business

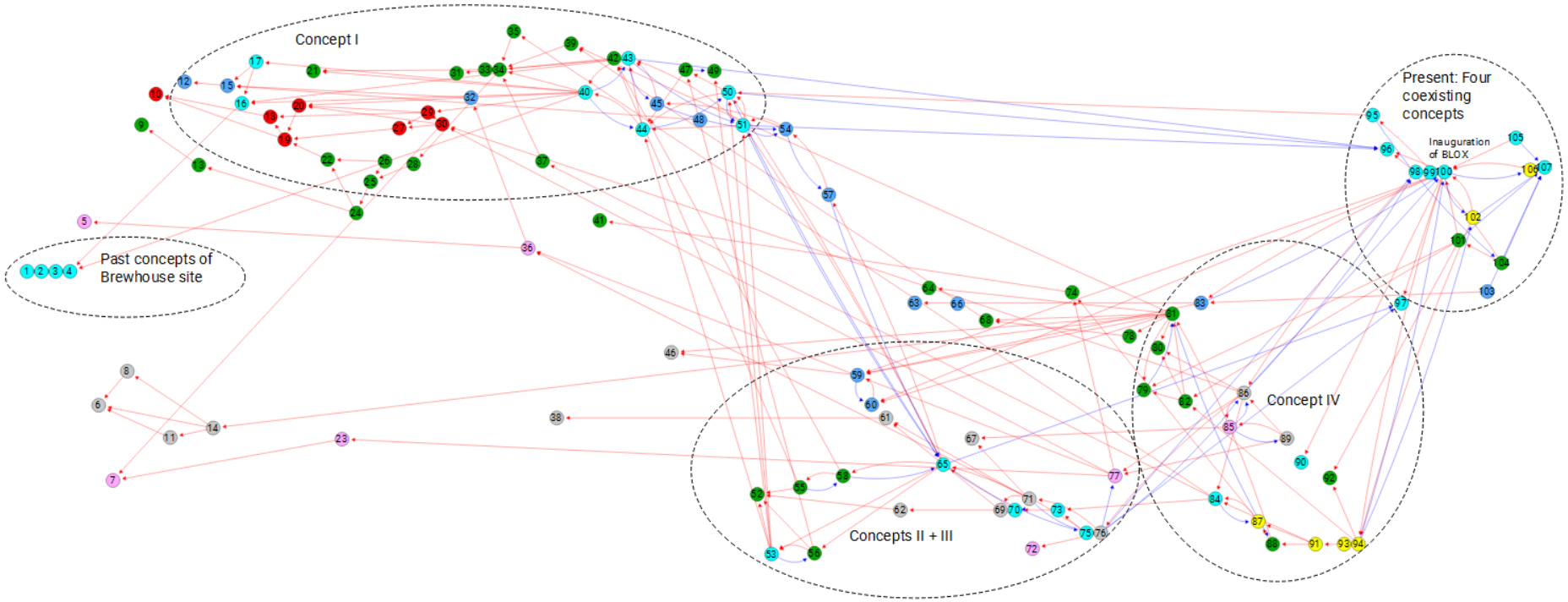
Organisation	Description	Activities	Established	Main funding
	simplify coordination.	Summit, an annual industry event focused on sustainable fashion. • The INDEX Project: Organises an annual sustainable design award.		
BLOXHUB Website: https://bloxhub.org/	• BLOXHUB is a non-profit association aiming 'to contribute to sustainable urbanization—on a global scale—through the development of innovative solutions encompassing architecture, design, construction and urban development' (BLOXHUB, 2019). • The association has more than 280 member organisations, of which roughly 70% are private, 20% are public, and 10% are non-profit. DAC and Design Society are members of BLOXHUB. • Only organisations that operate within 'the fields of architecture, design, construction, urban development and digitalization, or whose enterprise is of strategic value to the Association' are admitted as members (BLOXHUB, 2019). • Run by the BLOXHUB secretariat, which comprises 15 full-time staff. • Member organisations pay an annual membership fee of 4.000—20.000 DKK, depending on the number of employees.	• Coworking space: The association operates a coworking space in the BLOX building and a neighbouring ensemble of 18th century buildings with roughly 500 desks, meeting facilities, different kinds of labs, and a start-up campus. Approximately 80 organisations are 'resident members' that rent desks in the coworking space for some or all of their employees. • Innovation activities and events are open to all members; events include keynotes and debates, matchmaking sessions, a start-up accelerator program, and innovation competitions.	2016	• Realdania • Realdania established the association in June 2016, with the Ministry of Business and the City of Copenhagen as co-founders.

Appendix 5.2 Overview of collected data

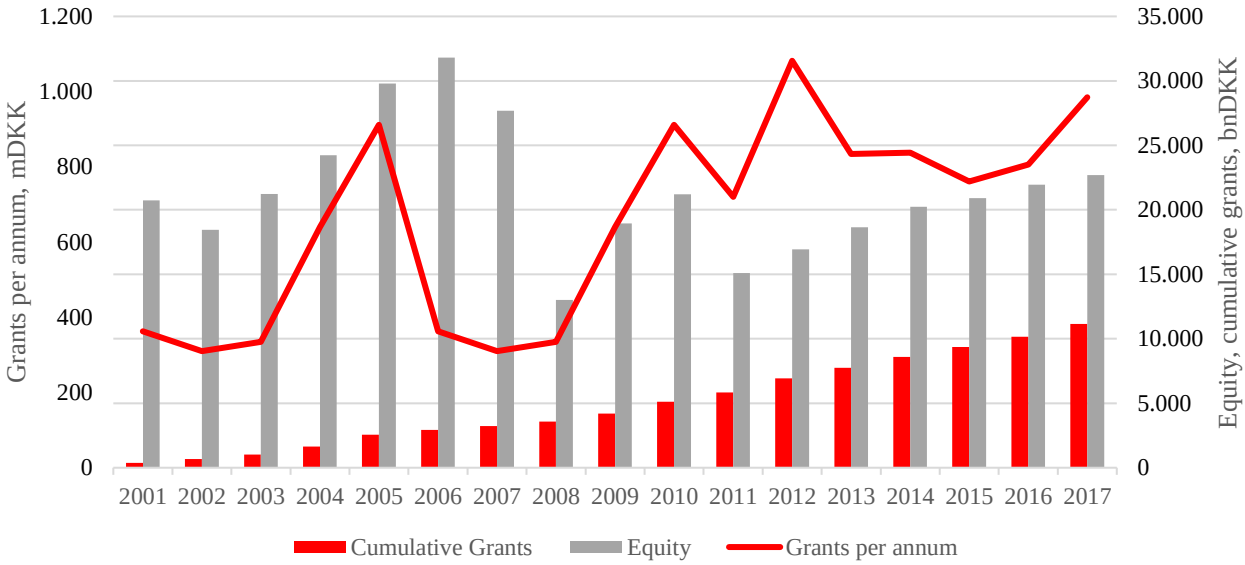
Data source	Details
Ethnographic field study (October 2016–October 2019)	Location • Pilot hub in historic buildings adjacent to BLOX, occasional visits to DAC's old premises (October 2016–May 2018) • Newly opened BLOX building (May 2018–October 2019) Focus of observation • Interactions in BLOXHUB's co-working space, informal conversations with actors who frequented the spaces • Weekly team meetings at DAC • Occasional participation in BLOXHUB team meetings • Participation in more than 100 events, such as innovation workshops, keynotes, start-up pitches, conferences, and panel debates organised by various tenant organisations of the BLOX building • Conducted the BLOXHUB member survey (2017–2019) to track members' frequency of participation in activities and events Documentation • Field notes • Audio recordings
Interviews with primary decision makers (August 2018–April 2019)	20 interviews with 18 primary decision makers associated with the three main tenant organisations and the main funding organisations. Each interview lasted between 45 and 90 minutes. Titles reflect informants' positions for the majority of their tenure on the BLOX project: • BLOXHUB (Manager), 2 interviews • Realdania (Manager) • Realdania (Manager) • Realdania (Manager) • Realdania (Project manager), 2 interviews • Realdania (Board member) • Realdania (Board member) • DAC (Manager) • DAC (Manager) • DAC (Manager) • DAC (Manager) • Design Society (Board member) • Design Society (Manager) • Ministry of Business (Senior civil servant) • Ministry of Business (Senior civil servant) • Ministry of Business, Growth team (Member) • City of Copenhagen (Senior civil servant) • City of Copenhagen, Copenhagen Solutions Lab (Manager)
Interviews with employees of BLOXHUB resident members (January 2018–May 2018)	6 interviews with informants who worked primarily in BLOXHUB's co-working space. Each interview lasted between 30 and 60 minutes. Titles reflect informants' positions at the time of the interviews: • Start-up (CEO) • Copenhagen Fashion Week (Manager) • Real estate developer (Head of real estate) • Technology consultancy (Consultant) • Construction firm (Project manager) • Copenhagen Solutions Lab (Project manager)

Data source	Details
Archival documents	• Public and internal strategy documents from Realdania, DAC and BLOXHUB • > 500 newspaper articles on BLOX and Brewhouse site in 10 major Danish outlets (general press and specialised AEC industry press), covering 1994–2019 • Press releases issued by Realdania and the Ministry of Business • Reports on the creative industries by the Ministry of Business

Appendix 5.3 Overall event graph, chronologically ordered from left to right, with equal distance between chronologically successive events (i.e., not proportionate to temporal intervals between events)



Appendix 5.4 Realdania's grants per annum, cumulative grants and equity, 2001–2017 (Source: Data obtained from Realdania's annual reports 2001–2017)



6 STUDY 2 | CONFIGURING A SHARED TEMPORAL TRAJECTORY: THE TEMPORAL EMBEDDEDNESS OF COLLABORATIVE INNOVATION

Abstract

Studies of collaborative innovation processes tend to hold a unidirectional view of time in showing how actors pursue a shared future. Pursuing a temporal view of organisations as a trajectory of events, I report the findings of a longitudinal ethnographic field study, showing how actors connected back and forth between their respective pasts and futures in order to pursue a shared future. The findings reveal how actors initially pursued one future projection, switched to pursuing another projection, and eventually abandoned the emerging shared trajectory. I develop a model from the analysis that explains the interplay of five different modes of connecting past, present, and future, describing the becoming of a shared trajectory as a process of 'temporal abduction'. The findings contribute to an understanding of the temporality of collaborative innovation processes, and interorganisational relations more generally.

Keywords: Temporal embeddedness, collaborative innovation, trajectory, interorganisational relations

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6.1 Introduction

To innovate, organisations frequently rely on interorganisational collaboration to gain access to complementary resources that are not readily available within their organisational boundaries (Lumineau & Oliveira, 2017; Majchrzak et al., 2015). The involvement of diverse organisations enables distant, unfamiliar resources to be combined in complementary ways, thereby resulting in potentially more impactful innovations (Davis, 2016; Deken et al., 2018). Yet, organising collaborative innovation processes is challenging due to their inherent two-sidedness (Adner et al., 2013; Dattée et al., 2018). Actors not only seek to combine their resources into an innovative outcome or value proposition, but also must identify a mutually beneficial configuration of interorganisational relations that enables its realisation.

To manage this two-sidedness, literature on collaborative innovation points to the coordinative function of shared future projections (Adner, 2017; Ansari et al., 2016; Dattée et al., 2018; Deken et al., 2018). These projections define both how to combine complementary resources and capabilities into an innovative outcome (e.g., a product or service) and how to configure relations or distribute roles (i.e., decide who does what) to enable its realisation. The predominant view holds that focal actors may define a consistent future projection ex ante, and convince potential collaborators of its mutual advantageousness over time (e.g., Ansari et al., 2016; Iansiti & Levien, 2004; Soda et al., 2017; Williamson & De Meyer, 2012). Recent studies challenge this view, revealing how shared future projections emerge from negotiations between collaborating actors in processes of iteration (Deken et al., 2018) or abduction (Dattée et al., 2018). These studies suggest that actors in the present imagine a shared future that is relatively independent of the past.

In contrast, studies on the temporal embeddedness of innovation in single organisations demonstrate that innovation is not only future-oriented; rather, findings show how novelty

emerges from the connections actors draw between past, present, and future (e.g., Ellwood & Horner, 2020; Garud et al., 2011, 2016; Hargadon, 2003; Kaplan & Orlikowski, 2013; Obstfeld, 2012, 2017; Reinecke & Ansari, 2016). On the one hand, actors in the present imagine future innovative outcomes and search their organisational pasts for the resources required to realise these outcomes (e.g., Obstfeld, 2012). On the other hand, reconsideration of resources developed in the past may inspire novel future combinations (e.g., Garud et al., 2011).

This study contributes to this research stream in two main ways. First, I show how the ways in which actors draw connections between past, present, and future change over the course of an innovation process. Second, I investigate how these dynamics unfold in cases of collaborative innovation involving multiple organisations. Whereas actors innovating in the context of a single organisation draw on a shared organisational past to imagine innovative futures, in collaborative innovation, the interacting actors' respective pasts are at play, raising questions as to how they recombine their respective pasts into an innovative shared future.

Extant research on the temporal embeddedness of interorganisational collaboration shows how organisations develop a shared temporal embeddedness which emerges from, yet is not reducible to their respective pasts and futures. Studies of dyadic interorganisational relations show how the 'shadow of the past' (remembered past interactions) and the 'shadow of the future' (projected future interactions) enable continuity over time (e.g., Axelrod, 1984; Heide & Miner, 1992; Ligthart et al., 2016; Poppo et al., 2008). Likewise, studies of collaboration among multiple organisations reveal how temporal embeddedness affords repeated collaboration (e.g., Manning, 2019; Manning & Sydow, 2011; Starkey et al., 2000). Although extant findings demonstrate that shared temporal embeddedness provides collaborative activities with coherence and direction, they do not explain how shared temporal embeddedness emerges in the first place, nor how actors may mobilise their pasts and futures to engage in new, innovative endeavours.

In recent reviews, scholars have taken issue with such a unidirectional view of time as a shortcoming of studies on interorganisational relations more broadly (Cropper & Palmer, 2008; Lumineau & Oliveira, 2017; Shipilov et al., 2014). In fact, Lumineau and Oliveira (2017) called the temporal dimension a 'major blind spot'. They found that in the vast majority of studies on interorganisational relations, scholars adopted a linear, clock time view, according to which 'events occur in apparently irreversible succession from the past through the present to the future' (Ancona et al., 2001, p. 514). Such an 'over time' view overlooks how actors situated 'in time' combine the past, present, and future in different ways (Lumineau & Oliveira, 2017, p. 445). This study shows how the concept of a 'trajectory' may enable researchers to combine the 'over time' and 'in time' views.

In previous studies advancing a temporal view of collaborative innovation, scholars have drawn on the notion of a 'trajectory' as a way to differentiate the collaborative innovation process from the ongoing activities of actors (e.g., Dattée et al., 2018; Deken et al., 2018; Ellwood & Horner, 2020; Oborn et al., 2019; Obstfeld, 2012; Timmermans, 1998). For instance, Deken et al. (2018) described prospective resourcing as 'an emergent and highly variable trajectory' (p. 1939), and Dattée et al. (2018) drew on the term to describe alternative pathways towards realising a shared future projection.

In this study, I further develop the notion of a 'trajectory' by drawing on a 'becoming' view of organisation (Chia, 1997; Tsoukas & Chia, 2002) that has informed an event-based conceptualisation of trajectories (Chia & King, 1998; Hernes, 2014, 2016; Hussenot & Missonier, 2016; Lord et al., 2015). Extending these ideas, I propose to conceptualise the emergence of collaborative innovation as an attempt by collaborating actors to reconfigure their trajectories into a shared trajectory by drawing connections between their respective pasts and agreeing on an imagined shared future to pursue. Against this theoretical background, I pose the following research question to advance a temporal understanding of collaborative innovation: *How do the*

respective trajectories of collaborating organisations—that is, their respective pasts and futures—affect the emergence of a shared trajectory of collaborative innovation?

Conceptualising the emergence of collaborative innovation as the becoming of a shared trajectory directs attention to the fact that collaborating actors have their own pasts and futures. Rather than adopting a unidirectional view of time where the past shapes the present and future, a view of organisations as trajectories of events suggests a bidirectional view of time, which assumes the past and future to be open to reinterpretation and reimagination in the present, thereby enabling actors to reconfigure their respective trajectories into a shared trajectory.

This qualitative, event-based process study follows a collaborative innovation process among representatives of 15 organisations who participated in a facilitated innovation workshop and subsequently investigated a joint entry into the market for courtyard refurbishments. To operationalise my conceptualisation, I draw on an event-based method of data collection and analysis that attends to: (a) the ways in which actors in the ongoing present relate to other past and future events, and (b) the formation and configuration of multiple interorganisational relations as actors draw connections between events.

The paper proceeds as follows. First, I develop a theoretical conceptualisation of collaborative innovation as the becoming of a shared trajectory. Second, I introduce the case study and detail the research process. Third, I present my findings in five episodes which demonstrate how actors drew differently on the past and future throughout the initial stages of the collaborative innovation process. Whereas extant literature on collaborative innovation and interorganisational relations almost exclusively draws on a unidirectional view of time, this study reveals how actors repeatedly switched the directionality of time as they connected the past, present, and future. Based on my analysis, I develop a model of collaborative innovation as temporal abduction comprising five different modes of connecting the present, past, and future. Finally, I discuss how my study relates to and extends prior literature that has advanced a temporal view of collaborative

innovation and interorganisational collaboration more generally, and indicate several implications for practice.

6.2 Collaborative innovation as the becoming of a shared trajectory

This section develops a temporally embedded conceptualisation of collaborative innovation as a shared trajectory. This conceptualisation draws on a 'becoming' view of organisations (Chia, 1997; Tsoukas & Chia, 2002), that suggests an understanding of organisations as temporal trajectories of events (Chia & King, 1998; Hernes, 2014, 2016; Hussenot & Missonier, 2016; Lord et al., 2015; Reinecke & Ansari, 2016; Tavory & Eliasoph, 2013). For instance, Hernes (2016) defined a temporal trajectory as 'a pattern, or patterning, of events that stretches back into time and extends into the future' (p. 603). In contrast to traditional organisation theory, where 'events are seen as mere happenings along a timeline, the becoming of a temporal trajectory implies that every event takes part in making or unmaking that trajectory' (Hernes, 2016, p. 605). In other words, rather than occurring discretely, events define themselves in relation to other events.

This view of events assumes neither past nor future events as accomplished or having a settled meaning, but as open to reinterpretation and reimagining: 'Past events are not dead data leading to the present, but are both constitutive [of] and constituted in the present. Conversely, anticipated events … participate … in the shaping of the present and the reshaping of the past' (Hussenot & Missonier, 2016, p. 542). Although events lie in the past, actors in the present may reinterpret them differently in relation to their current course of action. Correspondingly, the future can be thought of as a potentiality, or a set of possible future events. The way in which actors anticipate the future to unfold—that is, which future events they project—affects their course of action in the present (Emirbayer & Mische, 1998; Hernes, 2014; Lord et al., 2015). In contrast to the prevalent unidirectional view of time, which focuses on how the past informs the

present and future, this study adopts a bidirectional view of time, which also attends to how the future may shape the past and present.

A bidirectional approach gives analytical primacy to the 'emergent' (Emirbayer & Mische, 1998) or 'ongoing' present (Schultz & Hernes, 2013) as distinct from the more distant past and future (see also, e.g., Dawson, 2014a; Hernes, 2014; Hussenot & Missonier, 2016). The 'ongoing present' (Schultz & Hernes, 2013) denotes actors' current course of action and includes recent past and future events. The ongoing present is distinct from, but informed by, the distant past, comprising events that were part of different, past courses of action, and the distant future, comprising events that are not yet part of the current course of action, but inform what actors anticipate doing. Relating to distant past and future events enables actors to reorient what they are currently doing in novel directions. However, distant past and future events are not readily available. Actors in the ongoing present first need to relate them to their current course of action in order to become meaningful, what Schultz and Hernes (2013), inspired by Mead (1932), described as transforming the past and future into 'materials of the present'.

In this study, I attend to the ways in which the shared enactment of relations between events also constitutes relations between actors, and by extension, relations between organisations. This is what Hernes (2014) described as 'the making of "we-ness" through temporal connecting of experiences' (p. 58). A relation forms between two actors when they connect present interactions to past instances of interaction and anticipate future instances of interaction. Relations between actors are enacted through the connecting of shared events, consistent with an emerging 'becoming' perspective of interorganisational relations, which considers them to 'exist only in so far as they are enacted' (Berends & Sydow, 2019, p. 3).

The emergence of collaborative innovation processes, I suggest, may be usefully thought of as a case of 'the making of we-ness' (Hernes, 2014, p. 58). Actors try to develop a shared trajectory, recombining their respective trajectories in novel ways. Each collaborating

organisation has its own trajectory, meaning its own past and future. To combine their trajectories in a collaborative innovation process, actors need to make their respective pasts and futures intelligible to each another by remembering and reinterpreting previous past events and articulating projected future events. This may enable them to construct a shared trajectory (i.e., a shared past and future), which is meaningful in relation to their respective organisational trajectories.

A theoretical understanding of the emergence of collaborative innovation as the becoming of a shared temporal trajectory directed the focus of my investigation to the ways in which actors connected remembered past and projected future events. Specifically, I focused on how actors related to past and future events of their respective trajectories in order to form a shared trajectory, prompting several guiding questions for my analysis. For instance, how do actors turn events of their respective pasts into 'materials of the present' (Schultz & Hernes, 2013)? How do actors recombine their respective remembered pasts and projected futures into a shared future projection? How does the emerging shared trajectory relate to actors' respective trajectories? In the following, I describe how I examined these questions.

6.3 Research process

In this section, I describe my research process. First, I introduce the research context. Second, I provide a detailed description of how I collected and analysed my data, including my use of event graphs and interorganisational networks.

6.3.1 Research context

Copenhagen-based BLOXHUB provided the research context for my case study. BLOXHUB is an association with more than 280 member organisations across sectors, whose activities are in some way related to sustainable urban development. BLOXHUB facilitates a variety of innovation programs and operates a physical coworking space, describing itself as 'an urban innovation hub

that brings together companies, organisations and researchers to co-create solutions for better cities' (BLOXHUB, 2018). BLOXHUB claims that co-creating these solutions 'require[s] a new collaborative approach', which it promises to facilitate: 'We match you with the right people. We help mature ideas, explore opportunities and create new solutions' (BLOXHUB, 2018). The BLOXHUB Match & Create program, which served as the empirical setting for my case study, is 'core to this ambition' (Hub Director, BLOXHUB). Smith Innovation, an innovation consultancy focused on the built environment, facilitates the Match & Create sessions on behalf of BLOXHUB. On two workshop days, employees from 10–15 organisations gather to explore collaborations around a given problem or topic. The Match & Create sessions are a case of what Paquin and Howard-Grenville (2013) termed 'arranged marriages': attempts by a network orchestrator to identify and match the 'right' collaboration partners in order to increase the success of collaborations.

Specifically, my case study follows collaboration processes leading up to and following a Match & Create session on 'shared green courtyards'. The session was initiated by Altan, a company specialised in retrofitting balconies to existing apartment buildings. Altan's employees envisioned offering courtyard refurbishments as a turnkey solution, yet realised that they lacked the requisite resources to build a viable business model. Initially, they investigated a collaboration with the two co-founders of Byland, a small landscape architecture firm, who were in the process of developing a modular plant box. Both parties felt a need to involve further collaboration partners, and initiated a Match & Create session to investigate possible collaborations concerning courtyards. During the session, 20 participants from 15 organisations developed several concepts for a joint entry into the market for courtyard refurbishments. After the session, several actors met again in varying constellations to discuss possible next steps towards realising the developed concepts. However, following several setbacks, actors eventually discontinued their innovation activities.

6.3.2 Data collection

I collected data from three sources: an ethnographic field study, informal and formal interviews, and archival documents (for an overview, see Appendix 6.1). I stored and organised data in NVivo, a qualitative data analysis software package.

The field study began with the Match & Create session. From May 2017 to November 2018, I worked on a daily basis in the BLOXHUB co-working space where several workshop participants had their offices. This 'prolonged period of researcher immersion in the research setting' (van Hulst et al., 2016, p. 223) enabled me to follow innovation activities; workshop participants invited me to attend subsequent follow-up meetings, and I engaged in informal conversations with individual actors involved in the innovation process to trace how their ideas and activities were evolving. I stopped collecting data when I learned that Altan and Byland, two of the focal organisations of the collaborative innovation process, had ceased business development activities related to courtyards. I recorded my observations by documenting field notes in a diary, and by making audio recordings of meetings and conversations.

I performed two rounds of interviews with the participants in the Match & Create session to complement and validate the data obtained through the ethnographic field study (see Appendix 6.2). During the Match & Create session, I conducted an initial round of informal interviews with all participants and facilitators. Lasting 10 to 15 minutes each, these short conversations served to establish a basic understanding of these actors' respective organisational trajectories. I covered topics such as who had invited them, past and current activities related to the workshop topic, as well as ongoing and expected future innovation activities.

After completing the field study, I compiled a preliminary event database (see section 6.3.3) Then, I conducted a second round of formal interviews with participants whom I observed in collaborative innovation activities subsequent to the Match & Create sessions. During these interviews, I intended to let interviewees relive the process by leading them forward in time

(Eisenhardt, 1989) and encouraging them to consider past events as if they were occurring in the present (Jarzabkowski et al., 2016). These interviews lasted 30 to 60 minutes each. I used the individual, retrospective event histories (Glick et al., 1990; Huber & Power, 1985) resulting from these interviews to complement the event database.

Finally, I drew on archival data. Specifically, I consulted documents obtained during the fieldwork and shared by informants during the second round of interviews, including workshop documentation, meeting notes, strategy presentations, financial information, and email threads.

6.3.3 Data analysis

I analysed the data in three phases. During the first phase, I used the qualitative data analysis software NVivo to build an event database. During the second and third phases, I transferred the event database to the Qualitative-Social Process Analysis (Q-SoPrA) software (Spekkink, 2018), which supported my analysis by enabling me to plot event graph visualisations and interorganisational network graphs based on the event database.

During the first phase of data analysis, I transformed the collected raw data into an event database through two rounds of coding. I distinguished between incidents (i.e., raw data about an occurrence) and events, which capture the meaning of specific incidents (Abbott, 1984). In the first round of coding, I coded all incidents in the raw data related to the collaborative innovation processes, yielding 120 incidents in total. For each incident, I recorded a brief description and the time of occurrence, if readily available. In the second round of coding, I aggregated incidents into events. Initially, I grouped all coded passages referring to the same incident. I only included an incident in the event database if at least two different individual actors in my data set mentioned it, similar to the construction of a ‘composite narrative’ of an event based on multiple individual accounts (e.g. Jarzabkowski et al., 2014; Sonenshein, 2010). Appendix 6.3 provides a condensed overview of the final event database, which contains 49 events. I stored the different actors’ accounts along with my abstracted event descriptions so I could revisit this multiplicity.

The second phase of data analysis involved coding events in the event database for (a) relations to other events, (b) temporal distance, and (c) interorganisational relations enacted during events. In the first round of coding, I analysed the temporal relations between events by examining actors' respective accounts of each event in the event database, noting references made to past or future events. I coded each reference as either a 'relation to past event' or a 'relation to future event', considering the connections between events one by one. The first round of coding yielded a temporally relational event database.

In the next step, I coded the events in the event database for temporal distance. I identified events which actors considered part of their current courses of action as occurring in the 'ongoing present' (Hernes, 2014; Schultz & Hernes, 2013). In my observations and actors' accounts of these events, actors referred to past events that had informed what they were currently doing, yet were part of other courses of action at the time. On the other hand, actors projected distant future events that were not yet part of their current courses of action, but informed what they anticipated doing in the near future. These included future ambitions to actualise strategies or future events, to which actors responded. I coded these events as occurring in the 'distant past' and 'distant future', respectively.

Finally, I coded for interorganisational relations. Even though I observed interactions between individual actors participating in each event, these interactions were indicative of and directed at the forming of interorganisational relations, consistent with prior research (e.g., Berends et al., 2011; Sminia et al., 2019). I distinguished four types of interorganisational relations. In conceptualising the past and future dimensions of interorganisational relations as open to reconfiguration into a shared trajectory, I drew on the notions of latent and potential relations used in studies informed by a social network perspective. A *latent* relation signifies a collaboration of two actors during a past event, for instance, in a joint project (Mariotti & Delbridge, 2012; Starkey et al., 2000). A *potential* relation describes two individual actors

envisioning themselves collaborating with each other during projected distant future events (Mariotti & Delbridge, 2012). In addition, I coded for explorative and collaborative relations. An *explorative* relation characterises two individual actors exploring the possibility of collaborating in a joint project or activity in the context of ongoing present events (e.g., Ingram & Morris, 2007), without necessarily imagining a concrete potential relation. Such exploration may take its starting point in a latent relation or a present encounter of actors. Finally, a *collaborative* relation denotes an ongoing collaboration of two organisations in the context of ongoing present events.

In the third phase of data analysis, I analysed how actors during the observed initiation of the collaborative innovation process reinterpreted past and projected future events, and how this contributed to the emergence of a shared, collaborative trajectory of events. In this phase of analysis, I drew heavily on event graphs and interorganisational networks, which I plotted based on the coded event database (see Appendix 6.4 for a cumulative interorganisational network and Appendix 6.5 for a cumulative event graph across the complete case period). Iterating back and forth between event graph and interorganisational network visualisations enabled me to analyse how the collaborative innovation process, operationalised as the relations between past, present, and future events, and the configuration of a set of interdependent interorganisational relations, operationalised as the relations between organisations enacted during these events, coevolved.

The overall pattern of the event graph revealed how actors had related to past and future events in different ways, depending on the phase of the emerging collaborative innovation process. To investigate these differences in more detail, I zoomed in on specific temporal intervals of the event graph and interorganisational network, and isolated specific strands or sub-cases. Appendix 6.5 highlights specific events and clusters of events that emerged as important from this analysis. Ultimately, I identified five episodes which reveal the different ways actors drew on their respective temporal trajectories to create a shared temporal trajectory.

6.4 Findings

The findings are presented in five episodes, which follow the unfolding collaborative innovation process chronologically. For each episode, I show how the ways in which actors in the present related to past and future events affected the emergence of a collaborative innovation process. I close the section with a summary of the findings.

6.4.1 Recombining past events into an innovative future

During the spring of 2016, Altan and Byland independently imagined different future innovations. The two future projections differed with regard to time horizon and clarity. Altan projected an innovative turnkey offering for courtyard refurbishments as a vague future possibility, whereas Byland aimed to scale production of their recently developed plant box in the near future. In this section, I show how reinterpretation and recombination of elements from the two organisations' respective organisational pasts shaped their future projections as well as anticipated next steps.

In February 2016, Altan hired a new Head of Business Development to lead the development of a new strategy. The Head of Innovation recalled how he, along with the Head of Business Development, anticipated the saturation of Altan's core market as a distant future possibility: 'We had been doing balconies for many years, and at some point, we asked ourselves: "For how long can you keep doing balconies in Copenhagen?" All of a sudden, the market is saturated.' Since only a limited number of apartment buildings in Copenhagen are suited to the retrofitting of balconies, they were relatively sure that the market would be saturated at some point, even though the exact timing was unclear.

Because market saturation posed an existential threat to the company, the Head of Business Development and Head of Innovation considered it crucial to build alternative revenue streams before the balcony retrofitting market became saturated. In response, they developed 'The good city life' as a 'strategic umbrella' (Head of Business Development) for new strategic initiatives to

diversify the business. When discussing possible business development ideas, the Head of Innovation and Head of Business Development began considering courtyards for the first time:

> The whole idea arose from the observation that those living on the ground or first floor … are not as interested in voting in favour of a balcony project as those on the fifth floor. … Also, it doesn't help if you have a nice balcony but an unattractive courtyard. (Head of Business Development, Altan)

The way they entered the balcony retrofitting market a few years back directly informed their future projection of a business model for courtyards. The Head of Innovation explained: 'We have a business model for balconies which we would also like to adopt here.' In the case of balcony retrofitting, Altan acted as a turnkey provider. Rather than just installing the balconies, Altan had insourced the structural engineering and established long-term relationships with a building surveyor and two balcony manufacturers. Altan's management saw potential in replicating this 'one-stop shopping solution' approach for courtyard refurbishments, because 'if a cooperative housing or owner association wants to renovate their courtyard today, they must get hold of 20 different parties or pay way too much for an architect' (Head of Business Development, Altan). Altan's managers perceived the development of their balcony configurator as crucial for their market success, because it enabled them to generate a precise indicative offer to prospective buyers faster than competitors. According to the Head of Innovation, 'the configurator lifted our whole development, our whole setup … it has helped us earn many millions'. Accordingly, they considered development of a courtyard configurator a logical first step towards development of a turnkey offering for courtyard refurbishments.

Even though Altan's management could see the potential in transferring the turnkey approach to courtyard refurbishments in principle, the larger number of parties involved made the business case significantly more complex, which deterred them from pursuing this idea. Instead, Altan's management pursued other strategic initiatives. In October 2016, Altan expanded its

balcony business geographically to Southern Sweden. In parallel, they initiated a collaboration with a Danish supermarket chain to develop and market a collection of furniture designed specifically for balconies.

Around the same time, the two co-founders of Byland, a start-up company established in May 2016, were in the process of developing plant boxes that doubled as urban seating. Although they had installed some prototypes, their vision was to develop standardised modules and scale production to reduce unit costs in the short term, and to develop a self-watering variant in the long term. To increase sales and scale production, the co-founders had eyed Copenhagen's courtyards as a potential market. As one of the co-founders explained, 'most courtyards need an upgrade but don't have the money to do it. If you have some standard elements you can do it for less.' Thus, they had a clear, product-centric projection of their future course of action.

Realising this future projection required establishing relationships with suitable future partners. One of Byland's co-founders recalled their situation in the fall of 2016: 'At that point, we were ready to meet someone who could help us take it further, an investor or someone who actually had a platform for selling. But we definitely needed money to get into production.' The founder's reflection indicates how the distant future imagined by him and his partner affected the timing and types of relations they sought to form in the near future. The future of Byland's product depended on the founders' ability to establish a relationship with an investor or strategic partner.

Altan's managers projected a turnkey offering for courtyard refurbishments as a distant future possibility involving unspecified future relations with partners. Their turnkey business model for balcony retrofitting, with the balcony configurator as a centrepiece, formed the basis of this projection. In contrast, Byland's co-founders projected a more concrete near future involving specific future relations based on their recently developed plant box prototype. Facing financial pressures, finding an investor or a strategic partner was more urgent than finding potential partners for an ill-defined new turnkey business model.

6.4.2 Seizing emergent opportunities to connect past and future

In this section, I describe how Altan and Byland seized opportunities provided by emergent events to advance their respective future projections which, among others, brought Altan's Head of Business Development and Byland's co-founders together in a pitching session where they recognised potential overlaps in their respective future projections. Two independent, emergent events created new momentum around Altan's future projection of a turnkey offering for courtyard refurbishments: the release of the City of Copenhagen's urban greening strategy, and the establishment of BLOXHUB.

Altan's Head of Business Development recalled reading an interview with Copenhagen's city architect as a past event. During the interview, she mentioned courtyard refurbishments as a cornerstone of the municipality's urban greening strategy. According to the strategy document she referred to, 'there are ca. 500 run-down courtyards in Copenhagen, of which ca. 300 are potential green courtyards' (Technical and Environmental Administration, 2015). Because the municipality could only refurbish roughly 10 courtyards per year, the strategy emphasised the importance of cooperation with private suppliers. Altan's managers perceived an opportunity to kill two birds with one stone if they diversified their business to include courtyard refurbishments in line with the municipality's strategy, because this might also be favourable for obtaining building permits for balconies, a constant bottleneck.

At the beginning of 2016, BLOXHUB's founding Hub Director was hired. Altan's Head of Business Development and Head of Innovation each had worked on projects with the new Hub Director in previous roles with other organisations. These latent relations attained new relevance in the light of the future innovation activities they were envisioning. Specifically, they perceived a possible overlap of their search for new business opportunities with BLOXHUB's ambition to facilitate innovations contributing to sustainable urban development. Altan's management agreed to meet with the Hub Director to explore opportunities for collaboration:

> I took my MBA together with [BLOXHUB's Director], and [our Head of Innovation] has done some projects with him previously, so there was already a good starting point. We had a meeting with [BLOXHUB's Director], just to see how it was going. At that meeting, he disclosed that they were about to establish this Match [& Create] program. (Head of Business Development, Altan)

Only a couple of weeks later, BLOXHUB was planning a pitching session at a convention for sustainable urban solutions designed to provide opportunities for small- and medium-sized enterprises to receive feedback on innovative products or business models and attract attention from potential investors or strategic partners. Referring back to their recent chat, the Hub Director invited Altan's Head of Business Development to be a jury member. Because Altan was searching for new business development ideas, he agreed to join the jury.

Byland's co-founders decided to participate in the pitching session, hoping that this extra visibility would help them establish contact with potential investors or strategic partners necessary to scale up production of their prototype. During the session, the pitch by Byland's co-founders revitalised the Head of Business Development's idea of a business model for courtyard refurbishments, which he had been discussing as a future possibility with the Head of Innovation earlier that year. Altan's Head of Business Development recalled the presentation by Byland's co-founders as follows:

> They only wanted to sell their self-watering plant boxes. They are nothing special. Actually, we consider them to be quite ugly ... We had much larger ambitions with them. … They have a landscape architecture background … I could see for myself how they could visualise and had an idea how to furnish a courtyard, which elements fit together. … They can do all the things we can't do. They can visualise, we can systematise. We have market access, because we already have 10 salesmen out there.

The quote shows how Byland's pitch inspired Altan's Head of Business Development to return to the courtyard refurbishment idea. He picked up on cues in Byland's presentation that showed how they could potentially help Altan continue to develop a business model for courtyards. Even though he did not see the same potential in the plant boxes as Byland's founders, he envisioned a different role for them in the context of courtyard refurbishments. One of Byland's co-founders recalled how Altan's Head of Business Development approached them after the pitching session: 'He already had some idea that they wanted to shift from the balconies … down to the courtyard ... we had kind of the same idea. So why not do it together?' Byland's co-founders viewed Altan as a potential strategic partner that might provide them with financial and sales support in scaling production. Thus, Altan's management and Byland's co-founders held divergent expectations concerning a possible future collaboration.

Representatives of both Altan and Byland saw common ground in their imagined futures and ended up meeting several times in the following weeks to investigate a potential collaboration. At the same time, the Head of Business Development was well aware that events could have turned out otherwise, reflecting their emergent character:

> But if we hadn't met Byland, we might have met some others, and so everything perhaps would have moved in another direction. We know where we stand and in which direction we roughly want to go. And now we are on our way. But we might as well could have taken another path.

This statement shows how actors' projections of the distant future might provide their courses of action with a direction and thus create an openness and awareness to emergent events (e.g., pitching sessions) and encounters with actors in the present that could potentially prove useful in moving in this direction. If actors find overlaps in their respective imagined distant futures, they may begin exploring potential relations.

6.4.3 Exploring a shared future triggers a search for additional partners in the past

The following episode shows how Altan and Byland investigated a possible shared future projection of a joint entry into the courtyard refurbishment market as a provider of turnkey solutions. When Altan and Byland realised that a turnkey solution was not viable, they reimagined courtyard refurbishments as an ecosystem of multiple interdependent organisations. To identify possible collaboration partners, they turned to BLOXHUB to initiate a Match & Create session.

After the pitching session at Building Green, Altan's Head of Business Development and Head of Innovation met several times with Byland's co-founders to specify a potential collaboration concerning courtyard refurbishments. Although representatives of both firms moved 'closer to the idea that we should be working together and the courtyard idea kept on rolling, we also began to understand the many different facets to it' (Co-founder, Byland). For instance, Altan's Head of Business Development admitted: 'We are not even capable of giving a quote for a courtyard. We don't know what it costs to move a cubic meter of soil.' Increasingly, it emerged that transferring Altan's turnkey approach from balcony retrofitting was not directly possible:

> We have always taken the role as concept owner and placed us at the head of the table, trying to steer everything. But if we want to have success with this, we are forced to sit around a round table. (Head of Innovation, Altan)

In their discussions, Altan's and Byland's employees arrived at the conclusion that a viable business model had to involve multiple interdependent actors. Altan's employees remembered the Match & Create service offered to BLOXHUB members. They contacted the BLOXHUB director, who arranged a meeting with two consultants from Smith Innovation, the facilitators of the Match & Create program. One of the consultants recalled how representatives of Altan and Byland considered the session an opportunity 'to find out how to start up this collaboration' and 'discover this "renewing courtyard" theme from a lot of perspectives'. They wanted to invite organisations that could contribute different aspects to a 'one-stop shopping' solution for courtyards, such as

'configuration, design, bicycle stands, garbage, biodiversity, demographics' (Consultant, Smith Innovation). Collaboration partners were potentially needed to realize each element of the projected future.

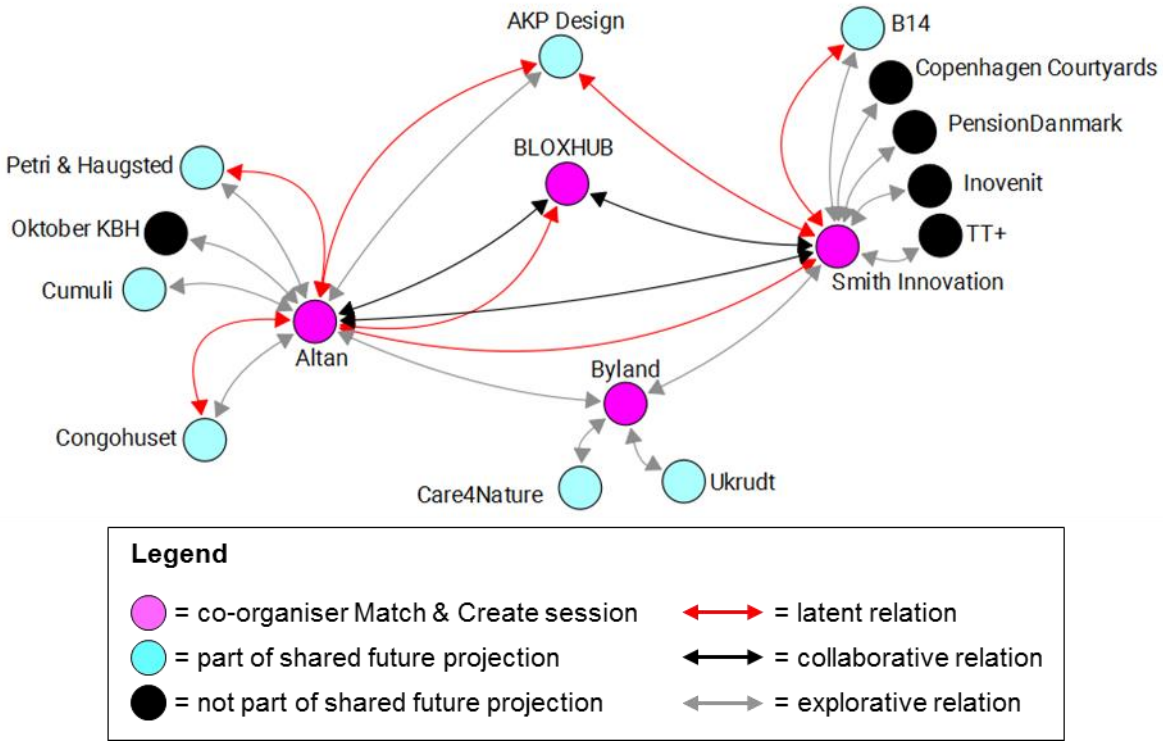


Figure 6.1 Interorganisational relations at the time of invitation to the Match & Create session

The employees of Altan, Byland, and Smith Innovation each screened their portfolios of actors with whom they had previously collaborated (latent relations) and explored potential collaborations with partners whom they believed could contribute potentially valuable resources and capabilities to the realisation of a business model for courtyard refurbishments (explorative relations), and invited them to the Match & Create session (see Figure 6.1 above). For instance, one of Byland's co-founders explained that they invited Ukrudt, a social enterprise founded by a friend, because 'they worked with young people from socially disadvantaged backgrounds. So, we could see how we can get that incorporated. ... Maybe they could do some of the maintenance'.

A Smith Innovation consultant recalled how she invited B14, a design agency, referring to a past project where 'they have been doing this digital configurator for climate adaptation. The configurator was something Altan … wanted to do, so I thought of them'. These examples show how actors in the present reimagined latent past relations as potential future relations based on their projections of the distant future.

6.4.4 Detailing alternative future projections based on selected past experiences

In this section, I describe how participants in the Match & Create session developed three alternative future projections of an entry into the market for courtyard refurbishments. The findings show how, in developing the alternative future projections, actors selectively drew on and combined their respective organisational pasts. Whereas each participant in the Match & Create session had a past or explorative relation with one of the co-organisers, participants did not have interorganisational relations with one another prior to the session (see Figure 6.1) Therefore, throughout the morning of the first workshop day, participants gave short introductory presentations.

During the presentations, most participants seemed to accept the future projection of a joint entry into the market for courtyard refurbishments as a premise. Presenters selected events from their respective organisational pasts, such as reference projects, which they reinterpreted with regard to their potential usefulness in the context of courtyard refurbishments. For instance, the CEO of AKP Design referred to products she had designed for elderly people, suggesting that she could be helpful in tailoring courtyard layouts to the needs of tenants based on their demographics. Participants described their potential roles in the shared future projection, and emphasised aspects they considered particularly important. Yet, the impression expressed by a Smith Innovation consultant that the participant from Inovenit 'had the wrong mindset … and only wanted to sell his bicycle stands' illustrates that not all participants were equally willing to rearrange their organisational trajectories in relation to the shared projection.

During the afternoon, participants gathered in brainstorming groups to detail different aspects of a business model for courtyard refurbishments. There was no predetermined group composition, and the unfolding interactions revealed how participants sorted themselves based on their mutual interests inferred from the introductory presentations. As I listened in on different discussions, participants built on cues from each other's introductory presentations and began to combine several cues into a shared projection of how to approach a certain aspect of courtyard refurbishment. For instance, a group involving the representatives from two participating design agencies (B14, Cumuli) imagined a 'collaborative process tool', which combined B14's experience in building digital platforms with Cumuli's experience in process facilitation. Overall, participants developed nine such concepts.

At the end of the day, participants were asked to indicate how they could imagine themselves contributing to realisation of each future projection. Participants indicated their interest visually by writing their organisation's name on a kind of target, with centrality of roles decreasing from inner to outer rings ('project owner', 'collaborator', 'sub-contractor', or 'interested follower'). This signalling turned out more consequential than I anticipated at the time. Only those participants that had at least indicated an interest in being a 'sub-contractor' for one of the concepts engaged in further exploration after the Match & Create session (see actors marked in light blue in Figure 6.1).

During the second workshop day, participants detailed three of the nine ideas. From a temporal perspective, they developed different shared future projections of an entry into the courtyard refurbishment market. The first projection proposed to stimulate demand prior to entering the market by developing an online platform to showcase reference projects. The second group developed what they termed a 'just do it' solution. Their suggestion was to provide potential customers with a basic set of modules (e.g., plant boxes, climbing frames, bicycle stands, etc.) to test different courtyard configurations before placing an order. The third group developed what

became labelled a ‘do it right’ projection. They proposed a browser-based online platform which would enable potential customers to ‘configure their courtyard like an IKEA kitchen’, communicate with designers, and potentially shop for accessories offered by third parties in an online store.

In summary, the Match & Create session invited participants to become part of and help detail Altan and Byland’s sketched future projection of an ecosystem for courtyard refurbishments. Interactions during the workshop unfolded around how participants could see their respective organisational trajectories feeding into this shared, collaborative future projection. To explore possible convergence, participants repeatedly turned to their organisational pasts to draw on specific events that pointed towards potential roles they could see for their organisations. In other words, they reconfigured their own trajectories under the premises of the shared projection. Conversely, the ways in which participants brought their respective organisational pasts to bear on the imagined future detailed three alternative future projections of a joint entry into the market for courtyard refurbishments.

Each of the three projections entailed a specific set of organisations with imagined roles, characterised by the resources each organisation might contribute to the shared value proposition. Depending on these roles, participants imagined potential interorganisational relations which would need to be in place to realise the future projection. Appendix 6.6 shows the respective set of potential interorganisational relations and associated roles for the ‘do it right’ and ‘just do it’ concepts. Importantly, the formation of potential interorganisational relations demands that actors see mutual potential for a specific future collaborative relation. Although the participant from Inovenit might have imagined supplying bicycle stands in the context of either future projection, the other participants did not see the same potential due to his unwillingness to engage in the development of a shared concept.

6.4.5 Actualising, switching, and adjourning trajectories in view of the recent past

In this section, I describe how Altan, Byland, and B14 started to embark on a shared trajectory towards the realisation of the 'do it right' projection. However, when they found that several of their initial premises did not hold, they switched to pursuing the 'just do it' projection and involved Cumuli and AKP Design before abandoning the emerging shared trajectory. Appendix 6.5 provides an overview of the events forming part of the 'do it right' and the 'just do it' trajectories.

Reflecting on the Match & Create session, the employees of Altan and Byland favoured the 'do it right' concept. In their view, coordinating and integrating the different aspects and involved parties of courtyard refurbishments would give them a competitive edge over planning and site management through an architect. Specifically, they considered it crucial to develop three main elements of the concept. First, Byland, together with B14, should take the lead on the development of a configuration platform. Second, Cumuli should provide adequate tools to help residents make decisions about courtyard layouts during the sales process. Third, together with AKP Design, Altan envisaged developing a tool to analyse resident demographics as a starting point for a user-oriented design process. Altan's managers and Byland's co-founders agreed that the configuration platform should be the centrepiece of the concept.

The co-founders of Byland met a couple of times with a partner of the firm B14 to discuss their respective roles in building this platform. Whereas the partner primarily expressed interest in building the digital infrastructure for the platform, Byland's co-founders could imagine themselves working on the courtyard renderings and visualisations. The three of them pitched several versions of a courtyard configuration platform to Altan's Head of Innovation and Head of Business Development. Although Altan's managers agreed in principle with the presented proposals, there was a sense of hesitation. The question of who would commit time and resources to the shared future projection became the elephant in the room. During the Match & Create

session, participants had acted as if they could flexibly reconfigure their respective organisational trajectories in relation to the shared future projection. Now, actors' lack of willingness and ability to reconfigure their organisational trajectories surfaced.

A partner of the firm B14 showed little willingness to adjust the design agency's current organisational trajectory to facilitate a shared future. He expressed his surprise that Altan's managers were hesitant to move ahead with the configurator, suggesting, 'You can already get much more than a prototype for only a couple of hundred thousand DKK.' This statement indicates that the partner envisaged the role of B14 as a mere supplier, following the existing operating model of the agency, but did not intend to commit additional time and resources to realise the shared future projection. Put differently, the partner reframed the courtyard configurator into a conventional project within the organisation's existing trajectory, thereby reducing the project's potential to alter B14's future trajectory.

In contrast, Byland's co-founders would have been willing, yet were unable to 'put in much more time … before there would be any money in it' (Co-founder, Byland). After their encounter at Building Green, they had anticipated that the collaboration with the two Altan employees might offer a path towards financial support and a sales platform in the near future; unfortunately, this did not materialise. From the perspective of Byland's co-founders, the Match & Create workshop blurred, rather than clarified their next steps.

> We generated more ideas in more directions ... but we never got back to get focussed on where we were heading. … Instead of making us move forward in the right direction, it kind of diverted us to a lot of other ideas. (Co-founder, Byland)

Consequently, while pursuing the courtyard idea, Byland's co-founders applied for seed funding and incubator programs. In October 2017, they received a grant from Innovation Fund Denmark, a government fund for applied research, and shortly thereafter were admitted to an incubator. After hiring several employees, 'we had three or four months of development and we ended up

with a prototype ... not 100% ready to go to market, but almost' (Co-founder, Byland). Yet, when the co-founders did not receive a follow-up grant from the Innovation Fund and failed to land the next financing round, they had to lay off employees once again, forcing both of them to pursue other career paths: 'Things would look a lot different now had we received that grant' (Co-founder, Byland).

With B14 and Byland pursuing other organisational futures, Altan's management switched trajectories and pursued the 'just do it' concept, which in their view hinged primarily on the acquisition of a pilot project. Demonstration of demand would increase the willingness of their potential collaborators to commit further time and resources. Altan's managers contacted the advisor from media agency Congohuset who had participated in the Match & Create session. At the end of October 2017, they released an article in the specialised press and the 'property' sections of regular newspapers. The article described their ambition to improve the process of courtyard refurbishments for property cooperatives and owner associations, and called for expressions of interest in engaging in a pilot project. When the campaign was launched, the hope was 'to acquire one or two pilot projects we can get started with in spring next year' (Head of Innovation, Altan). However, in the beginning of 2018, no lead for a pilot courtyard project was in sight. Even though none of the involved individuals made an active decision to discontinue their engagement, recent past events cumulatively brought the initiation of collaborative innovation to a standstill.

Crucially, the findings suggest that actors may resume this trajectory at some point in the future. Several of the interviewed participants indicated that they were still convinced of the idea in principle, and that it would take 'just a phone call … by somebody who has a courtyard project that we could work on. … and then, of course, we will use the network that we generated' (Business Unit Director, Petri & Haugsted). Similarly, B14's partner indicated that sometimes 'two years pass, and somebody picks up the phone and says: "Hey that idea you mentioned two

years back, can you tell us something about that?" … these things can take a lot of time.' Thus, my findings indicate that actors considered the shared projection and the associated set of potential interorganisational relations to be indefinitely suspended, ready for reinvigoration if future events re-establish its relevance.

In summary, this section has shown how actors sought to identify next steps in the near future that put them on a viable collaborative trajectory towards their shared future projection. Whereas during the Match & Create session actors had acted as if they could flexibly reconfigure their respective organisational trajectories in relation to the shared future projection, after the session their individual organisational trajectories and future ambitions came into focus again, bringing the shared future projection into question. The findings reveal how the shared future projection attained a different status and time horizon relative to the collaborating organisations' respective organisational trajectories, which negatively influenced actors' willingness to commit time and resources to realising the shared future projection. Cumulative recent past events brought the nascent collaborative innovation process to a preliminary halt, yet the findings indicate that the shared future projection remains a possibility, which actors may return to in the future.

6.4.6 Summary of findings

The five episodes reveal how a shared innovation trajectory emerged from the respective trajectories of the collaborating actors. Specifically, actors continuously iterated back and forth between their respective pasts and futures by reinterpreting past events in relation to the imagined future and reimagining the future based on selected past experiences. First, actors recombined events from their respective organisational pasts into projected future innovation outcomes. Second, actors seized opportunities arising from emerging events in the present to discover a potential overlap in their future projections. Third, actors' investigation of a potential shared future led them to search for additional collaborators in their respective pasts. Fourth, actors drew on their respective organisational pasts to detail alternative shared future projections. Fifth, actors'

respective organisational trajectories affected their collective attempt to actualise a collaborative trajectory towards their shared future projection, and eventually led them to abandon the collaborative innovation process. Table 6.1 summarises the findings for Study 2.

Table 6.1 Overview of findings for Study 2

Episode	Past events (remembered, reinterpreted)	Ongoing present (connections between present, past, future)	Future events (projected, imagined)
Episode 1: Recombining past elements into an innovative future	Altan: • Turnkey business model for balcony retrofitting • Balcony configurator: Byland • Plant box prototype	Altan and Byland both reinterpret elements from their organisational pasts and recombine them into future projections of innovative outcomes	Altan • One-stop-shopping solution for courtyards Byland • Standardised, modular plant box • Investor/strategic partner to facilitate production and sales
Episode 2: Seizing emergent events reveals potential overlap of imagined futures	• Reactivation of latent relation to incoming BLOXHUB director • Implementation of the City of Copenhagen's Urban Greening strategy	Altan and Byland seize opportunities provided by emergent events to advance their respective future projections, which brings together, among others, Altan's Head of Business Development and Byland's co-founders in a pitching session where they recognise the potential for a shared future.	Altan and Byland perceive a potential overlap of their respective imagined future: • Altan projects Byland into its imagined courtyard refurbishment business model • Byland imagines Altan as a strategic partner for production and sales of its plant boxes
Episode 3: Exploring a shared future triggers search in the past	Search among latent relations for organisations, which could potentially contribute to the business model for courtyard refurbishment.	Altan and Byland explore a possible shared future projection of a joint entry into the courtyard refurbishment market. When they realise that they lack required resources, they initiate the Match & Create session and invite latent relations to explore a collaboration.	Reimagining of a projected turnkey business model for courtyard refurbishment as an ecosystem- or platform-based model with more partner organisations
Episode 4: Detailing alternative future projections based on selected past experiences	References to select past experiences and projects to indicate how they might contribute to an entry into the courtyard refurbishment market.	By reinterpreting elements from their respective organisational pasts, participants in the Match & Create session project themselves into an imagined shared future. At the same time, they detail what the shared future might look like.	Three alternative shared future projections of an entry into the market for courtyard refurbishments, involving different sets of collaborating organisations and relations between them

Episode	Past events (remembered, reinterpreted)	Ongoing present (connections between present, past, future)	Future events (projected, imagined)
Episode 5: Actualising, switching, and adjourning trajectories in view of the recent past	• Outcome of Match & Create session • Altan has negative results for the fiscal year • Career shift of Altan managers • Byland accepted into accelerator program	In the light of recent past events, several actors first attempt to actualise the 'do it right' projection, switch to the 'just do it' projection and eventually abandon the collaborative innovation process.	Shared future projections: • 'Do it right' concept • 'Just do it' concept Respective future projections of the collaborating organisations

In section 6.5, I develop a more general model based on these findings, which explains how actors' respective temporal embeddedness affects the emergence of a shared temporal embeddedness in the context of collaborative innovation.

6.5 Discussion

To advance a temporal view of collaborative innovation, I propose a model of 'temporal abduction' that comprises five different modes of connecting present, past, and future (see Figure 6.2). Studies of collaborative innovation processes and interorganisational relations more broadly tend to hold a unidirectional view of time in showing how actors pursue a shared future (e.g., Ansari et al., 2016; Dattée et al., 2018; Deken et al., 2018; Lumineau & Oliveira, 2017). In contrast, the bidirectional view of time adopted in this study reveals how the directionality of time switched several times throughout the observed period as actors sought to enact a shared trajectory while reaching back into their respective pasts. I term this process 'temporal abduction'. Rather than the past bearing univocally on the present and future, the notion of temporal abduction emphasises how actors iterate back and forth between and connect the past and the future, so that they mutually define each other. In contrast to studies adopting a unidirectional view, which tend to consider past-future interplay in a restricted present, temporal abduction enables an understanding of how actors combine past and future events differently over time.

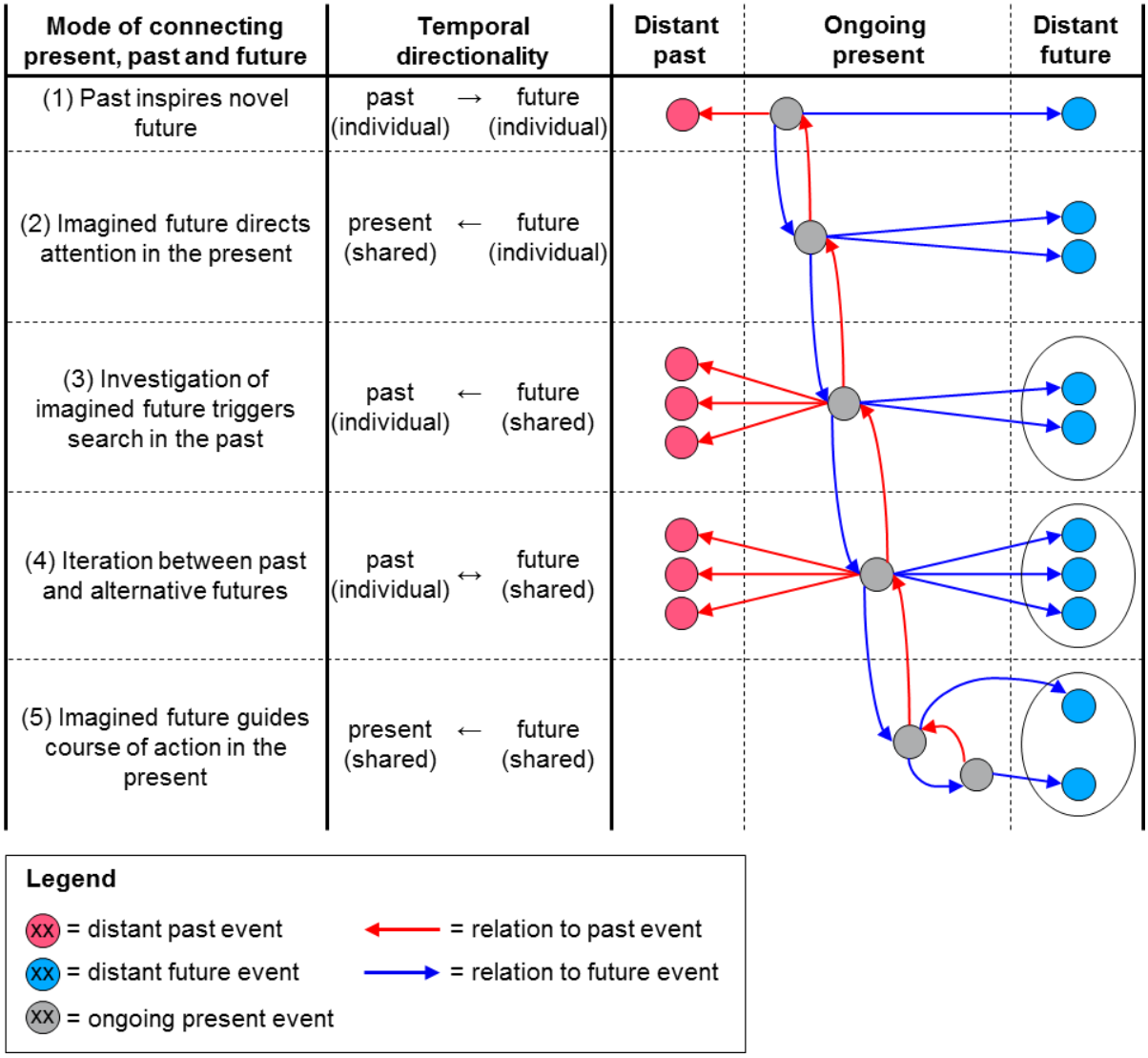


Figure 6.2 Temporal abduction: Five modes of connecting present, past, and future

In this section, I first introduce the five modes of connecting present, past, and future. Second, I describe the process of 'temporal abduction' as the engagement of actors in different modes of connecting over time. Third, I discuss implications for future research on collaborative innovation and interorganisational collaboration more broadly. Finally, I suggest several implications for practitioners engaging in collaborative innovation.

6.5.1 Five modes of connecting present, past, and future

Temporal abduction entails five different modes of connecting present, past, and future which correspond to the five episodes presented in section 6.4. These modes help explain how a shared trajectory, meaning a shared past and future, emerges from actors' respective trajectories, meaning their respective pasts and futures. I distinguish between individual and shared past, present, and future events, depending on whether they involve one or several organisations. Each mode exhibits a different predominant temporal directionality. By temporal directionality, I mean how past, present, and future affect each other through the ways in which actors in the ongoing present draw connections between them. In this section , I introduce the five modes in turn. For each mode, I show how it relates to and extends prior research on the temporality of collaborative innovation. Importantly, the five modes do not represent successive, sequential steps towards the forming of a shared trajectory. I present these steps in the order in which they occurred in my empirical case study.

The first mode refers to how actors' remembrance and reinterpretation of their respective pasts provides the inspiration for novel future projections. The way Altan's managers reinterpreted their turnkey business model for balconies in the context of courtyard refurbishment exemplifies this mode. This mode corresponds to earlier work on the temporal embeddedness of innovation, showing how past events, such as intermediary outcomes of previous innovation processes, may provide the material for future innovations (e.g., Dougherty, 2016; Garud et al., 2011; Obstfeld, 2012). Adding to this work, my findings indicate the importance of attending to the time horizon of future projections (see also Schultz & Hernes, 2020). For example, whereas the entry into the market for courtyard refurbishments was a distant future possibility for Altan's management, Byland's co-founders needed to generate revenue in the short term. Although their individual future projections may have been complementary in principle, the unfolding events revealed their mismatched time horizons to be one of the factors that inhibited collaboration.

The second mode refers to the ways in which imagined futures guide individual actors' attention in the present, and alert them to the potential significance of emergent events. This alertness enabled otherwise unrelated actors participating in the same present events (e.g., the pitching session) to see a potential overlap in their respective courses of action, providing the starting point for the investigation of a potential shared future. Previous studies of innovation have drawn on the notion of 'serendipity' to describe the role of such unanticipated events for innovation (de Rond, 2014; Dew, 2009; Garud et al., 2011). These contributions have emphasised that serendipity is not synonymous with luck, but involves actors' 'ability to identify "matching pairs" of events, or events that are meaningfully, even if not necessarily causally, related' (de Rond, 2014, p. 342). Adding to this work, this study reveals the temporal dimension of serendipity, showing how the contours of actors' imagined future conditions influence which potentially meaningful connections actors come to infer in the present.

The third mode refers to how actors' investigation of a potential shared future triggers a search for additional elements in the past which may be helpful in refining the future projection or making it more viable. Investigating a potential shared future entails what Deken et al. (2018) termed 'prospective resourcing', a model describing how actors 'turn external and internal resources into complementary combinations for future use' (p. 1928). Actors then configure their resources into a shared future projection ('strategic configuration') that provides the basis for their collaboration. Adding to this model, my findings suggest that resourcing is not only prospective, but also retrospective. Identification of missing elements in the shared future projection may trigger a search for additional elements in the past—in this case, additional collaborators with the potential to provide complementary resources.

The fourth mode describes how actors iteratively selected and reinterpreted their respective pasts in relation to the emerging shared future. Actors engaged in this mode of connecting during the Match & Create session, which enabled them to develop alternative shared future projections

informed by their reinterpreted pasts. This mode mirrors previous studies that have shown how constructing a shared future projection in the context of collaborative innovation involves iteration or abduction (e.g., Dattée et al., 2018; Deken et al., 2018). Scholars have argued that such iteration unfolds in the present and is directed at the future, yet is relatively independent of the past. In contrast, the fourth mode is illustrative of the claim that 'the novelty of every future demands a novel past' (Mead, 1932, p. 31), showing how iteration in the present also involves actors' selection and reinterpretation of past events so that they either inform or became compatible with the emerging shared future.

The fifth mode refers to how actors act upon and seek to actualise shared future projections with reference to their negotiation of these shared futures as a shared recent past. In other words, actors begin to actualise a shared trajectory. Rather than referring directly back to their respective pasts, actors' evocations of and connections drawn between the past and future during previous events provide a shared recent past to which actors can refer back. Through collective reinterpretation, their respective pasts have become endogenous to the emerging shared trajectory.

6.5.2 Temporal abduction: Suspended between past and future

'Temporal abduction' refers to the engagement of actors in these different modes of connecting past, present, and future over time, resulting in repeated switching of the temporal directionality. From a temporal vantage point, actors engaging in collaborative innovation find themselves suspended between past and future. They pursue a novel shared future that is not yet actionable by drawing on their individual pasts, from which they need to distance themselves to enable their reinterpretation in the context of the emerging shared future. Temporal abduction has a dual role in handling this temporal suspension. On the one hand, it is through temporal abduction that actors construct a shared trajectory which emerges from, yet is not reducible to their respective trajectories. On the other hand, temporal abduction also describes actors' attempts to reconcile the emerging shared trajectory with their respective individual trajectories.

Actors engage in temporal abduction because they cannot create a shared trajectory out of thin air. When actors explore a collaboration in the present, the only 'materials' available for construction of a shared trajectory are their respective trajectories. To make their respective past experiences available for collaboration, actors evoke them in present events, thereby facilitating joint reinterpretation and recombination into shared future projections. Actors draw hypothetical connections between their respective, reinterpreted pasts and how they might inform a possible shared future. The shared trajectory emerges from these hypothetical connections.

Importantly, organisations' respective pasts take on a different meaning in the context of the emerging shared trajectory than they might have in the context of actors' respective trajectories. In a way, they come to form a shared past, even though the constitutive events of the shared past stem from the collaborating organisations' respective trajectories. Rather than being a collection of disparate organisational trajectories, the shared trajectory acquires its own emergent quality. From a temporal embeddedness perspective, subjecting one's own respective trajectory to reinterpretation by other actors and thereby opening it to recombination with those of other actors simultaneously constitutes the potentiality and challenge of collaborative innovation.

Even though the respective pasts of the collaborating actors provide the 'materials' for the construction of a shared future projection, actors need to link back the shared future projection to their respective future ambitions for it to become actionable. However, actors may struggle to reconnect the shared trajectory to their respective trajectories, because the future role ascribed to them in the collaboratively developed shared future projection may not be consistent with the futures they are pursuing within their respective trajectories. Such inconsistencies may be induced by the passing of time. While a given actor may still consider the negotiated shared future to be desirable in principle, pursuing this future may no longer be compatible with the present circumstances of the actor's trajectory. This became apparent in the fifth episode of my findings,

revealing how unsuccessful attempts at reconnecting the emerging shared trajectory to actors' individual trajectories led actors to switch and eventually adjourn their collaboration.

Although temporal abduction is a common feature of the investigated process across all five modes, the Match & Create session brought focus and direction to temporal abduction by increasing the frequency and intensity with which actors iterated back and forth between the past and future (mode 4). The fostered temporal abduction nevertheless had ambivalent consequences. On the one hand, it enabled actors to negotiate several possible shared future projections within a short timeframe. On the other hand, the more forceful development of shared future projections also seems to have reduced the viability of these future projections. Because the central task was to develop a shared projection of the future, actors may have expressed more willingness to bend their respective trajectories than they exhibited after the session, thereby making it difficult to reconnect the emerging shared trajectory to their respective trajectories.

6.5.3 Implications for future research

An understanding of the becoming of a shared trajectory through temporal abduction has four main implications for future research on collaborative innovation as well as interorganisational collaboration more broadly. First, by revealing how actors repeatedly iterated back and forth between the past and future and thereby switched the directionality of time, this study highlights the inherent potential of adopting a bidirectional view of time. A bidirectional view of time extends previous studies of collaborative innovation processes based on a unidirectional view of time by showing how actors pursue a shared future (Adner, 2017; Ansari et al., 2016; Dattée et al., 2018; Deken et al., 2018). Specifically, it extends recent studies that have shown how these shared future projections are developed through processes of iteration or abduction in the present (Dattée et al., 2018; Deken et al., 2018) by showing how future projections developed through abduction may also guide attention in the present and trigger searches in, as well as reinterpretations of the past. Beyond the empirical context of collaborative innovation, the

bidirectional view of time advanced in this paper contributes to research on interorganisational collaboration more broadly, answering calls for a more nuanced understanding of time (Lumineau & Oliveira, 2017) by attending to how actors situated 'in time' varyingly draw on the past, present, and future.

Second, contributing to research on the temporal embeddedness of innovation (e.g., Ellwood & Horner, 2020; Garud et al., 2011, 2016; Hargadon, 2003; Kaplan & Orlikowski, 2013; Obstfeld, 2012, 2017; Reinecke & Ansari, 2016), my findings show how the connections actors draw between past, present, and future that enable novelty to emerge are not static, but change over the course of an innovation process. As actors move forward in time, they may interpret the past and future differently. For instance, certain past events which actors previously deemed potentially relevant for the innovation process may become less relevant as the guiding future projection becomes more concrete, thereby stimulating a search for missing elements of the future projection in the past. Altan's initial focus on a turnkey business model provides an example. Their realisation that this future projection was not viable stimulated a search for potential partners in the past.

Third, the concept of 'temporal abduction' extends previous studies that have shown how interorganisational collaborations develop their own temporal embeddedness, which facilitates their endurance over time (e.g., Ligthart et al., 2016; Manning, 2019; Poppo et al., 2008). On the one hand, the five modes of connecting past, present, and future explain how this temporal embeddedness emerges from the respective temporal embeddedness of the collaborating organisations in time. On the other hand, the findings demonstrate how shared temporal embeddedness not only facilitates the endurance of interorganisational relations over time, but enables actors to mobilise the emerging shared past and future towards novel, innovative endeavours.

Fourth, conceptually, the developed event-based theoretical and methodological framework offers a way for future research on interorganisational collaboration to account for the interplay between the collaborating organisations' respective trajectories and the shared, collaborative trajectory. Work drawing on this framework may extend an understanding of temporal abduction. Future work may reveal, for instance, whether the five modes of connecting past, present, and future identified in this study are exhaustive or whether additional modes are salient in other empirical contexts. Moreover, not all five modes may be present in other cases, and they may appear in an order that is different from the one observed in this study.

6.5.4 Implications for practice

My findings provide guidance for practitioners who engage in collaborative innovation as well as other types of interorganisational collaboration. First, this study reveals potential benefits and challenges of purposive matchmaking (Paquin & Howard-Grenville, 2013) through collaborative innovation workshops like the Match & Create session. On the one hand, potential benefits seem to arise from moving employees out of the temporality of day-to-day activities, which enables them to engage more freely and creatively in future-oriented thinking. On the other hand, the findings suggest that the explicit focus of interactions on the generation of alternative, innovative future projections may induce participants to be 'too creative' and envision future roles for their organisations which may be more loosely connected to focal activities or demand excessive investment of time and resources. Strongly encouraging participants to connect the developed future projections to the ongoing concerns and aspirations of their organisations at the end of a collaborative innovation session may prevent such disconnects.

Second and relatedly, the findings suggest a need to balance the pursued future projection's level of detail to sustain a collaborative innovation process. On the one hand, the future projection should be concrete enough to elicit interest from potential collaborators. In fact, gradually concretising the future projection for it to become actionable is the main goal of a collaborative

innovation process. At the same time, there is a danger in defining the future roles of the different collaborators too early. This may forestall adaptation of the projection when the future aspirations of collaborators change and are no longer consistent with the future projection. This seems to have been the case with B14. Whereas Altan's management expected them to participate in the development of a courtyard configurator as an equal partner, B14's partner interpreted the design agency's role as a mere subcontractor.

Finally, the findings indicate the importance of collaborating organisations making their respective temporal horizons explicit. For example, from the vantage point of Altan's management, the development of a business model for courtyard refurbishments was a distant future possibility. In contrast, Byland's co-founders needed to acquire funding or generate sales in the short-term to secure the financial viability of their start-up. Even though the Match & Create session had yielded future projections that both organisations considered desirable in principle, their divergent time horizons prevented them from pursuing them and led Byland's co-founders to pursue alternative routes. Making their respective time horizons explicit might have enabled them to structure a shared trajectory to accommodate these different temporalities, for instance, by placing more emphasis on generating revenues for Byland in the short-term.

6.6 Appendices

Appendix 6.1 Overview of collected data

Data source	Details
Ethnographic field study (May 2017–November 2018)	Primary location: BLOXHUB's coworking space Focus of observation • Participant observation during Match & Create session • Informal interactions with Match & Create session participants in BLOXHUB's coworking space and during different events at BLOXHUB to track collaborative innovation activities emanating from the Match & Create session • Participation in follow-up meetings relating to the Match & Create session Documentation • Field notes • Audio recordings • Photographs
Two rounds of interviews with Match & Create session participants	First interview round: 20 informal interviews with all participants and facilitators during the first Match & Create workshop. Each interview lasted between 10 and 15 minutes. Second interview round: 15 formal interviews with individuals whom I observed in collaborative innovation activities subsequent to the Match & Create sessions. Each interview lasted between 30 and 60 minutes. For details on organisational affiliation and title of my infomants see Appendix 6.2.
Archival documents	• Documentation of the Match & Create session compiled by the facilitating consultants from Smith Innovation • Documents obtained during the fieldwork and shared by informants during the second round of interviews, including meeting notes, strategy presentations, financial information, and email threads.

Appendix 6.2 Match & Create session participants and interview informants

Organisation	Description	Match & Create session participants[1]
Altan	Company specialised in the retrofitting of balconies to existing buildings	*Head of Innovation* *Head of Business Development*
AKP Design	User-driven design agency	*CEO*
B14	Digital design agency	*Partner*
BLOXHUB	Innovation hub	*Hub Director*[2]
Byland	Landscape architecture firm	*Co-founder 1* Co-founder 2
Care4Nature	Landscaping firm specialised in biodiversity	*Managing Director & Owner*
Copenhagen Courtyards	City of Copenhagen's department for courtyard renovations	*Project Manager* Architect
Cumuli	Design thinking agency	*Partner & owner*
Inovenit	Manufacturer of steel outdoor furniture	*Managing Director & Owner*
Oktober KBH	Strategic branding agency	*Partner*
PensionDanmark	Pension fund	Head of Property Development
Petri & Haugsted	Construction firm	*Business Unit Director* Head of Department
Congohuset	Media agency	*Advisor*
Smith Innovation	Innovation consultancy with a focus on the built environment	*Consultant* *Partner*
TT+	Landscape architecture firm	*Partner*
Ukrudt	Social enterprise working with disadvantaged youth	*Founder*

[1] All Match & Create session participants interviewed during the first round of interviews. Participants in italics also interviewed during the second round of interviews.
[2] Did not participate in the Match & Create session. Interview focused on involvement in other events.

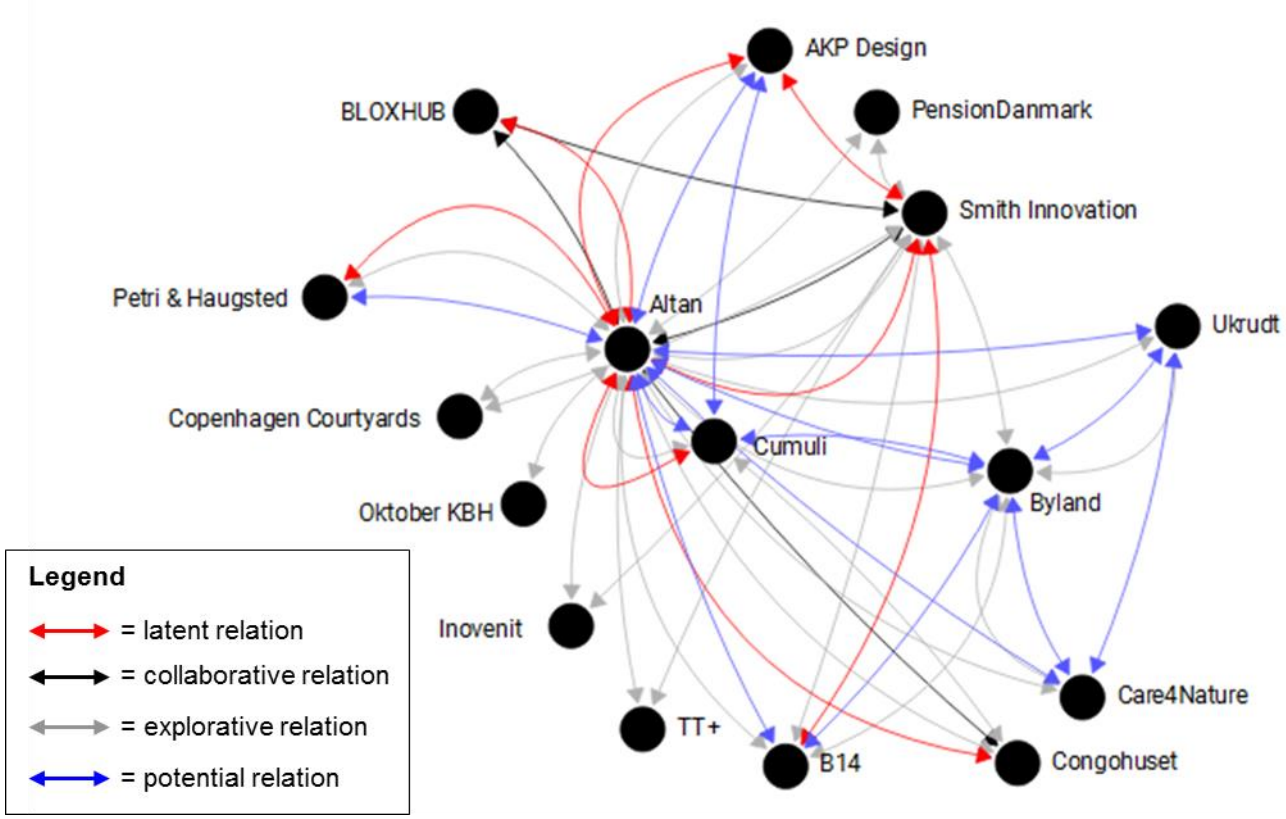
Appendix 6.3 Condensed overview of the event database

ID	Time	Event	Description
1	2002–2004	MBAs at CBS	BLOXHUB's Hub Director and Altan's Head of Business Development both pursue MBA degrees at Copenhagen Business School.
2	2005	Joint projects: Hub Director–Head of Innovation	In their previous jobs, BLOXHUB's Hub Director and Altan's Head of Innovation participated in several innovation projects run by the Danish Association of the Construction Industry.
3	2006–2007	First balcony configurator	Altan's first balcony configurator provides the starting point for their one-stop shopping solution for balcony retrofitting.
4	2012	Klimaspring-Samvejr.dk platform	B14 develops a digital configurator for climate adaptation projects in Denmark as part of the Klimaspring project facilitated by Smith Innovation.
5	2015-04-30	Facade renovation guide	At a different employer, Altan's Head of Business Development had developed a facade renovation guide, reflecting the complexities involved in courtyard refurbishments.
6	2015	Exploration of collaboration with P&H	Employees of Altan and P&H explore whether P&H might become a main contractor for earthworks in the context of balcony projects.
7	2016	Congohuset hired as Altan's media agency	Congohuset helps Altan improve its corporate communications and media presence.
8	2016	AKP consults Altan on design	AKP consults Altan about user-oriented design methods for balconies.
9	2016–2017	Exploration of collaboration with Cumuli	Altan and Cumuli meet several times to explore whether Cumuli might help Altan improve its sales process.
10	2016	Head of Business Development joins Altan	Altan's Head of Business Development joins Altan, mostly to support the development of a new strategy.
11	2016-02-03	City architect emphasises importance of courtyards	Copenhagen's city architect emphasises the importance of courtyards, pointing to the desirability of nature/green in the city, climate adaptation and flood protection, community activities, and the openness of courtyards/marginal zones between buildings and local environment.
12	2016-05-02	'Good city life' strategy	Altan's Head of Business Development and Head of Innovation develop the 'good city life' strategy as an umbrella for several business development strategies aimed at reducing dependence on the balcony business. For the first time, they consider exploring the possibility of extending their business model to backyard renovations.
13	2016-06-01	Free 'houses' for courtyards	Delivery of a free hen house, greenhouse, or playhouse for the courtyard when purchasing balconies.
14	2016-06-06	BLOXHUB established	BLOXHUB is formally established; new Hub Director is hired.
15	2016-08-01	Development of plant box	Byland develops the innovative plant box which they present at the pitching session and later extend to form the basis for a new start-up.
16	2016-09-15	Meeting: Altan–BLOXHUB	Altan meets with BLOXHUB to discuss possible collaborations in the context of the new innovation hub, and joins BLOXHUB as member.
17	2016-11-03	'Building Green' pitching session	Altan's Head of Business Development participates in pitching session at the 'Building Green' convention where the co-founders of Byland pitch their plant box.
18	2016-12-15	Brainstorming: Altan-Byland	Employees of Altan and P&H explore a possible collaboration on the development of a business model for courtyard refurbishments.
19	2017-01-18	Brainstorming: Altan-P&H	Employees of Altan and P&H discuss approaches to pricing courtyard solutions.
20	2017-03-15	Match & Create workshop proposed	Altan employees meet with the Hub Director to discuss the possibility of hosting a Match & Create session on 'courtyards'. The Hub Director agrees and puts them in touch with Smith Innovation to plan the workshop.
21	2017-04-15	Preparation for Match & Create	Altan, Byland, and Smith Innovation prepare the Match & Create session and invite potential participants.

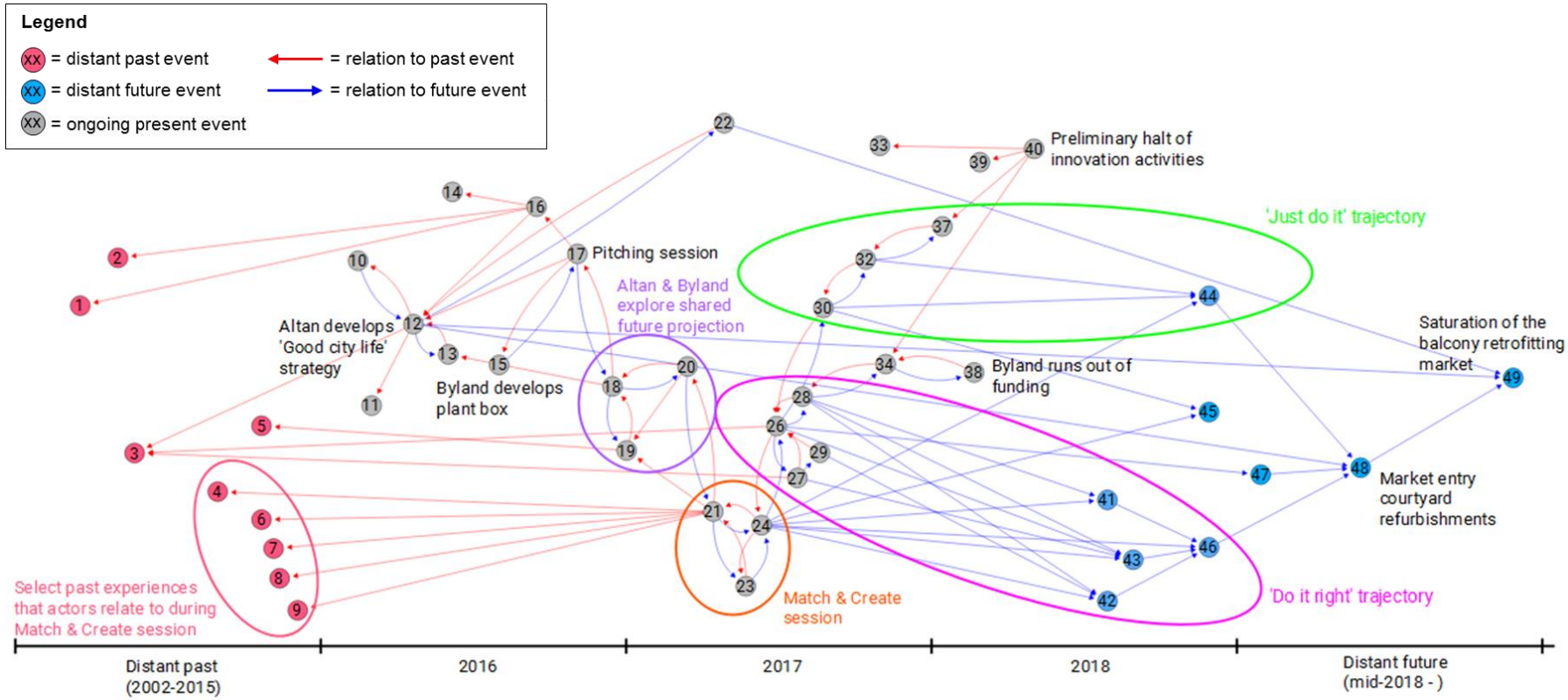
ID	Time	Event	Description
22	2017-04-28	Launch of balcony furniture collection	Coop (a Danish supermarket chain) and Altan jointly launch a balcony furniture collection, available for purchase at Coop supermarkets and an online store (altan-liv.dk).
23	2017-05-24	Match & Create session 1	Match & Create session 1 at Altan's offices
24	2017-06-12	Match & Create session 2	Match & Create session 2 at urban gardening space ØsterGro
25	2017-06-17	Exhibition: 'Tue Greenfort Eats Den Frie'	Byland hires Care4Nature to help select and source plants for an exhibition of Danish artist Tue Greenfort, which they are coproducing.
26	2017-06-20	Reflections after Match & Create sessions	Altan's Head of Business Development and Head of Innovation reflect on the results of the Match & Create sessions. The Head of Innovation summarises the results in 25 work packages in relation to the courtyard business model. They settle on three different courses of action as to how to proceed.
27	2017-06-25	Meeting: Altan-B14	Altan's employees meet with partner of B14 to discuss development of courtyard configurator.
28	2017-07-31	Exploration of funding opportunities	Altan meets with Smith Innovation to explore possibilities to finance a development project through innovation financing schemes provided by philanthropic foundations and the government. However, due to the mostly commercial focus of the business development activity, and little radical novelty, Smith Innovation does not think the likelihood of securing such financing is very high.
29	2017-08-05	Meetings: Altan-Cumuli	Altan meets several times with Cumuli to explore development of a decision process tool to facilitate and steer the sales and co-creation processes for backyards.
30	2017-08-16	Meeting: Altan-Congohuset	Altan meets with Congohuset to prepare the launch of a media campaign aimed at acquiring a courtyard pilot project.
32	20171015	Media campaign launch	Altan launches a media campaign and issues several joint press releases with Poul Høegh Østergaard to acquire a pilot project.
33	2017-11-01	Altan's Head of Business Development joins Smith	Altan's Head of Business Development joins Smith Innovation as an Associate Partner
34	2017-11-15	Byland enters GoGrow accelerator	Byland enters the GoGrow accelerator program of the Copenhagen School for Entrepreneurship, an entrepreneurship platform jointly run by Copenhagen Business School and the Danish Industry Foundation, and obtains seed funding from Innovation Fund Denmark. The focus is now more on a data-driven solution that involves equipping the original plant box with sensors to reduce water consumption.
37	2018-01-15	Feedback on media campaign (acquisition pilot project)	Altan aims to acquire a courtyard pilot project by the beginning of 2018; however, despite substantial presence in relevant media outlets, they do not manage to acquire a pilot project.
38	2018-02-22	Pitch at Danish Business Angels	Byland pitches at Danish Business Angels, an angel investor network, but fails to attract funding. The co-founders give up and take new jobs.
39	2018-03-01	Negative FY2017 for Altan	Altan has a poor financial result for fiscal year 2017 due to delays/problems with building permits for several balcony projects.
40	2018-05-05	Discontinuation of courtyard innovation activities	Innovation activities for courtyard refurbishments come to a preliminary halt.
41	Early 2018	Tenant composition tool	Development of the tenant composition tool by AKP Design and Altan.
42	Early 2018	Decision process facilitation tool	Development of a decision process facilitation tool by Cumuli and Altan.
43	Mid-2018	Backyard configurator	Development of a backyard configurator along the lines of Altan's balcony configurator together Byland and B14.
44	Mid-2018	'Just do it' solution	Development of a courtyard prototype/pop-up solution.
45	Mid-2018	Promotional platform	Development of an online platform to demonstrate best practices, provide inspiration for courtyard refurbishments, and much more (e.g., TV program, 'open courtyard' day, etc.).

ID	Time	Event	Description
46	Mid-2018	‘Do it right’ solution	Development of a courtyard configurator and all related processes and services to offer a one-stop shopping solution for courtyard refurbishments.
47	Distant future	Change in business model	Altan's employees anticipate that extending the business to courtyards will require changing the business model.
48	Distant future	Successful entry to the courtyard market	The ‘good city life’ strategy foreshadows the idea to expand Altan's business model to include courtyards. Idea lingers in the background as a driver of the overall collaboration process and becomes more concrete through the various interactions between involved actors.
49	Distant future	Market saturation balconies	During development of the ‘good city life’ strategy, Altan’s employees anticipate saturation of the market for retrofitted balconies.

Appendix 6.4 Cumulative interorganisational network across the entire case period [events 1–49]

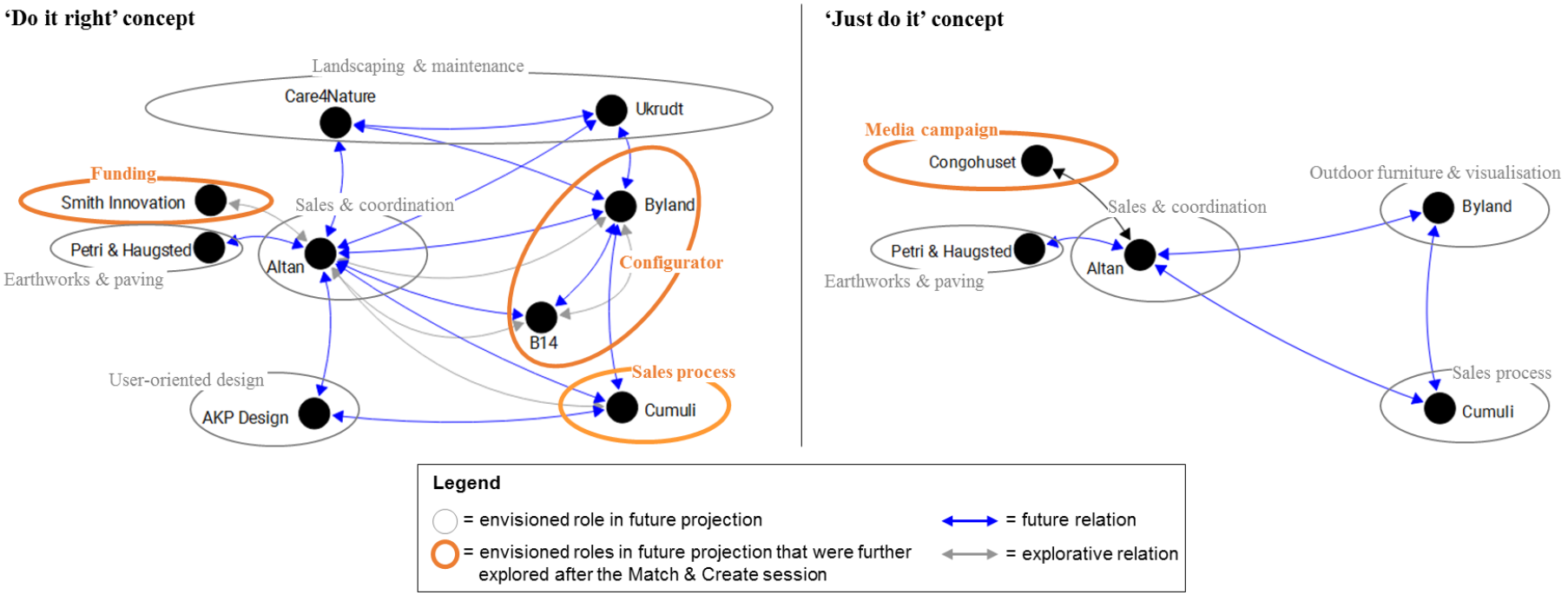


Appendix 6.5 Cumulative event graph across the entire case period [events 1–49][1]



[1] See Appendix 6.3 for a description of each event.

Appendix 6.6 Shared future projection of interorganisational relations and roles of the 'do it right' and 'just do it' concepts



7 STUDY 3 | TEMPORAL PROCESS ANALYSIS (TPA): COMBINING QUALITATIVE PROCESS STUDIES 'OVER TIME' AND 'IN TIME'

Abstract

This paper introduces temporal process analysis (TPA), a method that modifies established, event-based templates for qualitative process studies to account for the temporal embeddedness of actors. The recent 'process turn' in organisational research challenges established methodologies for qualitative process studies which conceptualise processes as sequences of events unfolding chronologically 'over time', where preceding events cause subsequent events. Instead, scholars are calling for methodologies that attend to how the embeddedness of actors 'in time' and the pattern of events 'over time' mutually affect each other. TPA formalises the temporal embeddedness of actors by attending to the connections that actors involved in present events make to past and future events. Through an illustrative case study of an innovation process, I show how TPA opens new avenues for theorising the temporality of organisational processes. Finally, I indicate other possible applications of TPA in different fields of organisational research.

Keywords: time, temporality, qualitative methods, process studies, events

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7.1 Introduction

Since the late 1970s, process studies have become a well-established methodological approach in qualitative organisational research. Early studies investigating organisational phenomena as processual and temporally evolving can be found in the sensemaking (Weick, 1979), entrepreneurship (Burgelman, 1983), organisational change (Pettigrew, 1985), and innovation (Van de Ven & Poole, 1990) literatures. Process methodologies continue to feature among the most influential qualitative approaches to theory building in organisational research (Gehman et al., 2018; Langley et al., 2013; Lerman et al., 2020; Reay et al., 2019). In recent years, the 'process turn' in organisational research has advanced a processual understanding of a wide variety of organisational phenomena (Langley & Tsoukas, 2016b). Specifically, the process turn problematises hitherto unquestioned assumptions about time and temporality in process research (for a recent review, see Kunisch et al., 2017), thereby challenging researchers who perform empirical process studies to methodologically reflect this more nuanced theoretical conception of time.

To conceptualise the advances of the process turn, scholars have introduced the distinction between a 'weak' and a 'strong' process view (Chia & Langley, 2004), which also informs predominant methodological approaches to qualitative process studies (Garud et al., 2017; Jarzabkowski et al., 2016; Langley et al., 2013). On the one hand, a 'weak' process view conceptualises processes as patterns of events 'over time'. Researchers who adopt this view seek to explain how specific event patterns explain process outcomes, typically drawing on visual mapping strategies or quantitative sequence analysis. These scholars assume a chronological, sequential view of time, where time is exogenous to the process. On the other hand, a 'strong' process view attends to how particular events emerge 'in time'. Researchers who adopt this view typically use ethnographic methods to focus on how events take shape 'in time', aiming to follow

processes as experienced by the actors. These studies assume an ongoing, endogenous view of time.

However, along with others (e.g., Garud et al., 2017; Jarzabkowski et al., 2016), I argue that foregrounding the distinction between the two process views and methodological approaches hinders rather than promotes our ability to accommodate the theoretical advances of the process turn methodologically. Process theorists consistently highlight that the contribution of the process turn to the temporal understanding of processes lies in showing how the emergence of particular, situated events 'in time' relates to the pattern of events 'over time' (see Hernes, 2014; Lorino, 2018; Tsoukas, 2019). It follows that a temporal understanding of processes demands both abstraction from and immersion in the process. Thus, adding to research designs that focus on either the 'in time' or 'over time' view, methodological innovations that enable their interplay to be analysed are needed.

The method I introduce in this paper, *temporal process analysis (TPA)*, offers a way to analyse processes simultaneously from within and from the outside, with events serving as a 'hinge' between both perspectives. TPA modifies the established, event-based process study template, analysing process as a pattern of events 'over time' (see Garud et al., 2017) so as to include the sensitivity to temporal emergence offered by studies that follow processes 'in time' (see Jarzabkowski et al., 2016). At the same time, TPA formally conceptualises the temporal embeddedness of actors and thereby makes the temporal insights obtained through ethnographic studies amenable to formal analyses. TPA therefore addresses calls for process studies to find 'alternatives to boxes and arrows' (Feldman, 2016; Langley & Ravasi, 2019), and avoid 'temporal bracketing' (Jarzabkowski et al., 2014), while facilitating a close link between process data and theory (Berends & Deken, 2019).

The chapter proceeds as follows. First, I give an illustrative example of TPA's methodological ambition. Second, I contrast the two predominant methodological templates of

process studies. Third, I introduce TPA through a step-by-step illustrative case study of an innovation process. For each of the steps, I 'talk the walk' by describing 'the concrete research actions that were taken and carefully walk[ing] readers through … methodological choices and decisions' (Gibbert & Ruigrok, 2010, p. 725), thereby demonstrating how TPA opens new avenues for theorising the temporal dimension of processes. Finally, I discuss possible applications of TPA in different areas of organisational research.

7.2 An illustrative example of TPA's methodological ambition

The following example, drawn from the case study I discuss for illustrative purposes later in this paper, may help clarify the underlying methodological rationale of TPA. The illustrative episode focuses on a pitching session in the context of a convention focussed on sustainability in the construction industry. During the pitching session, start-ups presented their ideas to a panel of industry experts to obtain advice, attract funding, and/or explore potential strategic partnerships. The Head of Business Development for Altan, a firm focussed on retrofitting balconies of apartment buildings, sat on the panel. Among the presenters were the two co-founders of Byland, who had been developing a modular plant box that also functioned as urban seating. Their pitch attracted the attention of Altan's Head of Business Development, and over the next couple of months, both firms explored a potential collaboration, which ultimately proved unsuccessful.

From an 'over time' view, the analysis traces which preceding events led the two actors to participate in the pitching session and then follows subsequent events caused by this event. Temporally, relations between events are typically limited to a 'before-after' logic, where preceding events cause subsequent events. The purpose of the analysis is to show how the overall pattern of events affected the eventual outcome of the process—in this case, the failure of the collaboration. Such analysis may involve formal process visualisations or sequence analysis, based on the chronological order of events. Individual events only attain relevance for the analysis

if they critically influence the outcome of the process. According to this understanding, the pitching session may represent the starting point of the collaboration process, but is unrelated to its eventual failure.

From an 'in time' view, the focus is on how actors experienced and enacted the event. Byland's co-founders had recently installed a few prototypes of their plant boxes, and they envisioned moving towards the production of standardised modules. One of Byland's co-founders recalled their situation at the time of the pitching session: 'At that point, we were ready to meet someone who could help us take it further, an investor or someone who actually had a platform for selling. But we definitely needed money to get into production'. Byland's co-founders had a clearly defined ambition to find a strategic partner that could provide the necessary financing to scale up production and provide access to potential customers. Thus, their imagined future revolved around their plant box as a product.

In contrast, Altan's management had recently been discussing the idea of extending their business to the refurbishment of courtyards. It is against this background that the Head of Business Development recalled Byland's presentation:

> They only wanted to sell their plant boxes. They are nothing special. Actually, we consider them to be quite ugly ... We had much larger ambitions with them. … They have a landscape architecture background … I could see for myself how they could visualise and had an idea how to furnish a courtyard, which elements fit together. … They can do all the things we can't do.

Rather than seeing potential in Byland's plant boxes, the Head of Business Development imagined them as a brick in his future vision of a business model for courtyard refurbishment.

These two different accounts of the situation at the time of the pitching session reveal that when the co-founders of Byland and the Head of Business Development for Altan talked after the pitching session and agreed to a subsequent meeting, they did so under different assumptions

about what a potential future collaboration might entail. In addition, both parties had markedly different temporal horizons for a collaboration. Whereas Byland's co-founders required a strategic partner to scale up production and sales in the short term, entry into the market for courtyard refurbishments was a more long-term project for Altan's management. What seemed like the starting point of a potential collaboration from an 'over time' view might in fact have foreshadowed its failure, as the 'in time' view reveals.

This juxtaposition reveals the respective strengths of the 'over time' and 'in time' views. An 'over time' view reveals the overall pattern of events, which enables the researcher to track complex interrelations between events and infer relations between them, thereby identifying critical events based on their positions in the pattern. In contrast, an 'in time' view reveals how actors during emergent present events refer to past and future events. Events are not critical in and of themselves, but become so when actors refer to them as past or future events. Yet, as an analytical narrative from an 'in time' view progresses, it is difficult to uphold the manifold connections to other events actors may have made along the way. In this sense, an 'in time' view would benefit from an overview of the process pattern that an 'over time' view provides. In the following section, I provide an overview of the 'in time' and 'over time' approaches before describing how TPA may provide a link between the two with 'events' as a common denominator.

7.3 Process studies 'over time' and process studies 'in time'

In this section, I contrast the two established templates for process studies. Because an extensive literature details both approaches (e.g., Berends & Deken, 2019; Garud et al., 2017; Jarzabkowski et al., 2014, 2016; Langley, 1999), I focus on their respective conceptualisations of the temporal dimension. Both approaches draw on the concept of events, thus providing a logical starting point for exploring how they may complement each other. Appendix 7.1 provides an overview of the

basic tenets of the ‘in time’ and ‘over time’ approaches, as well as how TPA selectively draws on elements from both approaches.

7.3.1 Studying the pattern of events ‘over time’

Process studies ‘over time’ aim to identify patterns in a sequence of events to explain process outcomes. In organisational research, the scholars who conducted the Minnesota studies (Van de Ven et al., 1989) were the first to develop a comprehensive set of formal, events-based methods for process studies ‘over time’. The general template pioneered by the Minnesota studies remains influential for qualitative process studies of innovation (Garud et al., 2013) and other organisational phenomena (Langley et al., 2013). This approach enables the study of processes of change in organisational entities (Van de Ven & Poole, 2005), processes ‘from the outside’ (Shotter, 2006), or processes as observed by researchers (Garud et al., 2017). In this section, I carve out the underlying conceptualisation of time and events, as well as their methodological implications. Finally, I point to ongoing developments of this approach and discuss strengths and weaknesses.

Typically, process studies ‘over time’ assume time to be discrete and sequential. Chronological time forms a background against which events unfold and can be spatialized. Chronological time does not necessarily have to be measured by clocks or calendars, but may be sequential by simply assessing event flow using a ‘before and after’ logic (McTaggart, 1908). In other words, time is assumed to be exogenous to the process (Hernes, 2014). Process unfolds uniformly from past to future, such that past events shape the contingencies of the present and determine what occurs next (e.g., Pettigrew, 1990). Although this view does not deny the social construction of time (Pettigrew, 1990; Sorokin & Merton, 1937), it typically does not make it a focal object of analysis. Process studies ‘over time’ typically adopt a discrete view of events. Events have meanings or outcomes of their own and logically and causally influence one another. The chronology of occurrence (before-after) establishes the order of events. Likewise, the

meaning of an event reveals itself from its position in the event sequence. An event attains a definite order and meaning at the moment of its occurrence. Because events have identifiable meanings, it is possible for an analyst-as-outside-observer to record events observed over time. All observed occurrences across a defined period are included in the analysis, because each occurrence contributes to the process pattern.

To draw theoretical inferences based on the pattern of events over time (Gehman et al., 2018; Langley, 1999), process studies presuppose the definition of closed case boundaries (Pettigrew, 1990), often before data collection even begins (De Cock & Sharp, 2007). The case may then be broken down into smaller episodes or aggregations of events, what Langley (1999) coined 'temporal bracketing', to facilitate description and within-case comparison. Identifying case boundaries in process research involves 'blocking the future' (Bearman et al., 1999), meaning that the case should be selected so as to ensure that the events comprising the case are 'dead'. In other words, there should be a low probability that any future events will alter the meaning of the studied set of events.

Whereas substantial variations can be observed in data collection and analysis techniques, process studies 'over time' roughly proceed as follows (for more detailed accounts, see Garud et al., 2017; Van de Ven et al., 1989). During data collection, researchers aim to track occurrences observed over time based on interviews and archival data, as well as ethnographic methods. Unlike process studies 'in time', the focus of ethnographic work is on recording events, not studying the process 'from within'. Based on the raw data set, the researcher builds an event database, recording a defined set of information for each event (compare, e.g., Langley & Truax, 1994; Van de Ven et al., 1989). In describing the step of moving from a raw data set to a structured event database, several scholars have drawn on Abbott's (1984) distinction between occurrences (raw datum) and events (theoretical concepts defined by the analyst). In the next step, events may be categorised, or coded. Reymen et al. (2015), for instance, distinguished between effectuation

and causation events. Finally, researchers determine the sequence of events based on the chronology of occurrence and causal logic. The sequential event data set enables the analyst to infer patterns of events using visual methods or quantitative sequence analysis.

Due to the sequential, discrete conceptualisation of process, 'over time' approaches are open to systematic, formal procedures for qualitative or quantitative analysis of event patterns. Cornwell (2015) provided a comprehensive overview of social sequence analysis methods in the social sciences in general, whereas Poole et al. (2016) and Jebb and Tay (2017) focussed on applications in organisational research. Social sequence analysis has its roots in advances in historical or narrative sociology (Abbott, 1992; Abell, 1984; Heise, 1989). More recently, these methods have inspired the development of methods for the analysis of narrative networks (Bearman et al., 1999; Bearman & Stovel, 2000; Franzosi, 2010; Padgett, 2018). Brian Pentland and colleagues have adapted this approach for the analysis of organisational routines (see Pentland et al., 2017 for a recent application; Pentland & Feldman, 2007; Pentland & Liu, 2017), and developed the ThreadNet tool (Pentland, 2016) to enable analysis of larger data sets. What these approaches have in common is that they define events narrowly as a set of causally interrelated 'actions' that lead to an outcome or ending (Padgett, 2018).

Organisational process researchers who adopt a broader, less formal definition of events or simply handle smaller data sets typically draw on visual process maps to infer patterns (Langley, 1999; Langley et al., 2013). Despite advances in sequence and narrative network analysis, scholars tend to develop manual, idiosyncratic process maps (for examples, see Berends et al., 2011; Gehman et al., 2013; Ravasi et al., 2018; Tuertscher et al., 2014). In the editorial to the *Academy of Management Journal* Special Research Forum on Process Studies of Change in Organization and Management, Langley et al. (2013, p. 8) reflected on this practice:

> The art of representing process diagrammatically still lacks the conventions of variance studies and clearly presents researchers with challenges and trade-offs. The convenience of

> unlabeled arrows and feedback loops may sometimes obscure the causal complexity that process theorizations are intended to explain. Yet attempts to faithfully capture the complexities of process can result in diagrams that are busy and equally opaque. As the papers in this issue moved through the stages of review to their final versions, we often saw authors struggling to creatively but accurately project the dynamics of living processes onto the static two-dimensional page.

I seek to address these concerns by proposing a convention for representing processes diagrammatically to help researchers who struggle to project processual dynamics on a two-dimensional page. However, the most fundamental issue that TPA addresses is what Langley et al. (2013) referred to in the quote above as the 'convenience of unlabeled arrows and feedback loops', which typically indicate a combination of causality and chronological succession. Whereas this may be brushed aside as a minor technicality, it is here, I argue, that the explanatory limits of a discrete and sequential conception of time become apparent.

This point was eloquently unpacked by Shotter (2006, p. 592), who argued that studies examining process 'from the outside':

> reduce the differences between the past, present, and future merely to differences of position, with 'past' events being thought of as lying to the left of a point representing the 'present', and 'future' events on the right. Thus solely spatial arrays, wrongly, suggest that successive moments do not have to struggle to come into existence; the fact that *unique, irreversible, creative* changes with their own *unique* character are taking place is lost. Instead, we act as if the observed differences of position are merely movements into positions that were in fact already in existence, and thus any pastness or futurity attached to them is merely accidental, and not crucial to their very nature. [emphasis in original]

In other words, although an 'over time' strategy is particularly suited to identifying patterns of events, 'it may not provide you with an understanding of why those patterns are there', as pointed

out by Langley (see Gehman et al., 2018, p. 291). Whereas process studies 'over time' foreground the spatialized pattern of events, studies that follow the emergence of events 'in time' are better suited to exploring the temporal fabric of this pattern, what Shotter (2006) described in the quote above as events' 'struggle to come into existence'.

7.3.2 Studying the emergence of events 'in time'

Process studies 'in time' aim to analyse the emergence of events by following the experiences of actors who are engaged in a process. Scholars have described this approach as studying process 'from within' (Shotter, 2006) or studying process 'as experienced' by the actors (Garud et al., 2017). Process studies 'in time' assume time to be ongoing, which means that observed processual phenomena emerge in and from time. The process unfolds according to its own temporality—that is, its own temporal rhythm and pace—rather than merely unfolding against the backdrop of chronological time (Langley et al., 2013). Actors are embedded in the flow of time (Emirbayer & Mische, 1998), and the process emerges from the ways in which actors in the present reinterpret the past and imagine the future (Kaplan & Orlikowski, 2013). The process does not flow uniformly from past to future, but also flows from future to past, reversing the arrow of time (Lord et al., 2015).

Empirically, an ongoing view of time 'requires the researcher to treat each moment, even though it is now in the past, as if it is the present, and to display actions as unfolding, even as these actions are accomplishing a particular pattern that is now known' (Jarzabkowski et al., 2016, p. 237). Early contributors to the process turn recognised ethnographic methods to be best suited to this endeavour:

> What is so distinctive about the ethnomethodological approach to organizations, which makes it particularly well suited … is its insistence on capturing the dynamism and ever-mutating character of organizational life. Organizational phenomena are not treated as

> entities, as accomplished events, but as enactments—unfolding processes. (Tsoukas & Chia, 2002, p. 577)

In fact, ethnographic methods are adopted frequently in empirical process studies (for examples, see Langley et al., 2013; Reay et al., 2019). However, it is important to note that ethnographic methods have a much longer history in organisational research, and were not explicitly designed for process research (Dawson, 2014b; van Hulst et al., 2016): 'Although ethnography may bring "process" more clearly into view, this is not what organizational ethnographers always do' (van Hulst et al., 2016, p. 233). Thus, ethnographic methods may need to be adjusted to reflect the theoretical sensibilities of the process turn.

Scholars have begun to grapple with the adaptation of ethnographic methods for process research. For instance, Jarzabkowski et al. (2016) distinguished three different types of process studies 'in time', which involve studying a scripted pattern, uncovering an emerging pattern, and researching patterns in the moment; van Hulst et al. (2016) argued that ethnographic approaches to the study of organisational processes entail field work, sensework, and textwork; and building on Dawson (2014b), Scheller (2019) introduced 'tempography', an ethnographic approach tailored to investigate the temporality of organising. Process studies 'in time' derive findings on the temporal dimension of process inductively from observations of how actors experience process.

Whereas the ethnographic methods used for process studies 'in time' offer heightened sensitivity to how actors experience time, they do not formally conceptualise this understanding the same way the event-based methods used in 'over time' studies do. In ethnographic process studies, the acts of collecting and analysing data and presenting findings on how actors experience process are closely intertwined with writing (Berends & Deken, 2019; Jarzabkowski et al., 2014, 2017; van Hulst et al., 2017). Ethnographic textwork involves: (a) recording observations in field notes, (b) turning field notes into meaningful evidence by relating them to theoretical concepts,

and (c) presenting findings through vignettes, composite narratives, or process narratives (Jarzabkowski et al., 2014). Along the way, all analytical narratives based on ethnographic fieldwork implicitly establish connections between events, which is central to the persuasiveness of their findings (Berends & Deken, 2019; Jarzabkowski et al., 2014; Jonsen et al., 2018).

However, human pattern recognition has its limits, particularly considering that relations between events can quickly result in a high level of complexity.

> Once we recognize what seems to be a promising qualitative pattern in a complex process, it has a tendency to reshape how we observe the process in favor of picking out this pattern again. … formal methods enable us to interrogate sequence data in a structured manner that can minimize (though never fully eliminate) this type of inadvertent self-sealing bias. (Poole et al., 2016, p. 257)

Formal process methods may help discipline our thinking about process and thereby facilitate potentially more complex and transparent analyses of how events connect.

On the other hand, in terms of data collection, the strength of 'in time' approaches in attending to the actual experiences of actors may become a weakness: 'By emphasizing the significance of being there, we diminish the relevance of what happens when we are not' (De Cock & Sharp, 2007, p. 242). This observation resonates with Hernes's (2014, p. 179) point 'that one cannot be there all the time and one is not at all likely to be there when important things take place'. Even if one is there, the importance of an event may not be obvious. Hernes (2014) argued that this is not problematic when time is viewed as ongoing, because significant events will be referred to in future events. TPA addresses these methodological concerns by incorporating systematic procedures of data collection, such as retrospective interviews, to gather data about and establish the relevance of occurrences the researcher did not observe or deem relevant.

Finally, adopting an ongoing view of time makes it inherently difficult to determine temporal case boundaries. As pointedly expressed by Ann Langley: 'Process research resists

stopping the clock to focus on unique outcomes. Time and process always go on. … "When do you stop collecting data?" I find that a difficult question because I know that any stopping point is arbitrary' (Gehman et al., 2018, p. 289). Yet, it is not only the analysts, but also 'the actors themselves [who] are trying to delineate and construct a direction or order within their activities' (Jarzabkowski et al., 2016, p. 244), which suggests the possibility of following actors in their interpretations of what constitutes a 'case', rather than defining those boundaries a priori (De Cock & Sharp, 2007). In section 7.6, I discuss how TPA follows actors as they delineate the focal phenomenon.

7.4 Temporal process analysis: Combining 'in time' and 'over time'

TPA builds on the basic assumption that understanding the temporal dimension of organisational processes demands a methodology that enables investigation of how the two views of process (i.e., as the emergence of events 'in time' and as a pattern of events 'over time') are linked. Translating the temporal sensibility of ethnographic studies 'in time' to that of studies 'over time' demands a shared unit of analysis. Hernes's (2014) situated conceptualisation of events provides the 'hinge' between both perspectives, focussing attention on the connecting of events. A situated view of events attends to the ways in which temporally embedded actors associated with present events relate to past and future events. It is through this reaching out (i.e., outgoing relations), that emerging events contribute to a wider pattern of events. Vice versa, how events emerge and the meanings they acquire also depend on how past and future events relate to the current event (i.e., incoming relations). Figure 7.1 illustrates this basic rationale.

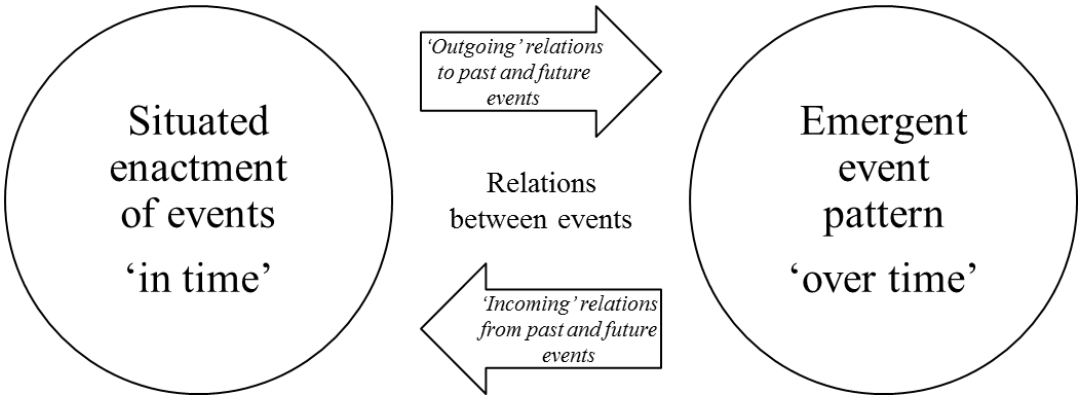


Figure 7.1 How TPA combines an 'in time' and an 'over time' approach to process studies

The central methodological takeaway from Hernes's work is the claim that studying process 'is about stepping into the stream of experience and stepping out of it, just as organizational actors do' (2014, p. 180). Thus, methodologies for process studies need to study process not only 'from within' but also 'from the outside' (see also Lorino, 2018; Shotter, 2006; Tsoukas, 2019). The concrete experience of the emergence of events 'in time' and the abstract pattern that they form 'over time' are not merely different views of process, but mutually constitutive.

Ethnographic process studies do not explicitly draw on 'events' as the unit of analysis. In developing TPA, I turn to Hernes's (2014) theoretical conceptualisation of events and Hussenot and Missionier's (2016) pioneering empirical translation. Hernes (2014) developed a 'situated' view of events, arguing that they are defined by their relations to other events, through which they acquire meaning. During present events, human actors relate to past and future events: 'process takes place as the activity of projecting from one event to the next (both backward and forward in time)' (Hernes, 2014, p. 93). The pattern of events and their meanings emerge from relations to other events, yet remain ambiguous and open to reinterpretation by actors in concurrent and future events. Only those events to which actors ascribe meaning are included in the analysis.

Like process studies 'in time', TPA embraces Emirbayer and Mische's (1998, p. 963) conception of actors as temporally embedded: 'the agentic dimension of social action can only be

captured in its full complexity if it is analytically situated within the flow of time'. TPA operationalises their insight that actors are 'oriented towards the past, present, and future at any given moment' (1998, p. 964). In line with process studies 'in time' (Jarzabkowski et al., 2016), TPA assigns ontological primacy to the present. During present events, actors 'carve out their own temporal existence' (Hernes, 2014) from the flow of time by connecting emerging events in the present to past and future events. In line with Emirbayer and Mische (1998, p. 968), who argued that 'the human experience of temporality is based in the social character of emergence', TPA conceptualises the enactment of present events and the associated projection from the present event to past and future events as inherently social.

TPA translates these theoretical assumptions methodologically. First, TPA involves combining ethnographic observation with retrospective interviewing to treat each event as if it was in the present. Second, for each present event, TPA involves following how actors connect the present event to remembered past or projected future events. These are *outgoing relations*, represented in Figure 7.1 by the arrows pointing from the focal event to other events. Third, to abstract from the concrete experience of events 'in time' to the pattern of events 'over time', TPA involves aggregating all outgoing connections from present events across the observed period into a single event graph. Events may have both *outgoing relations* to other events and *incoming relations* from other events. Finally, to treat events and their connections as inherently social, TPA involves drawing on the ethnographic method of collating data sources in a 'composite narrative' (e.g., Jarzabkowski et al., 2014).

Having presented TPA's theoretical background and methodological rationale, I now turn to the practical research process (see Figure 7.2). After introducing an illustrative single case study on a collaborative innovation process, I provide an overview of the approach to research design, attending particularly to the question of case boundaries, and guide the reader through choices made in research design, data collection, and analysis. In TPA, the initial aim of data collection

and data analysis is to compile a temporally relational event database, which makes it possible to abstract an event graph visualisation of the analysed process, and conduct further analyses through coding.

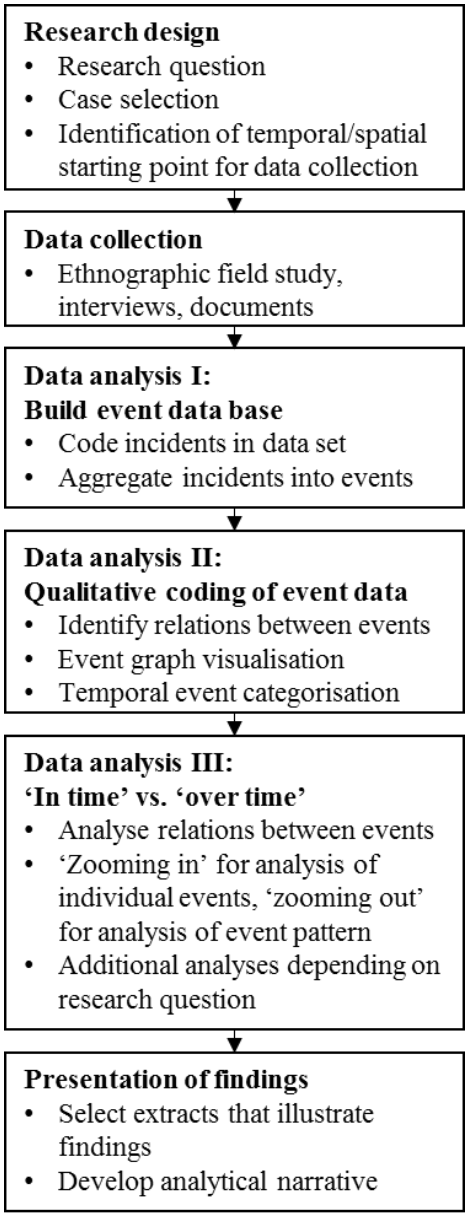


Figure 7.2 Overview of the research process

7.5 Overview of the illustrative case

The case study follows innovation processes unfolding before, during, and after a Match & Create session organised by BLOXHUB, a Copenhagen-based innovation hub. Match & Create sessions

are collaborative innovation workshops that gather employees from 10 to 15 organisations on two workshop days to explore potential collaborations around a specific problem or topic. Specifically, the case study follows collaboration processes unfolding around a Match & Create session on 'shared green courtyards'. Altan, a company specialised in retrofitting balconies for existing apartment buildings, initiated the session. Altan's employees envisioned offering courtyard refurbishments as a 'one-stop shopping' solution, yet realised they lacked the requisite knowledge and capabilities to build a viable business model. Initially, they explored a collaboration with the two co-founders of Byland, a small landscape architecture firm, who were in the process of developing a modular plant box. Seeking support and collaboration partners, the two parties initiated a Match & Create session. Altan, Byland, and Smith Innovation each invited participants from their professional networks to explore possible collaborations concerning courtyards. After the workshops, several actors met again in various constellations to discuss possible next steps toward developing a business model for courtyard refurbishment.

7.6 Research design: Identifying content-related and temporal case boundaries

Whereas TPA is in principle suited to both multiple and single case studies, its strengths are particularly evident in single case studies. The literature provides excellent guidance on the general research design of qualitative case studies (see e.g., Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Ozcan et al., 2017; Yin, 2014); thus, I limit my research design considerations to the particular problem of how to identify content-related and temporal case boundaries. Working from a processual ontology that assumes the world to consist of a multitude of processes unfolding over time may make the definition of case boundaries seem arbitrary (e.g., De Cock & Sharp, 2007; Gehman et al., 2018). During the study period, the actors being followed engaged in a

multitude of activities, making it difficult to determine which ones to follow and which ones to ignore, as well as when to start and stop collecting data.

TPA seeks to address these concerns by drawing on Polanyi's (1967) concept of 'subsidiary awareness' to attend to how actors demarcate the studied phenomenon (Jarzabkowski et al., 2016). Actors tend to direct their focal awareness on one course of action, while upholding 'subsidiary awareness' of other events (Hernes, 2014; Hernes & Irgens, 2013; Shotter, 2006). To reduce complexity, 'actors are aware, albeit tacitly, of operating in an open world while acting as if it was a closed one' (Hernes, 2014, p. 15). Following TPA's event-based approach, events referred to by actors in relation to the phenomenon of interest are included in the analysis. These are the events of which actors are focally aware. The temporal and content-related case boundaries emerge from the resulting set of events comprising the *event database*.

To identify content-related boundaries, it matters where and when data collection begins. Data collection should begin with a specific event during which the researcher expects to observe the processual organisational phenomenon of interest. By following actors' references to past and future events, the researcher then can trace the processes impinging on, intersecting in, and springing from this event (see De Cock & Sharp, 2007). For instance, because my aim was to investigate collaborative innovation processes, I used the collaborative innovation workshop as a starting point for data collection in the illustrative case study. Because this event was explicitly framed as a collaborative innovation workshop, I could expect participating actors to refer to their current innovation processes during the event. From this starting point, I was able to follow these innovation processes both forward and backward in time.

To clarify the identification of temporal case boundaries in TPA, I distinguish between study period, case period, and ongoing case period (see Figure 7.3). First, the *study period* denotes the duration of the ethnographic study. In the illustrative case study, the study period lasted from the first collaborative innovation workshop in May 2017 to the end of the second round of interviews

in August 2018 (27 months). Second, the chronologically most distant past and future events referred to by actors in relation to the studied phenomenon determined the *case period*. In the illustrative case study, the case period lasted from 2002 to 2018 (16 years). Finally, the notion of the *ongoing case period* covers only those events within the case period that actors viewed as *part* of the current course of action, in contrast to more distant past and future events, which merely *informed* the current course of action. In most cases, the ongoing case period is roughly congruent with the study period.

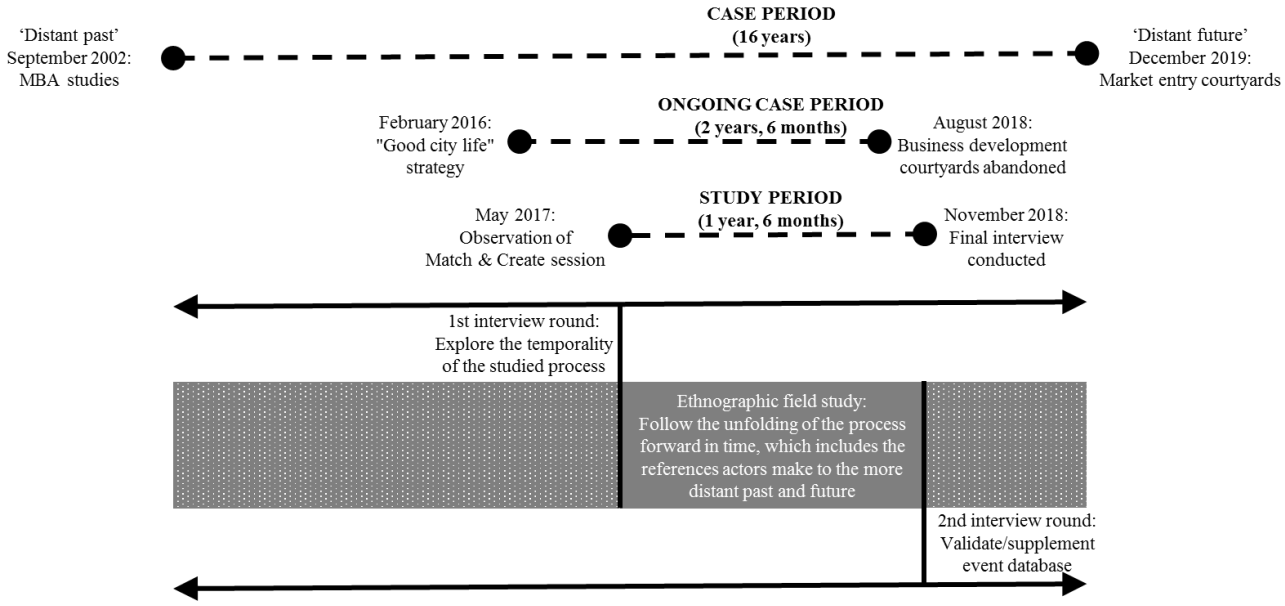


Figure 7.3 The relation between study period, case period, and ongoing case period

I distinguish the distant past and future from the near past and future, which I refer to as the ongoing present (Hernes, 2014; Schultz & Hernes, 2013). Actors perceive events differently depending on their relative temporal distance, which in turn affects the influence of events on the actions taken by actors in the present (Bluedorn, 2002; Bluedorn & Standifer, 2006; Trope & Liberman, 2003, 2010). Temporal construal theory (Trope & Liberman, 2003, 2010) shows how people tend to describe temporally more distant events by referring to a few abstract features to

convey their perceived essence (high-level construal), but describe temporally nearer events by referring to more concrete details (low-level construal). I operationalise temporal distance in my data analysis by coding events as ‘distant past’, ‘distant future’ or, for events pertaining to the focal process, ‘ongoing present’.

7.7 Data collection

I collected data from three sources: an ethnographic field study, informal and formal interviews, and archival material. I stored and organised all collected data in NVivo, a qualitative data analysis software package. Software packages such as Atlas.ti and MAXQDA offer similar functionalities.

I engaged in primary data collection by performing an ethnographic field study of an innovation process. I identified the Match & Create sessions as my starting point, as they comprised an opportune temporal and spatial site for observing the phenomenon of interest. From May 2017 to November 2018, I worked on a daily basis in a co-working space where several workshop participants had their offices. This ‘prolonged period of researcher immersion in the research setting’ (van Hulst et al., 2016, p. 223) enabled me to follow innovation activities; workshop participants invited me to attend subsequent follow-up meetings, and I engaged in informal conversations with individual actors involved in the innovation process to trace how their ideas and activities were evolving. I ended my data collection when I learned that Altan, the focal organisation of the collaborative innovation process, had ceased business development activities related to courtyards. I recorded my observations by documenting field notes in a diary, and by making audio recordings of meetings and conversations.

Two rounds of interviews served to complement and validate the data obtained through the ethnographic field study. I conducted a first round of informal interviews with all participants and facilitators during the Match & Create sessions. These short conversations lasted 10 to 15 minutes each, and served to establish why each individual actor was participating in the workshop. I

covered topics such as participants they had known beforehand, who had invited them, distant and more recent past activities related to the workshop topic, current innovation activities, and anticipated future innovation activities. In effect, these informal interviews helped me become aware of actors' current courses of action, equipping me to follow them 'in time'.

After completing the field study, I performed a first round of coding and created a preliminary event database, which I describe in detail in the data analysis section. Then, I conducted a second round of formal interviews with participants whom I observed in collaborative innovation activities subsequent to the Match & Create sessions. During these interviews, I sought to introduce a 'temporal mode of thinking' (Hernes, 2014, p. 180) to help informants relive the process as it unfolded in the past before carefully leading them forward in time (Eisenhardt, 1989). The aim of this approach is to help informants consider past events as if they were occurring in the present (Jarzabkowski et al., 2016). I used the individual, retrospective event histories (Glick et al., 1990; Huber & Power, 1985) resulting from these interviews to complement the event database.

Finally, I drew on archival data. Specifically, I consulted documents obtained during the fieldwork and shared by informants during the second round of interviews, including workshop documentation, meeting notes, strategy presentations, financial information, and email threads, among others.

7.8 Data analysis

I analysed the data in three phases. During the first phase, I used qualitative data analysis software to build an event database. To complete the second and third phases, I transferred the event database to Spekkink's recently developed Qualitative-Social Process Analysis (Q-SoPrA) software, which enabled me to assign qualitative codes to the event data and perform a temporal analysis of the process. At the time of writing, the software was still in beta mode, but was

expected to be made publicly available as an open source tool soon, along with an extensive manual (Spekkink, 2018). Q-SoPrA has a special role in TPA because it supports the plotting of event graph visualisations based on the event database, which is instrumental in analysing how the situated enactment of events 'in time' relates to the pattern of events 'over time'.

7.8.1 Data analysis I: Building an event database

During the first phase of data analysis, I transformed the collected raw data into an event database through two rounds of coding. An event database 'is a set of descriptions of multiple social interactions collected from a delimited set of sources according to relatively uniform procedures' (Tilly, 2002, p. 249). The two rounds of coding followed Abbott's (1984) distinction between an incident and an event. An incident designates the raw datum of an occurrence or happening, whereas an event is a construct that captures the meaning or sense of an incident.

In the first round of coding, I coded all incidents in the raw data related to collaborative innovation processes. For each incident, I recorded a brief description and the time of occurrence, if readily available. In the second round of coding, I aggregated incidents into events. Initially, I grouped all coded passages referring to the same incident. I only included an incident in the event database if at least two different individual actors in my data set mentioned it (see Appendix 7.2 for a condensed overview of the event database). In other words, I retained only socially meaningful incidents for further analysis (Gehman et al., 2013). This approach is similar to the construction of a 'composite narrative' of an event based on multiple individual accounts (e.g. Jarzabkowski et al., 2014; Sonenshein, 2010). Importantly, aggregating multiple accounts of an incident into a single event does not necessarily imply a mutually shared understanding, but only a temporally connected experience (see also Lorino, 2018, p. 275). Therefore, I stored the different actors' accounts along with my abstracted event descriptions so I could revisit this multiplicity.

7.8.2 Data analysis II: Qualitative coding of event data

The second phase of data analysis involved coding events in the event database for (a) relations to other events, and (b) temporal distance. In the first round of coding, I analysed the temporal relations between events, thereby enabling the observed process to emerge. As pointedly noted by Bearman et al. (1999, p. 519), 'happenings without relations are just happenings'. I examined actors' respective accounts of each event in the event database, noting references made to past or future events. I coded each reference as either a 'relation to past event' or a 'relation to future event'. Whereas any convincing qualitative research narrative establishes connections between events in time (Jarzabkowski et al., 2014; Jonsen et al., 2018), this formal approach forces the analyst to consider connections between events one-by-one. This systematic approach to coding temporal relations between events increases the transparency and internal validity compared to other qualitative process studies based on the 'in time' view.

The first round of coding yielded a temporally relational event database. Once all of the temporal references inferred from an 'in time' view of unfolding events were coded, it was possible to show how a pattern of events 'over time' emerged from these situated enactments. Q-SoPrA enables a pattern of events 'over time' to be plotted as an event graph visualisation, drawing on an adapted version of the ForceAtlas2 continuous graph layout algorithm for social networks (Jacomy et al., 2014). Appendix 3 shows the event graph visualisation for the data set of the illustrative case study, with time running from left to right, as indicated by the timeline at the bottom. The event graph visualisation foregrounds the spatialized pattern of events and relegates the temporal dimension as a mere backdrop against which events are chronologically ordered.

Finally, I coded the events in the event database for temporal distance. I distinguished between events which actors considered immanent parts of their current courses of action as 'ongoing present' (Hernes, 2014; Schultz & Hernes, 2013). During these events, some actors

referred to events in the distant past that had been parts of other courses of action and had informed what they were currently doing. Conversely, some actors projected distant future events that were not yet part of their current courses of action, but informed what they anticipated doing in the near future. This may include future ambitions to actualise strategies or impending future events, which actors did not expect to influence, but to which they reacted. I coded these events as 'distant past' and 'distant future', respectively.

7.8.3 Data analysis III: 'In time' vs. 'over time'

The third data analysis phase focussed on the interrelation between the 'in time' and the 'over time' views of process. The two prior phases of data analysis enabled this interrelation to be investigated through 'events' and their relations. Whereas the event graph visualisation provided an 'over time' view of the analysed process, the data stored about each event in the event database provided an 'in time' view by focussing on the enactments of individual events and following the situated experiences of the actors.

Decisions about which analyses to perform during this phase depend strongly on the study's purpose and guiding research question. Because the data are coded for not only unidirectional links between events from past to future, but also multidirectional links from present events to both past and future events, established methods for quantitative sequence analysis cannot be used in TPA (Poole et al., 2016). That said, TPA demands and creates an opportunity to develop a new set of analytical metrics and procedures to analyse the temporal dimension of process. Based on examples from the illustrative case study, the next section demonstrates which types of questions researchers may try to answer and which kinds of analyses researchers may perform with TPA, and presents some preliminary ideas and inspiration for the development of new analytical metrics and procedures.

7.9 How TPA opens new avenues for analysing and theorising temporality

In this section, I provide three examples of how TPA addresses methodological implications of the process turn. I first introduce each methodological problem, and then draw on illustrative findings from the case study to show how TPA opens new avenues for analysing and theorising temporality, including the temporal reconceptualization of existing concepts. Because it is difficult to work with the entire event graph, I isolate certain strands of the process, which entail all the events referred to in a given illustrative finding. When referring to individual events, I include the event number in the graph in square brackets to enhance readability.

7.9.1 The intersecting and branching of processes

The process ontology articulated in the process turn implies that the focal process under investigation is but one among a multitude of concurrent processes comprising the world. Some of these processes are closely interwoven with, or run in parallel to, the focal process being investigated. In the illustrative case study, the careers of the involved actors are a case in point, as well as the daily operations of the organisations represented by the individual actors who engage in collaborative innovation processes. This open understanding of several simultaneously occurring processes raises the methodological challenge to show how and when concurrent processes start or stop to affect the focal process under investigation. TPA enables researchers to follow these dynamics by visualising them as the intersecting and branching of processes.

The following example, which is visualised in Figure 7.4, illustrates how the intersecting of processes may generate momentum. In February 2016, the new Head of Business Development joined Altan [10] to support the development of the firm's new strategy [12]. Fearing market saturation in their core balcony business [49], Altan's management was seeking alternative business development opportunities. During that time, Altan's Head of Business Development noticed a newspaper interview with Copenhagen's city architect [11], in which she emphasised

the importance of courtyard refurbishments in realising the goals of the City of Copenhagen's 'urban greening' strategy. Specifically, the city architect mentioned the importance of private actors in the field, because the municipality's capacities for courtyard refurbishment were limited. The city architect's statements provided an impulse to pursue the development of a business model for courtyard refurbishments [48].

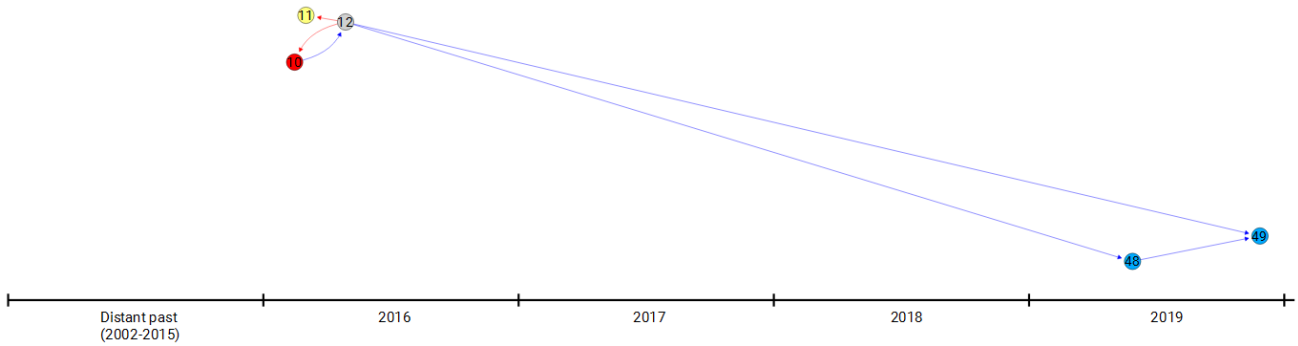


Figure 7.4 Intersecting processes generating momentum

This example illustrates the intersection of two processes: Atlan's strategy development and the City of Copenhagen's implementation of an 'urban greening' strategy. Atlan's current engagement in the strategy process made the Head of Business Development particularly sensitive to the interview as a recent past event. Through the intersection of processes, Altan's management came to view the city administration as potentially supportive of the development of a business model for courtyard refurbishment, thereby generating momentum around the innovation process.

The second example, which is visualised in Figure 7.5, shows how the intersecting and branching of processes may bring a course of events to a preliminary halt. After productively cooperating with consultants to organise the Match & Create workshops, Altan's Head of Business Development switched sides and joined the consulting firm [33]. Collaborative engagement in the innovation process provided him with alternative future career prospects,

causing the innovation process and his career process to diverge. Around the same time, Altan's management had to concede that their media campaign to acquire a pilot project was unsuccessful [37]. Shortly thereafter, Altan's fiscal year ended with financial losses [39]. Although Altan's employees had been subconsciously aware of daily operations, at that point in time, concurrent events infringed upon the collaborative innovation process. Reflecting on the current situation, Altan's manager decided to withdraw from the innovation process.

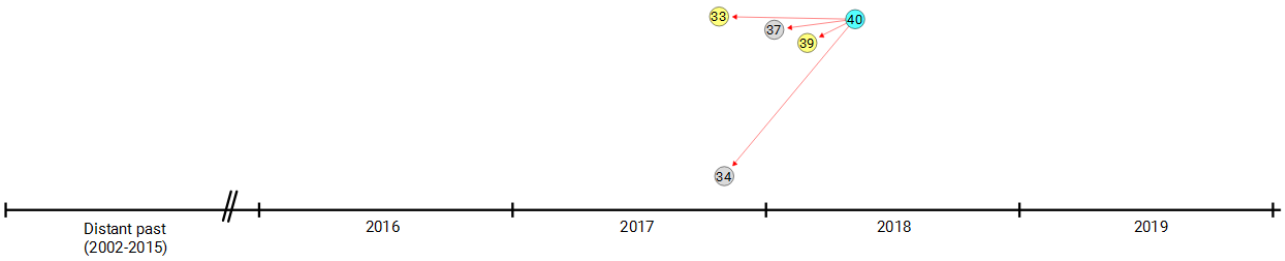


Figure 7.5 Intersecting processes bring the focal process to a preliminary halt

While an 'over time' view of the process may suggest that these events causally brought the innovation process to a halt, the 'in time' view follows the reflections of the actors situated in ongoing time as they made the decision. Combining both views enables the researcher to appreciate that 'no event … stands as decisive on its own' (Hernes, 2014, p. 179), and thus reveals the preliminary halt of the process as having emerged from the ways in which actors temporally embedded 'in time' drew connections between elements that came to their attention.

7.9.2 Reconceptualising 'criticality' as 'temporal agency'

In process studies adopting an 'over time' view, certain events may be deemed more critical than others (e.g., Christianson et al., 2009; Hoffman & Ocasio, 2001; Isabella, 1990; Tuertscher et al., 2014). Criticality is conceptualised to be inherent to the event in question. Whatever happens

during the event causally affects subsequent events. TPA enables a different, temporal conceptualisation of 'criticality' as 'temporal agency' (Hernes, 2014).

Figure 7.6 shows how actors' references to a past event informs the present and future courses of events. During the Match & Create workshop [24], the participants projected the 'do it right' solution [46] as one of two pathways towards the development of a business model for courtyard refurbishments. The 'do it right' solution comprised three tools to facilitate the planning and sales process; a tenant composition tool [41], a decision process facilitation tool [42], and a courtyard configurator [43]. When Altan's management team gathered after the workshop to discuss next steps [26], they remembered their positive experience with a balcony configurator [3] during the company's founding period, which the Head of Innovation described as fundamental to the company's success. As a result, they prioritised the courtyard configurator and agreed to meet with a design agency to discuss options for the development of a configurator [27].

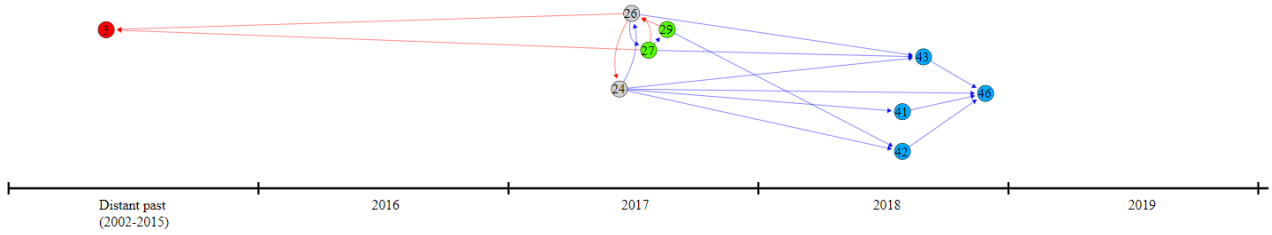


Figure 7.6 The temporal agency of an event

However, when reflecting on the meeting in a subsequent interview, the Head of Innovation recalled how he realised that the approach was 'too technical' and they instead had to start with the 'soft part. How do the customers think? How do they make decisions?' They set up a meeting with a service design firm [29] to discuss how to approach these questions.

The example illustrates how TPA enables researchers to reconsider the 'criticality' of events as temporally emergent. Events are not inherently critical when they happen, but may become

critical over time. Whether events become critical depends on whether and how actors refer to them during other events. Hernes (2014) referred to such a temporal understanding of criticality as 'temporal agency', denoting that 'what happens at one time and place matters to what happens at another time and place, whether this other time and place precedes, succeeds, or takes place concurrently with the time and place in question' (Hernes, 2014, p. 93). A temporal reconceptualisation of 'criticality' as 'temporal agency' implies that criticality is rarely foreseeable during unfolding present events (for instance, the revelation of Einstein's general theory of relativity, as described in Hernes, 2014, pp. 93–94).

7.9.3 Process visualisations: Reconceptualising the arrows

Process visualisations have an important generative role as tools for analysis and theorisation (Feldman, 2016; Langley et al., 2013; Langley & Ravasi, 2019). However, 'insufficient attention has been given to the generation of these displays, and also to the role that drawing may play not only in communicating findings and theoretical constructions but also in generating them' (Langley & Ravasi, 2019, p. 174). Specifically, it has been suggested that process research could benefit from rethinking the arrows in widely used 'box and arrow' visualisations, which typically are not sufficiently labelled or theorised (Feldman, 2016; Langley & Ravasi, 2019). TPA responds to this call.

Technically, TPA reconceptualises the arrows in the established event-based visualisations of process studies 'over time' to reflect the temporal sensibility offered by an 'in time' view. TPA takes its starting point in process studies 'over time', following the basic approach of building an event database, which provides the basis for the drawing of visual process maps. Effectively, TPA only alters the conceptualisation of the arrows between events: arrows that typically indicate chronology and causality instead indicate references made during present events to past and future events. To collect the data necessary to enable this reconceptualization, TPA adopts an ethnographic, 'in time' approach to data collection. What is only a slight technical modification

of the established way of drawing process visualisations fundamentally alters the meaning of the process visualisation produced, and offers broad new possibilities for analysing the temporal dimension of process.

When working with process visualisation from the onto-epistemological position promoted by the 'process turn', it is a common assertion that one 'faces an irony, in that its representation, interpretation, and explanation of processes must always reify the processes— which are evanescent and in flux—in words and diagrams fixed statically to the page' (Van de Ven & Poole, 2005, p. 1390). On the contrary, TPA builds on the assumption that reifications are just as much constitutive of processes as their evanescence and flux. The combination of detailed ethnographic accounts of events and event graphs make the interplay of 'in time' and 'over time' visually accessible, and facilitate analysis of how the flow of time affects processual organisational phenomena.

7.10 Further applications of TPA in organisational research

TPA is suited for application in a number of other organisational research fields where, in the wake of the process turn, scholars have been paying increased attention to the role of time and temporality (for an overview, see Langley & Tsoukas, 2016a). To classify other organisational phenomena lending themselves to investigation with TPA, Jarzabkowski et al.'s (2016) distinction between studying emerging patterns, patterns in the moment, and scripted patterns is instructive. These types of studies, I argue, adopt 'over time' and 'in time' views of process to varying degrees. Those who study patterns in the moment may primarily adopt an 'in time' view, whereas those who study scripted patterns may primarily adopt an 'over time' view. I suggest that TPA is best suited to studies of emerging patterns because these focus on how the enactment of events 'in time' shapes and is shaped by a pattern of events 'over time'. Below, I highlight how TPA can be used in several organisational research fields that typically focus on emerging patterns.

First, TPA is an obvious methodological approach for analyses focally concerned with the role of time and temporality in organisational processes. Examples include studies on temporal structuring (Orlikowski & Yates, 2002), temporal brokerage (Reinecke & Ansari, 2015), temporal work (Granqvist & Gustafsson, 2016; Kaplan & Orlikowski, 2013), the temporality of strategy and identity (Ravasi et al., 2018; Schultz & Hernes, 2020), and routines (Geiger et al., 2020; Kremser & Blagoev, 2020), practices (Buch & Stjerne, 2018), or materiality (de Vaujany et al., 2014; Hernes et al., 2020).

Second, TPA is well suited for process studies of innovation (Garud et al., 2013), or the emergence of novelty more broadly (Garud et al., 2015), which typically focus on the emergence of patterns. Specifically, TPA provides a template for what Garud et al. (2017) termed 'hybrid studies' of innovation that combine 'process as observed' and 'process as experienced' approaches. Beyond the specific context of innovation, TPA is well suited to other organisational studies focused on the temporal emergence of novelty, for instance, in the fields of entrepreneurship (Hjorth et al., 2015), interorganisational collaboration (Berends & Sydow, 2019), or category studies (Jones et al., 2011; Slavich et al., 2020).

Third, sensemaking is another field of organisational research in which scholars are examining emergent process patterns. In addition to retrospective sensemaking, scholars are increasingly attending to prospective sensemaking (e.g., Christianson et al., 2009; Stigliani & Ravasi, 2012). For instance, TPA may enable researchers to analyse how 'rare events tightly couple the past to the future' (Christianson et al., 2009, p. 857). Recently, scholars have proposed a more refined view of the temporal dimension of sensemaking (Sandberg & Tsoukas, 2015, 2020) that calls for attending to the interplay between 'immanent' sensemaking during unfolding events and subsequent 'deliberate' sensemaking that refers back to these events (Sandberg & Tsoukas, 2020). TPA may be helpful in translating this theoretical view to empirical studies.

Finally, another field that investigates the temporal emergence of event patterns is research on 'uses of the past' in organizations and organising (e.g., Bucheli & Wadhwani, 2013; Lubinski, 2018; Wadhwani et al., 2018). As stated in the introduction to a recent special issue, 'the "uses of the past" approach emphasizes not only the malleability of interpretations of the past, but also their relationship to how organizational actors experience the present and set expectations for the future' (Wadhwani et al., 2018, p. 1664). Specifically, TPA may help scholars move from developing an understanding of 'history as told' to investigating 'history as experienced' (Lubinski, 2018) by tracing how the situated enactment of history impinges on organisational processes.

These reflections on the usefulness of TPA for different strands and theoretical traditions of processual organisational research are by no means conclusive, but intended to highlight possible areas for its application. The purpose of this paper is to provide inspiration for how to translate the temporal sensibility ensuing from the process turn on a conceptual level to empirical process studies of organisational phenomena more generally. TPA offers an event-based conceptualisation of how to combine the 'in time' and 'over time' views by drawing on 'events' as the common denominator. This basic conceptualisation of TPA is an invitation for other organisational scholars to modify and adapt the approach as they see fit to specific contexts. Likewise, it offers a starting point for the creative development of new operationalisations and measures to analyse and theorise time and temporality.

7.11 Appendices

Appendix 7.1 Comparison of process studies 'over time', process studies 'in time', and temporal process analysis (TPA)

Aspect	Process studies 'over time'	Process studies 'in time'	Temporal process analysis (TPA)
Objective	Identify patterns in a sequence of events 'over time' to explain process outcomes	Follow the enactment of events 'in time' to explain the emergence of a process	Investigate the interplay between the 'over time' and 'in time' dimensions of a process by: (a) tracing the enactment of events 'in time'; (b) abstracting the temporal pattern 'over time' that results from the temporal relations between events enacted 'in time'; and (c) analysing the interplay between the 'in time' and 'over time' views of process.
Main strengths	• Formal qualitative and/or quantitative analysis of process patterns • Established methods for quantitative sequence analysis (Poole et al., 2016)	• Insights into how actors enact and experience events • Focus on overall composite/process narrative and/or specific episodes or vignettes (Jarzabkowski et al., 2014)	• Insights into how actors enact and experience events • Formal qualitative and/or quantitative analysis of process patterns • Focus on visual analysis through event graphs
Main weaknesses	Little attention to how the enactment of events and actors' associated experiences lead to the emergence of the analysed pattern	Lack of a formal conceptualisation of how the situated enactment of events emerges into an overall process pattern, and how this process pattern in turn affects the situated enactment of events	Modification of event-based methods (i.e., the inclusion of links to the past *and* future) prevents the use of quantitative sequence analysis methods
Data collection	Record events observed over time, based on: • Interviews • Archival data	Track how actors enact and experience events, based on: • Ethnographic methods • Interviews • Archival data	Track how actors enact and experience events, based on: • Ethnographic methods • Interviews • Archival data
Data analysis	• Build an event database • Determine event sequence • Code event types (e.g., criticality) • Investigate how the pattern of events relates to process outcomes using visual methods or quantitative sequence analysis	• Code qualitative data set (e.g., using the Gioia method; Gioia et al., 2013) • Link coded data to theoretical concepts (Jarzabkowski et al., 2014) • In-depth analysis of specific episodes, such as breakdowns (Garud et al., 2017)	• Code qualitative data set for incidents • Abstract events from incidents, similar to the construction of a composite narrative (Jarzabkowski et al., 2014; Sonenshein, 2010) • Code for relations between events • Code for temporal distance of events • Investigate pattern of events 'over time' with visual methods (i.e., event graphs)

Aspect	Process studies 'over time'	Process studies 'in time'	Temporal process analysis (TPA)
			• In-depth analysis of specific events 'in time', such as breakdowns (Garud et al., 2017), that appear relevant based on the analysis of the pattern of events 'over time'
Presentation of findings	• Chronology of events and their interrelations • Visualisation of overall process and/or sub-processes to illustrate pattern • Process model to describe how event pattern relates to process outcomes	• Ethnographic vignettes • Process narratives • Composite narratives • Process model to visualise underlying (non-linear) dynamics of the process	• Description of how actors' references to past and future events shaped the unfolding of the process • Visualisation of overall process and/or sub-processes to describe how the event pattern emerged from situated enactments of events and the linkages between events enacted therein
View of time	Discrete, sequential; (chronological) time is a background against which events unfold and can be spatialised; reveals a spatial pattern of events	Ongoing; events emerge in time; the process unfolds according to its own temporality (e.g., temporal depth, time horizons, momentum); reveals a temporal pattern of events	Both discrete and ongoing; discrete, sequential time is considered a necessary abstraction from ongoing time that occurs in the act of organising; reveals the temporal constitution of the spatial pattern of events
View of events	Discrete: Events have meanings/outcomes of their own, and can logically and causally influence one another	Situated: Events are defined by their relation to other events, through which they acquire meaning	Situated: Events are defined by their relation to other events, through which they acquire meaning
Procedure for identifying 'events'	The analyst records events observed over time. All observed events are included in the analysis.	The analyst follows how actors relate events to one another. Only those events to which actors ascribe meaning are included in the analysis.	The analyst follows how actors relate events to one another. Only those events to which actors ascribe meaning are included in the analysis.
The ordering principle and meaning of events	Chronological sequence (before-after) establishes the order of events. The meanings of events emerge from the analysis of the event sequence. Events attain a definite order after their occurrence, assuming a closed view of the future	Links between events are enacted as actors refer to past and future events during present events. The pattern of events and their meanings emerge from relations to other events, yet remain ambiguous and open to reinterpretation in light of concurrent and future events.	Links between events are enacted as actors refer to past and future events during present events. The pattern of events and their meanings emerge from relations to other events, yet remain ambiguous and open to reinterpretation in light of concurrent and future events.
Temporal directionality of process	Process unfolds uniformly from past to future; past events shape the contingencies of the present and determine what occurs next.	Process emerges as actors in the present reinterpret the past and imagine the future. Process is not only assumed to flow from past to future, but also from future to past.	Process emerges as actors in the present reinterpret the past and imagine the future. Process is not only assumed to flow from past to future, but also from future to past.

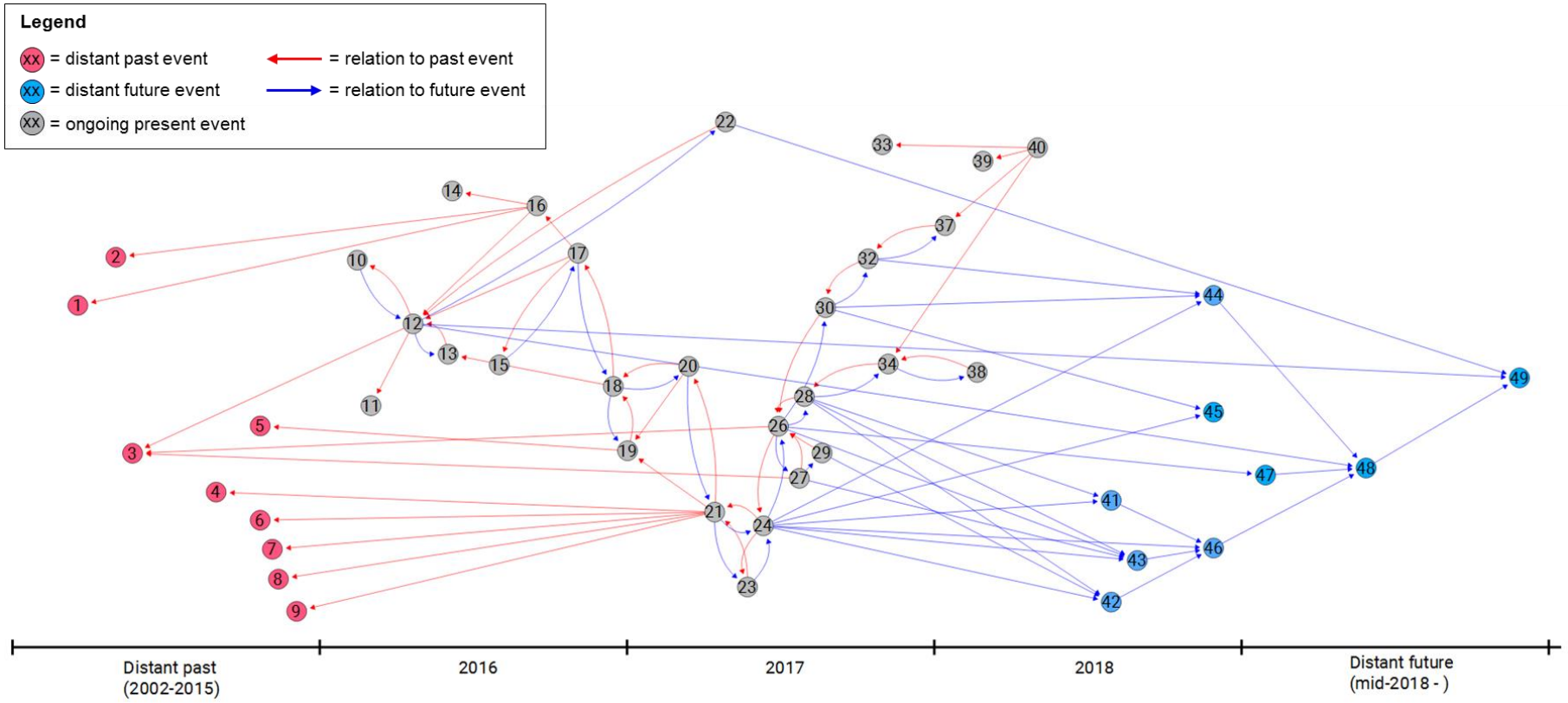
Appendix 7.2 Condensed overview of the event database

ID	Time	Event	Description
1	2002–2004	MBAs at CBS	BLOXHUB's Hub Director and Altan's Head of Business Development both pursue MBA degrees at Copenhagen Business School.
2	2005	Joint projects: Hub Director-Head of Innovation	In their previous jobs, BLOXHUB's Hub Director and Altan's Head of Innovation participated in several innovation projects run by the Danish Association of the Construction Industry.
3	2006–2007	First balcony configurator	Altan's first balcony configurator provides the starting point for their one-stop shopping solution for balcony retrofitting.
4	2012	Klimaspring-Samvejr.dk platform	B14 develops a digital configurator for climate adaptation projects in Denmark as part of the Klimaspring project facilitated by Smith Innovation.
5	2015-04-30	Facade renovation guide	At a different employer, Altan's Head of Business Development had developed a facade renovation guide, which he considers using to develop a one-stop shopping solution similar to the one Altan has developed.
6	2015	Exploration of collaboration with P&H	Employees of Altan and P&H explore whether P&H might become a main contractor for earthworks in the context of balcony projects.
7	2016	Congohuset hired as Altan's PR agency	Congohuset helps Altan improve its corporate communications and media presence.
8	2016	AKP consults Altan on design	AKP consults Altan about user-oriented design methods for balconies.
9	2016–2017	Exploration of collaboration with Cumuli	Altan and Cumuli meet several times to explore whether Cumuli might help Altan improve its sales process.
10	2016	Head of Business Development joins Altan	Altan's Head of Business Development joins Altan, mostly to support the development of a new strategy.
11	2016-02-03	City architect emphasises importance of courtyards	Copenhagen's city architect emphasises the importance of courtyards, pointing to the desirability of nature/green in the city, climate adaptation and flood protection, community activities, and the openness of courtyards/marginal zones between buildings and local environment.
12	2016-05-02	'Good city life' strategy	Altan's Head of Business Development and Head of Innovation develop the 'good city life' strategy as an umbrella for several business development strategies aimed at reducing dependence on the balcony business. For the first time, they consider exploring the possibility of extending their business model to backyard renovations.
13	2016-06-01	Free 'houses' for courtyards	Delivery of a free hen house, greenhouse, or playhouse for the courtyard when purchasing balconies.
14	2016-06-06	BLOXHUB established	BLOXHUB is formally established; new Hub Director is hired.
15	2016-08-01	Development of plant box	Byland develops the innovative plant box which they present at the pitching session and later extend to form the basis for a new start-up.
16	2016-09-15	Meeting: Altan–BLOXHUB	Altan meets with BLOXHUB to discuss possible collaborations in the context of the new innovation hub, and joins BLOXHUB as member.
17	2016-11-03	'Building Green' pitching session	Altan's Head of Business Development participates in pitching session at the 'Building Green' convention where the co-founders of Byland pitch their plant box.
18	2016-12-15	Brainstorming: Altan–Byland	Employees of Altan and P&H explore a possible collaboration on the development of a business model for courtyard refurbishments.
19	2017-01-18	Brainstorming: Altan–P&H	Employees of Altan and P&H discuss approaches to pricing courtyard solutions.
20	2017-03-15	Match & Create workshop proposed	Altan employees meet with the Hub Director to discuss the possibility of hosting a Match & Create session on 'courtyards'. The Hub Director agrees and puts them in touch with Smith Innovation to plan the workshop.
21	2017-04-15	Preparation for Match & Create	Altan, Byland, and Smith Innovation prepare the Match & Create session and invite potential participants.

ID	Time	Event	Description
22	2017-04-28	Launch of balcony furniture collection	Coop (a Danish supermarket chain) and Altan jointly launch a balcony furniture collection, available for purchase at Coop supermarkets and an online store (altan-liv.dk).
23	2017-05-24	Match & Create session 1	Match & Create session 1 at Altan's offices
24	2017-06-12	Match & Create session 2	Match & Create session 2 at urban gardening space ØsterGro
25	2017-06-17	Exhibition: 'Tue Greenfort Eats Den Frie'	Byland hires Care4Nature to help select and source plants for an exhibition of Danish artist Tue Greenfort, which they are coproducing.
26	2017-06-20	Reflections after Match & Create sessions	Altan's Head of Business Development and Head of Innovation reflect on the results of the Match & Create sessions. The Head of Innovation summarises the results in 25 work packages in relation to the courtyard business model. They settle on three different courses of action as to how to proceed.
27	2017-06-25	Meeting: Altan–B14	Altan's employees meet with partner of B14 to discuss development of courtyard configurator.
28	2017-07-31	Exploration of funding opportunities	Altan meets with Smith Innovation to explore possibilities to finance a development project through innovation financing schemes provided by philanthropic foundations and the government. However, due to the mostly commercial focus of the business development activity, and little radical novelty, Smith Innovation does not think the likelihood of securing such financing is very high.
29	2017-08-05	Meetings: Altan–Cumuli	Altan meets several times with Cumuli to explore development of a decision process tool to facilitate and steer the sales and co-creation processes for backyards.
30	2017-08-16	Meeting: Altan–Congohuset	Altan meets with Congohuset to prepare the launch of a media campaign aimed at acquiring a courtyard pilot project.
32	20171015	Media campaign launch	Altan launches a media campaign and issues several joint press releases with Poul Høegh Østergaard to acquire a pilot project.
33	2017-11-01	Altan's Head of Business Development joins Smith	Altan's Head of Business Development joins Smith Innovation as an Associate Partner
34	2017-11-15	Byland enters GoGrow accelerator	Byland enters the GoGrow accelerator program of the Copenhagen School for Entrepreneurship, an entrepreneurship platform jointly run by Copenhagen Business School and the Danish Industry Foundation, and obtains seed funding from Innovation Fund Denmark. The focus is now more on a data-driven solution that involves equipping the original plant box with sensors to reduce water consumption.
37	2018-01-15	Feedback on media campaign (acquisition pilot project)	Altan aimed to acquire a courtyard pilot project by the beginning of 2018; however, despite substantial presence in relevant media outlets they do not manage to acquire a pilot project.
38	2018-02-22	Pitch at Danish Business Angels	Byland pitches at Danish Business Angels, an angel investor network, but fails to attract funding. The co-founders give up and take new jobs.
39	2018-03-01	Negative FY2017 for Altan	Altan has a poor financial result for fiscal year 2017 due to delays/problems with building permits for several balcony projects.
40	2018-05-05	Discontinuation of courtyard business development	Altan's management decides to halt business development activities for courtyard refurbishments.
41	Early 2018	Tenant composition tool	Development of the tenant composition tool by AKP Design and Altan
42	Early 2018	Decision process facilitation tool	Development of a decision process facilitation tool by Cumuli and Altan
43	Mid-2018	Backyard configurator	Development of a backyard configurator along the lines of Altan's balcony configurator together with B14.
44	Mid-2018	'Just do it' solution	Development of a courtyard prototype/pop-up solution
45	Mid-2018	Promotional platform	Development of an online platform to demonstrate best practices, provide inspiration for courtyard refurbishments, and much more (e.g., TV program, 'open courtyard' day, etc.).

ID	Time	Event	Description
46	Mid-2018	‘Do it right’ solution	Development of a courtyard configurator and all related processes and services to offer a one-stop shopping solution for courtyard refurbishments.
47	Distant future	Change in business model	Altan's employees anticipate that extending the business to courtyards will require changing the business model.
48	Distant future	Successful entry to the courtyard market	The ‘good city life’ strategy foreshadows the idea to expand Altan's business model to include courtyards. Idea lingers in the background as a driver of the overall collaboration process and becomes more concrete through the various interactions between involved actors.
49	Distant future	Market saturation balconies	During development of the ‘good city life’ strategy, Altan’s employees anticipate saturation of the market for retrofitted balconies.

Appendix 7.3 Cumulative event graph of all events, chronologically ordered from left to right



8 DISCUSSION

In this chapter, I discuss the cumulative theoretical and methodological contributions of my dissertation and possible implications for practice emerging from the three papers (see Table 8.1).

Table 8.1 Overview of contributions and implications

Study	Theoretical contributions	Methodological contributions	Implications for practice
Study 1	Extends understandings of *material temporality* by: • Revealing how a building has its own material temporality • Demonstrating the interplay between the processual and epochal dimensions in contexts involving *durable* rather than *perishable* materials • Revealing the dynamics between materiality and multiple organisations, rather than only a single organisation	Provides a novel way to study material temporality empirically, i.e., by analysing materiality as separate from, rather than already entangled with organising processes by • Integrating material temporality into an event-based analytical framework • Conceptualising material and organisational processes as distinct trajectories of events	Indicates how a *material building* may facilitate: • The emergence and stabilisation of a novel constellation of actors across societal sectors • Long-term collaboration of heterogeneous actors around important societal issues
Study 2	• Extends the predominant view of *collaborative innovation* unfolding from the present towards future (unidirectional view of time) by showing how actors in the ongoing present iterate back and forth between the past and the future through 'temporal abduction' (bidirectional view of time) • Additional contributions to an understanding of the temporal embeddedness of innovation and interorganisational relations	Conceptualises material and organisational processes as distinct trajectories of events by: • Developing a temporally embedded conceptualisation of collaborative innovation as a shared trajectory, which enables investigation into how it relates to the respective trajectories of the collaborating organisations	• Indicates benefits and challenges associated with *collaborative innovation sessions* • Suggests need to balance the pursued future projection's level of detail to initiate collaborative innovation processes • Points out the importance of attending to the respective time horizons of collaborating organisations to sustain collaborative innovation processes
Study 3	—	• Develops *temporal process analysis (TPA)* as an event-based methodological and analytical approach that combines process studies 'in time' and 'over time' • Suggests potential applications of TPA in organisational research	—

Study	Theoretical contributions	Methodological contributions	Implications for practice
Full dissertation	Contributes to process organisation studies by: • Developing an event-based analytical framework that enables researchers to investigate how the flow of time affects the emergence of social relations • Showing how this analytical approach extends understandings of the temporal emergence of relations in studies of material temporality and collaborative innovation	• Develops temporal process analysis (TPA) as an event-based methodological approach to combine process studies 'in time' and 'over time' • Demonstrates the potential of TPA for investigating how the flow of time affects organisational processes through its application in two empirical studies	Suggests how a material building and collaborative innovation sessions may support actors in initiating and sustaining: • Engagement with the long-term future • Interactions between heterogeneous societal actors that lead to the emergence of new relations in order to address societal challenges

In the sections that follow, I first describe my theoretical contributions across the three papers. I carve out my overall conceptual contribution to process organisation studies, provide an overview of my three main theoretical contributions, and consider how these played out differently in the context of my two empirical studies. Second, I summarise my methodological contributions, and reflect on the potential utility and limitations of TPA. Third, I discuss implications of my findings for practitioners seeking to facilitate collaborations among heterogeneous actors to address societal challenges.

8.1 Theoretical contributions

In addition to the theoretical contributions of each of the two empirical studies, cumulative contributions to process organisation studies appear from connecting insights across these studies. Within the heterogeneous field of process organisation studies, I contribute to a strand of research focusing on time and temporality by showing how the flow of time affects the emergence of social relations. Specifically, this dissertation contributes to process theorising by developing an event-based analytical approach that attends to the interplay between the 'becoming' and 'being' perspectives, or what I call the 'in time' and 'over time' views, rather than holding them separate. Although convincing theoretical arguments suggest that scholars should attend to the interplay between both process views to capture how the flow of time affects organisations and organising

(e.g., Hernes, 2014; Lorino, 2018; Shotter, 2006; Tsoukas, 2019), analytical approaches capable of guiding this type of analysis in empirical studies were lacking. In particular, this lack of analytical approaches prevented the temporal analysis of social relations.

As one of the main implications of the flow of time, prior research has shown that social actors as well as social relations develop their 'own time', or temporalities (e.g., Adam, 1994; Emirbayer & Mische, 1998; Ligthart et al., 2016; Reinecke & Ansari, 2015; Schultz & Hernes, 2013; Stjerne & Svejenova, 2016). These temporalities are endogenous to the actors and their relations, and thus inaccessible to one another. It follows that investigating the temporal emergence of relations demands attention to the interplay of three temporalities that are related, yet separate: the two temporalities of the interacting actors, and the shared temporality of their relation. Even though actors may develop a shared temporality in their social relation, they continue to have their own, respective temporalities. However, extant research does not reveal, first, how the shared temporality of a social relation emerges from the temporalities of the related actors, and second, how the shared temporality of the social relation relates back to the respective temporalities of the social actors over time.

To theoretically conceptualise the associated-yet-separate nature of social actors and social relations, I carve out and combine two related theoretical and conceptual arguments articulated by process scholars focused on time and temporality. On the one hand, several scholars (e.g., Hernes, 2014; Holt & Johnsen, 2019; Shotter, 2006; Tsoukas, 2019) have suggested that framing the 'becoming' and 'being' ontologies as opposites may obscure how the mere flow of time affects organising, which is considered to be one of the major analytical benefits of the process turn. These scholars argue that a 'becoming' ontology inherently involves shifting attention between the 'becoming' and 'being' perspectives to cope with the flow of time. To highlight that, in this case, 'becoming' and 'being' do not denote disparate ontologies, but dimensions of temporal experience, I refer to an 'in time' view and an 'over time' view.

On the other hand, among others inspired by the process philosophy of Whitehead (1920, 1929) and Mead (1932, 1934), organisation scholars (Clark, 1985; Cobb, 2007; Hernes, 2014; Hussenot & Missonier, 2016; Shotter, 2006) have shown how the philosophical notion of 'events' as a conceptualisation of temporal experience simultaneously captures 'in time' and 'over time' views. From an event-based perspective of organising, social actors (both individuals and organisations) may be seen as temporal trajectories of events (Chia & King, 1998; Hernes, 2014, 2016; Hussenot & Missonier, 2016; Lord et al., 2015; Reinecke & Ansari, 2016; Tavory & Eliasoph, 2013). These trajectories emerge as patterns of events 'over time' from the connecting of situated events 'in time', what Whitehead termed 'prehensions'(Whitehead, 1929; see also Cobb, 2007; Hernes, 2014). However, with the exception of one empirical study (Hussenot & Missonier, 2016), the analytical potential of 'events' has not yet been leveraged in organisation studies (Hernes, 2014; Morgeson et al., 2015).

This dissertation brings together these two conceptual advances, and integrates them into a coherent, event-based analytical approach which is applied in two empirical studies (Chapters 5 and 6) and presented in a methods study (Chapter 7). My analytical approach is based on the assumption that, for social relations to emerge, actors must articulate their respective temporalities to make them accessible to one another and thereby enable the potential emergence of a shared temporality. In event-based terms, the emergence of social relations takes its starting point in events 'in time' during which their respective trajectories intersect. A social relation emerges between two actors if several events during which their trajectories intersected 'in time' connect, thereby enabling a shared trajectory to emerge 'over time'. My conceptual integration contributes to the fundamental endeavour of process organisation studies—namely, using philosophical concepts as analytical tools to advance (empirical) organisational research (Helin et al., 2014; Langley & Tsoukas, 2016a).

In addition, based on this integration, this dissertation extends an event-based perspective of organising (e.g., Hernes, 2014; Hussenot & Missonier, 2016) to materiality and social relations. First, I have shown how a temporal conceptualisation of materiality as a trajectory of events provides a way to attend to the inherent temporality of materiality as separate from, rather than already entangled with social organisational processes (Hernes et al., 2020; Leonardi, 2016). Second, I have shown how a conceptualisation of social relations as a shared trajectory of events facilitates investigation of the ways in which the temporality of interorganisational relations emerges from, yet is not reducible to the temporalities of the interacting organisations (Ligthart et al., 2016; Stjerne & Svejenova, 2016).

These conceptual insights provide the basis for my two empirical studies, which extend from previous empirical process studies attending to time and temporality in three major, interrelated ways. First, in prior empirical studies adopting a 'becoming' ontology, scholars have focussed almost exclusively on single organisations, and a 'becoming' view is only beginning to take hold in research on interorganisational collaboration (Berends & Sydow, 2019). To address this shortcoming, in both empirical studies I investigated how the temporalities of multiple organisations interacted 'in time', thereby enabling the formation of relations between them 'over time'. By conceptualising organisations as trajectories, I was not only able to show how social relations emerging from intersecting events developed their own temporalities, as shown in previous studies on interorganisational relations (Ligthart et al., 2016; Stjerne & Svejenova, 2016), but also how the temporality of each social relation affected the temporalities of the interacting organisations.

Second, previous research has shown how actors situated in time are oriented toward the past and future at any given point in time (e.g., Reinecke & Ansari, 2015; Rowell et al., 2016), and how they may draw connections between the past and future so that they come to mutually define each other (e.g., Ellwood & Horner, 2020; Hussenot & Missonier, 2016; Schultz & Hernes,

2013, 2020). Building on these studies, my empirical investigations reveal how actors embedded 'in time' connected the past and future differently at different points in time. The ways in which past and future mutually defined each other changed 'over time', because the flow of time prompted actors to reinterpret the past and reimagine the future, which appeared in a different light from the temporal vantage point of each present event. The resultant need for an ongoing rethinking of the relation between past and future is crucial for the establishment of social relations, because it renders the temporality of social actors inherently fragile, and thus open and attentive to potential connections to the pasts and futures of other actors. An event-based perspective of organising draws attention to these temporal connections between actors by conceiving of events as comprising part of a wider 'event formation' (Hernes, 2014).

Third, prior studies revealed how actors engaged in situated activities 'in time' differently combined past, present, and future to form a socially constructed organisational temporality (e.g., Kaplan & Orlikowski, 2013; Orlikowski & Yates, 2002; Reinecke & Ansari, 2015; Rowell et al., 2016). Extending this literature, my findings show how actors 'in time' engaged in situated activities that enabled them to move beyond and reflect on their temporality to redirect their trajectories 'over time' through references to the more distant past and future. Drawing on Schütz (1967), this is what Hernes and Schultz (2020) referred to as a shift from reflexivity to reflection. Similarly, Shotter (2006) argued that views of process 'from the outside' and 'from within' constitute the temporal experiences of actors, who shift between these views. My empirical findings confirm these theoretical arguments, and reveal the specific role of such shifting in the emergence of social relations.

These three main contributions played out differently across the two empirical studies of my dissertation. With regard to the emergence of social relations, the shift from an 'in time' to an 'over time' view enabled actors to not only reflect on their own temporal trajectories (Hernes & Schultz, 2020), but also make them intelligible to other actors, thereby creating the potential for

intersections with other trajectories. Both empirical papers show how actors articulated where they came from and where they were going in order to explore whether and how it may be possible to imagine a shared trajectory. Actually embarking on a potential imagined shared trajectory involves partially leaving behind one's own trajectory, which becomes the past, while working towards an uncertain future that is yet to be. The empirical studies revealed both similarities and differences in how actors came to terms with this temporal suspension between past and future.

Previous research often takes prior interactions between individuals or organisations as an indicator for the emergence and sustaining of social relations, a perspective most pronounced in the social network literature (e.g., Ahuja et al., 2012; Gulati & Gargiulo, 1999). Extending from this perspective, this dissertation directs attention to the important, complementary role of the future. Arguably, the findings of the two empirical studies may be reducible to the following statement: A social relation is not a social relation if it does not have a future, connected to the related actors' past(s). Thus, rather than contesting the importance of the past in the forming of social relations, this dissertation shows how actors reinterpret and recombine their pasts in the making of shared futures. Instead of assuming an unquestioned continuity between past and future, the empirical studies reveal how the ways in which actors draw connections between pasts and futures so that they come to mutually define each other is constitutive of the temporality of social relations. Specifically, both empirical studies demonstrated the importance of shared future projections for the emergence of a shared trajectory, albeit in different forms.

In the first study, shared future projections took the form of organisational-material conceptualisations of the BLOX building. The findings reveal how, during different periods in the past, actors projected their organisational ambitions onto the material building as an impending future potentiality. The study reveals how actors referred to and drew on emerging ideas and trends to articulate and conceptualise how actors anticipated organisations would interact with the building in the future as tenants or stakeholders. The shared future projections emerging at

different times involved only partially overlapping sets of actors. As a result, when moving into the building, several organisations found themselves in a shared future that they had not anticipated or jointly imagined. Actors sought to resolve the resulting tensions by either attempting to mutually adjust the coexisting past conceptualisations in the present or developing additional future projections to influence the direction of the collaborative endeavour.

In the second study, shared future projections took the form of alternative approaches to an entry into the market for courtyard refurbishments. These shared future projections specified different business models, the potential role of the involved organisation in the business model, and the relations between them, mirroring the findings of prior research on collaborative innovation (Ansari et al., 2016; Dattée et al., 2018; Deken et al., 2018). In contrast to the first paper, the different shared future projections emerged simultaneously, and actors perceived them as alternatives and thus mutually exclusive. After pursuing one shared future projection, actors shifted their trajectories towards another shared future projection before discontinuing their collaborative activities. These potential shared future projections resemble what scholars have referred to as 'latent networks' (Ebbers & Wijnberg, 2009; Mariotti & Delbridge, 2012; Starkey et al., 2000). However, whereas latent networks result from actual past collaborations, these shared future projections emerged from imagined future interactions based on reinterpretations of the involved actors' respective past experiences. Rather than being mere castles in the sky, my findings suggest that actors remain ready to act upon these shared future projections when opportunities arise.

Even though both empirical studies confirmed the importance of shared future projections in the emergence of social relations, the stability of these relations varied across the two studies. In the case of BLOX, the different conceptualisations remained stable even though several alternatives emerged over time. In the case of the collaborative innovation process, actors also settled on a shared future projection which they started to pursue before the emerging shared

trajectory came to a preliminary halt. An obvious difference between both cases was the impending future materiality of the BLOX building (Study 1), compared to the uncertain promise of a pilot project or configuration platform (Study 2). In the first study, the material temporality of the BLOX building determined the future time horizon of the shared projections and provided actors with a sense of factuality. In contrast, in the second study, the future time horizon of the shared projection was subject to negotiation among the involved organisations. Lacking the tangibility of a material building or a concrete future project, actors engaged in what I termed 'temporal abduction' to build a shared future projection by iteratively moving back and forth between their respective pasts and futures.

The empirical studies respectively indicated the role of a material building and collaborative innovation sessions in facilitating actors' shifts from an 'in time' view to an 'over time' view. In the first study, the building 'provided the fantasy', as one of my informants put it, for reflection on and redirection of organisational trajectories. Put differently, the potentialities associated with the future landmark buildings, both symbolic and in terms of material space and functionalities, provoked actors to imagine how the building could help them realise their organisations' future ambitions. Afforded by the building's impending materiality, actors repeatedly shifted between the 'in time' and 'over time' views of their trajectories over the course of 12 years, conceptualising and reconceptualising their social relations in the context of the building until BLOX was inaugurated.

In the second study, the shared future projections emerged during dedicated collaborative innovation sessions designed to foster exploration of collaborative futures. Different brainstorming exercises facilitated by consultants were intended to help workshop participants reflect on their respective organisational trajectories from an 'over time' view. This approach fostered intensive iteration between participants' respective pasts and futures, thereby enabling them to create multiple shared future projections over a short time frame. The findings suggest

that actors treated their organisational trajectories as more malleable than they would have in other settings in order to facilitate the co-creation of potential shared future projections. However, participants did not begin to explore whether and how these potential future projections could be aligned with their respective organisational trajectories until after the workshop. For example, the findings suggest that the different time horizons of the collaborating organisations affected the extent to which they pursued the emerging shared trajectory. I return to the role of the material building and purposive matchmaking or collaboration sessions in section 8.3, where I discuss implications for practice.

8.2 Methodological contributions

The main methodological contribution of this dissertation is the development of 'temporal process analysis' (TPA), an event-based methodological approach that combines process studies 'in time' and 'over time'. The development of TPA responds to recent calls for a translation of theoretical process ideas—in this case, an event-based perspective of organising—into inventive research designs (e.g., Jarzabkowski et al., 2016; Langley & Tsoukas, 2016a). In addition to facilitating an analysis of the interplay between the 'in time' and 'over time' views, TPA provides a way of operationalising the temporality of organisations and materials, which enables the interplay between multiple organisational and material trajectories to be analysed. This operationalisation enables researchers to follow how a shared temporality emerges from these trajectories, and how the shared trajectory interacts with the respective trajectories in turn.

The application of TPA in two empirical studies revealed its potential for investigating how the flow of time affects organisational processes—in this case, the emergence of social relations. Most importantly, it enabled me to empirically demonstrate not only how actors are oriented toward the past and future at any present moment in time, which is a fundamental characteristic of temporal embeddedness (Emirbayer & Mische, 1998), but how they draw connections between

the past and the future, so that they come to mutually define each other (as argued conceptually by Hernes, 2014). Building on this insight, TPA helped reveal how actors' interpretations of past and future events and the connections drawn between them changed with the flow of time. In the specific case of the emergence of social relations, applying TPA enabled me to explore the associated-yet-separate nature of social actors and social relations by systematically following their respective temporalities 'in time', as well as render encounters between the temporalities of multiple actors visible from an 'over time' view.

TPA constitutes a response to two recent calls for methodological development. First, TPA responds to calls to develop methods tailored for the specific theoretical puzzles emerging from the ontological and epistemological premises of process organisation studies (Langley et al., 2013; Langley & Tsoukas, 2016a). Rather than allowing the ontological distinction between 'being' and 'becoming' to limit the creation of such tailored approaches, TPA takes seriously calls for 'hybrid' approaches (Garud et al., 2017) as well as the need for process methodologies to challenge established methodological conventions in organisation and management studies (Jarzabkowski et al., 2016). Specifically, I hope to have demonstrated that formal, systematic analysis is not contradictory to investigations adopting a 'becoming' ontology, and may provide a fruitful complement to approaches seeking to preserve situated temporal experience 'in time' through writing style (e.g., Helin, 2015).

Second, TPA responds to recent calls to advance visualisation techniques for process studies by 'rethinking the arrows' of predominant 'box and arrow' process diagrams (Feldman, 2016; Langley et al., 2013; Langley & Ravasi, 2019). Specifically, I address the 'convenience of unlabelled arrows', which may 'obscure the causal complexity that process theorizations are intended to explain' (Langley et al., 2013, p. 8). TPA offers an analytical approach that not only conceptualises arrows theoretically as 'prehensions' (inspired by Hussenot & Missonier, 2016) but also enforces an underpinning of each arrow with concrete empirical data. Thereby, it provides

an example of 'the role that drawing may play not only in communicating findings and theoretical constructions but also in generating them' (Langley & Ravasi, 2019, p. 174). Conversely, event graph visualisations based on coded event databases are ill-suited to the presentation of results, confirming the worry that 'attempts to faithfully capture the complexities of process can result in diagrams that are busy and equally opaque' (Langley et al., 2013, p. 8) as diagrams with unlabelled arrows. In line with these concerns, my empirical studies also reveal a need for more abstract visualisations which convey theoretical insights or aggregate patterns inferred from the analytical event graph visualisations.

Although combining 'in time' and 'over time' methodological approaches may enable a better understanding of how the flow of time affects organising, it has other methodological drawbacks. Combining methodological approaches sacrifices some of the nuances in the application of each approach, thereby limiting their full potential. This effect is exacerbated by the constraints of the article format, which limits the researcher's ability to both report rich, ethnographic analyses from an 'in time' view (Jarzabkowski et al., 2014) and convey the complex dynamics of qualitative process research from an 'over time' view (Berends & Deken, 2019), even when not attempting to combine the two. Thus, although I emphatically argue for the need to follow actors in how they shift attention between the 'in time' and 'over time' views, it is important to remember that my starting point was a particular research interest—namely, investigating how the flow of time affects organising.

8.3 Implications for practice

This dissertation enables a better understanding of how practitioners may draw on collaborative spaces to facilitate interactions between novel constellations of actors across the private, public, and non-profit sectors to collaboratively develop solutions to societal grand challenges (e.g., Ferraro et al., 2015; George et al., 2016; Howard-Grenville et al., 2014). Specifically, my findings

suggest that material spaces such as the BLOX building, as well as purposive matchmaking or collaborative innovation sessions such as the BLOXHUB Match & Create sessions prompt actors to think about alternative long-term futures which otherwise would not have been taken into account. In this way, collaborative spaces help counter the tendency to prioritise short-term business concerns over long-term societal challenges (Bansal & DesJardine, 2014; Lê, 2013; Slawinski et al., 2017; Wright & Nyberg, 2017). In addition, the findings indicate the need for collaborative activities to connect over time in order to be effective. I consider these three implications in turn.

First, my findings suggest an important role of designated material spaces for facilitating collaboration. In particular, they shed light on the potential role of a (landmark) building. Providing the material space for collaborative activities offers a certain level of discretion over whom to involve in collaborations. Although practitioners may be more inclined to fund concrete activities rather than 'bricks and mortar', as a Realdania board member suggested, an alternative strategy may be to invest in the physical infrastructure necessary to host these activities. The case of the BLOX building suggests how a building that serves as a contemporary landmark for sustainable urban development may play an agenda-setting role with regard to societal issues. Actors in industries and societal functions touching upon sustainable urban development in Denmark know what the BLOX building stands for, and perceive it as a sign of Realdania's long-term commitment to urban sustainability, a kind of placeholder in the urban fabric. Providing material space may provide a way to foster collaboration and direct organisational attention, thereby sustaining focus on societal challenges that require a long-term perspective.

Second, my analysis of the BLOXHUB Match & Create program shows how purposive matchmaking or collaboration sessions foster engagement with long-term futures. During these sessions, professionals took time out of their busy schedules to think jointly about more long-term issues. In addition, they provided a way for heterogeneous actors to learn about their respective

temporalities, including diverging time horizons, budgeting cycles, and financial targets, which may otherwise impede collaboration. However, unlike participants in the Match & Create session on courtyards analysed in Study 2, participants in other sessions felt that they had produced nothing more than 'hot air', which points towards the third practical implication of my findings.

Third, my findings suggest that collaborative activities need to connect to the wider event formation to unfold their effects. Seen as an event, a collaborative activity is only effective to the extent that actors during other events anticipate it as future event or remember it as a past event. In the empirical setting of my dissertation research, I observed connections being established between activities in several ways. For instance, I observed how the BLOXHUB Match & Create program unfolded a sense of continuity between sessions when participants in previous sessions became problem owners in subsequent sessions. The BLOX building exemplifies how staging diverse activities in the same material space may create a sense of their connectedness.

These implications are relevant for practitioners in all types of organisations aiming to encourage collaboration among heterogeneous actors to address societal problems. First, as is evident from the central role of the Danish philanthropy Realdania in the empirical context of my dissertation, these practical implications are most relevant for non-governmental and philanthropic organisations engaged in venture philanthropy (Mair & Hehenberger, 2014) or seeking to make collective impacts (Kania & Kramer, 2011). Second, in recent years, different levels of government and public funding agencies have begun to focus on transformative or mission-oriented (innovation) policies, which seek to encourage cross-industry and cross-sectoral collaboration (e.g., Foray et al., 2012; Kuhlmann & Rip, 2018; Mazzucato, 2018; Rip & Joly, 2012). Finally, these practical implications offer guidance to private corporations seeking to organise multi-stakeholder initiatives to address societal issues, as studied in the literature on political corporate social responsibility (e.g., Scherer et al., 2016; Scherer & Palazzo, 2011).

9 AVENUES FOR FUTURE RESEARCH

This dissertation opens several avenues for future research. Both the contributions of this dissertation as well as its limitations and shortcomings open up new directions for related fields of study. In this chapter, I highlight three such avenues for future research: (a) further developing TPA and the underlying analytical reasoning into a *formal approach to time and temporality research in organisation studies*; (b) relating this dissertation's contributions to an event-based perspective of the temporal emergence of social relations to efforts among social network scholars to advance a *temporal understanding of social networks*, which also revolve around the concept of 'events'; and (c) advancing a *processual understanding of organisational space*, especially drawing on the conceptual and empirical insights of Study 1 on the material temporality of buildings (Chapter 5).

9.1 A formal approach to time and temporality research in organisation studies

Building on the development of TPA, I consider an elaboration of the underlying analytical reasoning into a *formal approach to time and temporality research in organisation studies* to be a promising avenue for future research. Although the development of TPA is one of the main contributions of this dissertation, I have by no means exhausted its possibilities and implications. Methodological innovation cascades through the entire research process (Lê & Schmid, 2020), and further work is needed for TPA to achieve the high level of internal consistency that is characteristic of powerful research designs (Gephart, 2004). My process of methodological innovation unfolded iteratively throughout the period of my doctoral research, as I recounted in Chapter 4, where I described my research process. As a result, decisions regarding data generation, data analysis, and presentation of findings coevolved. Thus, my research did not neatly follow the steps presented in Study 3 (Chapter 7). Rather, these steps emerged as the gist of my iterative

methodological innovation process. As I suggest at the end of Chapter 7, my basic conceptualisation of TPA is an invitation for organisational scholars to modify and adapt the approach as they see fit to specific contexts.

Specifically, I suggest that TPA provides the starting point for the creative development of new operationalisations and measures to analyse and theorise time and temporality. In contrast to other qualitative process methodologies proposed for research adopting a 'becoming' ontology (e.g., Garud et al., 2017; Helin, 2015; Jarzabkowski et al., 2016; van Hulst et al., 2016), the ambition to articulate and technically implement a more formal approach is one of TPA's distinguishing features. Some process scholars may consider a formal approach to empirical studies to fundamentally conflict with the ontological and epistemological premises of process organisation studies because it runs the risk of 'breaking up the flow'. However, I suggest that formal approaches hold great potential to actually reveal and enable researchers to analyse the (temporal) complexities that a process view of organisation claims to bring to the fore. In addition, formal approaches may counteract the tendency to give only a 'cursory nod' to process methods, as Lerman et al. (2020) found to be the case for references to Langley's (1999) ground-breaking methods paper.

Process research adopting an 'over time' view commonly draws on formal, often quantitative methods for sequence analysis (Cornwell, 2015; Poole et al., 2016). As the term 'sequence analysis' suggests, these approaches rely on the sequential patterning of data, which assumes a unidirectional view of time. A bidirectional view of time that allows for links to both the past and future, which is central to the theoretical reasoning underlying TPA, prevents the application of such methods. One potentially fertile direction that could help leverage the analytical potential of TPA would be to develop a set of temporal measures for event graphs. Social network measures (Scott & Carrington, 2014; Wasserman & Faust, 1994) such as in- and

out-degree, centrality, connectivity, distance, reciprocity, or clustering may serve as inspiration in this development work.

Temporal measures for event graphs could offer a way to operationalise and analyse the temporality of empirical organisational processes. Research on time and temporality has been flourishing in recent years, and a set of concepts to describe temporal phenomena is starting to take shape. The mere frequency of events over time may provide an indication of the overall pattern of organisational temporalities (e.g., Orlikowski & Yates, 2002; Reinecke & Ansari, 2015; Rowell et al., 2016). Changes in the past and future temporal depths of actors' time horizons (e.g., Bluedorn, 2002; Schultz & Hernes, 2020) may be revealed by analysing actors' references during present events to other past and future events, and plotting them as a moving average over the course of the investigated time interval. The number of incoming references to an event made during past and future events (what social network analysts refer to as the 'in-degree' of a node, see Wasserman & Faust, 1994) may offer an indicator of its temporal agency (Hernes, 2014, 2016). Conversely, a high number of outgoing references ('out-degree', see Wasserman & Faust, 1994) may suggest that actors during this event sought to bend their trajectories and engaged in temporal work (e.g., Granqvist & Gustafsson, 2016; Kaplan & Orlikowski, 2013).

Formal measures would open a way to perform comparative temporal analysis of multiple processes. Reymen et al.'s (2015) study investigating the dynamics of effectuation and causation in venture creation reveals the possibilities for comparative analysis that a formal, event-based approach provides. As described in Chapter 4, my initial ambition was to conduct a comparative study of the innovation processes unfolding around multiple collaborative innovation sessions conducted at BLOXHUB. It was not possible to conduct an analysis of multiple innovation processes at the same level of depth as I did for Study 2 within the temporal confines of my dissertation research. Moreover, it would have been difficult to identify the temporal dimensions

along which to compare these processes. The development of formal measures for established temporal concepts may facilitate such comparison.

Despite the potential in developing such formal measures, it is important to bear in mind that they will always only enable empirical processes to be described and analysed from an 'over time' view. Thus, in the context of TPA's ambition to investigate how the flow of time affects organisational phenomena, formal measures will help guide attention as to where to 'enter' the event graph and identify specific events for further analysis. 'Entering' the event graph here refers to following actors as they shift between an 'in time' and an 'over time' view of the processes in which they find themselves engaged. Moving from 'over time' analysis to an 'in time' analysis of specific, situated events grounded in ethnographic data may help explain variation across processes. Rather than merely being inspired by social network analytical measures, elaborating TPA into a more formal approach may also make it better suited for combination with event-based approaches in social network analysis, as foreshadowed in Chapter 6, and discussed in more detail in section 9.2.

9.2 Temporal understanding of social networks

Despite their differing epistemological strategies, process and network studies share an epistemological interest in analysing 'observable processes-in-relations' (White, 1997, p. 60; see also Emirbayer, 1997) as well as ontological roots: 'A relational ontology is a processual ontology' (Crossley, 2018, p. 482). In fact, both research strands are strongly influenced by pragmatism (Farjoun et al., 2015; Lorino, 2018; Simpson, 2009) and developments in relational sociology (Crossley, 2018; Emirbayer, 1997; Emirbayer & Goodwin, 1994; Emirbayer & Mische, 1998; Mische, 2014a; White, 2012). The intricate interrelation between the concept of 'network' and 'process' also became apparent in the way that the theoretical framing of my doctoral research evolved, as detailed in Chapter 4. This dissertation shows how events may serve as a kind of prism

that frames networks and processes as epistemological abstractions from the same empirical observations, rather than assigning either concept ontological primacy.

The concept of 'events' is not foreign to social network studies. Methods for dynamic social network analysis usually compare snapshots or slices of network structures over time, which they derive from aggregations of dyadic or multi-actor interactions observed across a window of time (Ahuja et al., 2012; Moody et al., 2005). Individual social interactions are considered 'discrete and separate events' (Borgatti & Lopez-Kidwell, 2014, p. 44). Events are assumed transitory and treated 'as cumulative and repeated over time, describing them as recurrent, patterned, or relatively stable', which enables them to be converted into 'an underlying social relation that is ongoing across interaction episodes' (Borgatti & Lopez-Kidwell, 2014, p. 45). Likewise, in the study of affiliation networks, the underlying network is inferred based on the frequency of social actors' co-affiliation with events (Borgatti & Halgin, 2014; Knoke & Yang, 2008; Laumann et al., 1983).

The analytical potential of 'events' is increasingly attracting the attention of social network scholars. To advance a temporal understanding of networks, several scholars have called for a shift from a discrete view of events towards a more processual perspective that follows the emergence of ties as sequences of events (e.g., Broccatelli et al., 2016; McFarland, 2006; Moody, 2009; Moody et al., 2005; see also a recent special forum on 'Events & Networks' in *Sociological Theory*, Erikson, 2018b). These scholars suggest that 'thinking about networks as linked temporal events' (Moody, 2009, p. 448) facilitates an understanding of 'how the temporal embeddedness of relations defines a dynamic social space' (Moody et al., 2005, p. 1208). This research agenda mirrors several theoretical and methodological problems addressed in this dissertation, albeit taking a reverse approach in moving from a network (relations between actors) to processes (relations between events).

A temporal understanding of network emergence requires attending to the role of both past and future (Kilduff et al., 2006; Mische, 2009, 2014b; Shipilov et al., 2014). From a temporal perspective, 'the network may be considered a virtual set of nodes that stretches both backward in time and forward to include those anticipated to join, and … those whose continuing histories are vividly present' (Kilduff et al., 2006, p. 1039). On the one hand, Kilduff et al. (2006) suggested that 'ghost ties' to actors who no longer form part of the current network may still affect the network, or can be revitalized at a later stage. On the other hand, Mische (2009, 2014b) highlighted the role of future projections in enacting potential network structures. In her view, we may 'conceptualize social networks as extending into the imagined future, requiring cognitive work as people sort through the projected relational consequences of different actions and involvements' (Mische, 2009, p. 698). Analytically, this view calls for scholars to 'consider social networks as sets of interlinked actors continually forming and reforming—continually in the process of becoming' (Kilduff et al., 2006, p. 1039), thereby establishing a direct link to a 'becoming' ontology. I suggest that the event-based analytical approach developed in this dissertation may help conceptualise such a temporal view of network emergence as well as point towards a way to unpack its methodological implications.

9.3 Processual understanding of organisational space

The event-based approach developed in this dissertation may also open new avenues for research on organisational space in general, and processual approaches to the study of organisational space (Beyes & Holt, 2020; Stephenson et al., 2020) in particular. Among others inspired by the foundational work of Lefebvre (1991), studies of organisational space have moved from an understanding of space as 'fixed, dead and immobile' (Taylor & Spicer, 2007, p. 325) or a 'physical environment' (Elsbach & Pratt, 2007) within which organising unfolds, to conceiving of space as enacted through 'processual and performative actions' (Beyes & Steyaert, 2012, p.

48). An event-based approach, I suggest, may contribute to current debates in the literature on organisational space concerning the relation between the material and the social in constituting space, as well as the relation between space and time.

Similar to Leonardi's (2016) criticism of sociomateriality discussed in Study 1, Beyes and Holt (2020) recently claimed that the tendency of processual approaches to use the notion of 'organisational space' to conceptualise the material and the social as mutually constitutive and inherently entangled would obscure the 'becoming' and inherent multiplicity of space. Among others, they built this argument on the work of Massey (2005), who argued space to be 'the sphere of the possibility of the existence of multiplicity in the sense of contemporaneous plurality … Without space, no multiplicity; without multiplicity, no space' (p. 9). My conceptualisation of materiality and social actors as separate trajectories of temporal events in Study 1 (Chapter 5) may also offer a way to attend to space as 'contemporaneous plurality'. This approach seems consistent with the conceptual hunch of Beyes and Holt (2020), who advocated conceptualising space as 'multiple, interwoven trajectories' (p. 6).

This analytical approach may also promise insight into the hyphen of 'spatio-temporality'. Massey (2005) argued:

> Neither time nor space is reducible to the other; they are distinct. They are, however, co-implicated. On the side of space, there is the integral temporality of a dynamic simultaneity. On the side of time, there is the necessary production of change through practices of interrelation. (p. 55)

From an event-based perspective of organisation, space, like time, is conceived of as an abstraction from events: 'Central to an event-based interpretation of organizational life is the idea that space resides in events, rather than events existing in space, just as time is in the events, rather than events being in time' (Hernes, 2014, p. 61). Crudely speaking, the spatiality of time may be thought of as the emergent encounter of elements during present events 'in time', what Massey

(2005) referred to as ‘practices of interrelation’, whereas the temporality of space, its ‘dynamic simultaneity’ or ‘contemporaneous plurality’ can be seen as the unfolding of trajectories ‘over time’, constituted by connected events.

Taking the case of material buildings, one possible research approach would be to follow specific buildings over longer durations of time as they become associated with different organisations over time, conceiving of these material-organisational encounters as events during which ‘spacing’ occurs or organisations ‘take place’ (Beyes & Holt, 2020). This approach might take inspiration from work in architectural anthropology, such as Yaneva’s (2009) study of the Whitney extension in New York. Focusing more on the material dimension, Brand (1994) followed how buildings become adapted to different uses over their life course. A notable study in organisational theory pointing in this direction is Jones and Massa’s (2013) analysis of how the Unity Temple designed by architect Frank Lloyd Wright became central to processes of institutionalisation over time, eventually attaining the status of a ‘consecrated exemplar’. From an event-based perspective, the Unity Temple’s material trajectory of events collapsed, for the building itself to become an event.

Unlike the Unity Temple, Realdania’s Chief Philanthropy Officer called the BLOX building a contemporary landmark for sustainable urban development at the time of its inauguration. Time will tell whether the building will in fact acquire a similar ‘eventness’ (Bakhtin, 1986) for the trajectory of sustainable urban development as it did for the organisational trajectories that became associated with the building, as revealed in Study 1.

10 CONCLUSION

This cumulative dissertation makes theoretical and methodological contributions to an understanding of how the flow of time affects the emergence of social relations. To facilitate a temporal understanding of the emergence of social relations, I developed an event-based analytical approach that I employed in two empirical papers and elaborated in a methods paper. The findings of my empirical studies have implications for practitioners intending to facilitate collaboration among heterogeneous actors to address societal challenges.

Theoretically, my research is informed by and primarily contributes to research on time and temporality (e.g., Kaplan & Orlikowski, 2013; Reinecke & Ansari, 2016; Rowell et al., 2016; Schultz & Hernes, 2013) in the field of process organisation studies (Helin et al., 2014; Langley & Tsoukas, 2016b). Following this prior work, I conceptualised actors as temporally embedded in the flow of time (Emirbayer & Mische, 1998). A main implication of this conceptualisation is that actors develop their 'own time' or temporality, which is endogenous to their movement through time. Likewise, extant studies show how social relations develop their own temporality, which is related to, yet separate from the temporality of the interacting actors (e.g., Ligthart et al., 2016; Stjerne & Svejenova, 2016). In sum, this prior work enabled me to focus my initial research on investigating the interrelationships between the temporalities of actors and the social relations between them.

To conceptualise the temporal associated-yet-separateness of social actors and social relations, I built on and combined two theoretical arguments. First, I followed several process scholars (e.g., Chia & King, 1998; Holt & Johnsen, 2019; Shotter, 2006; Tsoukas, 2019) in conceiving of the distinction between a 'becoming' and 'being' view, what I refer to as an 'in time' and an 'over time' view, as mutually constitutive of actors' temporal experiences, not just different onto-epistemological views of processual organisational phenomena. Actors cope with

the flow of time by shifting attention between both views (Hernes & Schultz, 2020; Shotter, 2006). Second, scholars (e.g., Cobb, 2007; Hernes, 2014; Hussenot & Missonier, 2016) have shown how the notion of 'events' offers a conceptualisation of temporal experience that simultaneously captures an 'in time' and an 'over time' view. Drawing on an event-based perspective of organising, I pursued a temporal conceptualisation of social actors as trajectories of events (Hernes, 2014, 2016; Hussenot & Missonier, 2016; Lord et al., 2015; Reinecke & Ansari, 2016; Tavory & Eliasoph, 2013). Extending from this conceptualisation, I argued that, from a temporal perspective, social relations emerge across multiple events during which the trajectories of actors (and/or materialities) intersect 'in time' and come to connect 'over time' to form a 'shared trajectory'.

In order to empirically study intersections between trajectories and the emergence of shared trajectories, I developed 'temporal process analysis' (TPA), an event-based analytical approach that operationalises these concepts and makes them amenable to empirical studies of processual organisational phenomena. On the one hand, TPA empirically follows actors 'in time' through longitudinal ethnographic data collection. To generate a temporally relational event database, I coded the generated data for events that I observed and to which informants referred, as well as actors who shared in the enactment of these events, and connections actors drew to past and future events. I then used the temporally relational event database to abstract event graphs, thereby providing a visual way to analyse event patterns 'over time'. This analytical approach enabled me to iterate back and forth between both views, following how actors shifted between an 'in time' and an 'over time' view, respectively conceiving of their course of action as 'becoming' in emergent present events or as 'being' in the form of a pattern or trajectory of events. By bridging 'becoming' and 'being', TPA contributes to research on the methodological implications of the 'process turn' for qualitative process methods (e.g., Feldman, 2016; Garud et al., 2017; Jarzabkowski et al., 2016; Sandberg et al., 2015; van Hulst et al., 2016).

Drawing on this event-based analytical approach, I conducted two empirical studies. The first study followed the development of the BLOX building and the first year after its inauguration. The study reveals how the material trajectory of the building intersected with multiple organisational trajectories 'in time', as well as the effects these intersections exerted on the becoming of organisational trajectories and the material trajectory of the building 'over time'. Extending a temporal understanding of materiality (Hernes et al., 2020; Leonardi, 2016), the findings suggest that the longevity of material temporality may act as a catalyst for the emergence of social relations between heterogeneous actors.

The second study follows collaborative innovation processes unfolding in the context of a collaborative innovation session. The study shows how actors engaged in five different modes of connecting their respective presents, pasts, and futures to enable a shared collaborative trajectory to emerge. From these findings, I developed a model of 'temporal abduction' that shows how actors iteratively move back and forth between the past and the future. The bidirectional view of time advanced through the study extends prior work on collaborative innovation (e.g., Dattée et al., 2018; Deken et al., 2018) as well as the temporal embeddedness of interorganisational relations (e.g., Ligthart et al., 2016; Manning, 2019) and innovation (e.g., Garud et al., 2011; Obstfeld, 2012).

Cumulatively, the findings of my two empirical studies contribute to an understanding of how the flow of time affects the emergence of social relations in three main ways. First, extending prior research that has shown how interorganisational relations develop their own temporality (Ligthart et al., 2016; Stjerne & Svejenova, 2016), the studies reveal how the temporality of the social relation affects the temporalities of the interacting organisations in turn. Second, contributing to research showing how actors situated in time are oriented toward the past and future at any given point in time (e.g., Emirbayer & Mische, 1998; Garud et al., 2011; Reinecke & Ansari, 2015; Rowell et al., 2016), my findings reveal how the remembered past and the

projected future change as time moves on. Third, extending studies that have shown the emergence of organisational temporalities (e.g., Kaplan & Orlikowski, 2013; Orlikowski & Yates, 2002), my findings show how actors 'in time' engaged in situated activities that enabled them to move beyond and reflect on their temporalities to redirect their trajectories 'over time' through references to the more distant past and future. While these findings confirm previous conceptual arguments (Hernes & Schultz, 2020; Schütz, 1967; Shotter, 2006) empirically, they also demonstrate the specific role of shifting between an 'in time' and an 'over time' view in the emergence of social relations. I discussed how these three main contributions played out differently across the two empirical studies.

Finally, the findings of this dissertation have three main implications for practitioners intending to facilitate collaboration among actors from different parts of society to address societal challenges. First, my findings indicate how a material building may facilitate (a) the emergence and stabilisation of a novel constellation of actors across societal sectors, and (b) long-term collaboration of heterogeneous actors around important societal issues. Second, my results suggest (a) benefits and challenges associated with collaborative innovation sessions, (b) the need to balance the pursued future projection's level of detail when initiating collaborative innovation processes, and (c) the importance of attending to the respective time horizons of collaborating organisations to sustain collaborative innovation processes. Third, my findings show how a material building and collaborative innovation sessions may support actors in initiating and sustaining (a) engagement with the long-term future, and (b) interactions between heterogeneous societal actors that lead to the emergence of new relations in order to address societal challenges.

The event-based analytical approach advanced in this dissertation, I suggest, may provide a way for practitioners to orchestrate novel collaborations by mapping the past, present, and future of societal actors. Such analysis may bring to attention opportunities to short-circuit or fuse otherwise disparate trajectories, for instance, by facilitating the envisioning of shared future

projections. Put differently, it may foster serendipity, understood not as chance, but as the ability to identify matching pairs of events (de Rond, 2014).

This dissertation paves the way towards an improved understanding of how the flow of time affects the emergence of social relations. Building on an event-based perspective of organising, I carved out the 'in time' and 'over time' dimensions of temporal experience, and showed how the ways actors shift attention between these views may be studied through the concept of 'events'. From these conceptual arguments, I developed an event-based analytical approach to investigate the temporality of organisational phenomena, which I presented in a methods paper, and which guided my analysis in two empirical papers. Apart from extending an understanding of the temporal emergence of social relations, the findings of my empirical studies contribute to research on the temporality of collaborative innovation and materiality. In addition, I highlighted several implications for practitioners who aim to initiate collaborations among actors from different parts of society to address societal challenges.

In the future, researchers could build on this dissertation by advancing the event-based TPA approach in a more formal direction, and using it to study the temporal emergence of social relations in other empirical contexts or to build a temporal understanding of other organisational phenomena. One research problem of particular relevance is how actors can make long-term futures actionable in the present and near future, as touched upon in this dissertation and indicated in prior research (e.g., Hernes & Schultz, 2020; Mische, 2014b; Slawinski & Bansal, 2012, 2015). Addressing this research problem may contribute to tackling some of the most pressing societal problems, such as sustainable urban development and climate change.

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12 SUMMARY: ENGLISH

Through an event-based perspective of organising, this cumulative dissertation advances understanding of the temporal emergence of social relations.

The dissertation comprises three studies. Study 1 advances an understanding of material temporality. Examining material and organisational temporalities as distinct trajectories of events, I conducted a qualitative, event-based process study of a landmark building dedicated to sustainable urban development. The findings reveal how the building emerged *over time* as a result of the intersections and interplay between the building's material trajectory and multiple organisational trajectories *in time*. The study augments understandings of material temporality by demonstrating the interplay between organisational and material temporalities in contexts involving durable (rather than perishable) materials; and by revealing the dynamics between material temporality and the temporalities of multiple organisations, rather than a single organisation.

Study 2 advances a temporal understanding of collaborative innovation. Pursuing a temporal view of organisations as a trajectory of events, I report the findings of a longitudinal ethnographic field study, showing how actors connected back and forth between their respective pasts and futures in order to pursue a shared future. I develop a model from the analysis that explains the interplay of five different modes of connecting the past, present, and future, describing the becoming of a shared trajectory as a process of 'temporal abduction'. The findings contribute to an understanding of the temporality of collaborative innovation processes and interorganisational relations.

Study 3 introduces temporal process analysis (TPA), a method that modifies established, event-based templates for qualitative process studies to account for the temporal embeddedness of actors. The study responds to calls for methodologies that attend to how the embeddedness of

actors ‘in time’ and the pattern of events ‘over time’ mutually affect each other. TPA formalises the temporal embeddedness of actors by attending to the connections made by actors involved in present events to past and future events. Through an illustrative case study, I show how TPA opens new avenues for theorising the temporality of organisational processes. I indicate possible applications of TPA in different fields of organisational research.

Cumulatively, the three studies make a theoretical contribution to process organisation studies by developing an event-based analytical framework that enables researchers to investigate how the flow of time affects organising. The empirical papers show how this analytical approach extends an understanding of the temporal emergence of relations in studies of material temporality and collaborative innovation. The primary methodological contribution of this dissertation is the development of temporal process analysis (TPA). Application of TPA in two empirical studies reveals the method’s potential for investigating how the flow of time affects organisational processes.

Finally, findings from this dissertation have three main implications for practice by revealing how a collaborative building and collaborative innovation sessions may first, encourage actors to engage more extensively with the long-term future, and second, facilitate interactions between heterogeneous societal actors that lead to the emergence of new relations aimed at addressing societal challenges. Third, collaborative activities need to relate to other shared past and future events to unfold their effects.

13 SUMMARY: DANISH (RESUME)

Gennem en begivenhedsbaseret forståelse af organisering, akkumulerer denne afhandling en forståelse af den temporale tilblivelse af sociale relationer. Afhandlingen omfatter tre studier.

Det første studium udvikler forståelsen af materiel temporalitet. Ved at anvende et 'udviklende' perspektiv konceptualiserer jeg materielle og organisatoriske processer som distinkte begivenhedsforløb. Jeg undersøger materiel temporalitet ved at kombinere etnografiske og historiske data i et kvalitativt, begivenheds-baseret studium af byggeriet af et vartegn for bæredygtig byudvikling. Konklusionerne viser, hvordan vartegnet opstod *over tid* som et resultat af skæringspunkter og vekselvirkninger mellem bygningens materielle forløb og adskillige organisatoriske forløb *i tid*. Studiet forstærker forståelsen af materiel temporalitet på to måder: ved at demonstrere samspillet mellem de processuelle og epokegørende dimensioner i kontekster, der involverer varige (snarere end forgængelige) materialer; og ved at åbenbare dynamikkerne mellem materialitet og adskillige snarere end en enkelt organisation.

Det andet studium avancerer en temporal forståelse af samarbejdsinnovation. Ved at anlægge et temporalt blik på organisationer som et forløb af begivenheder kan jeg gennem et longitudinalt etnografisk studium vise, hvordan aktører sammenknyttede deres respektive fortider og fremtider for at forfølge en fælles fremtid. Ved hjælp af analysen udvikler jeg en model, der forklarer sammenspillet mellem fem forskellige måder at forbinde fortiden, nutiden og fremtiden og beskriver tilblivelsen af en fælles kurs som en proces kendetegnet ved 'temporal abduktion'. Resultaterne bidrager til forståelsen af samarbejdsinnovations temporalitet og interorganisatoriske relationer generelt.

Det tredje studium introducerer temporal procesanalyse (TPA) som en metode til at modificere kvalitative processtudiers etablerede begivenheds-baserede skabeloner i forsøget på at redegøre for aktørers temporale indlejring. Den nylige proces-vending i organisationsstudier

kræver metodologier, der indfanger, hvordan aktørers indlejring 'i tid' og mønstret af begivenheder 'over tid' gensidigt påvirker hinanden. TPA formaliserer aktørers temporale indlejring ved at følge de forbindelser, som aktører, der er involveret i nutidige begivenheder, har til fortidige og skaber til fremtidige begivenheder. Gennem et illustrativt case-studium af en innovationsproces viser jeg, hvordan TPA åbner nye muligheder for at teoretisere over organisatoriske processers temporalitet. Jeg indikerer andre mulige anvendelsesmuligheder af TPA i forskellige grene af organisationsforskningen.

De tre studier skaber tilsammen et teoretisk bidrag til procesorganisationsstudier ved at udvikle et begivenhedsbaseret analytisk ramme, der gør forskere i stand til at undersøge, hvordan tidens gang påvirker organisering. De empiriske studier viser, hvordan denne analytiske tilgang udvider forståelsen af den temporale fremkomst af relationer i studier af materiel temporalitet og samarbejdsinnovation. Denne afhandlings primære metodebidrag består af udviklingen af temporal procesanalyse (TPA). Ved at demonstrere anvendeligheden af TPA i to empiriske studier viser denne afhandling metodens potentiale i at undersøge, hvordan tidens gang påvirker organiseringsprocesser.

Afslutningsvis vil jeg understrege tre praktiske implikationer, som afhandlingen har: For det første viser studierne, hvordan samarbejde omkring etableringen af en ikonisk bygning og samarbejdsinnovation kan opmuntre aktører til i vidtstrakt form at engagere sig i den langsigtede fremtid; for det andet kan sådanne samarbejder mellem heterogene samfundsaktører føre til tilblivelsen af nye relationer med det formål at adressere samfundsudfordringer; for det tredje antyder resultaterne, at samarbejdsaktiviteter er nødt til at anspore andre samarbejdsaktiviteter for at udfolde deres effekter.

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