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Materiality as Ingredients of Events: Comprehending Materiality as a Temporal Phenomenon in a Makerspace

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Introduction

In organization studies, the research stream called sociomateriality has been a clear signal of the interest of scholars in the role of materiality in the making of social life (Jarzabkowski & Pinch, 2013). The debate has mainly been about a shift in the understanding of the social and the material from a weak relational ontology (Slife, 2004)—also called weak sociomateriality (Jones, 2014)—to a strong relational ontology (Slife, 2004)—also called strong sociomateriality (Jones, 2014). To date, in the weak relational ontology, the social and the material are imbricated, but remain distinct, merely interdependent phenomena (Leonardi, 2010, 2011, 2013; Leonardi & Barley, 2008, 2012). Conversely, the strong relational ontology has stated that the social and the material are

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entangled, and gain status only through their interpenetration (Orlikowski, 2006, 2007, 2010; Orlikowski & Scott, 2008, 2013; Shotter, 2013). Following this latter approach, "each thing, including each person, is first and always a nexus of relations […] They start out and forever remain in relationship" (Slife, 2004, p. 159).

By taking the social and the material as taken-for-granted elements, scholars of the weak relational ontology have mainly focused on their interaction and their co-influence, but do not consider organization as a becoming process in which the social and the material are intertwined and constantly co-produced. Conversely, the strong relational ontology has offered interesting insights to understanding how the social and the material emerge in practices, but scholars have struggled to elude a substantive perspective consisting of the separation between the social and the material. Therefore, research has provided very little insight on the relational ontology of the social and the material as a becoming process (Cecez-Kecmanovic, Galliers, Henfridsson, Newell, & Vidgen, 2014; Kautz & Jensen, 2013). In most studies, they remain two distinct elements in the foreground to enable the study (Cecez-Kecmanovic et al., 2014), while the matter of organization has not really been considered. In fact, most research in this research stream does not question the matter of organization.

This shortcoming refrains us from understanding the role of materiality in the emergence of organizational phenomena, especially in a context of "projectification" of work and society (Jensen, Thuesen, & Geraldi, 2016), in which the organization is not a stable entity, but a constantly emerging and evolving phenomenon. In such a context, activities are more and more based on multiple and temporary projects requiring situated rules, roles, tools, objects and so on. Ways of working such as freelancing (Burke, 2015), coworking (Spinuzzi, 2012), the maker movement (Anderson, 2012; Dougherty, 2012) and digital nomadism (Makimoto & Manners, 1997) are examples of this projectification of work leading to the constant re/definition of organizational phenomena. In such phenomena, the social and the material are not stable, separated and given; they are always in state of becoming as they are constantly re/defined through situated practices. More precisely, in such project-based ways of working and organizing, the organization is not defined as a stable structure but by temporalities, that is, a situated and shared definition and

configuration of past, present and future events related to the activity, that enable actors to coordinate and act (Hussenot & Sergi, 2018).

With the aim to offer some insights about how materiality participates in the making of organizational phenomena, I focus on the relation between materiality and organizational temporality. By providing insights about the relation between materiality and organizational temporality, my goal is to contribute in our understanding about organization and organizing in the context of "projectified" ways of working as well. More precisely, I rely on an events-based approach (Hernes, 2014a, 2014b; Hussenot, 2019; Hussenot, Hernes, & Bouty, 2020; Hussenot & Missonier, 2016) to study how materiality participates in the re/definition of organizational temporality. Based on the philosophies of Bergson (1889, 1896, 1907) and Whitehead (1920, 1929, 1938), this view proposes to understand materiality as tangible elements of the passage from the flux of indivisible experience to an intelligible reality. In such a view, the intelligible reality emerging from the materialization process is always a temporal one; as the intelligibility of the reality is in the re/definition of past, present and future events giving a sense of continuity and order to actors (Hussenot & Missonier, 2016). Consequently, materiality is here defined as the characteristics of past, present and future events—called "ingredients of events" by Whitehead (1929)—participating in the shaping of organizational temporality. In turn, the re/definition of organizational temporality participates in the definition of the meaning and role of materiality. In such a view, materiality shapes and is shaped by organizational temporality.

This events-based approach of materiality is illustrated with data collected from an ethnography (Hulst, Ybema, & Yanow, 2017) about the emergence of a collective of makers, members of a makerspace. Makers are creative workers developing innovative products and services combining design, craft and high tech; a makerspace is a hub of resources for makers providing workshops, coworking spaces, fablabs, and traditional and digital tools.

This empirical illustration describes the role played by materiality—such as the building, website, interior design, furniture—in the definition of a shared history, present and anticipated future about the collective of makers. This illustration shows how materiality plays the role of

"ingredients of events" characterizing the past, present and future events that define a shared organizational temporality.

The main contribution of this chapter is to suggest an events-based approach of materiality in which materiality is understood as "ingredient of events" (Whitehead, 1929). This view enables us to understand how materiality participates in the definition of the past, present and future events, and how, in turn, the materiality is defined through those events. More precisely, this events-based approach of materiality participates, firstly, in the debate about sociomateriality (Cecez-Kecmanovic et al., 2014; Kautz & Jensen, 2013) by providing an alternative view about materiality that might help scholars to overcome the latent material and social dualism. In the view suggested in this chapter, the relational ontology of the materiality and the social is specified, as materiality here is considered as defined (and participating in the definition of) through events forming the organizational temporality. In such a perspective, materiality and events have a mutual and situated constitution. Secondly, this chapter participates in the debate about organizational temporality (Chia, 2002; Hernes, Simpson, & Soderlund, 2013; Reinecke & Ansari, 2017) by highlighting the role of materiality—that is, ingredients of events—in the re/definition of past, present and future events.

The first section of the chapter discusses the literature about sociomateriality and underlines the difficulty to grasp the relational ontology between the social and the material. The second section introduces an events-based approach of materiality in order to deal with the relation between materiality and organizational temporality. The third section illustrates this temporal view of materiality by relying on an ethnography with makers. The fourth section discusses the contributions of such an events-based approach of materiality in our understanding of organization and New Ways of Working.

The Relation Between the Material and the Social in Organization Studies

For decades, materiality has been a tricky matter for organization scholars. If some scholars have tried to deal with materiality as physical entities belonging to an organization (technologies, tools, etc.), other scholars have approached this notion by conceptualizing the relation between the material and the social, regardless of ontological and theoretical stances (Carlile, Nicolini, Langley, & Tsoukas, 2013; Cecez-Kecmanovic et al., 2014; Leonardi & Barley, 2012; Leonardi, Nardi, & Kallinikos, 2012). Viewing materiality through the lens of the social and the material relation has led to at least two approaches: the weak relational ontology and the strong relational ontology (Jones, 2014; Slife, 2004).

The weak relational ontology (Jones, 2014) has focused on the materiality and the organization as discrete entities. Inspired mainly by the sociotechnical systems approach (Trist, 1981; Trist & Bamforth, 1951), scholars have dealt with the imbrication of materiality and the organization (Leonardi, 2010, 2011, 2013; Leonardi & Barley, 2008, 2012). Organization is here considered as an entity—Leonardi (2013) talks about "formal organization", while the notion of materiality refers to properties that remain unchanged from one moment to the next through different locations (Leonardi, 2013, p. 145). Thus, materiality and the organization are entities with inherent properties. Consequently, the weak relational ontology has also distinguished "human agency" from "material agency" (Leonardi, 2011). However, in some research, the status of materiality is not delimited to physical objects and can be any of "(1) matter (2) practical instantiation and (3) significance" (Leonardi, 2010).

The second approach—the strong relational ontology (Jones, 2014)—has argued that the social and the material are entangled, and gain status and role only through their intertwinement with each other in practice (Introna, 2013; Jones, 2013; Orlikowski & Scott, 2008; Shotter, 2013). This second approach is mainly anchored in agential realism (Barad, 2003, 2007), posthumanism (Pickering, 1995), Actor-Network Theory (Latour, 2005) and practice theory (Feldman & Orlikowski, 2011;

Orlikowski, 2000). Here, entities have no inherent properties (Orlikowski & Scott, 2008). Taking this entanglement perspective into account, any separation is merely analytical.

However, despite several concepts to differentiate it from the weak relational ontology, such as "inseparability", "interpenetration", "relationality", "embodiment" (Jones, 2013, p. 202), research relying on a strong relational ontology have not fully overcome the social and material dualism (Cecez-Kecmanovic et al., 2014). The demonstration from "everyday practices" remains an issue and mostly consists in providing chunks of narratives based on interviews (Cecez-Kecmanovic et al., 2014), leading to a separation between the material and the social as scholars start their account by describing taken-for-granted humans and/or non-humans. In empirical studies, the material and the social thus remain more or less separated and are placed in the foreground of the study to make it feasible (Cecez-Kecmanovic et al., 2014). Therefore, by using human and non-human distinctions, scholars can no longer follow their own logic of argument.

Considering the material and the social as mutually constitutive (Orlikowski, 2007), existing only in practices (Orlikowski & Scott, 2008), and as having no inherent properties (Orlikowski & Scott, 2008), existing "as doing" (Shotter, 2013) in their "radical otherness" (Introna, 2013), requires to overcome this latent dualism. To paraphrase Jones (2013, p. 223), it is essential to not just reflect on how "matter matters", but how the material and the social matter in practices; that is, how forms and their relations appear. To overcome this latent dualism and provide an alternative relational ontological view of materiality and organization, I suggest to apply an events-based approach to materiality. This events-based approach of materiality does not pretend to answer all the questions and shortcomings about sociomateriality, but rather aims at offering an alternative way to consider the relation between the material and the social by focusing on how materiality participates in the definition of the organizational temporality and, in turn, how materiality is defined through this organizational temporality.

Understanding Materiality from the Events-Based Approach

By relying on the events-based approach (Hernes, 2014a, 2014b, 2017; Hussenot, 2019; Hussenot et al., Forthcoming; Hussenot & Missonier, 2016), the aim is to understand how materiality characterizes the events shaping organizational temporality. The relation between time and materiality has already been highlighted in organization studies. There is a long tradition of research insisting on how time is materialized in organizations (de Vaujany, Mitev, Laniray, & Vaast, 2014). In such a tradition, artefacts materialize a natural and objective view of time in which the past, the present and the future are seen as different and discrete epochs that can be positioned along a timeline once for all. Artefacts are here used to measure, organize and evaluate activities based on this objective view of time. However, by suggesting an events-based approach to materiality, our aim is not to focus on how time is materialized but, rather, to provide insights about how materiality "does time" (Barad, 2013) and, more precisely, does organizational temporality; and how, in turn, organizational temporality participates in the definition of materiality. In such, there is a clear distinction here between time and temporality as the notion of temporality refers to a situated view of time in which the past, the present and the future events are constantly redefined and configured by actors in order to define their activity and act (Hussenot, 2019; Hussenot & Missonier, 2016).

From the Flow of Experiences to Materiality

Materiality has often been associated with the idea of "object" or "technology". For instance, the matter of materiality has been largely developed in the Information Systems field in which it has often been conflated with the notions of digital or information technologies (Cecez-Kecmanovic et al., 2014). But the notion of materiality can be envisaged more broadly, as suggested by Bergson (1896, 1907). The starting point of Bergson's philosophy is to consider life as an "indivisible movement". The notion of *durée* he coined in his early work (Bergson, 1889, 1907)

expresses the idea that reality is fundamentally indivisible and always in a state of transition and progression, without any predefined stage and change. However, people need to operate separation and division in the *durée* in order to make the world tangible and intelligible. In Bergson's philosophy, materiality is this very division and separation of the flow of experiences into tangible "things".

More precisely, materiality is the "forms emerging from life" (Bergson, 1907). Materiality is thus an "individuation" process in which forms appear. It is important to note that materialization is a necessary activity for people. To experience a reality, people have no choice but to define and separate "things", that is, to define humans and non-humans, or material and social "things". Thus, materiality is what offers people the ability to make the world concrete and actionable. The materialization of the world finds its very justification in the fact that it is the only way for people to act. Materialization of the world is made to act and through action. As Bergson (1907) said: "there is no things, but there is only actions" (Bergson, 1907, p. 249). Action is central in his philosophy as everything emerges from action and is defined for action. Consequently, materiality is not the ultimate reality for actors but only "images" (Bergson 1896) made for the purpose of the action. Therefore, materiality has a tricky status in Bergsonian philosophy as there is nothing tangible in the world but materiality, and, at the same time, materiality has no inherent properties. Consequently, the reality is only perceived as images emerging from experiences.

In such a view, the social has to be understood as part of the materialization process enabling actors to collectively act. What we call the social is only the forms (rules, hierarchies, roles, statuses, etc.) re/produced from the indivisible flux of experience in order to make the actions possible. Consequently, the materialization process is the characterization of social life. This view about materiality brings interesting insights for organization scholars as it considers materiality not as physical things but as the making of an intelligible and actionable social life. This means that, for scholars, what becomes important is to understand how this materialization process occurs and how it enables actors to act.

As Bergson (1896) mentioned, we materialize the world in order to act, but this materialization process means that we have to get away from

the *durée*, that is, the pure experience of the indivisible flux of life, to enter in a tangible world. However, we rarely experience the pure *durée* or the pure materiality of the world; we rather experience an in-between situation that consists in a constant re/materialization of the world. This in-betweenness consists in the constant shifting from the indivisible flux of experience to a tangible reality. More precisely, this in-betweenness is this constant re/definition of the continuity of reality, providing an intelligibility and a sense to the current reality experienced by actors. The tangible reality emerging from the materialization is thus always a temporal one for Bergson (1896, 1907), as the materialization process consists in the constant re/definition of the past and the future. In such, this temporality emerging from the materialization is what makes the current reality intelligible. This view is in line with Whitehead (1920, 1929, 1938) for whom the intelligibility of reality emerges from events and temporality as they bring a sense of order and continuity (Whitehead, 1929). In the Whiteheadian view, any phenomenon is a temporal one and is defined through events and their configuration—which he called "structure of events".

Understanding Materiality as Ingredients of Events

As a tangible reality is always temporal (Bergson, 1907), what is at stake is the role of materiality in the enactment of the past, present and future events that define this tangible reality. Following this view, the materialization process is related to events forming the temporality. For Whitehead, events are simply concrete facts, or indivisible moments, that specify the character of a place experienced (Whitehead, 1920, p. 52). More precisely, the notion of event means "to appear, to come into form" (Cooper, 2014, p. 585). In such a perspective, reality also only occurs in events and there is nothing more but events arising out of other events (Cobb, 2007). As stated by Mead (1932, p. 3) "the world is a world of events". Materiality—note that Whitehead does not employ this notion but uses the terms "object" or "entity", see below—is constituted of events and characterizes these events.

Based on this process philosophy of Henri Bergson and Alfred North Whitehead, the events-based approach suggests to understand organization as a structure of events (Hernes, 2014a, 2014b, 2017; Hussenot, 2019; Hussenot et al., Forthcoming; Hussenot & Missonier, 2016).[1] Defining organization as a structure of past, present and future events re/enacted by people means that organization is this ongoing attempt to define an intelligible ordering and continuity of activities. More precisely, the structure of events is the past, present and future events enacted in the current moment and defining the organizational temporality. In this view, the organizational temporality emerging from the structure of events is considered as the core ontological dimension defining any organizational phenomena (Hussenot, 2019). Moreover, the notion of structure should not be understood as a stable outcome defining organizational temporality; but always fragile, unstable and subject to negotiation, re/definition and re/configuration as its purpose is to define a shared understanding of the continuity and ordering of activities.

Still, what is the relationship between events and the structure of events? Actually, we rarely enact events but the characteristics of those events. These characteristics are the ingredients of events—also called "objects" by Whitehead (1920, p. 144): "namely the event is what it is, because the object is what it is". The character of events is also ascertained from the objects, as they are contained in them: "in fact the character of an event is nothing but the objects which are ingredients in it" (Whitehead, 1929, p. 144). As Marovich, a Whiteheadian philosopher, stated: "an entity means, more or less, that it has become an irreducible element in the process of becoming. It emerges, it is, an element contributory to the process of becoming. It does not emerge into static existence, as a defined substance, but into a temporal process" (Marovich, 2014, p. 112). For example, the minutes of previous meetings about a project help to characterize the current meeting, not because these minutes have inherent

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[1] This events-based approach is anchored in process philosophy (Rescher, 1996, 2001). In this philosophical movement, the things have no existence in themselves, no substance, no absolute role or function, but only acquire role and status through activities. Process philosophy also prioritizes activities over substance as well as process over product (Rescher, 1996, p. 31). By prioritizing activities over substance, process philosophy recognizes entities as only existing in what is happening.

properties but because they are ingredients of past, present and anticipated events enacted by actors during the current meeting. In this, the minutes can serve as a reminder of the decisions already made and the tasks that still have to be performed. The minutes, as ingredients of events, participate in the definition and redefinition of the project itself as they enable actors to enact the structure of events that defines the ordering and the continuity of this project.

Therefore, what we call materiality is all humans and non-humans gaining a meaning and a purpose because of their role in the characterization of the past, present and future events. There is no restriction in the ability of an ingredient to characterize events. As stated by Whitehead (1929, p. 144): "the ingression of an object into an event is the way the character of the event shapes itself in virtue of the being of the object".

Understanding materiality from the Whiteheadian philosophy opens up a perspective in which materiality is seen as a complex layering of characteristics defining a structure of events. The concreteness of materiality is not in its inherent properties but in its ability to define the current moment, that is, to position it in a past, present and future. Moreover, there is no predefined relationship between ingredients of events and events. Any ingredient of events can characterize several events at the same time. An ingredient does not just belong to one event. Ingredients characterize a structure of events as a whole. Ingredients also only exist for their ability to make the current moment possible, that is, to characterize the structure of events that define reality.

Most of the philosophical roots of the strong relational ontology—such as Actor-Network Theory (Latour, 2005) and agential realism (Barad, 2003, 2007)—have claimed that entities only exist in their doing; that is, by acting and constraining others. For them, the properties of entities are simply what they do and how they are associated (Latour, 2005) or "intra-acted" (Barad, 2003) with others. Any entity is thus anything that can act and is acted upon. The perspective I have suggested is in line with these approaches and suggests to go even further by specifying the condition of existence: to exist, a "thing" has to be able to characterize events and, in doing so, participate in the constant definition of reality. Furthermore, the stability of human and non-human properties (their meaning, status, role, etc.) depends on the stability of the structure

of events enacted over time. As the evolution of the structure of events always encompasses both novelty and stability (Hussenot & Missonier, 2016), the human and non-human properties evolve as well. Consequently, materiality not only defines temporality but is defined through temporality, and some characteristics can remain more or less the same, while others can change. This is why the status and the role of "things" can be more or less important, according to the role they play in the definition of the structure of events. For example, the role of minutes of meetings' project can evolve according to the way actors enact these past meetings in the current moment.

The next section introduces an empirical illustration of the matter of materiality based on the events-based approach. Based on an ethnography conducted in 2014 and 2015, this illustration shows how, from the flow of experiences, founders of a makerspace defined past, present and future events producing a shared organizational temporality, and how various artefacts participated in the definition of this temporality, while, in turn, how such artefacts were re/defined through this enactment of past, present and future events.

Empirical Illustration: IciMontreuil

This illustration is anchored into the maker movement (Anderson, 2012; Dougherty, 2012; Hatch, 2013). Makers are independent workers interested in design, craft and high tech and in developing innovative products. They might be artisans, artists, architects and others, but they define themselves as makers. They can group together in shared working spaces called makerspaces. Makerspaces provide the resources the makers need, such as workshops and tools. These working spaces also offer the opportunity for makers to meet other makers to exchange and collaborate. However, makers are not employees of these spaces; they are members paying a monthly subscription to access resources.

The empirical illustration focuses on the creation of a makerspace in Montreuil, a city in the Eastern suburb of Paris, France. Montreuil is characterized by a famous industrial and artistic past as local artists such as Charles-Emile Reynault, the Pathé brothers and George Méliés in the

film industry. This artistic dynamic is still alive as a high number of creatives live in Montreuil. While no official figures exist, more than 800 artists participated in the Montreuil "Open House Day[2]" in 2014 when 166 of the city workshops opened their doors to the public. However, the past has not always been seen as a glorious part of the city's history: the collapse of industry during the 1970s and 1980s led to an economic crisis in the town, which was accompanied by high unemployment (18% in 2013) and poverty rates (27% in 2013[3]). Consequently, this deindustrialization came with poverty and poor living conditions. However, the current gentrification process has led to the revival of the local economy and the rise of a creative class (Collet, 2015).

It is in this context that two founders created in 2009 a *Facebook* group in an effort to bring creative people living in Montreuil together. Due to the 2008 economic crisis and a general lack of communication, creatives such as artists and artisans were facing difficulties in promoting their work. Their principal aim was to promote the talents of Montreuil's creative class. In 2012, the founders decided to move forward and formed a cooperative with the aim of building a 1750 m² makerspace called IciMontreuil. This makerspace opened in January 2013 and aimed at providing resources to makers in order to help them develop innovative products. This makerspace provides workshops, coworking spaces, a fablab, and traditional and digital tools, including Computer Numerical Control machines and 3D printers. In October 2014, more than 160 makers had already decided to join, gained access to the space's material resources, and were able to collaborate on various projects. This makerspace was an immediate success and had a large influence on the French maker movement and is still considered as a major actor in this movement. In the following sections, I introduce the development of IciMontreuil and show analytically how the founders and the makers defined some core past, present and future events shaping their organizational temporality and how various objects gained their meaning as they were ingredients of these events.

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[2] "Portes ouvertes des ateliers d'artiste de Montreuil" in French.

[3] Figures taken from INSEE (French National Institute. for Statistics), see https://www.insee.fr/fr/statistiques/1405599?geo=COM-93048.

The Artistic and Industrial Past of Montreuil

As founders were developing IciMontreuil, the past of the city strongly inspired them. They have lived in this city for a while and often expressed their attachment to the city, especially its industrial and artistic inheritance. In order to give a strong meaning and purpose to their project, they anchored their project into this past. By publishing articles on their website and by giving interviews to media mentioning the influence of the past of Montreuil in their project, they were creating a historical account that served the purpose of IciMontreuil. On the IciMontreuil's website, there are plenty of references about the past of the city and how IciMontreuil is a way to walk in the footsteps of its famous artists and industrialists, such as Georges Méliés, Pathé's brothers. In such, the industrial and artistic past of Montreuil was used as a strategic resource (Foster, Coraiola, Suddaby, Kroezen, & Chandler, 2017).

However, the past is not only mobilized through narratives. Founders also relied on artefact to anchor their project in this past. For example, they decided to locate IciMontreuil in an old factory. For the founders it was a way to bring the industrial past of the city in the daily lives of the makers because, despite renovations, its old industrial architecture is still powerful. Built with small red bricks, a massive iron structure and large windows, the building is typical of the industrial era.

Moreover, this link with the past of the city is not limited to the architecture of the building. The interior architecture has been created based on the same idea. The interior architecture appears to be a tribute to the industrial past of the city as well. The workshops, the meeting rooms, the coworking spaces and so on are designed with the idea to imitate the architecture of small old workshops typical in Montreuil. In other words, the interior architecture is a way to bring this industrial past to the makers' daily life. By doing so, the founders anchored their project into this local industrial and artistic inheritance. This industrial and artistic history is then enacted as past events participating in the definition of what IciMontreuil is about. It gives a specific meaning to actors' activities and identity (Suddaby & Foster, 2017). To do this, the building and interior architecture are ingredients of these past events. There are "objects"

(Whitehead, 1929) defining the character of past events.[4] These ingredients participate in the enactment of the Montreuil past and, by doing so, the legacy on which IciMontreuil relies on.

The Present "Creative Revolution" of Montreuil

However, the founders did not only rely on the past to build the IciMontreuil's organizational temporality but on some current trends as well. To do so, the founders joined the countercultures that were burgeoning during the 2010s and anchored IciMontreuil into this context. The founders relied on trends such as the development of collaborative spaces (coworking spaces and fablabs), the DIY (do-it-yourself) and the DIT (do-it-together) countercultures. All of these movements were inspirations for the project. For example, the hashtags used to describe their *Instagram* account are *#Montreuil*, *#fablab*, *#DIY* and *#DIT*.[5] These countercultures are based on the idea that people can make what they want by constantly learning new skills, sharing knowledge and using new technologies (Anderson, 2012). Such principles were easily appropriated by the founders of IciMontreuil, who found them to be a great way of giving legitimacy to their project.

However, the founders did not ignore the importance of the city's current context. The vivid artistic and craft dynamism in Montreuil was qualified as a "creative revolution" by the founders, and the aim of IciMontreuil was to participate in this creative revolution by hosting these creative people and providing them with resources. Moreover, IciMontreuil celebrates this local artistic and craftwork scene through the organization and participation of numerous events, such as exhibitions hosted in the makerspace. For example, the founders welcome exhibitions of local artists or encourage the makers to participate in shows or competitions.

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[4] For the sake of the illustration, I limit here the analysis to past events, but as mentioned earlier, ingredients of events are not ingredients of one event, but rather are always ingredients of several events.

[5] https://www.instagram.com/icimontreuil/ consulted on 23 March 2017.

All these present events are made tangible through numerous artefacts in the makerspace. For instance, visitors entering the building can see a homemade arcade video-game—a typical artefact of the DIY culture, and designed pieces of furniture and artworks; this is a way to anchor the makers' activities into the current design and artistic trends in Montreuil. In other words, these artefacts play an important role in defining the present of IciMontreuil.

The Future of Production

The past and the present of IciMontreuil are thus made tangible through various artefacts. The same can be said about the future. For instance, at the front door of the building a sign indicates what IciMontreuil is about: "Art[tisanat] + Design + Techno". This sign was installed when IciMontreuil just opened, that is, when the members were just starting to work in the makerspace. However, the first projects completed in the makerspace rarely combined these three aspects, so it was more a goal to share with the members than a matter of fact. Moreover, this way of defining IciMontreuil is linked with another founder's aim: to participate in the development of the local economy. By encouraging makers to create objects combining art, craft, design and high tech, the aim was to make sure that members' activity would participate in the local economy. It was a personal goal for the founders and is very clearly stated on their website.[6]

Another example of how future events can be characterized materially can be found in the role allocated to the fablab. The fablab (fabrication laboratory) is a workshop where makers can find all the technologies they need to craft prototypes and develop electronic parts for their products. 3D printers, laser cutters and so on are available in the fablab where makers can develop innovative products based on innovative tools. It represents the innovative and high-tech dimensions that IciMontreuil is trying to promote. This fablab was originally built in the basement of the building, just next to other workshops dedicated to wood, iron, fabric

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[6] https://makeici.org/icimontreuil/

and so on. It made sense to put the fablab next to the other workshops as the makers could move easily from one workshop to another. However, the founders decided to move it to the ground floor at the centre of the building. By doing that, the fablab became the central element of IciMontreuil, representing the potential of IciMontreuil to develop future innovations. This new fablab is much bigger, much better equipped, while the founders hired a second person to assist the makers in developing their prototypes. In this, the future is not only made concrete through a narrative account but is characterized with the building of this new fablab as well. All of these artefacts participate in the definition of the organizational temporality of IciMontreuil as they were ingredients of past, present and future events. In turn, these artefacts gained a specific meaning, role and status through their ability to characterize the organizational temporality of IciMontreuil.

Discussion and Contributions

In this chapter, I have suggested to understand the relation between materiality and organizational temporality. I have proposed to understand materiality as ingredients of events. In such a perspective, the material and the social are the same process, that is, an individuation process of the flux of experiences into events. More precisely, materiality is here conceived as the character of the events shaping organizational temporalities. By employing the events-based approach to materiality, this chapter contributes, firstly, to our understanding of organization as it highlights the role of materiality in the process making of organization by showing how materiality participates in the re/definition of the structure of past, present and future events that defines the organizational temporality. Secondly, the events-based approach of materiality brings an alternative way to understand the emergence of new organizational phenomena, especially in the context of New Ways of Working and organizing. In such a view, innovative ways of working and organizing are not only about new ways of producing, communicating, collaborating and so on, but about new ways to relate with the past, the present and the future as well.

The Role of Materiality in the Making Process of Organization

By defining materiality—which can be any human or non-human actors—as the tangible ingredients of events (Whitehead, 1929) characterizing the structure of events, materiality is the concrete and tangible expression of organizational phenomena and, more precisely, its temporality. In such, "things" are tangible characteristics of events (Bono, 2014). Materiality is partly what makes the past, the present and the future tangible in the current moment. For example, in our illustration, the building is partly what makes the industrial past of Montreuil tangible. The building is an ingredient enabling the enactment of the industrial past of Montreuil by founders and makers of IciMontreuil, but the same building also participates in the enactment of the present of IciMontreuil as well, as it characterizes the current economic crisis and the "creative revolution" occurring in Montreuil. In such, the building is an ingredient for several events. Consequently, the situated history and present of IciMontreuil are partly made concrete by the founders and makers through this artefact. By insisting on the role of artefact in the re/definition of the structure of events, the chapter has shown that the materialization of the organizational temporality is not only made through narratives. As most of the research about temporality has mainly focused on narratives to deal with its re/production, an events-based approach of materiality insists on the role of any human and non-human actor (such as a building) in the re/production of the structure of events. To be more precise, materiality gains a meaning, a role and a status thanks to its ability to re/define the structure of events. For instance, the building of IciMontreuil gained a special meaning because of its ability to characterize the history of the town and the current development of IciMontreuil. Moreover, some artefacts make the enactment of a shared future possible, as the fablab did, for instance. In turn, this fablab gains its meaning, role and status because of its ability to participate in the definition of future events—such as the development of the local economy—that enable the makers to make sense of what they are doing. By being an ingredient of the future events of Montreuil, the fablab participates in the re/definition

of a future enabling the makers to position their various activities in a shared temporality. It is in this sense that we can understand any human or non-human as a temporal phenomenon.

Contribution of an Events-Based Approach of Materiality in Our Understanding of the Emergence of New Ways of Working and Organizing

A second contribution of this temporal view of materiality is in its potential to follow and understand how new "things" such as categories, labels, statuses, roles emerge from New Ways of Working and organizing. The illustration based on the maker movement is an example of how any New Ways of Working leads to the creation of numerous "things" that define the organizational phenomenon itself. Creations of new "things" can also be found in other trends at work such as coworking, digital nomadism and freelancing (Hussenot & Sergi, 2018). Considering these "things" as ingredients of a structure of events (Whitehead, 1929) can enable scholars to understand how these new categories, labels, statuses, roles and so on are defined to characterize new temporalities, because with labels such as coworking and digital nomadism, actors are not only experimenting New Ways of Working, they are also re/defining the history, the present and the future of work. The events-based approach of materiality is a call for understanding how these new "things" emerge, not as disconnected from the past but as an alternative way to enact a past, a present and a future of work; and how this temporality constitutes what these New Ways of Working and organizing are. In this, an events-based approach of materiality is a call to understand how new work practices, rules, tools and so on are ingredients of events participating in the definition of new organizational temporalities.

Conclusion

In this chapter, I have suggested an events-based approach of materiality. This approach consists in understanding materiality as anything that defines the past, the present and the future of the current activity. Anchored into the process philosophy (Rescher, 1996, 2001), all the "things" of the reality are understood not as spatial and physical phenomena but as temporal ones. Materiality is ingredients of events defining a temporality. By giving to materiality such a broad meaning, anything can participate in organizational temporality. This might help to overcome the classic dualism between the material and the social by focusing instead on the role of materiality in the making process of organizational temporality. This attempt to provide an alternative view to materiality is motivated by the constant evolution of ways of working and organizing that requires to question our assumptions about what an organization is. The events-based approach of materiality can enable scholars to live, follow and transcribe those constant evolving organizational phenomena.

References

Anderson, C. (2012). *Makers: The new industrial revolution*. New York: Random House.

Barad, K. (2003). Posthumanist performativity: Toward an understanding of how matter comes to matter. *Signs: Journal of Women in Culture and Society, 28*(3), 801–831.

Barad, K. (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Durham, NC: Duke University Press.

Barad, K. (2013). Ma(r)king time: material entanglements and re-memberings: cutting together-apart. In P. R. Carlile, D. Nicolini, A. Langley, & H. Tsoukas

(Eds.), *How matter matters: Objects, artifacts, and materiality in organization studies* (pp. 16–31). London: Oxford University Press.

Bergson, H. (1889). *Essai sur les données immédiates de la conscience*. Paris: Presses Universitaires de France.

Bergson, H. (1896–1939). *Matière et mémoire*. Paris: Presses Universitaires de France.

Bergson, H. (1907–2009). *L'évolution créative*. Paris: Presses Universitaires de France.

Bono, J. J. (2014). Atomicity, conformation, enduring objects, and "things": science and science studies after the Whiteheadian turn. In R. Faber & A. Goffey (Eds.), *The Allure of thing: Process and object in contemporary philosophy* (pp. 16–35). London: Bloomsbury.

Burke, A. (Ed.). (2015). *The handbook of research on freelancing and self-employment: Shankill*. Dublin, Ireland: Senate Hall Academic Publishing.

Carlile, P. R., Nicolini, D., Langley, A., & Tsoukas, H. (2013). *How matter matters: Objects, artifacts, materiality in organization studies*. Oxford, UK: Oxford University Press.

Cecez-Kecmanovic, D., Galliers, R. D., Henfridsson, O., Newell, S., & Vidgen, R. (2014). The sociomateriality of information systems: current status, future direction. *MIS Quarterly, 38*(3), 809–830.

Chia, R. (2002). Essay: Time, duration and simultaneity: Rethinking process and change in organizational analysis. *Organization Studies, 23*(6), 863–868.

Cobb, J. B. (2007). Person-in-community: Whiteheadian insights into community and institution. *Organization Studies, 28*(4), 567–588.

Collet, A. (2015). *Rester bourgeois. Les quartiers populaires, nouveaux chantiers de la distinction*. Paris: La Découverte.

Cooper, R. (2014). Process and reality (chapter 36). In J. Helin, T. Hernes, D. Hjorth, & R. Holt (Eds.), *Process philosophy and organization studies*. Oxford, UK: Oxford University Press.

Dougherty, D. (2012). The maker movement. *Innovations, 7*(3), 11–14.

Feldman, M. S., & Orlikowski, W. J. (2011). Theorizing practice and practicing theory. *Organization Science, 22*, 1240–1253.

Foster, W. M., Coraiola, D. M., Suddaby, R., Kroezen, J., & Chandler, D. (2017). The strategic use of historical narratives: A theoretical framework. *Business History, 59*(8), 1176–1200.

Hatch, M. (2013). *The maker movement manifesto: Rules for innovation in the new world of crafters, hackers, and tinkerers*. New York, NY: McGraw-Hill Professional.

Hernes, T. (2014a). *A process theory of organization*. Oxford: Oxford University Press.

Hernes, T. (2014b). Alfred North Whitehead (chapter 16). In J. Helin, T. Hernes, D. Hjort, & R. Holt (Eds.), *Oxford handbook of process philosophy and organization studies*. Oxford, UK: Oxford University Press.

Hernes, T. (2017). Process as the becoming of temporal trajectory. In A. Langley & H. Tsoukas (Eds.), *The SAGE handbook of process organization studies* (pp. 601–607). Thousand Oaks, CA: Sage.

Hernes, T., Simpson, B., & Soderlund, J. (2013). Introduction: managing and temporality. *Scandinavian Journal of Management, 29*, 1–6.

Hulst, M. V., Ybema, S., & Yanow, D. (2017). Ethnography and organizational processes. In A. Langley & H. Tsoukas (Eds.), *SAGE handbook of process organization studies* (pp. 223–236). Thousand Oaks, CA: Sage.

Hussenot, A. (2019). *L'organisation à l'épreuve des makers. Propositions pour une approche par les événements*. Québec, Canada: Presses Universitaires de Laval.

Hussenot, A., Hernes, T., & Bouty, I. (Forthcoming). Studying organization from the perspective of the ontology of temporality: Introducing the event-based approach. In J. Reinecke, R. Suddaby, A. Langley, & H. Tsoukas (Eds.), *About time: Temporality and history in organization studies*. Oxford, UK: Oxford University Press.

Hussenot, A., & Missonier, S. (2016). Encompassing stability and novelty in organization studies: an events-based approach. *Organization Studies, 37*(4), 523–546.

Hussenot, A., & Sergi, V. (2018). Collaborating without (formal) organization: How do independent workers call into question the matter of organization? In C. Cézanne & L. Saglietto (Eds.), *Human Capital Intensive Firms*. Hershey, PA: IGI Global Edition.

Introna, L. D. (2013). Otherness and the letting-be of becoming: Or, ethics beyond bifurcation. In P. R. Carlile, D. Nicolini, A. Langley, & H. Tsoukas (Eds.), *How matter matters: Objects, artifacts, and materiality in organization studies* (pp. 260–287). Oxford, UK: Oxford University Press.

Jarzabkowski, P., & Pinch, T. (2013). Sociomateriality is 'the New Black': accomplishing repurposing, reinscripting and repairing in context. *M@n@gement, 16*(5), 579–592.

Jensen, A., Thuesen, C., & Geraldi, J. (2016). The projectification of everything: Projects as a human condition. *Project Management Journal, 47*(3), 21–34.

Jones, M. (2013). Untangling materiality. In P. R. Carlile, D. Nicolini, A. Langley, & H. Tsoukas (Eds.), *How matter matters: Objects, artifacts, and materiality in organization studies* (pp. 197–226). Oxford, UK: Oxford University Press.

Jones, M. (2014). A matter of life and death: Exploring conceptualizations of sociomateriality in the context of critical care. *MIS Quarterly, 38*(3), 895–925.

Kautz, K., & Jensen, T. B. (2013). Sociomateriality at the royal court of IS A jester's monologue. *Information and Organisation, 23*, 15–27.

Latour, B. (2005). *Reassembling the social: An introduction to actor-network theory*. Oxford, UK: Oxford University Press.

Leonardi, P., Nardi, B. A., & Kallinikos, J. (2012). *Materiality and organizing social interaction in a technological world*. Oxford: Oxford University Press.

Leonardi, P. M. (2010). Digital materiality? How artifacts without matter, matter. *First Monday*, 15(6).

Leonardi, P. M. (2011). When flexible routines meet flexible technologies: Affordance, constraint, and the imbrication of human and material agencies. *MIS Quarterly, 35*(1), 147–176.

Leonardi, P. M. (2013). The emergence of materiality within formal organization (chapter 7). In P. R. Carlile, D. Nicolini, A. Langley, & H. Tsoukas (Eds.), *How matter matters: Objects, artifacts, and materiality in organization studies*. Oxford, UK: Oxford Press University.

Leonardi, P. M., & Barley, S. R. (2008). Materiality and change: Challenge to building better theory about technology and organizing. *Information and Organization, 18*, 159–176.

Leonardi, P. M., & Barley, S. R. (2012). What's under construction here? Social action, materiality, and power in constructivist studies of technology and organizing. *The Academy of Management Annals, 4*(1), 1–51.

Makimoto, T., & Manners, D. (1997). *Digital nomad*. Chichester, UK: Wiley.

Marovich, B. (2014). Creaturely things: living matter, dead matter, and the resonance of actual entities (chapter 6). In R. Faber & A. Goffey (Eds.), *The Allure of things: Process and object in contemporary philosophy*. London: Bloomsbury.

Mead, G. H. (1932). *The philosophy of the present*. Chicago, IL: Open Court Company.

Orlikowski, W. J. (2000). Using technology and constituting structures: A practice lens for studying technology in organizations. *Organization Science, 4*(4), 404–438.

Orlikowski, W. J. (2006). Material knowing: the scaffolding of human knowledgeability. *European Journal of Information Systems, 15*, 460–466.

Orlikowski, W. J. (2007). Sociomaterial practices: Exploring technology at work. *Organization Studies, 29*(9), 1435–1448.

Orlikowski, W. J. (2010). The sociomateriality of organisational life: considering technology in management research. *Cambridge Journal of Economics, 34*(1), 125–141.

Orlikowski, W. J., & Scott, S. V. (2008). Sociomateriality: Challenging the separation of technology, work, and organization. *The Academy of Management Annals, 2*(1), 433–474.

Orlikowski, W. J., & Scott, S. V. (2013). Knowledge eclipse: Producing sociomaterial reconfigurations in the hospitality sector. In P. R. Carlile, D. Nicolini, A. Langley, & H. Tsoukas (Eds.), *How matter matters: Objects, artifacts, and materiality in organization studies* (pp. 119–141). Oxford: Oxford Press University.

Pickering, A. (1995). *The mangle of practice: Time, agency, and science*. Chicago: IL: University of Chicago Press.

Reinecke, J., & Ansari, S. (2017). Time, temporality, and process studies. In A. Langley & H. Tsoukas (Eds.), *The SAGE handbook of process organization studies* (pp. 402–416). Thousand Oaks, CA: Sage.

Rescher, N. (1996). *Process metaphysics: An introduction to process philosophy*. New York: New York State University Press.

Rescher, N. (2001). *Process philosophy: A survey of basic issues*. Pittsburgh, PA: University of Pittsburgh Press.

Shotter, J. (2013). Reflections on sociomateriality and dialogicality in organization studies: From "inter-" to "intra-thinking"… in performing practices. In P. R. Carlile, D. Nicolini, A. Langley, & H. Tsoukas (Eds.), *How matter matters: Objects, artifacts and materiality in organization studies* (pp. 32–47). Oxford, UK: Oxford University Press.

Slife, B. D. (2004). Taking practice seriously: Toward a relational ontology. *Journal of Theoretical and Philosophical Psychology, 24*(2), 158–178.

Spinuzzi, C. (2012). Working alone together: Coworking as emergent collaborative activity. *Journal of Business and Technical Communication, 26*(4), 399–441.

Suddaby, R., & Foster, W. M. (2017). History and organizational change. *Journal of Management, 43*(1), 19–38.

Trist, E. (1981). *The evolution of socio-technical systems: Conceptual framework and an action research program*. Occasional paper, Toronto: Ontario Ministry of Labour, Ontario Quality of Working Life Centre.

Trist, E. L., & Bamforth, K. W. (1951). Some social and psychological consequences of the longwall method of coal-getting. *Human Relations, 41*(1), 3–38.

Vaujany, F.-X. d., Mitev, N., Laniray, P., & Vaast, E. (Eds.). (2014). *Materiality and time. historical perspectives on organizations, artefacts and practices*. Basingstoke, UK: Palgrave Macmillan.

Whitehead, A. N. (1920). *Concept of nature*. Cambridge, UK: Cambridge University Press.

Whitehead, A. N. (1929–1978). *Process and reality*. New York, NY: The Free Press.

Whitehead, A. N. (1938). *Modes of thought*. New York, NY: The Free Press.