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Working Together in the New Economy; an Investigation into the Imbrication of Collaboration

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“WORKING TOGETHER IN THE NEW ECONOMY;
AN INVESTIGATION INTO THE IMBRICATION OF COLLABORATION”

by

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B.A., University of California at Los Angeles, 2012

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The final copy of this thesis has been examined by the signatories, and we find that both the content and the form meet acceptable presentation standards of scholarly work in the above mentioned discipline.

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Abstract

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Working Together in the New Economy; an Investigation into the Imbrication of Collaboration

Thesis directed by Associate Professor Timothy Kuhn

With recent economic changes, and the increasing complexity of individual, organizational, and social problems, collaboration has emerged as a promising avenue for developing innovative solutions and services. This thesis investigates the imbrication of social and material agencies in promoting and enabling collaboration in new forms of work. Findings indicate that existing conceptualizations of collaboration do not capture the manner in which modern work produces fluid and contingent organizational practices, and should thus be extended to include collaborative practices that do not follow conventional processes with start, middle, and end components. I also propose an alternate representation of the imbrication metaphor, which prompts researchers to consider more deeply the complex and interconnected nature of social and material agencies.

Keywords: Collaboration, Sociomateriality, Imbrication, New forms of Work
Dedicated to my family, co-conspirator (AK), advisors,

and the beautiful souls who shared their passion for positive impact.
## Contents

Chapter 1: Introduction .......................................................... 6
Chapter 2: Literature Review .................................................. 10
  Collaboration Literature ......................................................... 10
  Defining Collaboration .......................................................... 10
  The Collaborative Process ...................................................... 12
  Collaborative Design ........................................................... 15
  Spaces and Potential Collaboration Spaces .............................. 16
  Sociomaterial Approaches ................................................... 23
  Imbrication: Theoretical Foundations ...................................... 26
  Research Questions .............................................................. 32
Chapter 3: Methodology .......................................................... 35
  Research Site ................................................................. 35
  Data Collection ................................................................... 38
    Previous Data – 2014 Study ................................................. 38
    Participant Observation ...................................................... 38
    Interviews ....................................................................... 40
  Data Analysis ...................................................................... 42
Chapter 4: Analysis ................................................................. 44
  RQ 1 ........................................................................... 44
  RQ 2 ........................................................................... 54
Chapter 5: Discussion ............................................................... 65
  Implications for Research ....................................................... 65
  Implications for Practice ......................................................... 76
  Limitations ....................................................................... 78
  Areas for Future Research ..................................................... 79
Appendices ........................................................................... 82
  Appendix A ....................................................................... 82
  Appendix B ....................................................................... 83
  Appendix C ....................................................................... 84
  Appendix D ....................................................................... 85
  Appendix E ....................................................................... 86
References ........................................................................... 87
Chapter 1-Introduction

With the rise of globalism, changing economies, and shifting social structures, modern generations face increasingly complex challenges worldwide. The complexity of social and world problems are embedded in the interconnectedness of diverse stakeholders whose interests often compete (Koschmann, Lewis, & Isbell, 2011), a phenomenon present in even the daily activities of life. Inter- and intra-organizational collaboration has emerged as a promising mechanism through which to respond to the interconnected and complex nature of today’s problems, as it enables individuals to tap into the synergistic potential of shared resources to create innovative solutions (Cuijpers, Guenter, & Hussinger, 2011; Austin and Seitanidi, 2012b). Austin and Seitanidi (2012b) noted that collaboration can yield value at the micro, meso, or macro levels. At the micro level, organizational members may benefit from increased technical or industry-related knowledge, strengthened managerial or leaderships skills, new friendships, or personal satisfaction from achieving a desired outcome. At the meso level, organizations may benefit from being associated with collaborative partners, gaining resources (i.e. financial support, new technologies) or from organization members’ development of new skills and capabilities. Many scholars interested in interorganizational collaboration have noted its capacity for helping both for-profit and not-for-profit organizations acquire resources, knowledge, and power (Alter and Hage, 1993; Astley, 1984; Bresser, 1988; Bresser and Harl, 1986; Hardy et al., 2003; Kanter, 1990; Lawrence et al., 2002; Powell et al., 1996). Finally, at the macro level, benefits may diffuse to society at large through the development of more effective systems (civic, political, technical, etc.) for managing or solving large-scale challenges. Having thus become an attractive course of action for overcoming everyday challenges, as well as for addressing the complex problems of organizations and society (Weber
& Khademian, 2008), collaboration is of particular interest both to academics seeking to explore organizational phenomenon and to individuals who hope to harness its potential.

A wide variety of researchers have performed studies on collaboration in organizational settings. Austin and Seitanidi (2012b) aimed to conceptualize models for and of collaboration, while other scholars have focused on the interactional components needed for successful collaboration. Hardy, Lawrence, and Phillips (2006), for example, demonstrated that collaborative interactions are marked by several characteristics: interest and identification among participants and coherence in participants’ understanding of 1) the problem(s) they are facing, 2) potential solutions for addressing the identified problem(s), and 3) how a particular solution will be chosen and achieved. Several scholars interested in collaboration have endeavored to understand how different communicative behaviors or routines may contribute to collaboration (Hardy, Lawrence, & Grant 2005; Beech & Huxham, 2003; Koschmann, 2013), as well as how material factors may prompt those communication patterns that tend to encourage or lead to collaboration (Stryker, 2004; Stryker & Santoro, 2012). Those interested in the material dimensions relevant to collaboration tend to focus on the intentional design of workspaces to promote and enable collaboration. Collaborative spaces, those environments meant to support collaborative work and interaction, are generally designed to encourage face-to-face interactions among organization members, enable participant centered adaptability for different types of work, and provide technological connectivity (Kraut et al., 1990; Mill, 1997; Isaacs et al., 1997; Stryker, 2004; Mejia et al., 2007; Mittleton, 2009; Duffy et al., 2010; Bilandzic & Foth, 2013).

To date, there is relatively little empirical data on whether collaborative spaces are having the desired impact on participants’ practices and interactions (Lamb and Shraiky, 2013).
Given scholars understanding of the messy and situated nature of organizing practices (Nicolini, 2012), one may not be terribly surprised that collaborative spaces may not always prompt the outcomes they were intended to produce. Still, if one is to question the extent to which collaborative design is ‘effective’, one must also question underlying conceptualizations of ‘collaboration’. In this thesis, I have attempted to investigate different understandings of what ‘counts’ as collaboration in new forms of work, as well as consider what factors seem most significant in influential in enabling or prompting those activities that are deemed to be ‘collaborative’. As I will discuss below, participants’ conceptions of collaboration tend to reflect a wider range of activities and practices than traditionally considered by collaboration scholars. Findings indicate that scholarly definitions of collaboration need to be extended; based on the fragmented and contingent nature of new forms of work, collaboration may take on the form of a more fluid and ongoing practice that does not exhibit clear processual components.

Through this study, I have also sought to explore the manner in which different social and material agencies may influence communicative routines between organization members such that ‘collaboration’ becomes both possible and likely. Although there are many valuable conceptualizations of sociomateriality, a term I will define below, I pursued this thesis using the framework of imbrication. Scholars using imbrication approach emphasize its potential to account for the entanglement of social and material agencies over time while still maintaining the distinct qualities of social and material elements. Leonardi (2013) in particular has promoted imbrication as a framework that not only enhances scholarly understanding of organizational dynamics but one that also can also be readily applied to empirical studies. Such a framework is quite attractive, as it seems to offer great promise in terms of contributing to and
challenging academic inquiry while also being accessible enough to enrich practitioners’ understanding of organizational phenomena so that they may better achieve both foundational and practical goals. Though findings suggest that the theoretical foundations of an imbrication approach do serve the empirical study of sociomateriality well, I assert that Leonardi’s methodology in applying imbrication theory oversimplifies the relationship(s) between social and material agencies in organizations. As such, I offer a new representation of the imbrication metaphor that acknowledges the ontological independence of material and social elements while also emphasizing the complex, interconnected relationships of social and material agencies. Following this discussion, I propose promising areas for future research and inquiry.
Chapter 2-Literature Review

Collaboration Literature

As indicated above, I embarked on thesis in the hopes of investigating different facets of collaboration: what communicative activities one may consider to be collaboration, how these interactions develop, and, finally, how social and material factors are salient in these developments. In the following pages, I provide an overview of the scholarly literature that has been written to address questions associated with those I have just outlined. The first section, Defining Collaboration, provides insight into the different conceptualizations of collaboration scholars have developed with thus far. The second section, The Collaborative Process, discusses different models of and stages through which collaboration may develop and progress. The final section, Collaborative Design, offers a foundation for understanding how material elements can prompt, enable or influence collaborative activities.

Defining Collaboration

In her review of communication scholarship on collaborative interaction, Lewis (2006) noted that although “mounting evidence points to the conclusion that collaborative interaction has great promise…very little synthesis exists across various domains of literature about how collaborative interaction works and its critical components” (p. 197). Among the 80 publications Lewis (2006) reviewed (all of which were published within the last decade), collaboration was discussed in a range of contexts and at various levels of interaction: healthcare (DiMatteo, Reiter, & Gambone, 1994; Ellingson & Buzzanell, 1999; Medved, et al., 2001; Young & Flower, 2001), small groups (Barron, 2000; Iverson & McPhee, 2002; Kuhn & Poole, 2000), scientific research (Levine & Moreland, 2004), community and
interorganizational alliances (Keyton & Stallworth, 2003; Zoller, 2004), negotiation (Taylor & Donald, 2004), task collaborations at work, and relief efforts. Though many scholars apply the term without ever establishing a clear definition (Austin, 2000; Bouman, 2002; Stone, 2000), those who do delineate their conceptions of collaboration “emphasize shared goals, shared activity, or joint production” (Lewis, 2006, p. 213). Lewis (2006) noted key points of convergence and divergence in the 34 definitions of collaboration offered amongst the pool of articles she reviewed. In terms of convergence, scholarly definitions of collaboration generally displayed the following characteristics (Lewis, 2006):

- A focus on action and doing; collaboration is cast as an activity or way of doing
- A notation of the relation between self and other(s); collaboration occurs among participants whose collaborative relationship is marked by egalitarianism.
- An emphasis on process; collaborative processes have beginning, middle and end components, and require different behaviors and roles as they evolve over time.
- A presentation of collaboration as emergent, self-organizing and volitional; collaborative processes are “to be conceived as owned and constructed by the actions of the participants” (Lewis, 2006, p. 220).

Conversely, scholarly conceptions of collaboration are more likely to diverge in regards to the following:

- Temporality: some authors portray collaboration as a temporary system of activity (Stohl & Walker, 2002; Gould et al. (2002), Wilczenski et al. (2001), while others describe collaboration as regular and ongoing activity within communities of practice (Breu & Hemingway, 2002; Lesser & Storck, 2001; Wenger & Snyder, 2000).
• Initial Conditions: scholarly definitions imply an original separation of collaborators’ interests, goals, and processes, while also integrating assumptions of shared characteristics. Initial differences or similarities are rarely established explicitly.

• Collaborative outcomes: researchers may emphasize the potential for individual payoffs following collaboration and/or the potential for collective goals to be realized; “some scholars conceive collaborative interaction as a means to satisfy individual goals through a joint process with a concurrent shared goal or purpose. For other scholars, collaboration concentrates solely on shared goals without consideration of individual goals” (Lewis, 2006, p. 222).

For the purpose of this study, I operated with no particular definition of collaboration guiding my data collection, presentation, or analysis. Rather, I have sought to uncover those conceptions of ‘collaboration’ that have emerged among organization members. As my analysis and discussion will show below, the organizational conceptualizations of collaboration that have developed allude to many of the tenets outlined above, while also challenging scholars to reconsider or extend existing discussions of what ‘counts’ as collaboration.

*The Collaborative Process*

Hardy, Lawrence, and Phillips (2006) framed the collaborative process as a series of conversations that culminate in collaborative action. The authors explained that,

> [C]ontinued conversation is necessary if collaborative action is to ensue. Accordingly, our framework highlights the manner in which different actions follow from different types of collaborative conversations between organizational representatives. (p. 102)

Four types of collaborative conversations were identified as necessary for carrying out collaborative action: conversations demonstrating shared interest, conversations enabling
partnership identification, conversations establishing coherence in meaning and understanding, and conversations that allows partners to successfully contribute to and carry out collaborative action. Because each organization has its own background, approach, goals, and constituents (Hardy, Lawrence & Phillips, 2006; Waddock, 1989; Westley and Vredenburg, 1991), partners must consistently balance their commitment to their own constituencies with their commitment to the collaborative partnership.

To engage in collaborative action, participants must first partake in conversations that uncover and establish shared interest(s) among potential partners (Hardy, Lawrence, & Phillip, 2006). Although Hardy, Lawrence, and Phillip (2006) discussed interest in terms of overarching goals for a community, participants can also share less altruistic interests around profit and competitive advantage. Whatever the case, there must be some initial conversation that demonstrates the potential for shared interest in collaboration, as well as interest in further exploring the prospects of collaboration together. Austin and Seitanidi (2012b) identified these activities as comprising *partnership formation*, a distinct stage in the development of collaboration wherein potential collaborators consider their linked interests and resource complementarity before deciding whether or not to collaborate (Austin & Seitanidi, 2012b). Partners may have linked interests in terms of specific projects or overarching goals for their work. Seintanidi (2010) suggested that linked interests are often revealed through an examination of partners’ motivations, which provide an initial indication of the intentions and benefits expected by each potential partner. In this process, potential collaborators may also recognize a state of resource complementarity, wherein one or more partners have the opportunity to gain resources they would not have access to without the partnership (Austin & Seitanidi, 2012a). When exploited successfully, resource complementarity enables partners to
utilize and apply new resource combinations in achieving their joint and, or individual goals (Austin & Seitanidi, 2012a).

Though collaboration may offer value to potential participants, the unique characteristics and goals of individual organizations creates uncertainty as to “whether participants [will be] willing to overcome their proprietary interests in favor of developing collaborative solutions” (Hardy Lawrence & Phillip, 2006, p. 98). Accordingly, potential collaborators must ensure that a sufficient level of identification with the collaboration is achieved among participants. As Briggs (1994) explained, participants’ willingness to employ and contribute resources to collaboration is largely dependent on the level of congruence they perceive to exist between their individual goals and the goals of the group, as well as the intended strategies for attaining these goals (Briggs, 1994). In other words, group members must perceive a sufficient level of compatibility between their individual goals and the goals of the other collaborators. This can only be done if participants have established coherence in the language, meaning, and interpretations of collaboration goals and strategies. Conversations that develop shared understanding not only help collaborators gauge their level of identification with the collaboration, but also remain imperative to conversations regarding the execution of collaborative processes; they allow participants to develop mutual definitions of the problems, solutions, processes, and desired outcomes they encounter and establish throughout the collaboration (Hardy, Lawrence, & Phillips, 2006). Based on this shared understanding, participants can effectively and jointly carry out work on a collaborative project. The fact remains, however, that various demands on participants may constrain their ability to recognize goal congruence in the first place, or may reduce their productivity even after the collaboration has been initiated.
Collaborative Design

In many cases, those interested in the materiality of collaboration are seeking to determine how organizations might facilitate the processes described above through the intentional design of collaborative spaces. As Mittleman (2009) noted, “no single sub-field yet exists for the study of collaboration spaces”. Consequently, both scholars and practitioners interested in collaborative spatial design often draw from literature on interaction design, classroom design, white-collar work environments, information systems, and architectural design (Gregory, 1967; Jones, 1980; Mittleman, 2009; Bilandzic & Foth, 2013). Together, these bodies of literature prompt researchers to consider how factors like seating configuration; spatial density, crowding, and stress; acoustics and noise; and climate and thermal comfort affect member processes (Lackney, 1994; McVey, 1996; McCoy, 2002; Mittleman, 2009).

Characteristics of the physical environment have been shown to have great significance on both the behavioral and affective outcomes of collaborative work as well (BRILL, 1997). Moran, Favela, Enriquez, and Decouchant (2004) described how different spatial features can support actual collaboration and/or collaboration potential;

*Actual Collaboration Spaces* are specialized to efficiently support the three axes of ongoing collaboration: allow users to concentrate in communicating about their work, in coordinating their actions to optimize the group’s performance, and in producing results excepted from their collaborative activity. *Potential Collaboration Spaces* are specialized to allow users to discover, identify, or create opportunities to (re) establish an initial interaction that may or will result in further interactions to accomplish collaborative work or resume an ongoing collaborative effort. (p. 186)

*Actual Collaboration Spaces* then, enable the actual performance of collaborative activities, while *Potential Collaboration Spaces* are designed to catalyze various antecedents or opportunities for collaboration. Though scholars may use different terminology to describe the key principles of collaborative design, Lamb and Shraiky (2013) nicely summarized four
overarching themes that have emerged in scholarly discussions of collaborative design: flexibility, visual transparency/proximity, technology and environmental infrastructure. As I will discuss below, characteristics of these themes serve to create both Actual Collaboration Spaces and Potential Collaboration Spaces.

The first theme, *flexibility*, is most strongly related to the concept of Actual Collaboration Spaces, as it draws researchers’ attention to the importance of designing a space that can support a range of collaborative work processes. Specifically, flexibility refers to “the ability to modify or change the design features of a defined space” (Lamb and Shraiky, 2013, p. 17). Hua, Loftness, Heerwagen, & Powell (2010) emphasized the need for workspaces, particularly those utilized for knowledge-based work, to support both ‘dynamic interactions and focused work. As Mittleman (2009) pointed out, “[collaborative] spaces are rarely designed for single purpose activities…most spaces are expected to serve multiple programmatic use requirements” (p. 290). Accordingly, it is helpful to incorporate design features that can be easily modified by users. This may refer to the ability to reconfigure seating arrangements, or modify furniture according to the changes needs of group members (Mittleman, 2009; Lamb & Shraiky, 2013). Movable tables, chairs, and walls, for example, allow for a range of interaction configurations: small group meetings, presentations, and individual workstations (Lamb & Shraiky, 2013). Even with movable furniture, it is best practice to include informal and formal environments that will support a variety of interactions and work processes (Brill, 1997; Mittleman, 2009; Lamb & Shraiky, 2013). Spatial design can facilitate serendipitous run-ins, focused individual or group work, spontaneous meetings, or scheduled sessions, but must also include areas where collaborators can do distraction free, solo work (Brill, 1997; Hua et al., 2010; Mittleman, 2009). Individual work is integral to collaborative efforts, making
opportunities and spaces for focused work essential for high performance collaboration (Heerwagen, Kampschroer, Powell, & Loftness, 2004; Hua, 2007). Moreover, the absence of private space may inadvertently cause individuals to avoid those areas that characterized by high levels of interaction (Hua et al., 2010). For example, the cognitive demands of face-to-face conversation may become too overwhelming for the individual, or the collaborative activities of others may distract the individual from important work (Hua et al., 2010; Kraut et al., 2002). Of course, areas devoted to supporting collaborative activities and collaboration needs are necessary as well, as individuals interested in collaboration tend to desire spaces specifically designated for collaborative interaction and resource sharing (Hua et al., 2010).

Lamb and Shraiky (2013) define visual transparency as “the ability to have a direct line of vision and access to instructors, peers and classroom technology for interactive and collaborative work” (p. 18). Stryker (2004) found that high visibility workstations promoted communication (especially face-to-face communication) between team members. Face-to-face (F2F) communication has consistently been highlighted as central to team productivity, especially for the accomplishment of complex tasks (Tushman 1979; Santoro and Saparito 2003; Pentland, 2012; Stryker & Santoro, 2012). Many scholars have also suggested that high visibility workstations increase the likelihood of serendipitous meetings between organization members, consequently encouraging F2F communication and collaboration (Stryker & Santoro, 2012). However, Stryker and Santoro (2012) noted that “research examining these variables has produced conflicting findings” (p. 53). Several studies have shown that organizations’ typical strategy of simply moving individuals from closed offices to open workstations is not enough to promote F2F communication (Hatch, 1987; Oldham & Brass, 1979; Stryker & Santoro, 2012). Instead, it is “the visibility of the office or workstation within the overall layout
of the facility’s design” that determines the level of opportunity for F2F communication (Stryker & Santoro, 2012, p. 53). Visual transparency is thus closely tied to member proximity, as spatial configurations should “allow for not only unobstructed views of all participants and working spaces, but [should also] keep participants close enough to each other to permit easy interaction and discussion” (Lamb & Shraiky, 2013, p. 18). Brill (1997), for example, found that successful collaboration correlated with ease in accessing team members through casual drop-ins—a phenomenon facilitated by visual transparency and proximity.

González-Ibáñez, Haseki, and Shah (2013) noted that physical proximity’s tendency to increase spontaneous interactions ultimately facilitates communication, “one of the most essential components of collaboration” (p. 1165). In fact, many researchers have noted the impact of proximity, likewise indicating that the distance between individuals significantly affects the probability of communication and collaboration (Allen, 1977, 2007; Allen & Henn, 2007; Becker & Sims, 2001; Gullahorn, 1952; Kraut, Fussell, Brennan, & Siegel, 2002; Olson, Teasley, Covi, & Olson, 2002). Allen (1977), for example, showed that the probably of F2F communication is severely limited after member proximity exceeds 25 meters. Researchers also stress the significance of placing common areas in strategic positions, as mere proximity between individuals does not result in successful collaboration (Hua et al., 2010). Festinger, Schacter, and Back’s (1950) classic study of an apartment complex demonstrated that the common use facilities (stairways, elevators, laundry rooms, etc.) that were located along corridors or paths of public circulation served as “centers of gravity” (Allen & Henn, 2007) for social interaction, as they naturally attracted regular users. In this way, areas that can attract a high volume of user traffic increase opportunities for, and thus the likelihood of social interaction (Allen & Henn, 2007). Furthermore, Hua et al. (2010) found that participants
perceived higher potential for collaboration (and the interactions that support or prompt collaboration) when a variety of meeting spaces were located close to individual workstations.

In their study of an R&D work and environment, Stryker and Santoro (2012) tested the hypothesis that the “design of the workplace [can] facilitate communication by providing specific shared space destinations that act as centers of gravity, drawing organizational team members and thus increasing the likelihood of F2F interaction and communication and thereby presenting increased opportunities for collaboration” (p. 53). To test this claim, Stryker and Santoro (2012) considered three variables: headcount density, workstation visibility, and collaborative opportunity. Headcount density was measured in terms of the number of organizational members located within 10 meters of one another. Workstation visibility required not only openess among workspaces, but workstation visibility from main areas. Finally, collaborative opportunity (Stryker, 2004) referred to “the number of formal or informal contact places (conference rooms, coffee bars, copy rooms, vending machines, elevator lobbies, etc..) located within a 25-meter radius of the target individual’s workstation” (Stryker & Santoro, 2012, p. 54). The authors found that the open - closed variable of workstation design was relatively unimportant when compared with headcount density, visibility from main areas, and collaborative opportunity (Stryker & Santoro, 2012). For example, in high visibility workstations, respondents reported 59% more F2F communication that those working at low visibility workstations. Among those working in high-visibility areas there was no significant difference in the levels of F2F communication experienced by individuals in closed offices versus open, low-walled workstations. For those in low-visibility areas, however, working in open workstations significantly increased (by 51%) their likelihood of F2F communication. In regards to headcount density and collaborative opportunity, the authors noted,
Respondents in high headcount-density workstation layouts (average 16 persons within a 10-meter radius) reported 84 percent more F2F team communication than workers in low headcount-density layouts (average 4 persons within 10 meters). Respondents occupying workstations with high collaboration opportunity (average 22 formal or informal meeting places within 25 meters) reported 102 percent more F2F team communication than those located in workstations with low collaboration opportunity (average 4 formal or informal meeting places). [and] team F2F communication was significantly greater when team members were located in high-density work areas (average 16 persons within 10 meters) with a large number of informal meeting places located nearby (average 22 formal and informal meeting places within 25 meters). (Stryker & Santoro, 2012, p. 55)

Together, these findings indicate that team F2F communication will be highest in workspaces that have high visibility, high headcount density, high collaboration opportunity, and close proximity to routes and centers of high circulation. In areas lacking one or more of these characteristics, open, low-walled workstations may help offset the negative effects on F2F communication. By increasing the likelihood of F2F communication, in turn, designers can facilitate the completion of complex, collaborative tasks among teams. In this way, characteristics relating to visual transparency, proximity, and spatial layout are significant in prompting and enable face-to-face communication – a phenomenon integral to both the potential development and actual performance of collaborative activities.

Technological features available in a space, on the other hand, are discussed primarily in regard to their use when individuals need to carry out collaborative activities. Technological characteristics and resources should “enable [participants] to use a full range of technology to augment and support interaction and group problem-solving… because the technology aspects of collaborative spaces have a distinct and unique function in collaborative learning” (Lamb & Shraiky, 2013, p. 20). Mittleman (2009) noted that a useful starting point when contemplating the technological needs of users is to consider information flows in the space. Some spaces may need to accommodate for group meetings. Presentation meetings will require technology that supports one-way flows of information, while problem-solving, brainstorming, or product development meetings will require technology that supports multidirectional, back and forth
communication between meeting members. In their study of healthcare campuses, Lamb and Shraiky (2013) noted that classrooms designed for collaborative work had “computer and electrical hookups at each student station or seat, facilities for screen sharing and capacity for faculty to customize screen sharing according to the needs and activities of each student work group” (p. 20). Researchers have also noted the importance of having multiple forms of representation and communication media available in collaborative workspaces (Brill, 1997; Lamb & Shraiky, 2013). Designers may install “an array of writing surfaces around seating areas [to enable users] to draw and write down ideas without having to search out flipcharts, pads or other writing aids” in the middle of their work (Lamb & Shraiky, 2013, p. 18).

Including multiple computer and, or presentations screens allows for information sharing even as furniture is reconfigured for different tasks. Spaces may also incorporate microphones and, or cameras to augment users’ audio and visual capabilities across various modes of collaboration (Lamb & Shraiky, 2013).

Finally, designers must ensure that the lighting, temperature, acoustic, and ergonomic qualities of a collaborative workspace support the individual and group aspects of collaborative work (Lamb and Shraiky, 2013). Lighting qualities have been found to have a significant impact on worker performance and satisfaction (Sundstrom, 1987; Wineman J. D., 1987). In collaborative design, lighting capabilities must account for, and be able to change according to, the various and specific types of work users will carry out in the space (Mittleman, 2009; Lamb & Shraiky, 2013). For example,

\begin{quote}
\textit{task lighting must be bright enough for individuals to function in their own workspace and for video conferencing cameras to pick up non-verbal cues on the faces of meeting participants, yet the bright lighting must not produce glare on computer screens and must not wash out any projected public display.} (Mittleman, 2009, p. 293)
\end{quote}

Heating and cooling features must also be responsive to the number and work of spatial users.
In areas packed with human users or technology, cooling will likely be required to maintain a productive working environment (Lamb & Shraiky, 2013). At the same time, a workspace that is too cold will repel potential users. Collaborators will likewise be discouraged from using a space that is too noisy. As Lamb and Shraiky (2013) noted, environments for group interaction “have greater numbers of simultaneous conversations and louder noise levels” (p. 20). Though interactants should have the ability to converse freely with one another, the associated sound bleed between different conversations and activities must be kept to acceptable levels (Hua et al., 2010; Mittleman, 2009). Accordingly, designers must “consider anticipated traffic and activity in adjacent spaces […] as well as the] outdoor noises (from playground activity to traffic to power lawn mowers)” that might impact collaborators as they work (Mittleman, 2009, p. 298).

Sound absorbent window and ceiling treatments, floor carpeting, dropped ceilings, and small nooks are commonly incorporated to control noise distribution in collaborative workplaces (Mittleman, 2009; Shraiky, 2013). Lastly, the furniture and physical configuration of workspaces provide the appropriate ergonomic support (Mittleman, 2009). Participants should be able to complete brief and lasting tasks with equal comfort, while also being able to easily utilize resources while working with others. Put differently, if participants are not comfortable working in an environment, they will be less likely to use it. As such, poor environmental infrastructure can result in individuals removing themselves from Potential Collaboration Spaces and/or reduce the productivity of individuals seeking to carry out collaborative tasks.

Collaborative design thus requires designers to account for the specific types of work that will be carried out in a space, while also incorporating sufficient adaptability so that users can alter spatial qualities according to their changing needs. As Duffy, Craig, and Gillen (2010) point out, no individual design feature can be responsible for collaborative success because
“purpose, place, and process [are] so intimately inter-connected and so inter-dependent [that they] cannot easily be distinguished from each other” (p. 98). Consequently, to create a space that is conducive to effective collaboration, organizations must endeavor to weave characteristics of a space together with the unique processes and purpose of the workspace and organization as a whole (Duffy et al., 2010). Though spatial characteristics will inevitably be reconfigured and revised according to context-specific characteristics, tenets of flexibility, visual transparency/proximity, technology, and environmental infrastructure serve as foundational guidelines for collaborative design.

**Sociomaterial Approaches**

The works discussed above demonstrate how social and material factors may influence organizational practices. Though scholars have contemplated the role of materiality in organizing for some time (Barad, 1996; Barley, 1988; Gibson, 1986), discussions of the relation(s) between social and material elements have regained popularity in recent years (Scott & Orlikowski, 2013; Leonardi, 2013; Mutch, 2013; Orlikowski & Scott, 2008). Two major theoretical camps have emerged within these debates: agential realism and critical realism.

In broad terms, agential realists assume, from an ontological standpoint, that there is no real separation between the realms of structures and action, nor between “social” and “material” entities, as all action that constitutes organization is no more or less social than it is material (Orlikowski 2007, Leonardi, 2013). As such, the notion of constitutive entanglement renders the ‘social’ and ‘material’ to be all at once ‘sociomaterial’ (Orlikowski 2007). Rather than assume that humans are the only organizational actors with agential power to appropriate space or objects, and thereby put the material at the mercy of the social, proponents of agential
realism propose that agency is not something to be ‘had’. Instead, “people attribute agency to [objects and phenomena] when they use equipment, machines, formulae and other various apparatuses in an attempt to explain the machinations of the universe through the imposition of causality” (Leonardi, 2013, p. 62). Agency, then, is an enactment produced by observer-phenomenon relations, with observers making philosophical ‘agential cuts’ to effect supposed distinctions between “subjects” and objects” in the natural world (Barad, 1996). Although agential realism offers unique insight into the nature and development of human organizing, its abstract, philosophical nature makes it difficult to apply this approach when working with empirical data. Organizational members do not perceive an interpenetration of social and material entities, and it has proved difficult for researchers to operationalize observational units under an approach that rejects the ontological separation of the social and material (Faulkner & Runde, 2012; Leonardi, 2013).

In comparison with agential realism, critical realism offers a less abstract philosophy for understanding the relationship between the social and the material. While agential realists hold that the material and social are constitutively intertwined to the point that they cannot be disentangled, critical realists begin with the ontological assumption that natural objects, material artifacts, and spatial dimensions exist independently of humans’ interaction with, and perception of, them (Fleetwood, 2005; Volkoff & Strong, 2013). Although material artifacts can promote, enable, constrain, or shape certain processes, they are not to be conceived of as having agency. Agents (humans) have self-consciousness and are able to act—they “can formulate plans, and pursue objectives, and thus have the power to maintain or modify the structures around them by doing things” (Volkoff & Strong, 2013, p. 820). As objects are not capable of self-consciousness or ‘planning’ action, the material can have causal power, but not
agency. In this way, the social and material elements exist as distinct, but mutually dependent entities (Orlikowski & Scott, 2008). Orlikowski and Scott (2008), among others, fault critical realism for this tendency, as they feel it casts the material to be of interest only at “certain times, in explicit places, and during special organizational circumstances…[rather than] seeing how it is an integral part of organizing at all times, places, and circumstances” (Orlikowski 2009, p. 454). Moreover, though critical realists acknowledge the interdependence of material and social entities in organizing, they often fail to explain how and why these entities are mutually entangled in practice (Orlikowski, 2009; Clegg et al., 2013). Problems ensue, as scholars often slip into some form of determinism as they attempt to explain organizational phenomena (Barley, 1988).

While acknowledging the insights scholars can gain using either an agential realist or critical realist approach, Leonardi has been particularly vocal in promoting imbrication as an alternative approach to exploring the sociomateriality of organizations (Leonardi, 2011; 2012, & 2013). Theories of imbrication are built on many of the foundations of critical realism: an imbrication perspective casts social and material elements as existing independently of one another, and presents the notion of material affordances in a way that is similar to critical realists’ descriptions of material affordances. Proponents of an imbrication approach assert that it allows researchers to overcome several pitfalls associated with critical realism. First, an imbrication approach enables scholars to operationalize material and social elements, and explain causal patterns, without resorting to determinism. It also allows for an expanded understanding of agency and its relational dimensions, as does not deny the existence of material agency. Finally, an imbrication perspective opens the ‘black box’ of organizing practices, as it offers a conceptualization of how the material and social are mutually and
continually entangled over time.

*Imbrication: Theoretical Foundations*

The concept of imbrication can be traced back to ancient Romans’ and Greeks’ use of interlocking tegula and imbrex tiles to waterproof their roofs (Leonardi, 2012). These tiles, unique in shape, weight, and their positioning, were arranged in an interlocking sequence to create a structurally sound and visibly patterned roof (Leonardi, 2011). Following this metaphor, as Taylor, Groleau, Heaton, and Van Every (2001) point out, “each tile has its own integrity, but it is the interdependence between tiles—each of which supports and is supported by others—that explains the capacity of the roof” (p. 92). Theorists applying an imbrication approach (Leonardi, 2013, 2012, 2011; Taylor et al., 2007, 2001; Sassen, 2006; Ciborra, 2006) have posited social and material agencies to have distinct contours that, when interwoven, form an integrated organizational infrastructure.

Taylor et al. introduced imbrication as an explanatory framework to the field of organizational communication in 2001 with *The Computerization of Work: A Communication Perspective*. The authors explained that, when applied to organizational analysis, an imbrication perspective prompts researchers to investigate “the way interagency relationships are interleaved to form a durable organizational infrastructure” (Taylor et al., 2001, p. 92). This short phrase immediately prompts scholars to consider how agency, relationships, and organizational structure might be conceptualized within an imbrication perspective. Taylor et al. (2001) describe agency as the ability to do something – the potential to have transformative capacity. Social or *human* agency, the ability to form and realize one’s own goals (Emirbayer & Mische, 1998; Giddens, 1984; Pickering, 2001), is distinguished from material agency. Humans have the ability to appropriate or maneuver around the material agencies they
encounter in organizing (Leonardi, 2011). Leonardi (2011) noted that common maneuvering strategies include a) rejecting the use of a material element (Constantinides and Barrett 2005; Lapointe and Rivard 2005; Markus 2004), or b) adapting its features for non-intended purposes (Boudreau and Robey 2005; DeSanctis and Poole 1994; Schultze and Boland 2000). Of course,

Our expectations of what features a [material] has, what those features are good for, how they should be used, and how they will change the way we work—all of which draw from the culture in which we encounter the [material]—buffer our perceptions of the material elements, the elements of the [material] that do not change across contexts of use. (Leonardi, 2012, p. 36)

In other words, the meaning systems that make organizational processes intelligible and replicable to organizational actors also mediate humans’ understanding of and interaction with material elements. Researchers using an imbrication approach thus conceive of ‘social’ elements as including human actions and routines, and the meaning systems they operate within in practice (Leonardi, 2011; Leonardi, 2013).

‘The material’, under an imbrication approach generally refers to a broad category of objects, which researchers claim to be, at an empirical level, relative easy for observers to distinguish from social routines (Edmondson et al., 2001; Leonardi, 2011; Pentland & Feldman, 2008). Though material elements are often conceived of as the physical artifacts included in this category, “[t]he defining feature of objects…is that they endure and, save for those that are so basic so as not to be composed of constituent parts in any meaningful sense, that they are structured” (Faulkner & Runde, 2010). Faulkner and Runde (2010) explained,

In saying that objects endure, or exist through time, we mean that they are things that are fully present at each and every point in time at which they exist. Objects can therefore be said to be “continuants”, in contrast to events or “occurrants” that take place and whose different parts occur at different points in time. The length of time an object typically endures, what we will call its lifespan, depends on the nature of the object under consideration. Thus while an organism such as a housefly might have a lifespan of no more than a few weeks, an artifact such as a hammer or skyscraper might endure for decades or even centuries.

The second defining feature of objects is that they are “structured”, that is, composed of a number of distinct parts that are organized or arranged in some way. Thus a motorcar, for example, comprises an engine, steering wheel, foot pedals and numerous other components, that are arranged in
a particular way…the constituent parts of any object are themselves objects in their own right…the structure of an object, its constituent parts and their organization, need not be fixed over time. Thus while the structure of a highly engineered artifact such as a motorcar may be relatively stable (at least as long as it receives regular maintenance), the structure of a living organism generally changes throughout its lifetime. (p. 3)

Faulkner and Runde (2010) went on to indicate that objects can have physical characteristics relating to location, mass, volume, etc., but can also be non-physical in nature (computer files, algorithms etc.). In this way, ‘material’ elements can include organizational documents or programs (physical or electronic), physical artifacts or characteristics (tables, walls, colors, etc.), sites (location), or bodies (Ashcraft, Kuhn, & Cooren, 2009).  

While critical realists would attribute agency exclusively to humans, Leonardi (2011, 2012, 2013) explicitly asserted the existence and significance of material agency. Leonardi (2011) described material agency as the capacity for objects (as broadly defined above) to act on their own, independently of human goals or interventions. For example, material entities “exercise agency through their “performativity” (Barad 2003; Pickering 1995); in other words, through the things they do that users cannot completely or directly control” (Leonardi, 2011, p. 148). Leonardi (2012) went on to emphasize that though material artifacts may not have the consciousness to appropriate other material or social artifacts in the same way that human actors can appropriate material artifacts, their agency can extend beyond the mere affordances they offer humans. Material artifacts can have agency—that is, transformative capacity—not only in the way they enable and constrain, but also in the way they may prompt, direct, or close off different social realities. For example, Norman (1990) asserts, “Affordances provide strong

1 Though Ashcraft et al.’s (2009) Constitutional Amendments: “Materializing” Organizational Communication provides a useful discussion of how researchers might understand the breadth of materiality in organizing, it is important to note that the piece is written to prompt considerations of the mutually constitutive nature of social and material elements. As such, the authors would likely support a conceptualization of sociomateriality that is more akin to an agential realist approach.
clues for their materials. Plates are for pushing. Knobs are for turning (…) the user knows what to do just by looking: no picture, label, or instruction is required” (p. 9) when designers and users share a similar cultural background. Similarly, when first introduced to space with an open floor plan with small tables and no individualized workspaces, the average organization member is likely to deduce that she should share space and resources as she works in close proximity with other members. In this way, social and material agencies fold back upon one another: material affordances prompt, constrain, or enable social processes, and social scripts for interpretation mediate humans’ understanding of material affordances.

Such a conceptualization suggests that material elements may be inscribed with particular affordances according to the intentional design of humans and, in many cases, this does direct practice (Jarzabkowski & Pinch, 2013). It is important to note, however, the transformative capacity of any given material element exists only in its relation to the particularities of the context. Gibson (1986) explains,

If a terrestrial surface is nearly horizontal…nearly flat…sufficiently extended..and if its substance is rigid…then the surface affords support ….It is stand-on-able, permitting an upright posture for quadrupeds and bipeds…Note that the four properties listed—horizontal, flat, extended, and rigid—would be physical properties of a surface if they were measured with scales and standard units used in physics. As an affordance of support for a species of animal, however, they have to be measured relative to the animal. They are unique for that animal. They are not just abstract physical properties. (p. 127)

In other words, the capacities a material artifact affords emerge according to the characteristics of the other material and social elements it becomes imbricated with in practice. Leonardi (2013) further explains that when people approach an object, they immediately perceive it to afford or constrain certain possibilities, and consequently form goals based on these perceptions. Of course, an object’s set of affordances (or constraints) can change, or be repurposed, according to individuals’ goals and particular contexts (David and Pinch 2006;
Leonardi, 2013). Jarzabkowski and Pinch (2013) offer the example of a chair, which may in one instance be used for sitting, a function it was inscripted to afford, and in another instance be repurposed as a doorstop. In this way, “affordances and constraints are constructed in the space between social agencies and material agencies,” as materials’ transformative capacities are influential in the formulation of human goals, but also change according to human goals (Leonardi, 2012). Nevertheless, though a chair may be repurposed as a doorstop, it is unlikely to be repurposed as a blanket. As such, an object may have both intended and unintended affordances for human action, but the number of affordances it offers will inevitably be finite in accordance with its particular material qualities (Faraj & Azad, 2012).

Those using an imbrication approach thus recognize the set, or intrinsic qualities of, material elements while also paying attention to the socio-political development, interpretation of, and interaction with material qualities. Though distinct from one another, the social and material both have agency in shaping organizational practices. Humans may design or incorporate material elements to facilitate certain social processes. Material elements may in turn prompt, constrain, or enable social processes (i.e. communication patterns) in unforeseen ways. In this way, social and material agencies will grow increasingly interconnected in shaping the sociomaterial infrastructure of the organization (Leonardi, 2013). Figure 1 shows a representation of how social and material agencies are activated in response to one another through continued imbrications.
It is here that the imbrication perspective becomes particularly useful for understanding organizational practices. An imbrication perspective not only allows scholars to talk about social and material elements separately while maintaining their synergistic interaction, but also “sensitizes [scholars] to the production of durable patterns, [and] it reminds [scholars] that all interactions between social and material agencies produce organizational residue” (Leonardi, 2012, p. 46). Time, therefore, is an important factor for researchers to consider, as previous imbrications shape, and are shaped by, continuing imbrications. Moreover, a new agency is not simply interwoven with existing agencies, but rather becomes part of and reconfigures the course of imbrications, and this accumulation of imbrications has very real consequences for organizing (Leonardi, 2012). Leonardi (2012) explains that imbrications of social and material elements,

provide the context and the means for organizing to happen, but they are taken for granted as natural relations…That is, the capabilities that social and material agencies create as they interweave with one another become proceduralized and are eventually forgotten. (p. 46)

Imbrication thus functions to open up the ‘black box’ of organizational dynamics: as opposed to simply listing the inputs and outputs of organizational processes, an imbrication approach
investigates how social and material agencies accumulate to shape and sustain organizational practices without being consciously recognized as doing so on a day-to-day basis. Leonardi captures these ideas rather succinctly in his book, *Car Crashes Without Cars* (2012):

The preceding discussion used the metaphor of imbrication as a way of recognizing that social and material agencies are distinct phenomena but that they are fundamentally interdependent, that past imbrications accumulate to explain (though certainly not predict) how social and material agencies will become conjoined in the future, and that members of the organization actively work together, within the framework established by previous imbrications, to reconcile their goals (social agency) with the things that [a material artifact] can or can’t do (material agency). (pg. 47)

In short, researchers using the imbrication approach neither deny the distinct existence of social or material elements nor claim to provide clear cause-and-effect relationships between organizational elements. Moreover, theorists using an imbrication approach emphasize how difficult, and ultimately pointless, it is for humans to try and pin down the starting and stopping point(s) of social and material entanglements. Rather, the goal of using an imbrication framework is to investigate interdependence between and co-constitutive relationships of social and material agencies over time. Imbrication thus allows researchers to gain insight into how material and social agencies come together to form the infrastructure for practice, without falling into the abstract complexities of agential realism.

*Research Questions*

The literature discussed above demonstrates that significant work has been done regarding what collaboration is, how it develops, and, finally, how material factors can influence these developments. Still, one can discern at least two gaps in current research. First, most of the research reviewed above, whether examining intra- or interorganizational collaboration, or multi-sector collaboration, is based on studies of traditional organizations. The growth of globalism and evolution of social structures have been accompanied by new forms of work. In the New Economy, work-life equilibriums have shifted (Wieland, 2010; Gregg, 2013),
new forms of labor have emerged (Terranova, 2000; Witz et al., 2003; Neff, 2012), and employment has become increasingly contingent (Gill & Pratt, 2008). Neff (2012) explained how, in making sense of economic instability, workers across a great majority of industries and professional levels have been encouraged to take on an entrepreneurial mindset to life. Following the blundering attempts by socio-political entities to respond to economic fluctuations, the identification and management of risk—once a responsibility of the collective—became a responsibility each individual had to navigate alone. This shift in responsibility is often re-cast as a positive development, as it gives the appearance of choice, power, and individual agency in determining one’s work practices. Consequently, the nature of work has changed in (at least) two fundamental ways. On the one hand, work has become exceptionally precarious, as laborers must constantly evolve and improve their ‘employability’ through flexible and contingent work practices in order to manage the unstable and insecure nature of work (Gill & Pratt, 2008). On the other hand, distinctions between one’s personal and work lives are becoming more and more blurred, as contemporary workers increasingly associate their work with personal fulfillment. The overlap between workers’ professional and personal spheres is further intensified by the fact that workers increasingly turn workplace relationships into recreational or personal relationships as well (Greg, 2013). With these substantial changes in the nature and demands of work, it is reasonable to expect corresponding changes in organizational processes and routines. My first research goal then, is to reconsider what activities might be understood as “collaborative” in the New Economy:

*RQ 1: What practices are considered by workers to be “collaboration” or “collaborative” in new forms of work?*

Though existing research has explored the processes through which collaboration
develops, as well as how social and material factors are salient in these developments, a second gap remains in terms of the fact that research rarely looks at these practices holistically. That is, researchers tend to examine either the communicative processes required for embarking on and completing collaborative interactions (establishment of linked interests, identification, and shared meaning) or the significance of material factors (headcount density, workstation visibility, technology, etc.,) in prompting and enabling collaborative interactions. As discussed above, an imbrication approach offers a unique framework for investigating how social and material elements come together to influence the development of collaborative processes. Although existing studies have generally applied an imbrication perspective to studies of organizational technology and change (Leonardi, 2013; Leonardi, 2012, Taylor et al., 2001), its theoretical tenets are well suited for investigations into how social and material elements intersect to promote, constrain, enable, or discourage collaborative practices. Just as technologies are designed to transform organization practices, spatial design is centered on the desire to prompt or enable particular types of action and organizing. A researcher interested in understanding the imbrication of material and social agencies in collaborative organizing would thus be prompted to investigate a second research question:

*RQ 2: What social and material factors are salient in prompting and enabling collaboration in new forms of work? Are these factors imbricated with one another? If so, how are they imbricated?*

Together, these research questions prompt an investigation that would 1) challenge or extend existing conceptualizations of collaboration, 2) provide a more holistic picture of how social and material factors come together to influence collaborative practices, and 3) expand scholarly understandings of imbrication’s potential as a framework for organizational studies.
Chapter 3-Methodology

Research Site

In order to investigate the research questions outlined above, I completed a case study of Activate Colorado (pseudonym)—an incubator organization. Deemed the “Hothouses of the New Economy” (Hansen et al., 2000), incubators offer a prime example of how organization models are evolving in response to new forms of work and labor. Though they may differ in size and scope, incubators are generally understood to operate as hub organizations that provide office space and other resources to help new ventures accelerate their businesses and projects (Hansen et al., 2000; Gassmann & Becker, 2005; Cooper & Park, 2008). While many incubators are formed to support high-growth, high-technology ventures (Gassmann & Becker, 2005; Cooper & Park, 2008), Activate Colorado was founded to promote and accelerate ventures aimed at creating a positive impact in the world. The organization defines positive impact fairly loosely, seeking to support anyone working to help people or the planet.

Activate’s membership includes a pool of roughly 400 individuals who pay a monthly membership fee. Whether they own and operate an established consulting business, or work as freelance software developers, most members consider themselves to be socially-minded and entrepreneurial individuals. Many members have limited resources (money, workspace, and supplies, expertise, etc.,) to support their ventures or businesses, and are thus attracted to such a co-working space that offers pooled office resources and a professional network of potential advisors, partners, and clients.

I was originally drawn to the organization in the late fall of 2013 out of personal interest in its underlying values and mission: the organization’s founders believed that collaboration was the key to addressing the issues of society, and set out to create a work environment that would
induce and enable individuals to collaboratively develop ideas and enact plans for helping the community. Collaboration was foregrounded not only as a method for achieving organizational ends, but also an organizational end in and of itself.

From Activate Colorado’s inception, then, organizational leaders have placed great emphasis on the spatial and material design of the organization’s physical site as they have sought to create “a place for connectivity, catalyzation and inspiration” (Organization Practice Guide). Activate Colorado resides on the garden level of a street-facing office building located in the heart of the city’s downtown. There are two main sides of the space: the west ‘collaborative’ side and the east ‘quiet’ side. Though it is the west end of the building that is formally deemed the ‘collaborative side’, both the east and west end display design aspects aimed at enabling collaborative interactions; each follows an open floor plan furnished with ergonomic chairs, high and low circular tables that seat one to five individuals, and large hanging electronic plugs so members can easily sit down and ‘plug in’ to work together. Nearly all of Activate’s furniture is mounted on wheels – tables, chairs, two whiteboards, and four 10 by 10 foot walls can all be moved throughout the space. Private offices that line most of the space’s perimeter are the exception to this rule, as office holders are not required to include particular types of furniture. Office walls facing the co-worker space are made of glass such visibility is maintained between members working in offices and members working in the common space. Portions of the perimeter not lined with offices are instead lined with glass-walled conference rooms and phone booths provided for member use, or window walls that look out onto the streets of the city’s downtown area. The west side in particular boasts approximately 53 feet of 10 ft. glass walls. A private patio lies between these walls and the public sidewalk, which can still be seen by members working in the west side. The west side
also includes a large sectional couch, two large rectangular high tables (that seat roughly eight), a small enclave with a commercial printer, office supplies and lockers, and a small kitchen equipped with a shared refrigerator, espresso machine, coffee machine, sink, and two dishwashers. Kitchen cabinets hold bowls, plates, glasses, mugs, and cutlery for members to use on a day-to-day basis. Figure 2 shows the floor plan of the west ‘collaborative’ side of the space. As the west side is the designated ‘collaborative’ area of the space, it has been foregrounded as the specific site for observation and analysis in this study.

Figure 2: Floor Plan of West ‘Collaborative’ Side
Data Collection

Previous Data – 2014 Study

Given the great emphasis organizational leaders have placed on collaborative space design, I recognized Activate Colorado as a prime organizational candidate for a study of how material and social agencies imbricate to influence or shape organizing practices. I arranged to become an intern at Activate Colorado starting in January of 2014 and gained approval from organizational leadership to begin doing research that would be used for a graduate course I was taking in collaboration and decision-making. While I served as an intern at Activate Colorado, a fellow classmate formally joined the organization as a member, and together we completed a small, IRB approved case study on organizational practices at Activate Colorado. Data collected for that study included approximately 22 single-spaced pages of ethnographic field notes, key organizational documents, and 89 pages of transcribed interviews with 11 members (interview prompts are shown in Appendix A). Though the data collected for that study will be utilized for this thesis, it was not collected in a manner that foregrounded the sociomateriality of the organization’s practices. As such, this thesis was designed to supplement previously collected data with additional ethnographic field notes, as well as member and employee interviews that were based on interview prompts that would more directly highlight members’ conceptions of the organization’s materiality.

Participant Observation

Data collection for this study followed the example of Leonardi’s study of Autoworks’ CrashLab technology (2012, 2011). In this study, Leonardi (2012, 2011) used an ethnographic approach to capture how material artifacts were entangled in systems of meaning and practice in
the automotive organization. According to Lindlof and Taylor’s *Qualitative Communication Research Methods* (2011), researchers taking an ethnographic approach aim to “[describe] and [interpret] the observable relationships between social practices and systems of meaning” (p. 134) based on their personal and first-hand experience within an organization. In this way, “ethnography provides a holistic description of [an organization’s] material existence and meaning systems and depict how its members achieve, maintain, and change their status” and describes “the contextual significance of social practices for their performers” (Lindlof and Taylor, 2011, p. 134 – 135). An ethnographic approach is thus well suited for an analysis of organizational imbrications, as it highlights the significance of materiality and social meaning systems in organizing. Based on this compatibility, I conducted my thesis study ethnographically, while also incorporating findings from the previous study done at Activate Colorado.

The collection of additional data began in February of 2015, after I gained consent from organizational leaders to conduct additional research for my thesis. Though many of the members were aware of my position as a researcher, I notified the remaining membership of my plans through a blog post to the general membership describing my intentions and procedures for research at the organization. I continued to serve as a ‘host’ intern at the organization for three hours per week, a position I had been in since January of 2014. From the start of my internship at Activate Colorado (1/10/14) to the completion of this study (4/16/15), I spent a total of roughly 175 hours serving as a host in the space. As a host intern, I primarily acted as a receptionist for the organization, answering members’ questions about the organizational spaces, resources, and membership benefits. I also provided tours to prospective members, explaining the intentions behind the organization and the design of the space. My role as a host gave me
insight into how organization personnel conceived of collaboration, as well as how personnel sought to leverage collaborative design elements to direct and promote particular organizing practices. Though my work as a host did provide some understanding of the needs and intentions of members as well, it would not, in and of itself, allow for sufficient observe member practices in situ, as I was positioned in the entrance lobby and thus unable to see the bulk of member interactions.

In order to properly observe the day-to-day practices of general members, I became a member of the organization for two months. Based on my previous service as a host, organizational personnel were kind enough to voluntarily waive my monthly dues. I notified organizational leaders and staff of my intention to use my membership for research purposes, acknowledging that I would passively observe member practices in the west side and entrance lobby for up to 30 hours each month whilst taking field notes on how member practices shaped and were shaped by the social and material qualities of the work space. To protect human subjects, I collected field notes through silent observation of the daily routines and activities of members and did not record any personally identifying information. Approximately 50 hours of field note data (54 pages single-spaced) were collected in 14 days over the course of one and a half months. Field note data also included 33 diagram recordings of furniture and member seating configurations on the west side.

Interviews

Before collecting any data or field notes that required me to personally interact with, or obtain personal information from existing members, written consent was obtained from the individual in question. To supplement the 11 interviews completed in the previous (and related) study at Activate Colorado, I conducted 11 interviews with general members (three of which
had previously worked for the organization), as well as interviews with one founder and two permanent staff members. Having been an intern for the organization for over a year when beginning this study, I entered my thesis was a reasonable amount of knowledge of the organization. This familiarity with organizational values and practices was instrumental in constructing questions to use a guide for participant interviews. Appendix B and Appendix C show the Member Interview Guide (used for general members who had not previously worked at the organization) and the Staff Interview Guide (used for the founder, permanent staff, and members who had previously worked for the organization).

Individuals interviewed in the 2014 study were given pseudonyms of Participant A, B, C (see appendix D for 2014 Participant Profiles) and so forth, while individuals interviewed for the current (2015) study were given pseudonyms of Participant 1, 2, 3, etcetera (see appendix E for 2015 Participant Profiles). Other individuals mentioned in interviews were pseudonyms as well. Interviews with general members provided insight into members’ perceptions and use of collaborative design element, while interviews with organizational personnel provided additional insight into the development and day-to-day implementation of collaborative design and practice. Written consent was obtained from each interviewee prior to the interview. All interviews were recorded between March and April of 2015, and were transcribed for this study. A summary of data used for this thesis is shown in Table 1.
Table 1. Summary of Data Collection

<table>
<thead>
<tr>
<th>Organizational Artifacts</th>
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<tr>
<td>Development Guide</td>
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<tr>
<td>Web Content</td>
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<tr>
<td>Bathroom sign</td>
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<th>Field Data</th>
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<td>Field Notes – 2014 Observations</td>
<td>22 single-spaced pages</td>
</tr>
<tr>
<td>Field Notes – 2015 Observations</td>
<td>54 single-spaced pages</td>
</tr>
<tr>
<td>33 Configuration Diagrams</td>
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</tbody>
</table>

<table>
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<tr>
<th>Interview Data</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2014 Interviews: General Members</td>
<td>11 Interviews, 89 pgs. of Interview Transcripts</td>
</tr>
<tr>
<td>2015 Interviews: General Members</td>
<td>14 Interviews, 102 pgs. of Interview Transcripts</td>
</tr>
</tbody>
</table>

Data Analysis

Data analysis was carried out in four phases. First, founding documents were reviewed to understand underlying conceptions of collaboration, collaborative design, and organizational goals. Second, interview data was thematically coded to become aware of key organizational concepts and phenomena as they relate to collaboration and collaborative design. All coding was carried out after data collection had been completed. I first coded all interview data using *in vivo coding*; rather than classifying data according to predetermined conceptions of what constitutes or collaborative practices, I used participants’ own language and terminology to identify themes that would help me understand collaboration in the context of this organization (Lindlof & Taylor, 2011). I then proceeded to apply axial and selective coding to further refine and consolidate analytic themes. During the third phase, I reviewed organizational documents all field note data, exploring the degree to which field note data might reflect, challenge, or extend themes identified in the interview data. This review allowed for triangulation, as I was able to compare multiple forms of evidence in relation to my research questions (Lindlof &
Taylor, 2011). Finally, for both interview and field note data, I carried out negative case analysis “to understand why [negative cases] occurred and what circumstances produced them” (Gibson, 2007, pg. 96). Together, these methods allowed for a grounded understanding of organizational practice as it relates to questions of collaboration.
Chapter 4-Analysis

RQ 1: What practices are considered by workers to be “collaboration” or “collaborative” in new forms of work?

As indicated earlier, I intentionally did not delineate a formal definition of collaboration for this study. This was done in an effort to explore the organizational conceptions of collaboration that have emerged over time, and how these understandings have become imbricated with other social and material elements to shape practice. When asked what activities or interactions they would consider to be “collaboration” in the context of Activate Colorado, organizational members were often hesitant to give an explicit or bounded answer. Nevertheless, after coding participants’ descriptions of the organization, its members, and practices, one can see that organizational members perceive three tiers of collaboration to exist within the space: mutual inspiration and ideation (idea sharing, feedback, and advice); network building and referrals; and interorganizational contracting or partnerships.

Inspiration and Ideation

Founding documents of Activate Colorado indicated that the space should be “a place for connection, catalyzation, and inspiration” (Organizational Space Guide). Interview data indicates that Activate has done relatively well in accomplishing this goal, as several participants indicated that they come to Activate to be inspired and catalyzed by the activities going on in the space as they work. When asked to describe Activate Colorado, interviewees often used words like ‘momentum’, ‘nurturing’, ‘energizing’, and ‘inspiring’. In other words, organization members consider Activate Colorado to be more than a co-working space; it is
“purposeful community […] of likeminded souls getting together face to face” (Participant C),
“a place to get caught up in” (Participant A). Several members spoke directly to this idea,
explaining that Activate offered a unique working environment because it was filled with
individuals actively striving to make a positive impact in the world. When working within this
community of action, members reported a heightened sense of motivation and a rejuvenation of
their foundational passions for impact (Participants 4 and 8). Participant J described this
phenomenon as “cross-pollination”, and cited it as the reason he came and stayed at Activate
Colorado;

I come here because there’s energy, and there’s a vibrancy to it…there are plenty of places where you can
get an office around here…But the idea for me is that I want to run into people a lot, I want to run into
people who do amazing things a lot, because that’s great energy, that’s great stimulation.

Though it is interesting, perhaps even inspiring, to hear about positive organizational culture, it
is more significant for this study that the Activate Colorado members and staff consider the
energizing atmosphere to be a collaborative achievement and ongoing responsibility of
organization members. Members have developed an understanding that the energy and
momentum emanating from the space will only maintain its potency if they continue to
contribute to it by infusing their own energy and inspiration into it. The excerpt below from
Participant 11’s interview demonstrates how members feel a responsibility towards the
community. Though not shown in detail here, Participant 11 had previously described how he
makes a cognizant effort to introduce himself to members he sees in the space that he has not
met yet, and also engages in follow-up conversations as he runs into members he has already
met to maintain and grow relationships. Still, Participant 11 felt he should be doing more to
contribute to a thriving community;
Participant 11: I mean I’m not someone that just comes in and doesn’t talk to anyone, um I try and meet people. But … [a]s far as um my role here, and um yeah…I should do more.

Interviewer: Why do you feel like you should do more? Why do you say that?

Participant 11: Uh, cuz it’s – it uh – to build a – to build a more vibrant community I think benefits – would benefit everyone, and you know it’s kind of – it’s only gonna happen through efforts from people like me.

Another member similarly expressed that Activate members should do more than simply use and share organizational resources. She described how members should engage the community with a positive attitude and active participation: “[Being a member] means you come here and you’re happy to see people…[You’re] engaging with people, going to some of the events. Being excited about what’s happening” (Participant 2). Organization staff members seek to promote these attitudes by stressing how the space and work atmosphere are meant to be co-created by members. In material terms, this can be achieved through the alteration of furniture configurations; tables, chairs, walls, and white boards are all put on wheels, and both observational and interview data indicate that members do in fact move and reconfigure these material elements to create their own working environments. Staff members also encourage members to share their ideas for workshops and community events, emphasizing that all aspects of the organization are co-created;

“[W]e can all create it together, it doesn’t have to come from the top down, we don’t have to design it for you and tell you this is how it works, uh and this is what it should be used for … you know there’s always the room for something new to happen, and someone else to make a suggestion that no one had thought of, or something that we hadn’t thought of as the staff, um and so we welcome that and encourage that” (Participant 6)

In this way, Activate Colorado is intended to be created for and by its members in both social and material terms.

When prompted to identify specific organizational activities or interactions they considered to be collaborative, nearly all organizational members interviewed spoke of the idea
and feedback sharing they had either observed or participated in themselves. Many participants referenced the organization’s ‘coffee colliders’; facilitated networking events designed to spark collaboration between members and the local community. During coffee collider events, west-side tables and chairs are rearranged in a large square on one half of the room, while the rest of the west side remains a co-working space. The event is held on a weekly basis and is free to the public. After a brief introduction by the coffee collider host regarding the mission and sequencing of the event, attendees go around and each discuss “who they are, what they’re working on, what their offering is to the group, and one need or ask that they have” (Staff A). After everyone has shared about their work and associated needs that they have, the host prompts collider participants to break out and talk to each other with the goal of helping fill the need of at least one other person in the room, whether it be by offering to help address that need directly or by connecting the individual to a contact who may be able to fill the designated need. One member who was attending coffee colliders regularly when interviewed described them as “the most collaborative thing” he had noticed in terms of regular collaboration in the space (Participant B). Several members similarly described the manner in which coffee colliders serve as sites for co-learning and mutual support.

Coffee colliders were cited as particularly useful for those starting new ventures. Individuals explained that when starting a new venture, there is a great deal of uncertainty and self-doubt. Coffee colliders allow entrepreneurs to talk to each other, ask questions and search for answers together. This is particularly helpful for those trying to navigate a new professional landscape (Participant D), as well as for those wishing to develop the knowledge and connections necessary to advance their venture (Participant K, Participant I). Participant 6 described how he regularly sees attendees take advantage of the opportunities to share and learn
from each other. He recounted several ‘collaborative’ interactions he had witnessed at coffee colliders: two website developers discussing how they used Wordpress and structured their client rates, professional coaches chatting about how they handle speaking engagements, and the owner of a new t-shirt company learning how to speak to and partner with manufacturers from an outdoor apparel professional. In addition to valuing the opportunity for the idea-sharing and idea-building, collider attendees indicated a deep appreciation for the inspiration and encouragement they glean from these interactions. Participant J explained how he had wanted to give up on his new venture several times, but the support and encouragement he received from collider attendees (and fellow members) “made all the difference” in inducing him to continue with his work. Participant B related a similar sentiment;

[At] coffee colliders when people come up to you, and…it’s great, it builds you up, because I mean it’s difficult starting stuff. And it can be a very emotional rollercoaster, and so hearing that validation from other people, saying that’s a great website, or I love what you’re doing […]has] been great.

In this way, coffee colliders offer provide regular opportunities for mutual ideation and inspiration – two phenomena integral for entrepreneurs’ success and, at Activate Colorado, reliant on a collaborative orientation among participants.

Unsurprisingly, organization members reported similar idea development and inspiration to occur outside of coffee colliders as well. As Participant 5 explained, “you put a lotta people with a lotta different ideas of how [to] improve the world [together at Activate Colorado], and they kinda can feed off that energy of one another by talking to each other”. Participant 8 pointed to the importance of working in a community where members supported and encouraged one another;

In a normal corporate, business situation you present an idea to people and they criticize it. You are dangled over a shark tank. They look for the problems, the flaws, and attack them, in attempts to make it better. There’s always the guy in the room that says ‘I’m going to play devil’s advocate’. Well, I tend to
think that that’s crap most of the time...Why not be the angel’s advocate? We have a group of people here that are more likely to notice the good things in an idea. To find that little ember and blow on it until it’s a flame. That’s important.

Activate members strongly value this type of knowledge sharing and “mutual musing of one another” (Participant A), and consider these activities to be collaborative whether or not they occur at coffee colliders;

[Collaboration is] taking something and building [it]. And you know for me, the reason to have a team is to have more power than you would have as individuals. So what I think of as collaboration is taking an idea, bouncing it around, looking at it, seeing where it might work, where it needs to be strengthened, and making a plan and beginning to execute said plan...when I think about what collaboration looks like here… it feels expansive, like anything’s possible” (Participant J)

Interactions of this nature were said to occur when members ran into co-workers they had become friends with or been referred to by a friend while working in the space. Conversations generally began with informal greetings and casual dialogue but soon turned to questions about how each other’s work was going. Members were then able use each other as soundboards for new ideas or challenges they were grappling with.

For example, one member described how she could casually ask other members to look at a logo she was developing, and really valued the advice they gave her (Participant G). While observing in the space, I myself was asked by a participant to offer my feedback regarding a few T-shirt designs he was contemplating. After I had given my feedback and advice, this member reworked his design to incorporate the elements we had discussed as working best for his marketing goals. Interview data indicates that this type of sound boarding is and has been fairly common at Activate Colorado. In fact, several members had formed a brainstorming group at Activate Colorado in 2013, with the sole purpose of getting together to ‘have brainstorms” about ideas for each other’s ventures as well as help one another develop professionally (Interview with Participant G). Participant G explained that the group had ongoing plans to work with one another and perhaps expand into a formal contracting service
wherein group members could leverage their individual networks to provide each other with opportunities for professional work or development.

Networking and Referring

Participant G’s intentions for a collective contracting service prompts consideration of another commonly cited method of collaboration offered by participants; the development of member networks and the accompanying practice of referring fellow members to clients, opportunities, or resources one is aware of within one’s personal networks. As alluded to earlier, coffee colliders are designed to prompt this type of interaction as attendees are specifically instructed to help at least one person by filling their need personally or connecting them with someone else who can help address that need. Participant J explained, “you see a lot of people…meet each other through that, and then…get leads from one another to get the things done they wanna do”. When asked how they have personally collaborated within the organization, several members described how they have found ways to connect members of Activate Colorado to others in the organization or in their professional network outside of the organization.

Though hosts are formally tasked with the responsibility of connecting members with relevant parties, three of the interviewed members explicitly described themselves as being responsible for helping other members make connections. Participant D explained “I’m a networker, I’m a catalyst, I’m a node”, and explained that he aimed to be “aware of what everybody does [so he could then…] link [members] up with the most appropriate person based on [his] knowledge of who’s inclined”. Participant 10 similarly described how he tried to be a ‘catalyst’ for connections between individuals who would otherwise be unlikely to meet one
another. Participant H described his role slightly differently, describing himself as an ‘active listener’ who could use his knowledge of members’ work to facilitate connections;

[It’s] my job to play cupid between people who need to know each other... it’s a neat thing to try to pay attention and recognize who needs to know who for their own purposes, not really because it benefits me at all...everyone here is working on something in whatever way, and I think...my role is to be paying attention to what’s going on around me so that I can offer in a good faith way to some people suggestions on you should know these people, you should know this person.

Even those who did not identify a feeling of responsibility to connect other members did describe the act of connecting and referring their fellow members to others in their network as a collaborative activity they commonly engaged in and benefitted from at Activate Colorado (Participants F, J, 1, 2, and 12).

Participant 2 captured the informal and organic nature of such networking rather succinctly explaining how “[A] lot of times you just hear people being like, you should talk to blank. Then they work together...you're collaborating to network people together”. As both a member and intern, I was a participant in these types of activities as well. Nearly every time I told someone that I was studying organizational communication or that I was looking for a job in Human Resources, the member would ask if I had met a) a particular member who works as communication consultant or b) a member from a start-up working in the space who business was all about helping value-driven organizations ‘recruit for impact’. This question was almost always accompanied by an offer to introduce me to the member or group. Conversely, I developed a similar habit of trying to connect members I meet with other members, organizations, or even fellow graduate students I knew who might be a good resource for work, advice, insight, etc. Data thus suggests that though no one in the organization explicitly instructs members connect others, organizational practice encourages members to learn and replicate these behaviors.
Interorganizational Contracting or Partnerships

By and large, both members and staff considered interorganizational contracting or partnering to be the pinnacle of collaboration at Activate Colorado. I assigned the term *interorganizational contracting* to those interactions members described as involving one member using the expertise or service of another member or organization in advancing his or her own venture. *Interorganizational partnering* refers to those instances in which members came together to either create a new organization or jointly pursue a new project. I use the word ‘interorganizational’ because, in the examples described, each member represented their own organization in the interaction. Though data indicates that interorganizational partnering does occur in the space, interorganizational contracting appears to happen much more frequently.

At Activate Colorado, interorganizational contracting can consist of informal exchanges or more formal business hiring. Participant 10, for example, described how he and another member provided professional services for each other’s businesses without any formal agreement; “[Jeff] helped me with my marketing SEO stuff, just because… he knows I’m gonna help. I helped him with some Java scripting the other day…no big deal, just like fun”. Ten other interviewees talked of how they had done contract work for another member, or had themselves been asked to provide or exchange some type of service with another member. An executive coach had featured two other members on his professional blog and, in return, these members had referred him to other “extraordinary” individuals he could feature on his blog (Participant J). Another member had consulted with a videographer in the space, who helped him put together some marketing materials for his business (Participant I). Yet another member explained that she had found her current internship through connections she made as an intern at Activate Colorado, and hoped “that [her] job search in a few months [would] be fueled
by connections made at [Activate Colorado] as well (Participant 2). Two different members, a software developer and web developer, had independently joined the team of a digital mapping company working out of the space, and reported that this work had come around informally; they had met the owner of the digital mapping company and through casual conversation came to understand that he could use and wanted to use their services (Participants 10 and 11).

Participant 8 similarly reported how he had used two Activate members who were not part of his organization to help with various projects he had done over the years. He also reported that his company had done video and website work for organization members, including Activate Colorado itself. Finally, Participant 12 half complained that there was almost too much collaboration going on; that she was constantly being approached with opportunities to work with other members on their business on projects and had no way of being able to engage with all the offered opportunities.

Interorganizational partnerships, though less frequent, were still reported by several members. Two interviewees had co-founded new companies with fellow Activate Colorado members (Participant I and Participant 1). Participant 4 described how he and another member had put business proposals together for new ideas, though these had not yet come to fruition. A staff member also related how two members had chosen to form a new partnership rather than compete when trying to secure a new business opportunity;

“They both were competing for the same contract with Jay’s Running Company and they found out that the other person was applying…[I]nstead of competing with each other, they came up with a joint proposal for them to work together. And they both got the contract” (Participant 13)

Others members partnered with other Activate members or personnel to pursue new projects while remaining independent organizations. Participant 6’s account of a personal collaboration demonstrates how members can engage in multiple levels of collaboration, as they may both refer each other to new contacts and also partner together in new projects;
“[M]usically, I met someone here that eventually suggested a place that I you know should play at, and I ended up you know getting a gig out of it and playing a concert... and we actually played a show together as well... I think we met because I was playing music at one of [Activate Colorado’s] events...he maybe approached me after seeing me play music, and you know mentioned that he also played music, and then made a few suggestions about things I should do around town, and then it eventually led to him inviting me to you know kinda share a show with him” (Participant 6).

The examples above demonstrate how fluid and ongoing collaboration is at Activate Colorado. Collaborative practices tend to develop rather organically and can proceed in an concurrent fashion amidst the chaos of entrepreneurial life. Participant 4 echoed this sentiment;

“[A] good portion of [my collaboration] has been just leveraging different people's strengths to cover my weaknesses ... delegating work that I know that I'm not great at to people that I know who are going to do it well and represent the total package really well...I think it gets back to being able to complement each other's strengths and weaknesses, filling gaps so that - to be cliché you're greater than the sum of your parts. Finding that group of people and working together to function as a whole” (Participant 4)

In this way, members discuss a wide range of activities as embodying ‘collaboration’ because all of the activities discussed above occur within and because of a larger orientation towards work in which individuals actively seek to promote, support and work with one another. As such, collaboration has become more than an activity; at Activate Colorado, collaboration describes a way of organizing.

RQ 2: What social and material factors are salient in prompting and enabling collaboration in new forms of work? Are these factors imbricated with one another? If so, how are they imbricated?

Through coding data from both the previous study and my most recent investigations into Activate Colorado, three themes have emerged as being significant in the promotion or enablement of the aforementioned collaborative practices; shared values and community orientation; organizational space, materials, and bodies; and network knowledge. It is important to note that though this analysis is based on Leonardi’s underlying conceptions of imbrication,
my application of imbrication differs starkly from how Leonardi has applied an imbrication approach in his work. While Leonardi tends to construct the imbrication of material and social agencies as relatively linear, cause and effect relationships, my analysis presents a view of imbrication that is more fluid and interconnected in its discussion of how material and social agencies are become imbricated with one another.

Shared Values and Community Orientation

Interview data indicates that shared values and orientations toward work are perhaps the most foundational factor influencing members’ willingness to seek out and participate in collaborative activities. When asked why they decided to join the organization, several participants described their attraction to being part of a community that was committed to making a positive impact in the world. Participant 3 explained that he was “impressed by how the people that were there were interacting and representing the values that I wanted to be around, in terms of making an impact, not just profit in terms of supporting the community things of that nature”. Many participants reiterated the appeal of working around and with other individuals seeking to make positive contributions to the world, with several members specifically citing collaboration as a significant value they were drawn to in the organization. Participant 5, for example, related,

What really drew me to it was really their value on collaboration, which I thought was really uncommon…just being able to kinda be around people that really wanna make a difference in the world was a lot different than a lotta the co-working spaces, I’m quickly finding out now, it’s not just a place to come to work, but it’s rather…you interact with people in different areas through that.

These common values appear to have established a level of trust and familiarity between members, which ultimately made them more comfortable with and excited about collaborating with others in the space. In other words, because participants knew the values of the organization, and knew that those values drew members with similar values and missions, they
already felt a significant level of identification with others. This identification encouraged participants’ appreciation for the community, making them want to ‘feed into’ the collaborative energy by interacting with and supporting other members on a regular basis. Participant J described how “It’s kind of expected that, you know, people will talk to each other, and that people will offer to help each other, things like that. I think the values are where this place gets really interesting”. Participant D similarly explained that the community’s shared values motivated him to be more open and interactive with those around him:

[Y]ou open yourself up and you’re kind of transparent, then that’s inviting, that allows other people in, and so more exchange happens, and it’s also the basis of social capital trusts, that’s what starts to facilitate the interaction where it’s like oh, this person doesn’t feel like they’re protecting something or hiding something, trying to conceal something, but feels open, feels safe, and feels okay.

In this way, the shared values and community orientation of the organization facilitated a sense of security and identification among organization members.

Many participants emphasized that the Activate Colorado community was important not only in terms of the values and goals members shared, but in terms of the close friendships they had developed with other. All but one of the participants interviewed spoke of the relationships they had built with other members, and many emphasized how meaningful it was, at a personal level, to have these relationships. Participant 2 expressed his surprise at how many close relationships he had formed with other organization members; “I'm really grateful for [my experience here]…Just the relationships that I've formed. I didn't come into this expecting that I'd have so many close friends. People that are really in my life, which is really cool.” Participant 12 additionally explained, “[T]o have so many connections not only is important for my professional career, but personally I am fueled by connection and community, and so for that it – it really hits on both a personal and a professional level”. Members reported that this sense of community made them more inclined to interact with fellow members both at Activate
Colorado and outside of the organization for personal gratification. My observations in the space, as well as my personal experiences interacting with members outside of the space, support participants’ accounts. When working in the space, one often sees and overhears members greeting one another casually and ‘catching up’ about what they did over the weekend, how their family is doing, etc. Outside of the space, members engage with one another at parties, a local bar (own by an Activate Colorado member), a member kickball team, karaoke and so forth. Together, the communal ties established through shared values and personal relationships make members more comfortable with one another, while also promoting their interest in collaborating with others.

Organizational Space, Materials, and Bodies

Though I have devoted the previous section to a discussion of shared values and community orientation, these social factors remain significant in considerations of other material and social elements of the organization and vice versa. As I will demonstrate below, community values and collaborative practice are both the impetus for and reinforced by material characteristics of the space. Community values were foundational to founders’ design of the space and they have primed organization members’ understanding of how the space and associated resources should be used. Participant 3, a founder of Activate Colorado, explained how organizational values of community and collaboration drove the design of the space, as the “design is intentionally structured so that there is ample opportunity for collaboration and community building”. Founders chose oval-shaped tables for three to five people to encourage members to sit next to others. The tables’ rounded edges were meant to foster a sense of continuity between those sharing a table, as “having the kind of work table with such designs that are curved and encourage people to go to each other versus that spot around the corner”
(Participant 3) was more likely to encourage interaction between members. Unlike some other co-working spaces in the area, Activate Colorado did not have assigned seating or private cubicles. These physical elements of the space were meant to condition members to sit and talk to other members whether or not they were part of the same project or company, phenomena founders believed to be antecedents for “spontaneous collaboration, spontaneous interaction, or intentional interaction”. As Participant 5, a previous staff member explained,

[Staff and founders] just want people to be able to sit by different people each time. [They] don’t want people assigned to sit somewhere at a permanent desk, because people get used to that routine and they don’t interact… they just kind of b-line and head straight for where they’re supposed to be working. But if you have to come in each day, kind of orient yourself to your surroundings, and then sit down somewhere where there is a space, I think that lends itself to… conversations that just happen naturally.

If they could get members talking, the founders believed, collaborative opportunities would organically reveal themselves.

Participant 3 went on to describe other material features incorporated to further encourage interaction between members. Echoing design tenets discussed in the previous literature review, Activate founders stressed the importance of a comfortable, flexible, and well-lit working environment, as these factors were significant in promoting members regular use of and interaction within the space. Private offices were lined with glass walls such that office users could see and be seen by other members, while also being able to utilize the natural light that streams in through the window-walls that line large sections of the building’s perimeter. A kitchen was intentionally put on the west side to promote social interaction; “most people have to flow through the kitchen at some point in time, a lot of people tend to flow through…when they're waiting for a meeting or they're trying to meet somebody, they are actually drawn to that site”. Furthermore, the kitchen’s material features were designed to maximize the potential for social interaction by members using the space. First, the kitchen is “right out in the middle of the open” west side and includes two large community tables designed to accommodate
standing interactions, similar to those when members are chatting as they get a quick drink. Moreover, the kitchen is home to several shared resources; an espresso machine, coffee maker, coffee beans, tea leaves, sugar, a microwave and toaster oven, sink, paper towels, and refrigerator that is shared by all members. Together, the open and shared nature of the kitchen’s location and resources render it the “epicenter” of formal and informal activity, providing opportunities for people to interact, introduce, and be introduced to new people.

Interview and observational data indicate that the material characteristics described above did in fact increase the likelihood of members’ face-to-face conversation, thus bolstering their knowledge of and identification with one another. When discussing their experience in the space, many participants described how sharing a common space often resulted in their “running into” other members. The kitchen in particular was highlighted as being a hotspot for conversation, as members often ran into each other while getting food or drink. As the following quotes from Participant B and Participant 4 show, informal conversations around the kitchen tended to promote collaborative interactions;

“"I think a lot of things happen in the kitchen area…[It’s] good running into people and knowing what they’re working on and checking in to say ‘Oh hey, I’m working on this thing, you could really help me out with this’, or ‘This could be a good opportunity for you’, something like that” (Participant B)

“Certainly on the [west] side….it being the kind of place where food and coffee and all the other goodies live, there are a lot of opportunities to bump into someone, even if you’ve never met…You start chatting next to the coffee maker and the next thing you know, you are getting together to work on a project” (Participant 4)

Members also saw the open nature of the space as being influential in members bumping into one another and thus providing opportunities for connection and collaboration. Participant 9 explained, “[The space] enables fluid conversation…You end up sharing tables and having conversations with people who you might not ordinarily meet just by the fact that you’re sitting next to them”. Participant J stressed the importance of proximity and openness in promoting
members’ ability to and likelihood of making connections;

[There’s] really cool stuff happening in [the space], but unless you go in and talk to someone, you’re not going to know what it is… To make connections, you’ve got to have things kind of next to each other… I think it’s really important to have opportunities for people to bump into each other.

Note how Participant J highlights the link between social dynamics (conversation and the development of shared knowledge) and material characteristics (proximity and ‘bumping into each other’); he suggests that members will only be aware of collaborative opportunities if they converse with one another regularly, and these initial conversation are much easier and more likely when there are high levels of proximity and visibility between members. Participant 10’s story of a spontaneous and informal collaboration provides an excellent example of this dynamic actually occurring in practice;

I was really just sitting there…[and another member] overheard me say that I was a developer… he had a fire where his server was – uh some setting on it was screwed up… so I helped him with that, and just said don’t worry, not a big deal. I didn’t think it would turn into anything and it ended up being like – we had a contract… [He’s] been my main client for the last five or six months… [He] really came over and just like pulled me into it, which is interesting right… that’s not how it normally works.

In this example, close proximity made it possible for one member to audibly overhear another as he worked, which consequently allowed the first member to unintentionally learn what the second specialized in for his work. The former then realized the synergistic potential of the two working together, and initiated a very informal interaction. Based on Participant 10’s account then, it was a combination of proximity and collaborative values that catalyzed these members’ coworking practices into collaborative engagement.

In addition to encouraging opportunities for serendipitous connections, the space and its material qualities have contributed to the collaborative atmosphere of the organization. Several members indicated that the space’s configuration and materials promoted interaction and community. For example, Participant 10 expressed, “[I]t’s just inherently kind of a collaborative feel when you sit on a couch with someone you don’t know… it’s very casual and
open”. She went on to discuss how polaroid’s of Activate members on the walls made her feel an implicit connection with others in the space. Her feeling of connection was further augmented by sharing food and cooking spaces with other members. Though subtle details, Participant 10 insisted that these material features enhanced collaborative values, culture, and practice. Her testimony reflects how material conditions can both be infused with collaborative interpretations and also have a material influence in promoting collaborative values and meaning systems.

Members also noted the significance of working around others. Participant H described how collecting people and organizations working for impact in one space contributed to the first tier of collaboration at Activate Colorado; communal energy and inspiration;

[T]here were 30 people over there hearing someone describe the launch of a new very philanthropically oriented non-profit, but it didn’t close down the room and it wasn’t exclusive. So the other part of the room was those of us still on our computers, and the whole time I’m doing work, I can’t help but overhear this launch of this fantastic organization, and it just feels awesome, it feels creative and powerful, and I feel good for them, and curious, and in the back of my mind I’m thinking of a couple people who need to know about this. And so there’s a ripple effect that we all benefit from I think by being vocal, by really using the space as it was intended.

Participant 4 similarly explained how the physical presence of working bodies infused him with energy to continue making an impact in the world around him; “When I’m around other people, I see other people really going for it. It really motivates me… something of the vibe on [the west] side and overhearing what people are working on…To me that is very impactful”. For those like Participant 4 then, the motivating energy that comes from physically being around and seeing other people work simply encourages one to keep coming back to the space to do their own work, which ultimately increases the opportunity for members to make new connections for collaboration within the space. For others like Participant H, the proximity and visibility of other members makes it easy to overhear and see other members’ work. This dynamic not only fuels individual motivation but creates an awareness of other members’ goals
and expertise. Through mutual awareness and consistent opportunities for comfortable interaction, it becomes easy for members to engage with one another and thereby recognize potential prospects for collaboration.

Network Knowledge

The above discussion demonstrates how spatial and material qualities increased members’ opportunities for informal interactions, which could then (and often did) lead to informal or formal collaborations. It also points to the manner in which material characteristics can promote network knowledge, a social condition that members often cited as being necessary for, or a precursor to, collaboration. Network knowledge refers to members’ awareness of who else is in the space, what their areas of expertise are, and the projects these members are working on currently. Several participants noted how important network knowledge was in enabling them to recognize and pursue opportunities for collaboration. Participant F, for example, confidently asserted, “If I know what someone does or is capable of, I will eventually collaborate”. In other words, because most members share collaborative values, and stand to gain professionally from collaborating with others in the space, network knowledge often becomes a key entry point for actual collaboration. Network knowledge is essential for the many members who are otherwise ready and eager to collaborate, as it allows them to identify opportunities for collaboration.

Participant interviews indicate that network knowledge can develop informally or formally. Participant 3, an Activate founder, explained how he saw informal interactions, network knowledge, and collaboration to be interconnected in very important ways;

The basis of [collaboration] requires that people have already been introduced…just by virtue of meeting someone new, you’re having a discussion…they’re learning a little bit more about what you’re working on and what you need and then possibly introducing you to someone that could be a resource or a partner. That to me is the Tier 1 stuff that happens all the time that we really encourage [as the] base level of collaboration.
In this way, those casual conversations that result from members bumping into one another and making introductions create network knowledge amongst interactants. This inadvertent build up of network knowledge can then be amplified as members introduce one another to third party contacts they may be able to collaborate with in some way. Participant 10 emphasized how the informal quality of Activate’s environment allows members to develop network knowledge in an organic and comfortable manner; “The space is perfect...Because it’s a casual environment, there’s an opportunity to engage with people, learn what people are doing, learn how you might be able to partner with them down the road, without any sorta formal contractual expectations”. Participant 10’s statement demonstrates how an absence of structured network building can, in some cases, make it more comfortable for members to engage with one another.

Though members appreciated informal routes for learning about others and their work, several participants wished that Activate Colorado would do more to facilitate the development of members’ network knowledge. Participant B acknowledged that he was happy to support anyone in the space, but did not have very much knowledge of what others were working on, nor how they might contribute to his work. Participant C expressed his desire for Activate Colorado to make things ‘messier’, as this would create an environment wherein people could not help but get to know one another better, whether through informal or formal collisions. Participant D asserted that Activate personnel should make it their priority to be aware of what everyone was doing, so they could intentionally facilitate members learning about and meeting one another. Note that this is in fact a formal task for Activate hosts – Participant D was calling for it to become a top priority for all Activate personnel. Participants 1, 4, and 10 called for a formalized list or database members could use to find potential co-collaborators in the space; again echoing the idea that if they only knew what other members were working on, they would
seek out more opportunities to collaborate. Finally, Participant 2 suggested that Activate Colorado should develop a greater awareness of other sectors and organizations in the local community, while also promoting others’ awareness of Activate Colorado’s mission and members. This would give both Activate Colorado and its members more opportunities to collaborate in making the world a better place.
Chapter 5-Discussion

Implications for Research

Each of the research questions discussed above prompts a consideration of how scholars might rethink established theories. For my first research question (*RQ 1: What practices may be considered as “collaboration” or “collaborative” in new forms of work?*), I sought to investigate how conceptualizations of collaboration might be extended or challenged in accounting for the unique nature of work and labor in the New Economy. The analysis above demonstrates that the members of Activate Colorado, an incubator for socially-minded ventures, perceived three tiers of collaboration practice to exist within the organization; mutual inspiration, energy, and ideation; network building and referrals; and interorganizational contracting or partnerships. Revisiting existing scholarship on collaboration, one can see that these activities satisfy certain scholarly conditions for collaboration, while failing to fulfill other conditions (Lewis, 2006):

<table>
<thead>
<tr>
<th>Collaboration Conditions Met:</th>
<th>Collaboration Conditions Failed:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tier 1: Mutual Inspiration, Energy, and Ideation</strong></td>
<td>Collaboration as</td>
</tr>
<tr>
<td>Collaboration as</td>
<td>A process with a beginning, middle and end components; requiring different behaviors and roles as they evolve over time</td>
</tr>
<tr>
<td>• An activity or way of doing</td>
<td>• A temporary system of activity (Stohl &amp; Walker, 2002; Gould et al., 2002; Wilczenski et al., 2001)</td>
</tr>
<tr>
<td>• Occurring among participants whose collaborative relationship is marked by egalitarianism</td>
<td>• A means for jointly achieving shared goals (i.e. without consideration of individual goals)</td>
</tr>
<tr>
<td>• Emergent, self-organizing and volitional</td>
<td></td>
</tr>
<tr>
<td>• A regular and ongoing activity within communities of practice (Breu &amp; Hemingway, 2002; Lesser &amp; Storck, 2001; Wenger &amp; Snyder, 2000).</td>
<td></td>
</tr>
<tr>
<td>• A joint process that satisfies individual and shared goals concurrently</td>
<td></td>
</tr>
</tbody>
</table>
| Tier 2: Network Building and Referrals | Collaboration as  
- An activity or way of doing  
- Occurring among participants whose collaborative relationship is marked by egalitarianism  
- Emergent, self-organizing and volitional  
- A regular and ongoing activity within communities of practice (Breu & Hemingway, 2002; Lesser & Storck, 2001; Wenger & Snyder, 2000).  
- A joint process that satisfies individual and shared goals concurrently  
Scholarly definitions imply an original separation of collaborators’ interests, goals, and processes, while also integrating assumptions of shared characteristics. |
| Tier 3: Interorganizational Contracting or Partnerships | Collaboration as  
- A process with a beginning, middle and end components; requiring different behaviors and roles as they evolve over time.  
- A temporary system of activity (Stohl & Walker, 2002; Gould et al., 2002; Wilczenski et al., 2001)  
- A means for jointly achieving shared goals (i.e. without consideration of individual goals)  

For Interorganizational Contracting or Partnerships  
Collaboration as  
- An activity or way of doing  
- Occurring among participants whose collaborative relationship is marked by egalitarianism  
- Emergent, self-organizing and volitional  
- A regular and ongoing activity within communities of practice (Breu & Hemingway, 2002; Lesser & Storck, 2001; Wenger & Snyder, 2000).  
- A joint process that satisfies individual and shared goals concurrently  
- A temporary system of activity (Stohl & Walker, 2002; Gould et al., 2002; Wilczenski et al., 2001)
Scholarly definitions imply an original separation of collaborators’ interests, goals, and processes, while also integrating assumptions of shared characteristics.

**For Interorganizational Partnerships**

- A process with a beginning, middle and end components; requiring different behaviors and roles as they evolve over time.

- A temporary system of activity (Stohl & Walker, 2002; Gould et al., 2002; Wilczenski et al., 2001)

- A means for jointly achieving shared goals (i.e. without consideration of individual goals)

In this way, all of the practices described by members seem to fit most of basic expectations for collaboration as established by the scholarly community. Even for the lowest tier of collaboration, *Mutual Inspiration, Energy, and Ideation*, only one of the standard requirements for collaboration (*collaboration as a process with a beginning, middle and end components; requiring different behaviors and roles as they evolve over time*) is not met. Still, many collaboration scholars would likely reject many of the practices described, viewing them to be glorified versions of networking and employment through personal contacts.

In light of the changing nature of work, however, scholars should consider how existing conceptions of collaboration might be challenged or extended. As discussed previously, employment has become particularly unstable and insecure and, as a result, work practices have become increasingly contingent (Gill & Pratt, 2008). At the same time, work has become deeply personal for many individuals, as it is a key source of friendship and inner fulfillment.
(Gregg, 2013). The data presented above confirms that these trends are particularly salient for Activate Colorado members. On the whole, members base their lives on values of social impact, and most consider their work to be the practical and meaningful extension of those values. It is unsurprising then, that members are attracted to the Activate Colorado community, which explicitly promotes and supports these values. Moreover, the community provides members with opportunities to develop relationships they can draw on for support, fun, and relational fulfillment. Simultaneously, as entrepreneurs and small business owners, Activate members are constantly under pressure to expand their network, and secure clients so they can stay afloat and gain resources to grow their ventures.

Based on the nature of Activate members’ work (and personal) lives, as well as the trends characterizing labor in the New Economy, I propose an extension of what scholars traditionally conceptualize as constituting collaboration. As discussed above, most collaboration scholars assume four basic features as characterizing collaboration:

- A focus on action and doing; collaboration is cast as an activity or way of doing
- A notation of the relation between self and other(s); collaboration occurs among participants whose collaborative relationship is marked by egalitarianism.
- An emphasis on process; collaborative processes have beginning, middle and end components, and require different behaviors and roles as they evolve over time.
- A presentation of collaboration as emergent, self-organizing and volitional; collaborative processes are “to be conceived as owned and constructed by the actions of the participants” (Lewis, 2006, p. 220).

In many cases, members’ conceptions of collaboration did not fit the second criterion, as the
activities they discussed did not have clear processual boundaries. Mutual inspiration, for example, was described as an ongoing achievement of the Activate community. Likewise, brainstorming and networking processes were generally described as being informal and organic, as members would switch relatively seamlessly between individual work, socializing, and ‘collaborating’.

I would challenge, however, scholars’ attachment to the idea that collaboration is a bounded process with relatively clear beginning, middle, and end components. Bearing in mind the increasingly contingent and flexible nature of work in the New Economy, it is not surprising that work processes have become fragmented, especially for entrepreneurs and small business owners. Activate members’ average work day, for example, tends to consist of a rather fluid mix of individual work, network building, brainstorming, and participating in community. It seems reasonable to expect, then, that collaboration may also be a somewhat fragmented process of support and mutual benefit at Activate Colorado. While those working in more traditional settings may enjoy a supportive work culture, Activate members count on the inspiration, motivation, and ideation that result from their relationships and work with other members. Likewise, networking is not simply an activity members have to engage in every now and then to secure a partnership or find a job — it is the lifeblood upon which they rely to keep their business afloat. Similarly, interorganizational contracting or partnering (whether formally or informally executed) are often essential to members' success. In other words, mutual support, development, and employment allow for the existence of a professional community that feeds and is fed by its members; they are the fruits of a community of members who practice collaboration as a way of being.

Collaboration then, can be understood not only as a bounded process, but also as a fluid
and ongoing practice – a specific orientation towards organizing. Put differently, collaboration can be the overarching frame for interacting with and relating among members. Under this conceptualization one may be able to identify elements or traces of collaborative organizing (referring a fellow member to a potential client, bouncing ideas back and forth with those you run into in the space, etc.) without being able to easily demarcate where collaboration ‘starts’ and ‘ends’. Such a conceptualization seems sensible when one appreciates the demands placed on individuals in new forms of work. New Economy workers are pressured to constantly evolve, juggling a variety of roles and responsibilities to maintain their employability (Gill & Pratt, 2008). Collaboration may thus progress in a conventional manner, but can also mirror the undefined and messy nature of entrepreneurial work as members collaborate within, in-between, and around the multitude of tasks required to support their ventures. In this way, extending conceptualizations of collaboration can help scholars to better understand the changing nature of work and related evolution of collaborative practice.

The analysis presented above also indicates a need to reconsider how an imbrication approach might be applied in organizational studies. When responding to my second research question, (RQ 2: What social and material factors are salient in prompting and enabling collaboration in new forms of work? How are these social and material agencies imbricated with one another?) I warned the reader that I would not be applying the imbrication approach as Leonardi has in his work. For example, Leonardi would likely have tried to break down material and social relationships as Material Condition A [results in] Social Condition X [which results in] Material Condition B phenomena. Had I followed a Leonardi-like application of imbrication theory, my analysis would have looked something like the following;

*Imbrication 1 (Human → Material):* Activate Colorado founders designed the site space to enable
flexible work and promote informal interactions between members.

**Imbrication 1 (Material → Human):** Activate furniture consists almost exclusively of open tables (as opposed to private workspaces). Members have consequently developed the habit of sharing these tables with other members as they work.

Admittedly, the above example is an abbreviated and perhaps more simplistic version of Leonardi’s style of applying the imbrication perspective. Still, this example does relate a basic understanding of how Leonardi tends to present imbrication as a set of relatively linear and ordered relationships between social and material elements.

At first look, such an approach may not seem problematic. Indeed, Leonardi would argue that pointed deconstructions of imbrication relationships are most useful in demonstrating how material and social agencies act upon one another. I would contend, however, that while ordered representations do allow for a certain level of clarity in considering the relationships between social and material agencies, they have a propensity to misrepresent the richness and complexity of organizational life. For example, though organizational values provided the impetus for spatial design at Activate Colorado, one quickly loses any clear path of cause and effect; do community values prompt members to use the space in a collaborative way or does the open and shared material qualities of the space remind members to enact communal values by collaborating? I would argue both. Furthermore, while material qualities increase members’ opportunities for face-to-face communication (formal and informal), which often evolves into brainstorming conversations or network referrals, Activate Colorado’s community orientation is simultaneously influential in prompting members to take advantage of those opportunities so they can make connections with other members. As indicated above, the connections members do make end up attracting members back to the space, as they are energized by friendships and support they enjoy as part of the community. It would not take much effort to identify
additional social and material elements one could trace into this discussion, highlighting how interconnected social and material agencies are in shaping organizational practice. Thus while Leonardi presents a view of imbrication as being sequential and linear, a more mindful and honest reflection prompts one to see how social and material conditions act concurrently, while also acting back upon one another.

At this juncture, several scholars would no doubt respond to the above discussion by reaffirming agential realism as a superior theoretical approach for understand agential interactions in organizing practices. However, I assert that the theoretical foundations of imbrication still provide a valuable alternative for understanding the role of social and material elements in organizational life. As I discussed in Chapter 2, an imbrication perspective allows researchers to operationalize social and material elements because, unlike agential realism, it does not deny the ontological independence of these elements. An imbrication perspective does, however, provide an understanding of how social and material agencies are interdependent in influencing organizational practice. Consequently, I am not calling for the renunciation of imbrication as a theoretical approach but rather arguing that Leonardi’s application of imbrication theory does not accurately portray the interdependence of social and material agencies.

Social and material agencies act concurrently and are in many ways co-constituted. In this way one can identify causal relationships (i.e. that organizational values provide a frame for using materials, and materials support and promote the enactment of those values), while acknowledging that social and material agencies can act together on other agencies and/or back upon each other. What results is a more three-dimensional conception of imbrication; wherein social and material agencies not only overlap and interconnect, but support and exert pressure
on one another in a more knotted and often unpreserved manner. Borrowing from models one will often find when studying chemistry, I offer an alternate conceptualization of how scholars might understand social and material agencies to be imbricated with one another. Below are representations of demeton (Amir.ahrls, 2011), creatine (Mills, M & Jynto, 2010), and echeothipate (Amir.ahrls, 2011) molecules respectively. For the current discussion, the names and properties of these molecules are irrelevant, but their visual representations are useful in demonstrating how the imbrication of social and material agencies might be understood differently.

As one can see, each molecule has a different shape. If these shapes were to become imbricated (overlaid on top of and with one another), with additional molecules becoming imbricated with these imbrications, they would form a larger structure characterized by complex, interlocking relationships (Panels A and B depict this process). Depending on the unique properties of each molecule, one could observe different chemical reactions between the molecules, which might then cause them to change their configurations and connections with other molecules.
In the same way, scholars might understand social and material agencies as originating from distinct elements, but coming together in such a way that they co-configure and activate one another as they imbricate to form organizational infrastructures. Such a conceptualization better accounts for the manner in which social and material agencies intersect in a distinctly non-linear fashion. Leonardi’s presentation of imbrication suggests that material and social agencies interconnect in a relatively clean and sequential manner, an understanding that is easily prompted by the classic tile metaphor of imbrication. Although a
tile metaphor is useful in aiding a basic understanding of imbrication, it implies a linear accumulation of social and material agencies; previous imbrications create the infrastructure for continued imbrications and appear to be unaffected by successive imbrications. A molecular model of imbrication, on the other hand, calls attention to the manner in which social and material agencies act upon one another. When conceiving of social and material agencies as molecular in nature, one can better understand how they can activate previously ‘dormant’ agencies or together become reconfigured to shape organizational life in unique ways. In this way, previous molecular bonds (imbrications) are significant in how they contribute to current bonds (imbrications). That is, previous imbrications are of import as their presence and bonding patterns affect how current imbrications will proceed; how new bonds (imbrications) will form, how newly introduced agencies will become activated or remain dormant, how existing agencies will be activated, intensified, or reduced in significance, as well as which molecules will be likely or unlikely to be able to become imbricated in the future. As molecular bonds (imbrications) build up, the resulting ‘compound’ can be understood as the infrastructure for organizational practices. This compound (organizational infrastructure) has distinct, though not set, properties; it continues to build as new molecular bonds (imbrications) are introduced and influence the course of organizational practice.

In sum, analysis of data from this case study suggests that Leonardi’s presentation of imbrication, and the tile metaphor more generally, leads scholars to a simplistic and shortsighted understanding of material and social agencies. As such, I propose the molecular metaphor as an alternate and more accurate representation of social and material agencies in organizing. The molecular metaphor allows researchers to maintain the benefits of using an imbrication approach; namely, researchers are able to theoretically and methodologically
distinguish between social and material agencies while also recognizing their interdependence in forming organizational infrastructure. However, it allows scholars to do so with a greater level of precision and insight than Leonardi’s application of the tile metaphor. The molecular metaphor provides theoretically tools for practical research into the manner in which social and material agencies not only interlock and build upon one another, but also act back upon existing agencies to redirect or bolster the course of organizing. Such a metaphor thus enables scholars to carry out rich analysis of organizational practice while also maintaining theoretical clarity and methodological precision.

Implications for Practice

Findings from this study also have practical implications for those seeking to promote and enable collaboration within an organization. As discussed previously, most work on collaboration tends to focus on the social or material elements that set the foundations for collaborative practices. Consequently, this study was pursued with the intention of investigating how social and material factors might influence collaborative organizing. The above analysis of interview and observational data demonstrates how social and material elements co-influence organizational practice; social factors frame individuals’ understanding of how they should use and interpret materials, but material features also encourage and constrain practice in ways that can reify or challenge particular social frames and behavioral patterns. As such, this study challenges previous work suggesting that material elements can be arranged such that collaboration spontaneously manifests. Such work overlooks how social factors influence the agential potential of material characteristics and configurations. An imbrication perspective draws our attention to this dynamic. As participants themselves pointed out, many of the material features at Activate Colorado are similar to those one would find at coffee shops
and libraries, yet the social features of organizing at Activate are different and thus intersect with material features in unique ways. For example, individuals at a coffee shop would be relatively unlikely to introduce themselves and begin a discussion about their work, but the community values at Activate prompt members to make these types of introductions rather quickly. At the same time, the material features of the space, which bring members together in an open room, make it easier for members to run into other likeminded individuals.

If one recalls, some of literature on collaborative design did allude to the idea that effective material design requires designers to consider social factors of the organization (who is using the space, what are they using it for, etc.,). The findings of this study not only corroborate this tenet, but demonstrate its how vital such an awareness is for those interested in supporting and enabling collaborative interactions. Organization members trying to promote collaboration must thus be cognizant of how social and material elements are mutually influential in shaping organizational practice. As demonstrated by the interview data presented above, shared values, community orientation, organizational space, materials, bodies and network knowledge all contributed to collaborative practice at Activate Colorado, with several of these factors influencing one another. Shared values and a community orientation toward organizing appear to be the most important social characteristics for the initiation of and willingness for collaborative interaction, while network knowledge tends to be the most important social factor for enabling and sustaining collaborative practice. With these two social features, the material characteristics of visibility and proximity between members become particularly powerful in prompting interactions that can lead to collaboration. Finally, the material flexibility of work-spaces and availability of shared resources enables members to carry out collaborative practices. Based on these findings, individuals interested in promoting
collaborative work practices should endeavor to build the social and material features discussed here into their work practices and space. In this way, organization members can have a mental frame and awareness for how material (and social) elements should be used while also being able to benefit from and utilize the material (and social) features of a space to carry out collaboration.

**Limitations**

This study was limited in several ways. First, the empirical data used for analysis was collected from two separate studies. As discussed previously, the first study took place in 2014, a full year before new data was collected for this study. Though the 2014 study was conducted to explore dynamics of collaboration at Activate Colorado, it was not designed in a way that foregrounded characteristics of new forms of work or the sociomateriality of collaborative practice. Furthermore, interview participants for the 2014 study were all part of an ‘ambassador’ group for the organization. Ambassadors made up a group of members who met on a voluntary basis to think of ways they could help build community within the organization as well as promote Activate Colorado to the local community outside of the organization. These members received no compensation or benefit from the organization, but were still likely to have exhibited a relatively positive bias towards the organization in comparison to the average member. Another limitation of using data from the first study is the fact that I did not personally collect all the data reviewed for this study, and as such I do not have full familiarity with how data was collected. Moreover, I was influenced by discussions with my co-investigator as to how one might interpret and analyze the data from our 2014 study. These discussions also set a foundation for how I approached the design and implementation of the current study.
Though the current study was designed to investigate the sociomateriality of collaboration in entrepreneurial work practices, it was limited in terms of time and scope. Due to time constraints, the collection of observational field notes and interview data had to be completed within a two-month period. This two-month period followed the recent departure of two key staff members, a development which forced remaining personal to re-prioritize and modify organizational processes. The effects of these changes from the 2014 study to the current study are difficult to account for, and the relatively brevity of formal observation for this study makes the data collected more prone to be affected by the recent personnel changes. Finally, the majority of participants interviewed for this study were friends of mine at the organization. Based on my personal knowledge of the individuals, they were more likely to represent those parts of the Activate membership that value and seek out community in the organization. Our personal relationship may also have colored our conversations, causing me to be more informal in administering interview questions and/or causing participants to answer differently than they would have if questioned by an individual they did not have a personal connection with at the organization.

Areas for Future Research

In reviewing and analyzing data for this study, I have identified three key areas for future research. The first area for future research centers on questions of knowledge. When asked what Activate Colorado could do to improve in serving the community, members repeatedly indicated that they desired and would benefit from Activate doing more to help members become aware of what others were working on in the space. They emphasized that they would love to collaborate more but did not have the time to seek each member out individually to determine what opportunities for collaboration might exist between them. In
other words, members desired greater network knowledge so they could be aware of
collaborative potential between members. Collaboration scholarship has not done much
investigation into how this type of knowledge is developed. Accordingly, both practitioners and
scholars would benefit from empirical research on how collaboration partners become aware of
each other and their collaborative potential. Relatedly, study data indicated that members were
more comfortable initiating and agreeing to collaborative interactions because they knew other
members shared the similar overarching goals around social and environmental impact. These
findings suggest that network knowledge of organizational and individual values may be highly
connected to the trust and identification other scholars have shown to be important for
successful collaborations (Hardy, Lawrence, & Phillips, 2006; Maguire, Phillips, & Hardy,
2001; Zahng & Huxham, 2009). As such, additional research on the significance of common
values and/or community relationships may enhance scholarly understandings of how necessary
levels of trust and identification can develop among collaborative actors.

Secondly, practitioners would benefit greatly from scholarly work that could more
clearly delineate which social and material factors tend to work well together in promoting
collaboration for different types of organizations. This study gives one perspective into how
collaboration may be changing with new forms of work, but much there is still much research to
be done in this area. Finally, research into the relationship between workplace satisfaction and
the promotion of collaborative practice could provide insight into not only if and how
collaboration develops between organization members, but also into how collaborative practices
may affect other organizational dynamics. Hau et al. (2010) have begun this work by
investigating the relationship between collaborative design and individuals’ satisfaction with
work. Though scholars have often discussed the benefits of collaboration (Cuijpers, Guenter, &
Hussinger, 2011; Austin and Seitanidi, 2012b), less attention has been paid to the manner in which collaborative practice may negatively affect other facets of organizing. Such an investigation could offer valuable insight into how and when collaboration should be implemented to optimize organizational productivity and satisfaction.
Appendices

Appendix A: Interview Guide – 2014 Study

1. How long have you been a member at Activate Colorado?

2. How did you hear about Activate Colorado? What made you want to become a member?

3. If you were to describe Activate Colorado in 3 words, what would they be?

4. What are you working on right now? Are you working on it with other Activate Colorado members or by yourself?

5. Have you made any noteworthy connections at Activate Colorado? Please describe with specific examples?

6. What activities/interactions happening at Activate Colorado do you consider to be ‘collaborative’? How have you participated in these activities?

7. How would you describe your role at Activate Colorado?

8. How has Activate Colorado specifically contributed to your success? Please describe a unique or beneficial experience at Activate.

9. How do you think Activate Colorado can improve in serving your needs or the needs of the community?
Appendix B: Interview Guide for Members

1. How long have you been at Activate Colorado?

2. How did you hear about Activate Colorado? What made you want to become a member?

3. What are you working on right now? Are you working on it with other Activate Colorado members or by yourself?

4. Has Activate Colorado specifically contributed to your success? If so, how? If not, why do you think that is?

5. Please describe a unique or beneficial experience at Activate Colorado that you would be unlikely to have had if you weren’t a member.

6. How would you describe Activate Colorado’s (physical) space?

7. To what extend does the physical environment of Activate Colorado affect your experience in the organization?

8. Have you made any noteworthy connections and/or participated in collaborative projects at Activate Colorado? Please describe with specific examples. Would these interactions have been possible without the organization?

9. What are the constraints or drawbacks of working at Activate Colorado?

10. How would you describe your role at Activate Colorado?

11. How do you think Activate Colorado can improve in serving your needs or the needs of the community?
Appendix C: Interview Guide for Employees

1. How long have you been at Activate Colorado?

2. How did you hear about Activate Colorado? What made you want to work for the organization?

3. How would you describe your role at Activate Colorado?

4. Has Activate Colorado specifically contributed to your success? If so, how? If not, why do you think that is?

5. What are the constraints or drawbacks of working at Activate Colorado?

6. How would define ‘collaboration’ in the context of this organization?

7. How would you describe Activate Colorado’s (physical) space?

8. What is your understanding of the goals and development of Activate Colorado’s spatial design?

9. How and to what degree do you perceive the organization’s spatial design to be influential in prompting and enabling collaborative interaction? Please describe with as much specificity as possible.

10. Have you made any noteworthy connections and/or participated in collaborative projects at Activate Colorado? Please describe with specific examples. Would these interactions have been possible without the organization?

11. How do you think Activate Colorado can improve in serving the needs of its community?
### Appendix D: Participant Profiles – 2014 Study

<table>
<thead>
<tr>
<th>Participant</th>
<th>Length of Membership / Employment</th>
<th>Nature of Work</th>
<th>Motivation to Join the Organization</th>
<th>Organizational Roles (as described by participant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant A</td>
<td>8 Months</td>
<td>Political Blog, Outdoor Experience</td>
<td>Industrious &amp; Cheery Environment, Office Space</td>
<td>Promoter of Activate Colorado</td>
</tr>
<tr>
<td>Participant B</td>
<td>14 Months</td>
<td>Co-Founder of Talent Sourcing Company</td>
<td>Community Support, Professional Refresh</td>
<td>Regular Coffee Collider Attendee</td>
</tr>
<tr>
<td>Participant C</td>
<td>16 Months</td>
<td>Forensic Architect</td>
<td>Purposeful Community</td>
<td>Ambassador, Advisor, Co-worker, Older Leader-Type</td>
</tr>
<tr>
<td>Participant D</td>
<td>6 Months</td>
<td>President of Foundation for Social Impact</td>
<td>Positive Impact, Learning, Collaboration &amp; Connection</td>
<td>Networker, Catalyst, Node, Sponge/Learner</td>
</tr>
<tr>
<td>Participant E</td>
<td>7 Months</td>
<td>NGO Owner</td>
<td>Work Space, Promotion of NGO</td>
<td>Sharer of Knowledge &amp; Skills</td>
</tr>
<tr>
<td>Participant F</td>
<td>16 Months</td>
<td>Leader of Collaborative Incubator for Sustainable Ventures</td>
<td>Collaboration, Values of Sustainability</td>
<td>Supporter, Connector, Ambassador, Collaborator</td>
</tr>
<tr>
<td>Participant G</td>
<td>---</td>
<td>Contractor, Developer of E-Learning Games for Kids</td>
<td>Community, Work Space</td>
<td>Co-Worker, Community Member</td>
</tr>
<tr>
<td>Participant H</td>
<td>8 Months</td>
<td>Executive Director of Non-Profit Economic Development Organization</td>
<td>Organizational Mission &amp; Values, Social Community</td>
<td>Active Listener, Connector</td>
</tr>
<tr>
<td>Participant I</td>
<td>12 Months</td>
<td>Co-Founder of Social Media Platform for Social &amp; Environmental Issues, Strategic Consultant</td>
<td>Networking, Social Community Trying to do Good</td>
<td>Observer, Helper</td>
</tr>
<tr>
<td>Participant J</td>
<td>2 Months</td>
<td>Executive/Life Coach</td>
<td>Work Space, Extraordinary People, Social Entrepreneurship</td>
<td>Quiet Architect: Introvert Looking to Connect People &amp; Projects</td>
</tr>
<tr>
<td>Participant K</td>
<td>10 Months</td>
<td>Marketing Director for Book Series</td>
<td>Community, Work Space, Social Impact</td>
<td>Making People Smile</td>
</tr>
</tbody>
</table>
Appendix E: Participant Profiles

<table>
<thead>
<tr>
<th>Participant</th>
<th>Length of Membership / Employment</th>
<th>Nature of Work</th>
<th>Motivation to Join the Organization</th>
<th>Organizational Roles (as described by participant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1 General Member</td>
<td>24 Months</td>
<td>Coach/Consultant for Female Executives in High-Growth Ventures</td>
<td>Community Values &amp; Mission</td>
<td></td>
</tr>
<tr>
<td>Participant 2 General Member, Intern</td>
<td>8 Months</td>
<td>Intern for Change Leadership Fellowship Organization</td>
<td>Internship, Environmental Values</td>
<td>Events Intern, Member</td>
</tr>
<tr>
<td>Participant 3 Founder, CFO</td>
<td>26 Months</td>
<td>CFO, Strategic Management, Investor</td>
<td>Organizational Mission, Values, &amp; Model</td>
<td>CFO, Management</td>
</tr>
<tr>
<td>Participant 4 General Member, Office Holder</td>
<td>18 Months</td>
<td>Mobile and Web Application Developer</td>
<td>Being Around Like-Minded People</td>
<td>Co-Worker</td>
</tr>
<tr>
<td>Participant 5 General Member, Previous Intern</td>
<td>8 Months</td>
<td>Student, Entrepreneur</td>
<td>Collaborative Atmosphere</td>
<td>Co-Worker</td>
</tr>
<tr>
<td>Participant 6 Staff Member</td>
<td>12 Months</td>
<td>Strengthening Community &amp; Member Experience, Adding Cultural Value</td>
<td>Collaborative and Communal Atmosphere</td>
<td>Community Relations, Connector</td>
</tr>
<tr>
<td>Participant 7 General Member</td>
<td>24 Months</td>
<td>Application Developer</td>
<td>Work Space, Friend Member</td>
<td>Member, Steward of the Space</td>
</tr>
<tr>
<td>Participant 8 General Member, Office Holder</td>
<td>12 Months</td>
<td>Software Developer</td>
<td>Work Space, Social Impact Community</td>
<td>Catalyst, Connector</td>
</tr>
<tr>
<td>Participant 9 General Member</td>
<td>20 Months</td>
<td>CSR Program Developer</td>
<td>Work Space, Community, Values</td>
<td>---</td>
</tr>
<tr>
<td>Participant 10 General Member, Office Holder</td>
<td>26 Months</td>
<td>Communication &amp; Environmental Design Studio</td>
<td>Community, Passion, Creative Energy</td>
<td>Visible Member, Social Liaison, Member Resource</td>
</tr>
<tr>
<td>Participant 11 General Member</td>
<td>9 Months</td>
<td>Web Developer</td>
<td>Work Space, Sustainability Values</td>
<td>“Low-Key” Member</td>
</tr>
<tr>
<td>Participant 12 General Member</td>
<td></td>
<td></td>
<td>Communication Consultant</td>
<td></td>
</tr>
<tr>
<td>Participant 13 Staff Member</td>
<td>12 Months</td>
<td>Sales, Event Coordination, Facilitate Networking</td>
<td>Community, Organizational Values</td>
<td>Host, Events Coordinator</td>
</tr>
<tr>
<td>Participant 14 General Member, Previous Staff</td>
<td>26 Months</td>
<td>Program Director for Women’s Accelerator</td>
<td>Organizational Mission and Values</td>
<td>Volunteer, Connector, Events Coordinator,</td>
</tr>
</tbody>
</table>
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